

The Use of Department of Health Standards and Guidance: Effects on and Benefits to Healthcare Accommodation

. by.

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ABSTRACT

The Department of Health (DH) is responsible for one of the largest estates in Europe. In this capacity, the DH produce and disseminate estates-related Standards & Guidance (S&G) to provide support to the briefing and design processes for new, and refurbishment projects in old healthcare buildings. The estate is made up of a variety of buildings, many ageing and in need of extensive refurbishment or replacement. It is therefore important to the stakeholders in the procurement and provision of healthcare environments that the DH S&G provide them with the information and data they need at the relevant time in the process to enable them to design and construct healthcare facilities that are safe and fit-for-purpose.

Policy changes over the past 20 – 30 years have had a profound effect upon the estate. The estate was seen to be in need of modernisation, but Government lacked the extensive funding necessary to achieve anything like the extent of redevelopment required. The introduction of private sector funding to achieve this resulted in a major shift in the ownership of the estate, and latterly the regulation of the estate, both private sector and National Health Service (NHS). The NHS Constitution, introduced in 2009, was the first Government document explicitly to recognise the estate and the importance of it being fit-for-purpose.

This research seeks to establish the importance of the DH S&G, and their benefits and dis-benefits to stakeholders using them, including organisations and individuals from the private and public sectors. The groups have differing roles and priorities and the research seeks to establish how these affect their requirements for S&G, how effectively the S&G meet those requirements and how they contribute to the overall provision of healthcare environments. Moreover, hospital accommodation has been proven to have an effect on the patients and staff, therefore, the provision of useful and helpful S&G could be seen to have an indirect influence on patient outcomes, and also on providing a pleasant and efficient environment for staff.

The research has identified three major strands: Policy; the DH S&G themselves; and what is important to users about them and any benefits or dis-benefits incurred. Policy is viewed as the driver for the need for DH S&G. The changing political environment, amongst many other factors, affects how the S&G have been operationalized. This study of the application of DH S&G aims to establish how users view the benefits and dis-benefits and their effects on the healthcare environment.

Research in the construction industry sector spans the scientific and social worlds, and the methodology is deductive research orientated, exploiting a range of data. Qualitative and

quantitative data have been collected through open interviews with known experts and an on-line survey of the stakeholders using the S&G from private and public sector organisations involved with the provision of healthcare accommodation. Reference to the DH S&G and related unpublished DH documents traces their development and examines their content. The results have been mapped to the stakeholder categories (Designers, Service Users, Estates and Facilities Managers, Contractors and the DH/NHS), thus enabling comparisons to be made between each group, and between the public and private sectors.

Analysis of the data identified the characteristics users found to be of importance and of benefit or dis-benefit. On balance, it was clear that the DH S&G are beneficial, but not universally. Of prime importance to its users is the DH endorsement of the S&G and its independence from commercial influences. However, the classification of the DH S&G, defined as “best practice” is often regarded and applied as mandatory. The content of the S&G varies in its scope, content and characteristics, being perceived as incomplete, inconsistent and out-of-date. Taking all these factors, therefore there is a danger that the DH S&G may contribute to healthcare buildings being unfit-for-purpose or out-of-date.

Keywords:

Department of Health (DH),

Policy,

Standards,

Guidance

Process,

Benefit,

Healthcare,

Estate management,

Hospitals,

Health Building Notes (HBNs),

Health Technical Memoranda (HTMs),

Activity DataBase.

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CHAPTER 1: INTRODUCTION

1.1 Introduction to concepts

An initial review of Department of Health (DH) Standards and Guidance (S&G) revealed a focus principally on clinical patient-oriented care. This focus is entirely predictable and understandable as clinical care is of the highest priority relative to other requirements. However, studies of the impact of the physical environment on patients and staff have established clearly that there are inter-relationships and significant effects between clinical and non-clinical benefits and dis-benefits (Lawson and Phiri 2003; Assefa et al 2010).

Ever since Florence Nightingale's experiences and writings in the mid-19th century, certain standards have been accepted as essential, such as the importance of cleanliness, daylight, fresh air and impervious and washable surfaces (Nightingale 1859). These standards remain fundamental and much of Nightingale's Commission report is as pertinent today as it was 150 years ago. This research assesses the DH S&G for the healthcare infrastructure of England and attempts to establish the extent of their effects and benefits their and dis-benefits to the stakeholder categories. Most present-day S&G are contained in Health Building Notes (HBNs) and Health Technical Memoranda (HTMs), several data sets and checklists including Activity DataBase (ADB). These are comprised of two series of publications and a dataset derived from them: HBNs describe clinical topic-based accommodation (e.g. Emergency Medicine, Dialysis Unit) detailing general and specific design considerations; and HTMs describe the engineering services and building components required to provide an effective and efficient healthcare environment e.g. heating and ventilation, acoustic provisions). ADB data is developed to reflect the content of the HBNs and HTMs for use by briefing and design teams and includes exemplar room layouts. For the purpose of this research, the scope principally focuses on HBNs and HTMs and ADB data, but account will be taken of other the DH publications and associated checklists that could be regarded as guidance, but are not badged or branded as such.

When the National Health Service (NHS) was established in 1948, the Government's key premise was that provision of healthcare should be "free at the point of delivery". Where this "point" was actually located is rarely mentioned, let alone defined. Over the ensuing decades the public's perception of a good NHS seems in part to be linked to the physical environment where they receive their healthcare. These perceptions include elements such as clean, pleasant and comfortable accommodation with privacy, and locational factors such as ease of access. All these factors appear to directly affect the political profile of the health service. The Labour

Government 1997 – 2010 made great play of its investment programme, building on the previous Conservative party's establishment of the Private Finance Initiative (PFI) (Akintoye and Chinyio 2005) as a means of enabling a major rebuilding programme to take place. Although PFI has been the subject of criticism more recently, there has been extensive investment in new hospitals and primary care premises over the past 20 years.

Since the 1960s, the DH has introduced several initiatives aimed at standardisation of hospital design, e.g. Best Buy, Nucleus and Harness (Smith 1984; Francis 1999). These systems were used for relatively short periods of time and then discontinued rather than updated and developed. In support of the Best Buy initiative, a set of publications was produced called Hospital Building Notes that were subsequently re-issued and re-badged Health Building Notes, and Health Technical Memoranda. Their status is quoted in Hansard as that of "Best Practice" (European Health Property Network 2010) and the stated purpose of publications is given as "Best Practice Guidance" (NHS Estates 2004a). These publications have been reviewed and updated during the intervening years, and are widely used by all organisations and individuals engaged in the procurement and maintenance of the NHS healthcare estate. The assumption is that these documents should, by providing briefing and design information, assist construction teams and NHS Trust Estates and Facilities Management Departments with the eventual effect of improving staff and patient accommodation, thereby improving patient outcomes – an ultimate aim of the DH.

The healthcare environment in England has been the subject of varying degrees of political intervention, standards and standardisation. The concept of "command and control" typified the Labour Government, whereas a much more de-centralised model is typically advocated by the Conservatives (Klein and New 1998). By comparison, the notion of applying a degree of standardisation in accommodation for healthcare provision in some European countries (e.g. Scotland, France, and the Netherlands) is accepted and respected. This raises the question why, over time, the DH in England appears to have vacillated between centralisation and liberalization of the procurement processes used for healthcare infrastructure and its maintenance.

There are many reasons for the "stop-start" programme of hospital and healthcare infrastructure procurement and construction, some related to political and policy pressures, some to national economic cycles, others linked to the lifecycle of the United Kingdom (UK)

political process, and others to the processes for the procurement, construction and lifespan of buildings.

Each group of stakeholders will have differing perspectives on the benefits and dis-benefits of standards, and the importance of certain characteristics, and it is important within this research to identify the groups and understand their viewpoints. The benefits may be demonstrated to include improved safety, savings for the DH and healthcare providers in reduced construction costs, economies of scale in purchasing contracts, and reduced hidden costs such as staff training. Dis-benefits may include qualities or effects such as incompleteness or inconsistency leading to a need for costly research.

The May 2010 General Election resulted in a coalition Government that is radically changing the systems underpinning the provision of healthcare in England. The principle of central decision-making is being dismantled and devolved to the local level. The effects of this change have yet to be fully realised. In terms of the healthcare estate, an announcement was made by David Flory, the DH Deputy Chief Executive at the Institute of Healthcare Engineering and Estate Management (IHEEM) Conference in October 2010 (Department of Health 2010a) that there is to be a major review of the HBNs and HTMs. He went on to explain that the aim of this review was to cut bureaucracy, improve efficiency and

*“to reflect the new focus on the regulatory framework for quality assurance”
(Department of Health 2010a).*

This resulted in a long “pause” in the issue of updated publications and data, much to the consternation of users from all stakeholder categories. In its proposed regulatory and strategic policy role the DH continues to be responsible for regulation. In attempting to establish what process the regulation of the estate will follow and how standards have been assessed, it has become clear that there is a lack of clarity as yet. It is also unclear how the S&G will be developed and what format they are likely to take in the longer term following the review announced in 2010.

Healthcare provision has been subject to regulation by a succession of organisations and since 2010 all healthcare providers are required to register with the Care Quality Commission (CQC) (Care Quality Commission 2010e). The CQC has issued a “Judgement Framework” (Care Quality Commission 2010a), which principally concentrates on clinical services. Regulation relating to the healthcare infrastructure and environments is also carried out through a process of self-assessment.

1.2 Background and research motivation

The DH has produced S&G over many years, however, as the NHS has matured as a system of healthcare delivery, Government policy has been developed to separate the policy-making arm of the healthcare system from the day-to-day management of healthcare which has resulted in the DH becoming more and more distant in terms of management from the NHS organisations (Klein and New 1998; Klein 2006). The latest healthcare manifesto from the coalition Government has extended this detachment by devolving decision-making to the local level, further distancing the Secretary of State for Health from management of the NHS, although these proposals have yet to be realised.

Assuming the DH S&G are deemed to be of benefit to their stakeholder categories this raises the questions about who should produce them, who their audience is, how should they be disseminated and even more fundamentally, who will pay for them? There is a recent increase in emphasis on regulation of the delivery of healthcare, including the estate. If there were no S&G, it would be difficult to regulate the condition of the estate, as is published in the NHS Constitution issued in 2009 by the DH:

*“the NHS also commits: to ensure that services are provided in a clean and safe environment that is fit-for-purpose, based on national best practice (pledge)
(Department of Health 2008b).*

This research seeks to evaluate the existing S&G, the importance of some of their characteristics and their benefit to the stakeholder categories and identify how they might be maintained, monitored and applied in the future enabling the implementation of the pledge in the NHS Constitution. An assessment of the stakeholders’ perceptions of the benefits of the S&G has been undertaken, and an appraisal of whether mandatory standards and imposition of a degree of standardisation might benefit staff, patients and all those who are responsible for the provision and maintenance of healthcare environments.

The standards have different benefits and dis-benefits to the several groups of stakeholders in the healthcare estate, and it is anticipated that a ranking may be developed for the application of standards showing the needs and desires of the stakeholders. This could be translated into a framework for use by the DH and those engaged in procurement, planning, design, construction, refurbishment and maintenance of the healthcare estate.

The motivation for undertaking this research has been driven through working closely with people and organisations engaged in all the stages relating to the lifecycle of healthcare-related buildings.

The generation and application of the DH estates-related S&G raises very varied issues with regard to protocols and processes in the construction industry. Observations made during the research point to a clear need for centrally-provided standards that are complete and consistent and that they should be provided in a format that is accessible and easily used. How this could be achieved is included in this research to provide suggestions for the future.

1.3 Justification for research

Over the past two decades, there has been a massive investment in UK healthcare infrastructure. This has taken place against a background of very variable economic fortunes, and political and organisational changes. It is therefore important to ensure that, with such an extensive and expensive programme of construction, fit-for-purpose and safe healthcare environments are provided (Secretary of State for Health 2000), and that best value for money (VFM) is obtained for a service that is provided to deliver healthcare to the general public (Broadbent et al 2003). Although capital funding for the NHS is now effected largely through PFI rather than the Treasury, there remains a need for accountability for a public service whose revenue costs are funded by the tax-payer. Gorur (2013) asserted that

“By creating ideals and norms, standards also create the “less-than-ideal” and the “abnormal”. They encourage conformity to the ideal and dictate how things ought to be, restricting decision-making, setting parameters and narrowing choices.”

This view is at odds with the aim of the DH S&G, which is to provide a “baseline” from which the briefing and design teams should develop their projects, and to provide a basis from which to encourage innovation. This research aims to discover whether the DH S&G fulfil the aims of the DH or whether they are restrictive and discouraging, and result in “less-than-ideal” solutions.

The DH S&G have evolved over a period of approximately 50 years, and were originally developed to support the prescriptive building programmes instigated in the 1960s and 1970s in a set of standards and guidance administered by the Regional Health Authorities estates departments, and known as The Red Book. Since then, the development of the healthcare estate has undergone many underlying changes which have affected the procurement processes, clinical practice, and provision of healthcare environments. These changes include Government policy such as the introduction of PFI ((Pollock et al 2002a, 2002b; Beck 2010) the

move from prescriptive designs such as Best Buy, Harness and Nucleus, and the provision of services “closer to home” (Royal College of Physicians 2012). It has been questioned whether the procurement processes have provided best value and the following questions arise:

- have Government policy and the DH S&G contributed positively or negatively;
- do the S&G support the stakeholder categories through the Private Finance Initiative (PFI), Public Private Partnership (PPP) and other funding models, and provide value for money; and
- could the DH S&G and tools be improved to deliver not simply “fit-for-purpose” but “state-of-the-art” healthcare environments?

There have also been many developments in clinical practices, for example diagnostic imaging, keyhole and micro surgery, which require entirely new designs for patient flows and a diminishing need for overnight accommodation, and new equipment. These evolutions have been overseen by the DH, and over time their role in providing the Red Book has become one of providing S&G in the form of Health Building Notes and Health Technical Memoranda, as they are today.

The HBNs and HTMs together with the ADB data form the major part of the DH S&G. There are other sources of standards and guidance produced by the DH which may be regarded as of equal status but are not included in the HBNs, HTMs or ADB data. These include many important topics such as waste management, sustainability, and decontamination and often are referred to as guidance. Although these publications apply to the provision of healthcare services and affect the physical environment, in the main they describe policy and strategies related to accommodation rather than physical room dimensions, suggested layouts, equipment, and patient flows as included in the HBNs and HTMs. They can be seen to have an impact on the HBNs in particular, for example the provisions for decontamination impact upon the S&G for Sterile Services (HBN 13). These additional publications could be regarded as supplementary to the main body of DH S&G in the form of HBNs and HTMs. It is evident that the S&G are variously regarded, both positively and negatively, and this research aims to explore how stakeholders regard them, and therefore how any shortcoming in their development and maintenance might be improved.

Other sources of S&G are available from overseas: The European Union (EU), Australia and the United States of America (USA). The Australian S&G are based largely on those of the DH (Australasian Health Facility Guidelines 2014) but also include individual sets of guidance for

each of the states. The USA standards are concerned more with building components, requirements for energy, fire protection and suitable materials (Winkel et al 2006) than with exemplar layouts and equipping schedules. Standards and guidance in the EU are produced by the member nations, and their impact tends to reflect the centralised or decentralised nature of their Governments (EUHPN, 2010).

One of the roles that the DH fulfils is that of providing advice to the Government of the day and to parliament on healthcare issues, and to develop, generate and implement policy, part of which recently has included the means of achieving acceptable standards or targets. The targets relating to the healthcare buildings and environments include fitness-for-purpose, safety, capital and revenue costs, maintenance, cleanliness and many other elements. Although it has reduced significantly over the past few years, the amount and detail of data collected through self-regulation processes remains, such as the Estates Related Information Collection (ERIC) - the subject of debate (NHS Confederation 2009) - managed by the NHS Information Centre. The purpose to which the data is put is principally for comparative purposes (NHS Information Centre 2009) rather than informing future needs.

Over the past decade, private sector healthcare providers have been increasingly supplying services to NHS patients, making radical changes to the way patients can access treatment and care. The DH regulatory role has therefore been extended to include private sector premises, acknowledging that the standard of the environment in which patients are treated is of importance. It is becoming more common for NHS patients to be treated in private sector establishments, making the regulation of all healthcare-related premises a higher priority. Regulation is now performed by the CQC, an organisation that originally had responsibility for provision of mental health services. The CQC's role has been extended since 2009 to cover regulation of all healthcare services (Care Quality Commission 2010d).

The process of regulation implies a need for some form of standards against which to regulate. At present there does not seem to be any co-ordination between the various bodies working with the DH, principally the CQC and NICE that regulates clinical services. This is exemplified by a consultation process organised by NICE on a document entitled "Patient experience in adult NHS services" (National Clinical Guideline Centre 2012) which initially appeared to ignore issues related to patient accommodation and environmental factors.

In political terms, the economic downturn in 2007/8 and following recession resulted in the need for Government budget cuts has resulted in a dichotomy: Government's need to

demonstrate to the electorate support for welfare by investing in the NHS, whilst significantly cutting back capital investment. In the NHS, this is resulting in the exploration of many ways of saving capital and revenue, leading to reconfiguration of healthcare provision and services, and use of new technologies and clinical processes. In the DH, there has been a move to retrench its involvement in issues relating to many of its traditional responsibilities, including provision of estates-related S&G (Department of Health 2010a). The opportunity therefore exists to review the provision of the S&G, how they are used and how they provide benefit to the stakeholder categories, and to gather evidence with which to inform their future development. The research attempts to answer these questions to provide the DH with some evidence regarding the effects and benefits regarding the use of its data, and feedback from users on how this might be developed in the future.

1.4 Fast-changing research environment

The political and economic climate in which health services are provided and accommodated in 2014 differs very significantly from that of a relatively few years ago. Since the May 2010 election the resulting Coalition Government has attempted to introduce radical new policies that profoundly affect the provision of healthcare in England. There has been considerable opposition to some of these reforms that resulted in a “pause” whilst consultation and a “listening exercise” were embarked upon. Opinion varied from suggesting a complete re-writing of the new Health Bill to a less radical compromise. The fluid political environment and the volatile economic national and international circumstances all resulted in a vacillating backdrop to this research.

The economic crisis of 2007-8 led to a major re-evaluation of Treasury funded services across the board including the health service. The Labour Government at the time appeared to be at pains to ensure that the “front-line” services such as Health and Law and Order were not affected. Since the 2010 election, the Coalition Government has taken stringent actions to further cut services and have included major reforms of the provision of healthcare. There has been much opposition to some of the changes, and the final outcome has yet to emerge. This research has therefore taken place against an ever-shifting background.

The fast-changing political background pervades the health service and makes for a fairly unstable platform from which the service is delivered. Changes have been made even more necessary because of the economic position, and over the past 15 – 20 years the fluidity of the political and economic backdrop has changed ever faster. Starting with the introduction of

private finance and all that that entailed, up to the introduction of the “austerity” programme, Government priorities and policies have changed the face of the health service extensively.

IT development and change has also had a significant impact on the health service. This is set to continue. Not only are clinical practices changing radically, so are the support services, and the systems that provide the S&G, as well as the means of dissemination. The speed of change appears to be increasing, and allied with the political changes. The health service as a whole is set to look very different from the traditional provision of primary, secondary and tertiary services. The increase in community services is likely to diminish the requirement for secondary and tertiary accommodation to a point where services and their location require significant rationalisation.

The demography is also changing fast, and healthcare services are changing to meet the demand from a rapidly ageing population. This has manifest itself in “bed blocking” by elderly patients who are unable to be discharged home from expensive hospital accommodation, underwriting the need for more and better community services to be provided.

All these factors combine to impact heavily on the healthcare estate. The demand for more accommodation for community-based services demotes the need for acute, tertiary sector provision, resulting in a major change in the overall balance of the estate.

1.5 Research aim, objectives and scope

The aim of this research is to establish how the use of DH estates-related S&G affects healthcare accommodation, what is important about them, and how they benefit the stakeholder categories that use them. The S&G, their status, content, format and means of dissemination are currently the subject of a major review within the DH, which is itself undergoing a major re-organisation.

For the purposes of this research the term “standard” is defined as:

“A document defining best practice established by consensus and approved by a recognised body”. (BSI, Enabling lighter touch regulation: The role of standards)

The following definition of the term “guidance” has been used:

“advice or information aimed at resolving a problem or difficulty, especially as given by someone in authority” (The Free Dictionary 2011).

Benefits are defined as the advantages (or disadvantages) obtained by applying a standard to achieve a requirement. They are not confined to monetary cost or savings but include qualities,

characteristics, suitability for application, and downstream effects that are important to users which are often intangible or difficult to quantify.

The work has been organised into three principal strands, each related to the effects and benefits of the DH S&G:

- **Policy;**

Provision of healthcare accommodation was funded solely by central Government until the introduction of PFI. At the time of its introduction there were two key arguments in its favour according to the then Secretary of State as quoted in The Lancet:

“it allows us to test private sector solutions as well as public sector ones and to opt for the approach which offers the best value”;

and it offers

“direct access to capital without the familiar constraints of the public sector capital planning process” (Choo 1995).

Post-PFI, the Government retains an interest in the estate through the Office of Government Commerce (OGC) which is involved with ensuring value for money (VFM) and promotion of good practice in all public sector buildings (Office of Government Commerce 2010). The high profile of the NHS and provision of healthcare with the general public adds to the pressures on Government to ensure a safe and fit-for-purpose environment for healthcare services (Department of Health 2008a).

- **Current S&G;**

The DH S&G are made up of two series of documents (HBNs and HTMs) and a derived data set (ADB). This is generally what is meant when reference is made to the DH standards and guidance. However, their nature, scope, content and characteristics have been the subject of anecdotal criticism, and are regarded variously by the several stakeholder categories who use them (Hospital Design/MARU forum, 2005). Gesler et al (2004) highlighted the debate about what “good” design is, and when aligned with the DH’s aim for the HBNs as that of assisting with the briefing and design of healthcare accommodation, it is clear that scrutiny of the stakeholder categories’ views of DH S&G themselves may shed light on the downstream effects they have on the healthcare estate.

- **Effects and Benefits of S&G.**

In order to provide fit-for-purpose and safe healthcare accommodation and environments the DH have provided centrally generated S&G over several decades. It is

therefore important that their use and application are seen as beneficial, and what form the benefits take. Are those benefits positive or negative, and what effect do they have? It is also helpful to define which characteristics are important to users of the S&G.

The objectives of the research are to:

1. evaluate the **historical background** and how it may be seen to have affected the current political position relating to the DH (DH) S&G for infrastructure;
2. determine **political drivers** for past and present developments, and how these may have affected the healthcare infrastructure;
3. **assess the current DH S&G** used in the briefing, design and procurement of healthcare-related buildings;
4. identify what **characteristics and qualities are important** about the DH S&G to the **stakeholder categories**, and the **benefits and dis-benefits** they identify in relation to their **use and application** of the DH S&G;
5. review how the DH S&G **affect procurement and maintenance of the healthcare infrastructure**; and map the ways in which benefits for the stakeholder categories are inter-related and how the relationships may affect the healthcare environment.

1.6 Significance of this research and its potential impact

The DH S&G are used by a wide audience engaged in the provision of the majority of healthcare accommodation in England. Their impact is important to all who work in, are treated in or visit healthcare facilities. The research therefore involves identification of the stakeholder categories, the contents of the complete suite of information, what overall benefit they have for the stakeholder categories and their role, what they consider to be important about them, how they apply them and how they may therefore affect the healthcare estate. A study of the nature and characteristics of the S&G identified by the stakeholder categories enables analysis of the effect they have on processes relating to the provision of healthcare environments, and their resultant effect on the standard of healthcare accommodation. One knock-on effect of producing the DH estates-related S&G has been a move towards standardisation for certain aspects of their application. In setting out to achieve an acceptable standard of premises, this has also led to a criticism that they stifle innovation (Hignett et al 2008).

A further aspect of the research relates to the benefits and dis-benefits of providing S&G, and how their use can be linked to the end-product of a fit-for-purpose and safe healthcare environment. Each clinical topic requires input from a significant number of experts and

construction team professionals, making the development of S&G an expensive process. There is also a need for the DH to demonstrate that the S&G are based upon current evidence. There is a tension between evidence-based S&G and the DH's desire to be forward-looking and embracing new technologies which results in a requirement for constant review and update. It is anticipated that the output from this research will inform the DH on the importance stakeholders place on their standards and what the important characteristics, benefits and dis-benefits of standards are. Several additional outputs have been developed during the course of the research which includes possible ways of gathering evidence and developing methodology to encourage their being kept up-to-date.

1.7 Structure of thesis

This research has been worked on as a series of strands: Policy; S&G; and Effects of DH S&G. The structure of the thesis reflects this approach. The reason for this is that Government and supporting DH policy drive the need for S&G, which are then operationalized throughout the construction lifecycle. This "food-chain" should form a feedback loop back into Policy development. The thesis structure reflects the three strands described and the following Chapters are set out as below.

Chapter 2 forms the Literature Review and includes research methods, data collection and analysis methodologies, as well as the literature reviewed in three topic-based strands: Policy, S&G, and the Effects and benefits of S&G, all relating to the healthcare infrastructure. The chapter defines the scope of each section and how the review was conducted. Some comparisons are made with policies in other countries. The literature reviewed in this work includes published and unpublished material.

Chapter 3: Government and the DH Policy relating to healthcare infrastructure

Chapter 3 takes the form of a dedicated review of policy documents and allied secondary data and describes the policy relating to healthcare infrastructure, reviews and discusses the findings. The findings from the data analysis are assessed in relation to the effect policy has had on the S&G developed by the DH.

Chapter 4 details the Methodologies used in undertaking the research and how the results are aligned between the stakeholder categories, acknowledging any bias and how this is addressed between the qualitative and quantitative data sets, and with published and unpublished material.

This chapter also defines the scope of data collected and the forms they take, and explores the methodologies available for data collection and includes a review and a critical analysis of the methodologies used. An explanation is included regarding the differences between qualitative and quantitative data and the methodologies used for analysis of the various data sources are described and critiqued for suitability for this research. This enables an assessment of the barriers and facilitators represented by the S&G, and how these map to the stakeholders and are compared and assessed. A description of bias and any counteraction required is included. Chapters 5 and 6 align the literature with the data collected for this research for each strand identified in Section 1.5. Discussion of the results of the data analysis is provided in Chapter 7.

Chapter 5: DH S&G

The nature of the DH S&G is established and reviewed. The users' views of the scope/content, characteristics, the processes they are used for, and their application are identified from the data collected. A general overview of the status and effects of the DH S&G are explored. Benefits and dis-benefits are analysed, as is the importance of the nature of the DH S&G.

Chapter 6: Effects of DH S&G

The operationalisation of S&G employed during the procurement of healthcare infrastructure is identified from the literature review and the primary data. It includes an exploration of how they are affected by the policy relating to procurement and design of healthcare buildings and environments, and briefly describes how the DH supports the many and varied organisations that use the S&G.

Chapter 7: Discussion of findings

This chapter describes the analysis and compares the results, drawing together the findings from the qualitative and quantitative data. The findings from the literature review and the primary data are compared and an assessment of the implications of the findings is made. The conclusions are then ranked against the major stakeholder categories. The research and the findings are validated. Common themes and characteristics are identified. Gaps in the data described with together with any issues arising from the analysis and related to the stakeholder categories.

Chapter 8: Research conclusions

Chapter 8 draws conclusions, relating them to the objectives, identifies cross cutting themes, and how the findings contribute to the body of knowledge. Limitations of the research have been discussed. Recommendations are made and priorities identified for future research.

1.8 Summary

This chapter has introduced the concepts and context of this research. It provides the background and basis of the project. The research has been undertaken at a time of extensive change which has made the subject-matter of relevance, particularly in the fast-changing political and economic environment of the 2010s. The aim of the research into the use and how the DH S&G effect and benefit the healthcare environment is set out with a brief description of the themes of policy, the nature, scope and content, characteristics and processes of the DH S&G themselves and their effects on healthcare accommodation and environments. A brief overview is given on how the research into the ways DH S&G support the provision of healthcare accommodation is set out. Working definitions of standards, guidance and benefits have also been identified.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This literature review undertaken to establish factors relating to the benefits and effects of the DH S&G evidenced a lack of research directly relating to this area of study although there has been a considerable amount of work carried out on issues that have tangential relevance. The review was therefore significantly widened to encompass the many factors contributing to the DH S&G, which help to elucidate and define the importance of the S&G and their effects on healthcare accommodation and benefits to their stakeholders. The review covers a broad spectrum of topics including the history of the healthcare estate, the policies underpinning the provision and management of the estate such as funding and regulation, the aims, scope, content and characteristics of the DH S&G themselves, their positive and negative benefits, and the effects that standards and guidance can have on healthcare environments.

2.2 Methodology for review

The literature relevant to this project includes publications and documents from the public and private domains, and also some unpublished material. This has been identified in Figure 2-1.

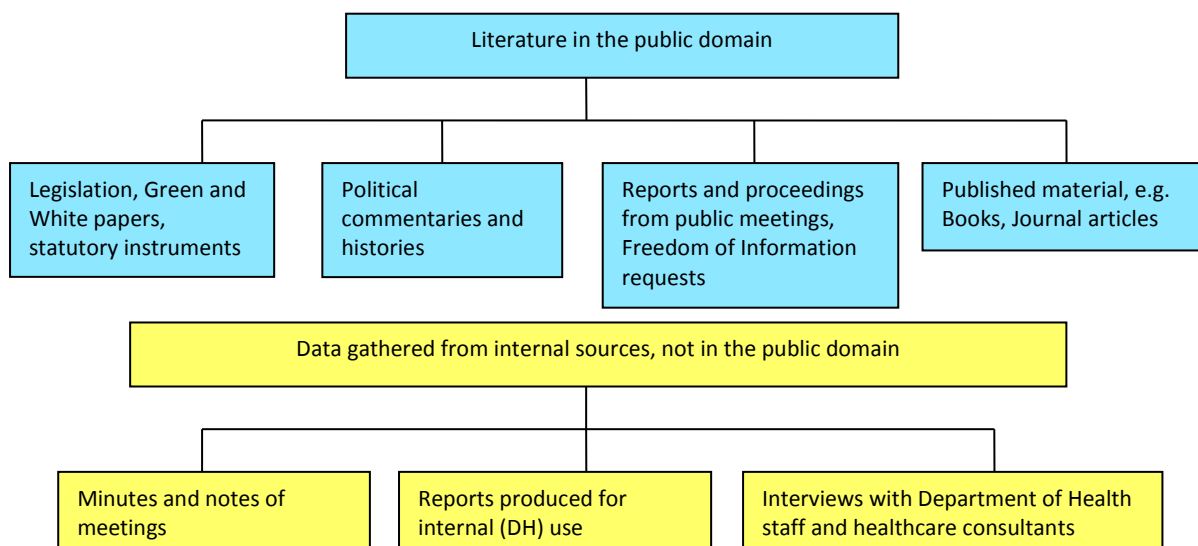


Figure 2-1: Breakdown of information from public and internal sources.

The publications and documents included in the review have been subdivided into the following subject divisions reflecting the strands described in section 1.7:

- history of healthcare-related buildings;
- development of Government and the DH policy;

- DH estates-related S&G: their history, their stakeholders, their content and how they are used; and
- effects of applying the DH estates S&G.

2.3 Scope and methods of searching and research for specific topics

The review includes a high proportion of Government and Department of Health (DH) publications. Political commentaries, histories and journal publications on S&G are available, but rarely specifically contain estates-related material. There are also several web sites relating to the standards set for, and regulation of, the health sector, in particular the organisations affiliated closely to the DH, such as the National Patient Safety Agency (NPSA), and National Institution for Health and Clinical Excellence (NICE), and the Care Quality Commission (CQC). Statutes and parliamentary information are contained on the Office of Public Sector Information (OPSI) web site and the National Archives. The information, particularly on web sites, is usually directed at practitioners, clinical or non-clinical according to the content. It is usually presented by topic and may contain links to other related external information. Health policy and construction industry-related journals have been searched. Further, the British Medical Journal and The Lancet have been included in the search, providing a clinical perspective on the healthcare estate. The overarching theme of the effect of Government accountability and regulation has been researched. A review of research methodologies and content analysis facilitated consideration and comparison of methods and choices for this research. These have been described in the Methodology Chapter 4.

Each area of research or topic has its own characteristics often dictating the source, type of content and how it is accessed. References from general encyclopaedia web sites have been included for definitions of general terms, because they are typically viewed by many different people according to their own perspective and context, making a general definition useful. The literature review also encompasses overarching topics including research methodologies and philosophies, content analysis, component content management (CCM), and the definition and measurement of benefits in the construction industry and other comparable industry sectors. A framework of topics reviewed is provided in Table 2-1.

Table 2-1: Framework of topics reviewed

STRAND	THEME	TOPICS
Policy	Historical development	
	Legislation	Acts of Parliament
		Green and White papers
S&G: nature, scope and content		NHS
	Recent changes	
	Purpose	Drivers
	Development	Methods
		Funding
	Content/Scope	Clinical
		Estates-related
	Quality	
	Dissemination	Formats
		Audiences
	Applications	Building procurement processes
		Regulation
		Conformity and compliance
		Knowledge sharing
		Building Information Modelling
		Risk management
	Users – stakeholder categories identified	DH
Benefits of S&G	Procurement funding mechanisms – value for money	Application of S&G in the construction procurement processes
	Stages of procurement	Planning, briefing, design, construction, maintenance, refurbishment etc.
	Application of Standards	Users’ reasons for use of S&G
	Ease of access and use of Standards	Format, accessibility, cost (£) to users
	Compliant healthcare buildings	Benchmarking, minimum standards
	Effective regulation	
	Evaluation and knowledge-sharing	
	Quality of S&G	
	Scope/Content of S&G	

Extensive reference is made to the DH publications, hard copy and electronic, relating to estate management, standards, regulation and guidance (Department of Health 2010e). Some “tick-box” tools also indicate qualities or process steps which, although not direct standards, are accepted as desirable qualities, e.g. Achieving Excellence Design Evaluation Toolkit (AEDET) (DH Estates & Facilities Division 2008a), Strategic Health Asset Planning and Evaluation (SHAPE) (Department of Health 2010f), A Staff and Patient Environment Calibration Tool (ASPECT) (DH Estates & Facilities Division 2008b), and the Premises Assurance Model (PAM) (Department of Health 2010b).

The electronic versions of documents and checklists have been searched for on-line, where possible. Searches for journal articles have produced relevant material particularly regarding evidence-based design, the effect of environments and the need for therapeutic healthcare environments.

The subject-matter of this research is significantly affected by: public opinion; pressure groups; think-tanks and general media reporting. On-going reviews such as those by: The Kings Fund (The Kings Fund 2011); the European Union Health Property Network (EUHPN); (European Health Property Network 2010); and Health and Care Infrastructure Research and Innovation Centre (HaCIRIC) (HaCIRIC 2011) were accessed.

The NHS Information Centre and Health Estates and Facilities Statistics web sites were searched for statistical and background information (NHS Information Centre 2009a; NHS Information Centre 2009b).

In order to manage the breadth of topics, they were divided into discrete strands. An examination of the history of the development of hospitals and healthcare-related buildings, their eventual transfer into the NHS and the legacy estate was included. This encompassed a review of estates- and property-related past and current legislation and statutory instruments. The review included publicly accessible documents, and also takes into account internal DH documents such as draft White and Green Papers, draft budgets and consultation documents.

Legislation is generally available from The National Archive web site published by the Office of Public Sector Information web site (Office of Public Sector Information 2011) which can be searched electronically. A series of searches was used to access any information regarding the healthcare estate. The words included were: “building”, “estate”, “hospital”, “clinic” and “accommodation”. The word “Building” was included but it was not possible to differentiate between the noun and verb forms of the word, and many references appeared relating to the verb that were irrelevant to the subject matter under research.

Searches were conducted through electronic library links for journal articles of relevance covering themes defined in Table 2-1. Following initial searches of the journals, alerts were set up to “push” articles as they are accepted for publication or actually published. Term strings included were:

- “standards” & “values” & “healthcare” & “infrastructure” & “estate” & “hospital” & “clinic” in Title;
- “value” & “construction” & “design” & “functionality” in Title;
- “policy” & “healthcare” & “effect” & “estate” & “infrastructure” in Title;
- and
- “healthcare” & “building” & “standardisation”.

Other alerts were set up on the Google Scholar and The Economist web sites, providing more generalist but topical, political and economic data, opinion and information.

Further searches were conducted to ensure the research remains current and relevant in relation to changing issues and context. It is anticipated that these reviews are particularly likely to include work on policy development, development of standards and their application, regulation, what conformity actually means in terms of the existing guidance, and how conformity with regulations is measured.

There is an enormous quantity of legislature, statutory instruments and Department of Health publications. In order to reduce the amount of time spent reading through all this information, where an electronic copy is available, a word search technique was developed to assess whether there is any relevant reference in the document. The words used for this exercise were: “estate”, “building”, “facility”, “environment”, “standards”, “regulation”, “design”, “evaluation” and “performance management”, including plurals where relevant. This is complemented by reference to documents and notes that are not available other than as internal sources, as set out in Figure 2-1.

The King’s Fund publish briefings and research reports, which are useful for reference (Dixon and Alvarez-Rosete 2008; Maybin and Harrison 2008; Imison et al 2008; Imison 2009; Edwards 2013). With the notable exception of Edwards’ report, which focuses on the estate, these publications are not specifically about the estate, but contain sufficient references to knock-on effects of policy making them of relevance.

There is a body of work published on the introduction of PFI and the effect of private sector involvement in the NHS, (Pollock and Shaoul 2002; National Audit Office 2003; Akintoye and Chinyio 2005; Dixon et al 2005; Talbot-Smith and Pollock 2006; Evans 2008; Beck 2010). In the main, these are critical of the cost of PFI policy (House of Commons 2011). This has recently been borne out by the South London NHS Trust being put into administration, partially resulting from the PFI charges (BBC 2011a; BBC 2011b; Trigg 2012a). A presentation at the HaCIRIC Conference of September 2011 contradicted this apparently universal criticism, but some of the data used were acknowledged to be “questionable” (Ive et al 2010).

The Green Book (Treasury 1997) contained a requirement that PFI contracts included post project evaluation, but it appears that there is a lack of clarity regarding the focus of such evaluation, and that there is little attempt at making judgements regarding VFM once decisions

have been made early in the project (Froud and Shaoul 2001; Broadbent et al 2003). Lawson et al (2003) argue that designs from previous projects:

“form one of the most important sources of knowledge for designers who depend heavily on the re-use of ideas as part of their process”.

Ham (1999; 2004) and Klein (2001) described the development of healthcare policy in Britain with occasional references to the effect on the estate. Evans' monograph (Evans 2008) gives a more analytical viewpoint of recent developments, and specifically tackles the strategic effects of PFI funding on the healthcare estate and concludes that the introduction of private sector finance into the NHS system is likely to result in NHS services being provided from a privately-owned estate and that this could profoundly compromise the services. This view is supported by Archibald (2008) and East and Lea (2011) who reason that, despite the guidance from the DH arguing against “selling the family silver”, Trusts need to exploit their ability to raise funds by whatever means possible, often leading to divestment of the estate. Legislation that affects provision of healthcare accommodation includes the Disability Discrimination Act (DDA) 1995, Disability and Equality Act 2010 as well as The Health Acts that have been passed over the past 20 years.

2.4 Definitions of “standard”, “standards”, and “guidance”

“Standards” is a term that is applied across many Government departments and relates to a wide variety of policy, processes, environments, services and equipment. Varying usage may reflect a need for tight control, informal conformance or light touch regulation. A standard or guidance issued by a public sector body is deemed to have a status above that of private sector generated ones because the weight of Government policy applies (Gil and Artz 2007).

An extensive search of the DH, and construction- and other healthcare-related web sites was undertaken, including other Government departments, and standards-related organisations e.g. British Standards Institution (BSI), and Building Research Establishment Environmental Assessment Model (BREEAM). The Office of Government Commerce (OGC) General reference web sites such as on-line dictionaries were included in the search to ascertain the generally accepted definitions and therefore how non-specialists might apply the terms commonly used.

In order to study the effects of S&G a comprehensive review of the terms “standards”, and “guidance”, were researched. Further phrases, synonyms and related words were also incorporated e.g. “best practice”, “specification”, “accountability” and “regulation”. It is noticeable that these searches yield results that relate not only to standards used for

measurement against regulations (standards) of physical environment and levels of performance but also for a commitment to a level of service. Some of these could be regarded as specifications. Section 1.5 gives the definitions, however the following definitions provide further insights.

The **British Standards Group** defines standards as follows.

“A document defining best practice established by consensus and approved by a recognised body”. (BSI, Enabling lighter touch regulation: The role of standards)

“An agreed, repeatable way of doing something..... designed for voluntary use and do not impose any regulations. However, laws and regulations may refer to certain standards and make compliance with them compulsory.”

<http://www.bsigroup.com/en//standards-and-Publications/About-standards>

“Standards” in this research is deemed to incorporate both these definitions being best practice, and an agreed, repeatable way of doing something, to be used voluntarily.

Department of Health definitions of “standards”

A search for “standards” on the DH web site returns several hundred documents dating back a number of years. They refer to standards set for a wide variety of information, including clinical care, data, communications, IT systems, clinical practice, environment and audit. Reference to the DH estates-related standards is found through the link to www.SpaceforHealth.nhs.uk (SpaceforHealth), (Department of Health 2010e), a web site dedicated to the dissemination of HBNs and HTMs, as well as guidance tailored for Scotland, Wales and N Ireland. There was no actual definition of “a standard” on the web site. The following demonstrate the wide variety of ways in which standards are applied in the DH.

“The Information Standard” We know that people use information to support them in making decisions about their health, healthcare and social care. Quality information empowers people to make choices that are right for them” (Department of Health 2010g).

Professional standards within the DH are defined as follows.

“The past few years have seen considerable modernisation of the organisations responsible for the regulation of healthcare professionals and the social care workforce, with the on-going aim of protecting the health and well-being of patients” (Department of Health 2008c).

An extract from Section 23 (1) to (3) of the Care Standards Act 2000 clearly defines the responsibility of the Secretary of State in relation to standards within the DH.

“Section 23(1) enables the appropriate Minister (who, in relation to England, is the Secretary of State) to prepare and publish statements of national minimum standards applicable to establishments or agencies to which the Act relates. Section 23(2) requires the appropriate Minister to keep the standards set out in the statements under review, and provides for the publication of amended statements. Section 23(3) makes provision for consultation before a statement is issued.” (Secretary of State for Health 2000a).

“Standard” and “Standardisation”

The word “standard” can be used as a noun or adjective; the former is described above, often in the plural, and “standard” used as an adjective usually infers average, common or usual.

“Standardisation” is a term often used in the provision of healthcare environments meaning the “development of the standard as well as its usage” (Department for Business Innovation and Skills 2012). There are many well-rehearsed views expressed about the benefits and dis-benefits of standardisation (Gibb and Pendlebury 2001; Peters 2011; The British Standards Institution 2011). Standardisation may apply to buildings e.g. room layouts being standardised, or to the services provided within those buildings such as medical gases always being provided at the same side of the bed and in the same order of oxygen, nitrous oxide etc. Processes and practices may also be standardised, such as in the PFI process as described by Edum-Fotwe (Edum-Fotwe and Gibb 1999).

“Guidance”

A web search of The Free Dictionary on-line produced the following definition of the term guidance.

“advice or information aimed at resolving a problem or difficulty, especially as given by someone in authority” (The Free Dictionary 2011).

The way in which the DH Estates and Facilities Division refer to the HBNs and HTMs as “guidance” reflects exactly this definition. The fact that the DH is seen as the authority encourages users to view the “guidance” as a standard.

2.5 Healthcare infrastructure

2.5.1 Recent history of the healthcare estate and related S&G

The DH S&G have been developed over 40 years and more. They were originally issued as paper-based documents and drawings and contained in a publication known as “the Red Book”. This was supplied direct to the Regional Health Authorities (RHAs) by the DH and Social Security (DHSS) and were centrally developed and controlled. They were not made available to private sector organisations. However, with the need to support the standardised room layouts introduced in the ‘70s, it became important that architects and engineers were able to access relevant S&G and therefore they were made more widely available.

Most of the policy-related literature produced relating to healthcare infrastructure in recent years has been produced by the DH itself (Green and White papers), or is contained in legislation. With the change in Government in 1997 and throughout the following decade, several White Papers were published concentrating on the configuration and organisation of healthcare provision, culminating in the introduction of Primary Care Trusts (PCT) and Foundation Trusts (FT) (Department of Health 1997; Department of Health 1998; Department of Health 1999; Department of Health 2001; Department of Health 2003; Department of Health 2005a; Department of Health 2006; Department of Health 2008b). The Foundation Trusts are more autonomous than other NHS organisations in terms of reporting regulations, and are not currently obliged to provide data to the same extent. It is however possible to access non-financial statistics via the NHS Information Centre.

Although many of the targets and policies have been implemented, there are some significant omissions or failures. The NHS Plan contained a major policy statement that “40% of the estate, by value, to be no more than 15 years old by 2010” (Secretary of State for Health 2000 p 44). This was never publicly rescinded, but was allowed to be pushed into “the long grass”. More recently policies since 2010 have attracted major opposition by the BMA, the Royal College of Nursing (RCN) and other professional bodies, and although the Act was finally passed in 2012, it was heavily amended. The main thrust of the opposition was against what was seen as the privatisation of the NHS (Timmins 2012).

The review “High Quality Care for All” by Lord Darzi directly impacted on the building programme in establishing “polyclinics” (Darzi 2008). How these are defined is open to question, but their overriding principle is to co-locate existing community-based services and to

encourage the provision of services in local centres that had previously been provided in acute hospitals, e.g. outpatient follow up appointments (Imison 2008).

The main thrust of the policy contained in the Darzi review was the provision of high quality care closer to home. The four principles that are the criteria addressed in the review are: Quality and Safety; User Experience and Operational Standards (that relate directly to the estate to a greater or lesser extent); Finance/VFM and Board capability. The measurement of quality and what the term “quality” refers to is open to interpretation. Related to delivery of an efficient service is the need to provide sufficient capacity in which the service is delivered, and this has been greatly increased over the past decade with a massive building programme.

The Government introduced an “Affordable” housing policy Planning Policy Guidance 3 (PPG3) to provide accommodation for what were termed “keyworkers” – nurses, police and firemen/women. A specialist team was set up to work on this within the DH. A review of old nurses homes amongst other properties was undertaken, and some of these were converted either by Trusts within which they were located, or were sold to Housing Associations or similar organisations to raise capital. Decisions had to be taken regarding staffing issues and whether accommodation in hospitals should remain under the auspices of the Trust to ensure affordable housing being available for staff.

2.5.2 Definition and current status of the DH S&G

The DH GREFD states, and Hansard describes, that the DH S&G:

“represent best practice guidance, and through their adoption NHS trusts and health authorities should comply with current legislation” (Hansard 1999)

demonstrating the dual standing of the S&G contained in the HBNs and HTMs depending on their audience.

The DH currently produces guidance that is used across a wide variety of organisations and professions. The guidance relating to the built environment of the healthcare estate, principally HBNs and HTMs, are written by teams of experts, including clinicians and construction industry professionals. These teams are co-ordinated by civil servants who act as “Project Managers” to produce guidance organised under clinical topic headings. Hignett and Lu’s study of the DH S&G provides insight into the use and application of HBNs and HTMs (Hignett and Lu 2008).

In October 2009, the DH launched a new web site SpaceforHealth to disseminate the DH publications jointly with those for the other UK Health Organisations (Scotland, N Ireland and

Wales). A European Union (EU) directive to member Governments to make available data that have been publicly-funded was anticipated to a certain extent in that preview summary sheets and the policy- and context-setting elements contained within the HBNs were made available free of charge via the SpaceforHealth website.

In May 2010, the HBNs began to be segregated into two categories: “policy and service context”; and “design and planning”. A subscription was charged for the design and planning section for non-NHS users; policy and context were made available free of charge. The data within ADB are derived from HBNs and HTMs, but an annual subscription is charged for the entire product. The data do not contain policy and context setting guidance. The income from ADB has been reinvested in the programme to produce HBNs and HTMs and support the development of ADB and its data. Collectively, they are often considered to form the “bible” for the briefing and design of healthcare facilities.

In October 2010 the Government declared its intent to conduct a major review of the DH’s S&G in 2010 in recognition of the Government’s intention to achieve a “more strategic” approach, to:

“to reflect the new focus on the regulatory framework for quality assurance.”

(Department of Health (2010a))

significantly affecting the S&G programme. The DH’s change of focus resulted in a series of changes to the production and dissemination of the DHS&G and opened to question their purpose and application.

2.5.3 Identification of the stakeholders in the DH S&G.

In England, there are a number of groups of stakeholders in the healthcare environment as set out in Table 2-2, which identifies the groups and organisations with an interest in the estate, their core purpose and the disciplines required to achieve their core purpose. They span a range of public and private sector organisations, and represent the many disciplines that contribute to the healthcare sector and the construction industry. Patients and staff form two significant groups in the development of healthcare projects. Although patients are the most important users of the health service, they are not included in this research as a stakeholder group; they are affected by the healthcare environment but do not actually use the DH estates-related S&G. Patients will value the quality of healthcare environments, i.e. the finished product, but are unlikely to have sufficient technical or clinical knowledge of the S&G to be qualified to comment on them.

Table 2-2: Identification of organisations involved in provision of healthcare accommodation

High level category	Organisation	Core purpose (related to the healthcare estate)	Discipline/Role
Commissioner	Care Commissioning Group Strategic Health Authority #* DH*	Purchase of healthcare accommodation	
Provider	• General Practitioners • Dentist, Optician, NHS Trust, NHS Foundation Trust, Independent Sector provider (ISP,) (including ISTCs, Nuffield, PPP etc.) • Construction consortia	Provision of healthcare accommodation	Board Management/Estates Director Strategic healthcare planner, Capital planner, Estates Manager, Facilities Manager, Architect, Engineer, Healthcare Planner, Project Manager (client)Project Manager (construction), Quantity Surveyor, Contractor (building), Medical Equipper
Regulator	CQC	Regulation of all matters relating to provision of clinical services	
	Monitor	Financial regulation	
	NICE	Clinical regulation	
* Indirect roles # Organisations abolished in April 2013			

The policy aimed at involving the public by ensuring consultation takes place during the procurement process has been introduced over the last 15-20 years (Department of Health 2011b; Mills and Reeve 2012). Public consultation is now a compulsory and major part of the planning process (Darzi 2008), requiring developers and construction teams to meet with staff, patients and carers groups when considering changes to accommodation provision, be it new buildings, closures or reconfiguration of facilities. Patient and staff interests are represented in this research by the Service Users, made up principally of Healthcare Planners, many of whom are ex-clinical NHS staff, who draw up briefs for healthcare accommodation.

A search on the DH web site revealed numerous invitations to participate in and results of consultations on all aspects of the health service. The requirement to consult about significant changes to health services is described by Bournemouth and Christchurch NHS Trust as follows.

“The NHS has a legal requirement to consult with patients and the public when making substantial changes to existing services or planning new ones and to ensure that local people influence decisions. As well as being a legal duty and key aspect of the NHS plan, ... as well as being a basic right.” (Bournemouth and Poole NHS Trust 2012)

Consultations presuppose that the views expressed will be taken into account, which has been proven not always to be the case (e.g. reconfiguration of specialist cardiac services). The NHS stakeholders using the DH estates-related S&G can be categorised in various ways, such as

commissioner (e.g. purchaser of healthcare services – usually a General Practitioner (GP) or through a Care Commissioning Group (formerly PCTs), provider (e.g. organisation providing clinical services), and regulator, (e.g. CQC, Monitor, NICE). They can also be subdivided into their respective professional disciplines.

Healthcare planners and Project Managers can also be found in either the NHS employed direct, or as external consultants. The public sector stakeholders principally include those who manage the estate, from capital planning, healthcare planning, through to project management, procurement, maintenance and facilities management (FM). Private sector stakeholder categories include architects, engineers, healthcare planners and building contractors.

There are groups of users of the HBNs and HTMs in continental Europe, and the Middle and Far East. Despite the fact that the publications represent English S&G that may not be necessarily relevant to these other countries, they are used for two principal reasons:

1. they represent the NHS, which enjoys a high reputation in many countries; and
2. the legacy from British colonial times.

These overseas users form a relatively small group, and are made up of healthcare planners in the main, with some architects, and one or two Government departments.

The importance and benefits of S&G varies according to the role of the user, their place in the supply chain, and the type of project they may be working on, e.g. PFI, private sector.

Figures 2-2 to 2-9 show each stakeholder group and their responsibilities and roles in relation to S&G. The Figures relating to the Central Government (Figure 2-3) and Department of Health (Figure 2-4) and healthcare providers (Figure 2-5) have been developed in discussion with the interviewees from the DH and NHS, and further reference is made to Klein (2006) with reference to accountability and regulation within the DH. Government's role is included because it is the driver of policy to generate the S&G and a breakdown of the Healthcare providers is also shown showing the sub-sections of Estates/FM and clinical stakeholder categories. The final stakeholder group (Patients) is not included in this research project because they do not directly use the DH S&G, although they will contribute to user consultation groups alongside the Service User group who represent their interests during the overall construction process.

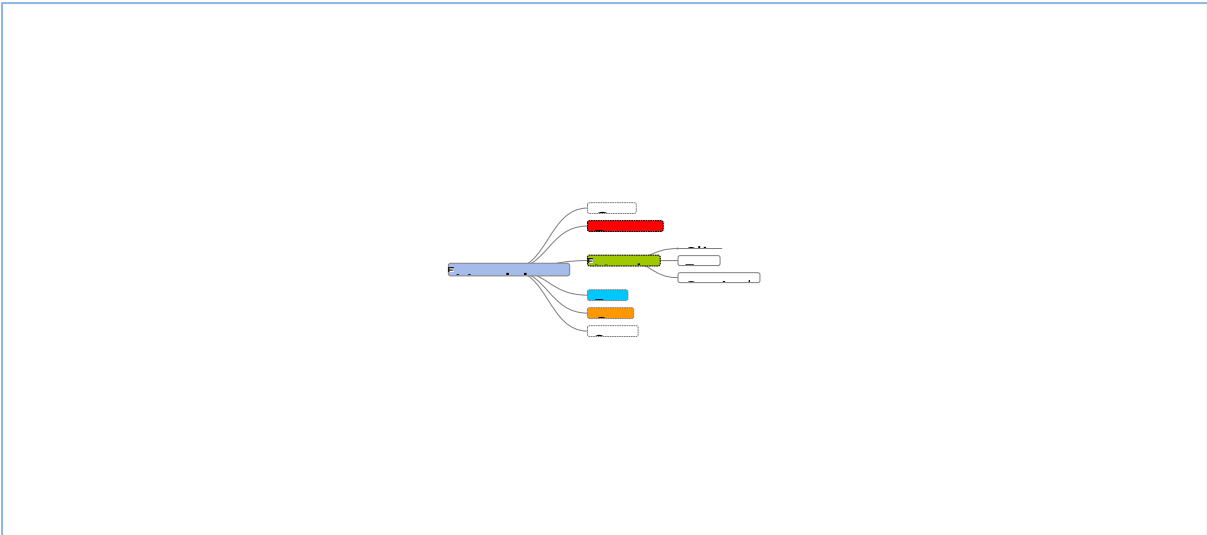


Figure 2-2: Healthcare Stakeholder Categories (excluding patients)

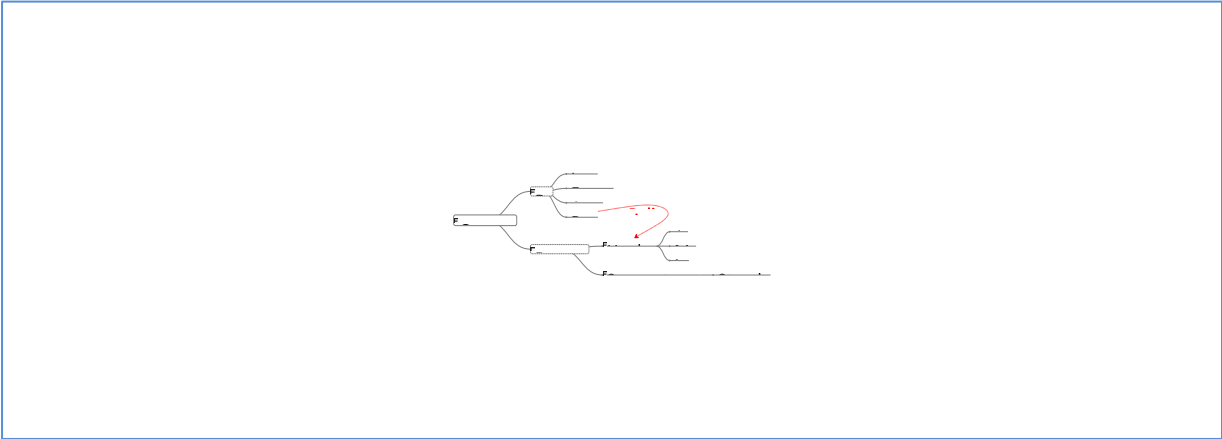


Figure 2-3: Central Government (Klein2006)

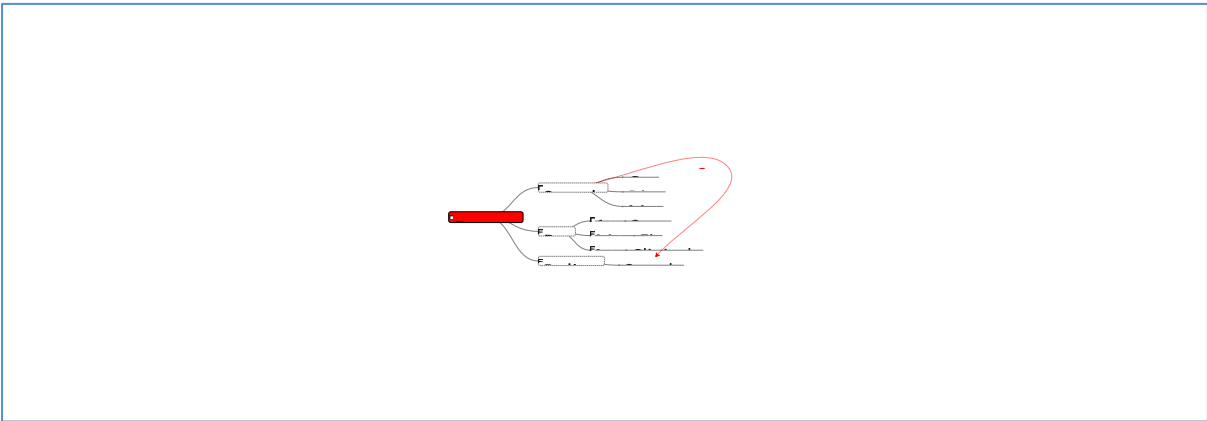


Figure 2-4: Department of Health

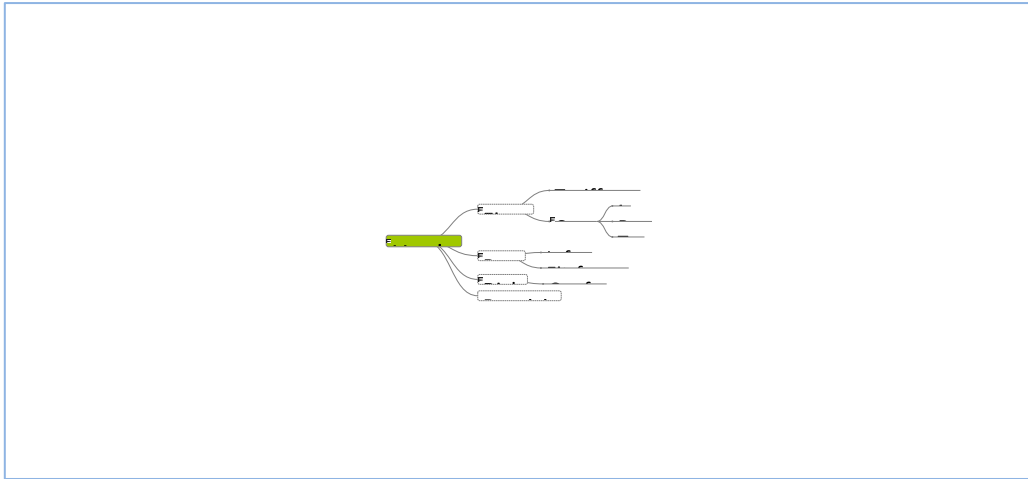


Figure 2-5: Healthcare providers

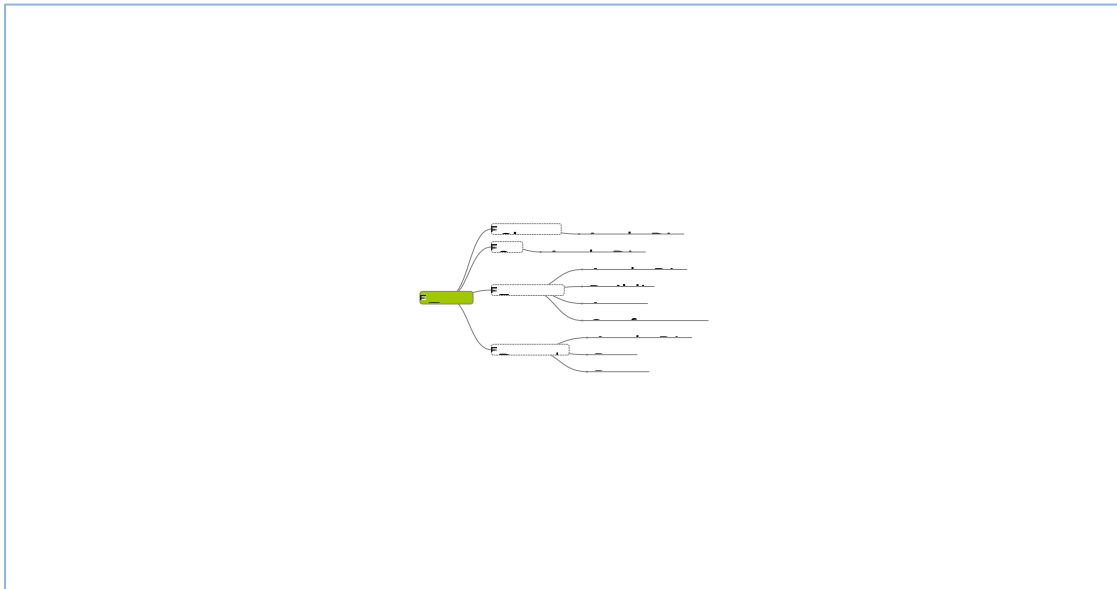


Figure 2-6: Estates/FM (IHEEM 2014 ; Cambridge University Hospitals 2014)

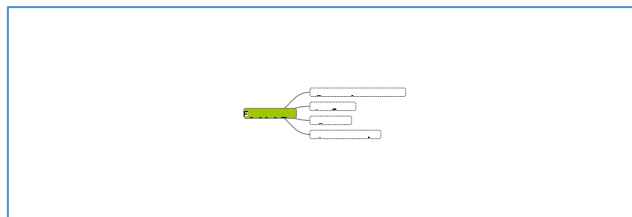


Figure 2-7: DH/NHS clinical staff - estates-related roles (Cambridge University Hospitals 2014)

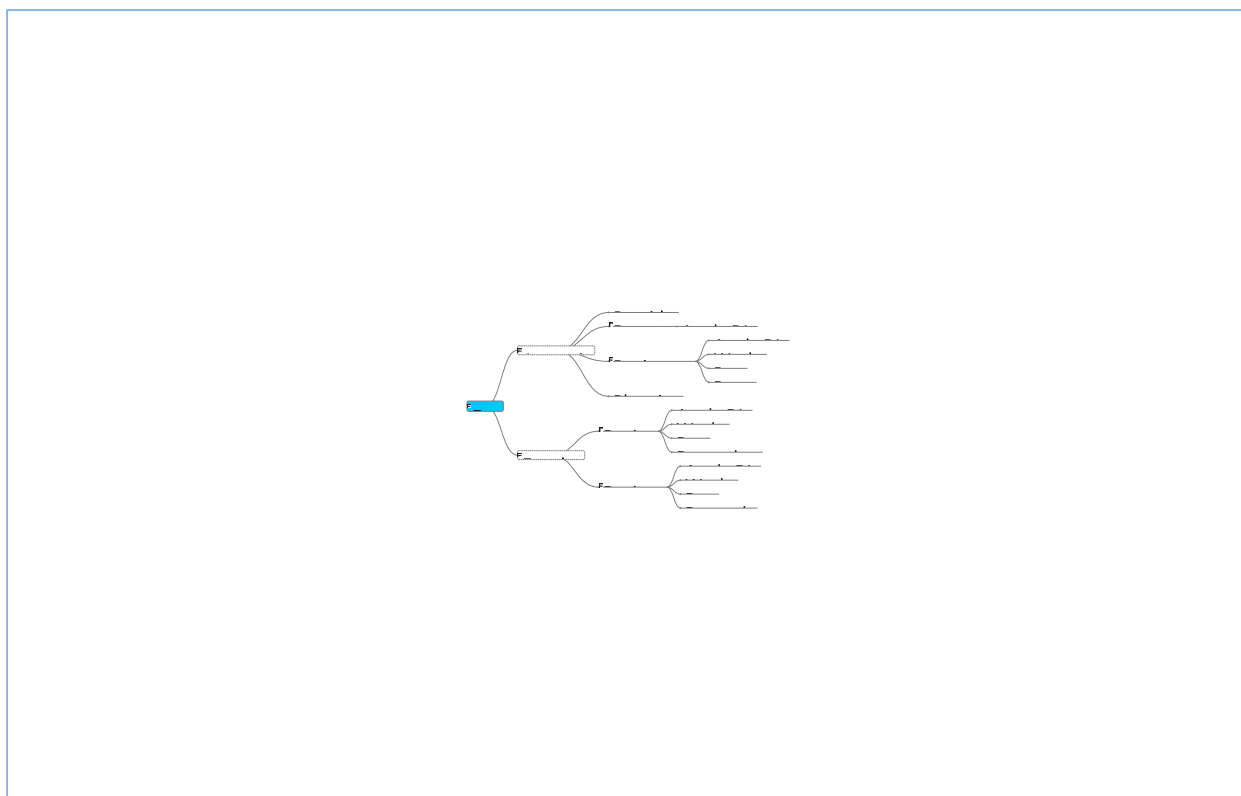


Figure 2-8: Designers (RIBA 2008, IHEEM 2014)

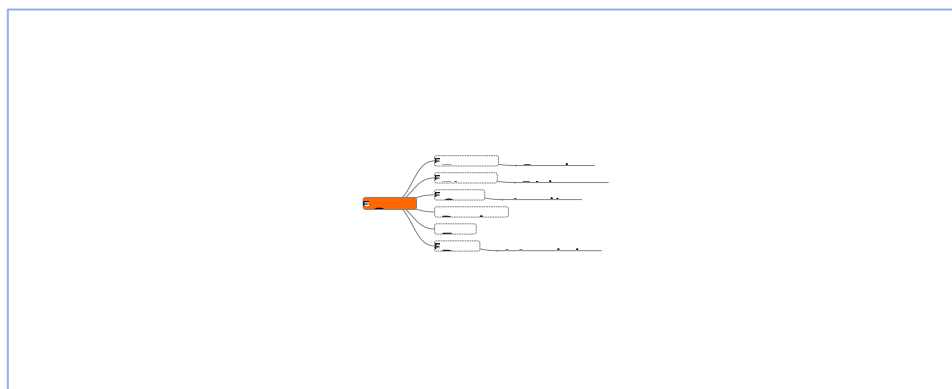


Figure 2-9: Contractors (Construction Industry Training Board, 2007)

2.5.4 Overview of the application of S&G

Many architectural and engineering practices use the DH S&G because it provides the information required to establish baseline standards for healthcare accommodation. Research by Hignett and Lu (Hignett and Lu 2008) is slightly at variance with interviewees who state that the guidance appears to be used at least at some stage in most NHS contracts. Hignett's findings underwrite the tensions experienced by users of the guidance in terms of conformity and

regulation, and also highlight the dichotomy between the need to demonstrate value for money and efficiency and the desire for high quality environments and the need to innovate.

NHS Trusts and primary care providers largely use the S&G and ADB for planning and briefing, but larger Estates Departments may also use them to take the brief forward into the design stage of projects. The detail required depends on the stage of the project and it is often the case that ADB is used, because the ADB database is directly derived from the HBNs and HTMs. This enables the briefing process to start from a “baseline” requirement conforming to the DH standards, and should save “reinventing the wheel” for every project.

Some standards are included in legislation, reflecting Government policy and are mandatory, for example, the standards encapsulated in the Disability Discrimination Act (DDA) of 1995 and its update the Equality Act of 2010, include some that directly affect the healthcare estate. These include the need to:

“protect disabled people and prevent disability discrimination” (Government Equalities Office 2010),

resulting in ensuring accessibility for the disabled, such as provision of ramps for wheelchairs, and “loop” systems to assist deaf people.

Green and White papers are issued by Government departments setting out policy and proposed actions to address topical issues, often including S&G (The National Archives 2011). White papers usually signify the intention to enact new legislation. Political party manifestos also contain statements of policy often expressed as commitments (The Conservative Party 2010). A major example of this is the introduction of the PFI funding mechanism, which was not enacted, but introduced in 1992 by then Conservative Government through The Treasury and reinforced through the Labour party manifesto in 1997 as a means of redressing the perceived decline in public infrastructure such as roads, schools and hospitals. Arguably this could be viewed as the single most influential policy affecting the NHS estate and has since provoked widespread debate, often very antithetic in terms of the value for money (Gaffney and Pollock 1999; Pollock et al 2002a, 2002b; Broadbent et al 2003; Hellowell and Pollock 2006; Paton 2008; Beck 2010; Rhamani 2011), but it has also resulted in a major building programme that would otherwise have been unaffordable (House of Commons 1999; House of Commons Committee of Public Accounts 2005).

DH S&G and data sets are of benefit to each group of stakeholders for a wide variety of reasons. The HBNs and HTMs have taken on the role of a “bible” for many of those involved in

procurement and maintenance of the healthcare estate. They are used as a source of reference and because they are deemed by the DH to provide “baseline standards” they form the foundation for design and construction processes. Significant deviation below the baseline must be justified in the preparation of business cases. The Government announced in 2010 that BIM must be used on all Government building contracts by 2015 (Department of Business Innovation and Skills 2013) which has encouraged use of the ADB data, thus buoying up the ADB income for reinvestment in the S&G.

2.5.5 Development of Accountability for the healthcare estate

The National Insurance Act of 1911 (Socialist Health Association 2009) made provision for Local Authorities to be funded for the provision of:

“sanatoria and other institutions for the treatment of tuberculosis or such other diseases”

as the Local Government Board with the approval of the Treasury (House of Commons 1911). This included Mental Health services, and isolation hospitals. Additionally the Local Authorities were responsible for the provision of institutions looking after the poor and insane, and this has largely remained the case. The Special Health Authorities’ were established to look after services provided nationally, for example the National Blood Transfusion Service and that did not fit into the existing organisational structure in the 2000s. The Special Health Authorities’ properties are specifically included in the OGC report “The State of the Estate 2008” whereas mainstream NHS sites are excluded (Office of Government Commerce 2008). The premises used by these national services were often located within the NHS Trust sites, but because of their specialist nature, the DH S&G did not necessarily specifically cover their provision. Changes in the DH reporting structures and hierarchy in Government have affected the development of lines of accountability. The way that the NHS has evolved since 1948 in terms of its organisations structure has developed from a relatively simple hierarchy to a much more complex configuration as shown in Figures 2-10 to 2-13.

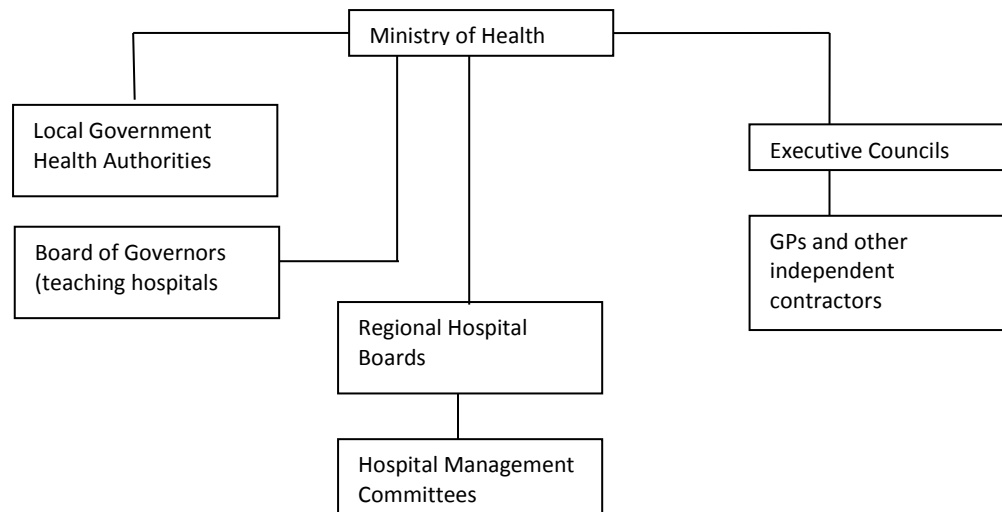


Figure 2-10: The NHS in England and Wales 1948. Source: Baggott 2004 p87

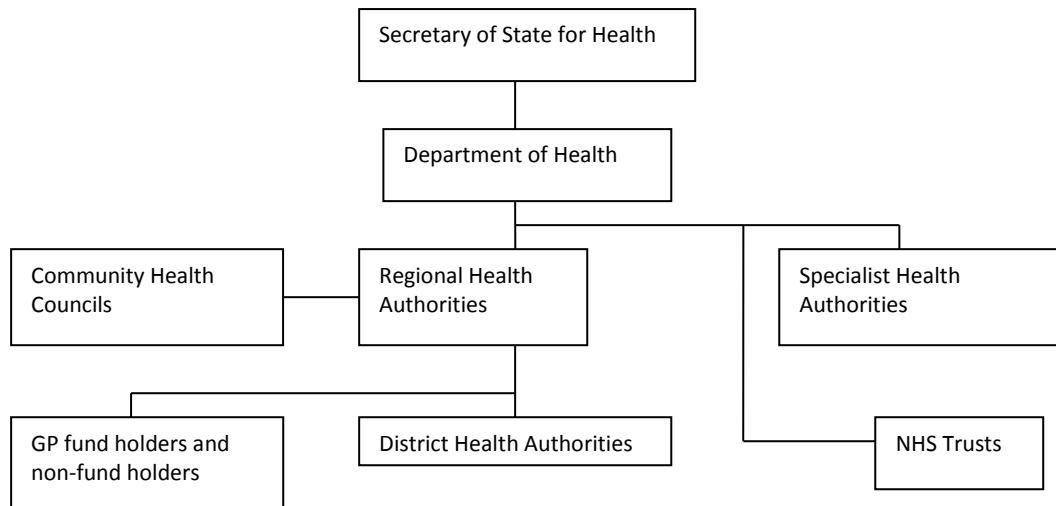
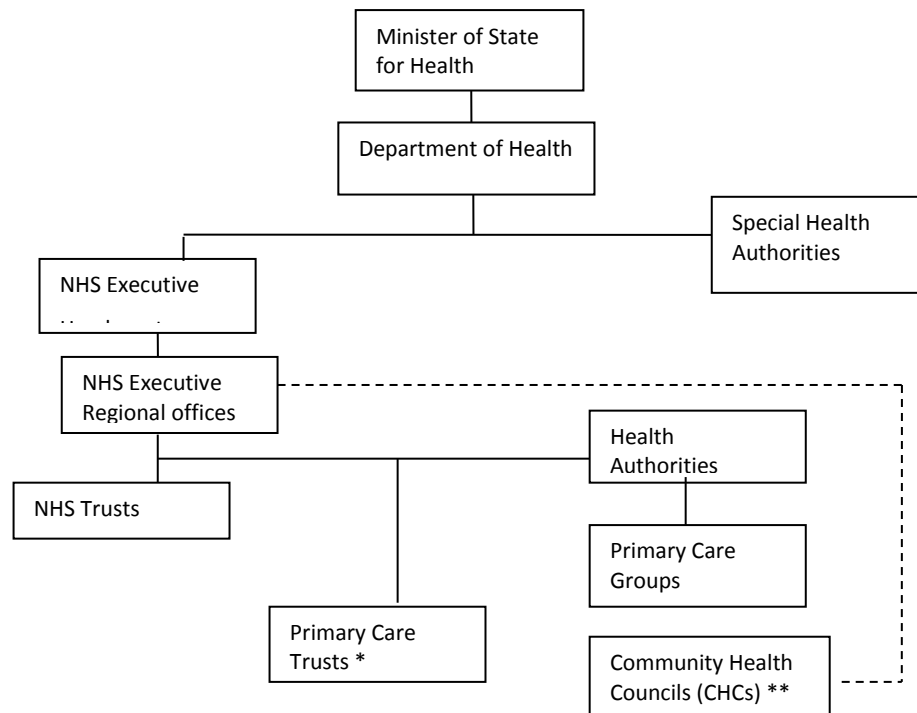


Figure 2-11: Post Review NHS 1991. Source: Ricks E (unpublished)



*CTs created in April 2000 ** CHCs abolished in 2001

Figure 2-12: Healthcare organisation structure, 2000, Ricks E (unpublished)

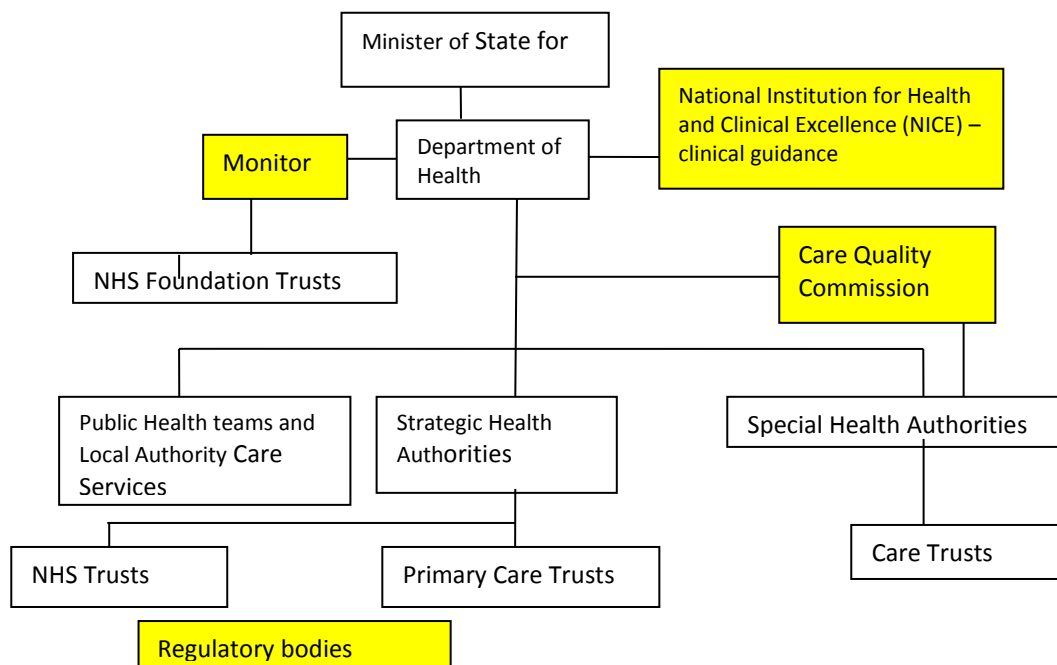


Figure 2-13: The 2009 public sector healthcare structure. Source: adapted from Ham (2004)

Regulation of private hospitals was brought into line alongside the NHS in 2002 (Department of Health 2002a) although registration of independent providers was required under the Care Standards Act of 2000. The regulations relating to private hospitals were set out in completely separate guidance, with a brief set of standards drawn up to achieve an outcome. In the case of premises the outcome is stated as:

“Patients receive treatment in premises that are safe and appropriate for that treatment” (Department of Health 2002b p 22).

In 2009, regulation of the provision of healthcare and the healthcare estate was consolidated under the auspices of the CQC. With the policy move for care to be supplied by “any willing provider” (AWP) the CQC now assumes regulatory responsibility for any organisation giving care to NHS patients (NHS Confederation 2011). One of the effects of this policy is to encourage the commissioning healthcare services from both NHS and private sector healthcare providers for NHS patients, whilst requiring the all the providers to ensure their premises conform to NHS standards (Department of Health 2002b; Care Quality Commission 2010c).

Mental Health Services have been treated as a separate entity in terms of policy and regulation and have remained under the jurisdiction of the Local Authorities, often regarded as the “Cinderella” service in terms of expenditure and maintenance. This was highlighted in 1969 in The Ely Report (Hansard 27 March 1969), which described the facilities at a mental hospital where various forms of misconduct were reported and conditions in the hospital were heavily criticised. Publication of the Report led to a programme of reforms in mental health services. The guidance provided for these buildings was extensive, including floor layouts, departmental layouts, room layouts, and ergonomic, equipping and activity schedules.

The introduction of the market economy under the Conservative Government of Margaret Thatcher introduced competitive market forces into the healthcare system as a way of promoting a more efficient service. This was adapted by the subsequent Labour Government and in essence remains, but incorporating a more collaborative approach with the Local Authorities for provision of social care alongside healthcare and is now well established under the coalition Government. The effect on the estate has been to provide facilities for joint health and social care, with the aim of closer working and co-operation, and to improve patient care within Local Authorities and the NHS.

2.6 History relating to healthcare accommodation

There are various histories of the development of healthcare provision in England from the Middle-Ages until the mid-19th Century. Historically, healthcare was provided by monastic foundations, and following the reformation and the dissolution of the monasteries, many of these hospitals were closed. The only monastic-based hospitals to survive in London are St Thomas's founded in 1106, St Bartholomew's founded in 1123 and Bethlem founded circa 1237 (Warren 2000). Any Standards that existed would have been imposed from within each organisation and often related to matters such as religious observance and burial. However, there was some commonality in the layout of healthcare buildings across Europe: evidence of ward layouts exists, e.g. Tonnerre and Beaune in France (Hignett et al 2008) pointing to a degree of standardisation in thinking about the best way to provide healthcare accommodation.

From the middle-ages until the formation of the NHS, monastic or voluntary hospitals are generally considered to have provided better care than the workhouses, which were the responsibility of the Local Authority. It is assumed that accountability for conditions in the monastic foundations lay with the head of the establishment or order, and that this reflected back into the community by affecting the reputation of the religious order or voluntary organisation. It has been suggested that the conditions of the 19th century workhouse were often deliberately neglected by those responsible for them to discourage the public from seeking help (Ham 2004), as described by novelists Charles Dickens and Elizabeth Gaskell. The pre-NHS work houses and poor houses were notorious for neglect of those in their charge, and there was very little regulation.

The provision of healthcare remained largely outside the scope of Government and politics until the Government of her day drew on Florence Nightingale's experiences in the Crimea to establish policy for the provision of hospital accommodation in the mid-19th Century. Parishes were legally responsible for looking after orphans, the poor (often sick), and the elderly. They provided either out-door relief (care in the home) or in-door relief, accommodation in a workhouse, in return for unpaid work. Over a long time these institutions evolved to become the responsibility of the Local Authorities, and split during the 19th Century into workhouses, and mental health facilities.

The first notable Government sponsored work in relation to healthcare accommodation was by Nightingale who was commissioned by the Royal Commission to examine the "Sanitary Condition of Hospitals and the Defects in the Construction of Hospital Wards" (Nightingale

1859). Her report was clearly influential with its insistence on neat, some may say regimented, clean and airy wards that may seem rather old fashioned, but her principles remain remarkably relevant and largely unchallenged. The resulting papers bear out the importance given at the time, and provide extensive evidence, of the need for principles of hospital construction and planning. The standards Nightingale set for hospitals at this time discuss the need for natural ventilation, daylight and non-absorbent surfaces. These and many other standards are familiar themes in today's healthcare environments, and their relevance and pertinence remains central to the design of hospitals and health-related buildings. It is significant that such basic needs remain as relevant today as when she wrote them more than 150 years ago:

"The defects to which such occurrences [deaths] are mainly to be attributed are four:

- 1. the agglomeration of a large number of sick under the same roof;*
- 2. deficiency of space;*
- 3. deficiency of ventilation; and*
- 4. deficiency of light." (Nightingale 1859 p B2)*

The S&G used today give a high priority to such provisions for cleanliness, layout and building finishes, but also include often very specific, detailed and technical requirements e.g. water treatment for dialysis units in HBN 00-07-01 (Department of Health Estates and Facilities Division 2008c).

Midwives appear to have been held responsible for the high infant mortality rate as opposed to the conditions and environment into which babies were born. Regulation was introduced in the Midwives Act of 1902, which instituted the requirement for midwives to be registered as fit to practice. Health visiting appears to have started earlier in the industrial north-west in the mid-19th century and was not formally established until Notification of Births Act in 1907.

Further Acts in 1915 and 1918 tightened of maternity provisions including and culminating in an obligation for Local Authorities to provide infant welfare centres and maternity homes. These developments continued when the Ministry of Health was established in 1919, and were supported by the increased provision of antenatal care leading to the development of clinics and a salaried Midwifery service in the 1936 Midwives Act.

In 1929, the Poor Houses were renamed Public Assistance Institutions and at the establishment of the NHS in 1948, were generally converted into cottage hospitals or homes for the elderly. These remained under the jurisdiction of Local Authorities, latterly alongside the establishment

of privately run and financed Residential and Nursing Homes. Regulation of these facilities was, and has remained, the responsibility of Local Authority Social Services. Complaints about accommodation and issues relating to services are dealt with locally.

Services provided by the major London-based hospitals were very different from hospitals located in the provinces. The London hospitals tended to provide the specialist services, as well as enabling the senior consultants to use the facilities in these large hospitals as training establishments. There are many famous accounts and pictures of experimental surgical and medical procedures, and anatomical classes e.g. Rembrandt's "Dr Tulip's Anatomy Class". The teaching hospitals largely remain attached to universities, and medical research is usually carried out in close association using the resources and facilities afforded by both hospital and university. Provision of dedicated mental health institutions started in the mid-19th Century, and effectively has remained a separate service ever since.

There are few works that provide a clear history of the development of healthcare buildings. Chadwick (1842) wrote a report on sanitary conditions of the "labouring population", which identified the need to improve sanitation and in particular burial of the dead. In his History of London Hospitals, Abel Smith (1960) described the services provided by the major London-based hospitals and points out that they were very different from hospitals located in the provinces. Ham describes the early development of infirmaries as provided by the 1867 Metropolitan Poor Act that provided an alternative to the workhouses for the sick and elderly. He asserts that this could be regarded as the first acknowledgement that the State had a duty to care for the poor (Ham 2004).

The Beveridge Report of 1942 identified the five "giant evils":

"Squalor, ignorance, want, idleness and disease" (Beveridge 1942)

and established that there was a need for more healthcare accommodation to answer the rising demand for capacity to care for the sick. The use of the word "squalor" highlights the recognition of the need for cleanliness, and not only in healthcare premises.

2.7 Political background

The DH is tasked with implementing Government policy. This has been taking place against a backdrop of progressive Government cut-backs resulting in fewer staff. At the same time there has been unprecedented building activity.

The NHS and healthcare generally is often referred to as a political football. Smith (2008), in an overall review of the NHS on its 60th anniversary, questioned whether the NHS should be run by politicians. He also suggested that the NHS was so starved of Treasury funding in the 1970s and 1980s that the estate was allowed to deteriorate to a point that was internationally embarrassing, leading to the need for such major investment that private sector funding was the only way to achieve the improvements in the estate deemed necessary to provide fit-for-purpose accommodation for healthcare services.

Whenever the process of changing Government or Secretary of State for Health (even within the same Government) takes place there seems to be a perception that there is a need for the new incumbent to “make a difference”. There have been several Labour and Conservative Secretaries of State for Health during the period 1997 – 2013, each bringing a different emphasis to the DH. Although the estate was not equally affected by all, there have been some notable instances. John Reid’s tenure as Minister for Health saw an emphasis on curbing spending and achieving VFM, and as part of the exercise he reversed the “consumerism” agenda that had resulted in increasing room sizes and therefore costs to an unaffordable level. Whilst Alan Johnson was Secretary of State for Health, Lord Darzi’s NHS Constitution was the first high level policy Government document to mention the need for the healthcare environment to be fit-for-purpose.

It is difficult to estimate how much these sudden changes might have cost the health service, but there is little doubt that the “redisorganisation” (Socialist Health Association 2009) of the health service structures and policies has cost a great deal financially and in other resources such as loss of expertise, staff redundancies and surplus accommodation. The decision to involve the private sector to enable development of the estate could be regarded as a “no brainer”. The costs involved in replacing, re-developing and updating the estate to achieve up-to-date healthcare environments that are fit-for-purpose are enormous, and considered to be well beyond the spending power of central Government. The introduction of PFI has enabled healthcare organisations to attract private sector funding, but at a high cost which is leading to a situation where the Government is unable to provide finance for capital development, and therefore the dependence on the high cost capital mechanism of PFI will continue to drain resources as illustrated in Figure 2-14.

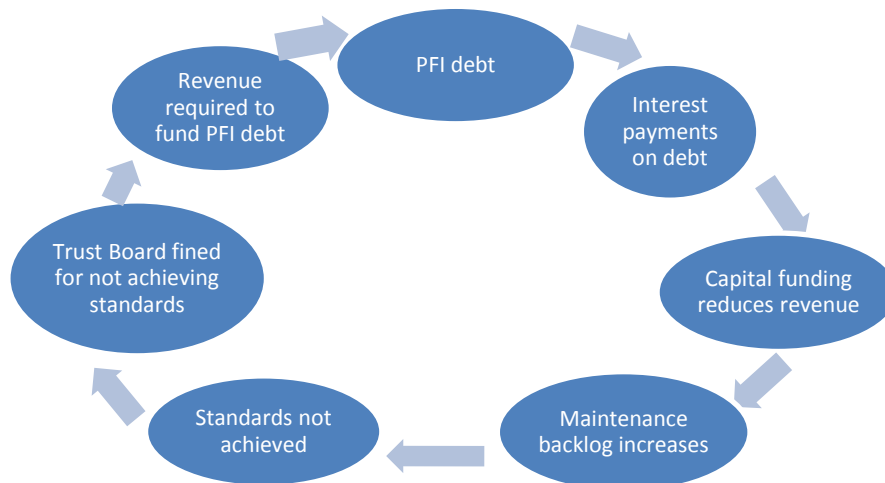


Figure 2-14: The PFI vicious circle of debt for capital

Recent policy regarding the provision of healthcare services “closer to home” has resulted in an expansion of community services and primary care facilities. These services are undoubtedly less costly than those required for the acute sector but there remains a dichotomy for the Government: to risk the wrath of local communities by closing identified over-provision of acute sector services; or to be pragmatic and retain acute sector services that are not financially viable. Despite independent studies to determine the requirement for accommodation of acute sector services, successive Governments have found it difficult to be ruthless enough to close services that are found to be surplus.

In effect, the ownership and therefore control of the newly-developed estate has been ceded to the equity holders at the end of PFI contracts, removing much capital control of the premises from the NHS Trust or FT Board of Directors to a private sector organisation that will have at its heart the need to satisfy its shareholders (Evans 2008). The equity holder will be much more focused on a return on investment (ROI) than the Trust and FT Boards would have had to be in the past, with all that that means in terms of investment in new and expensive clinical accommodation to house the latest technologies.

The process of Government allows the Secretary of State to develop and change policy without the need for legislation; therefore there is no block to reform except through political lobbyists, or media (Baggott 2004). The Health Act 2012 introduced by Andrew Lansley created such a media storm that it was considerably revised before being enacted. Although not directly

affecting the estate, these reforms resulted in the abolition of the PCTs and SHAs. The PCTs were responsible for their estates, and the SHAs provided “shared services” for their regions. The need to ensure healthcare services are provided from fit-for-purpose accommodation has been recognised since the initial building programme in the 1960s, but it took until the advent of the NHS Constitution in 2009 to enshrine this in any form of legislation. The initial DH S&G – HBNs and HTMs - were developed to support the more standardised building programmes of Best Buy, Harness and Nucleus. The changes in procurement processes and in clinical practices have made the upkeep of the S&G an increasingly demanding task. Arguably, the efficient and effective use of IT systems should have assisted with the generation and management of S&G, but organisational changes have restricted longer-term investment in suitable systems.

2.7.1 The NHS Estate

Literature searches have been undertaken to ascertain the extent of the estate at the time of establishing the NHS in 1948 without success. Modern Government-generated records provide information and it is an oft-repeated fact that the current NHS estate is one of the largest and most complex property portfolios in Europe (Secretary of State for Health June 2008). In a report commissioned by The Nuffield Trust, Francis et al (1999) chronicle the significant changes that took place from 1949 - 1999, with the major knock-on effects to the accommodation required for patients, staff and carers.

The political origins of the NHS and other northern European and North American countries lies partly in the threat of epidemics in the rapidly growing cities in the mid-19th and early 20th Centuries. This coincided with the introduction of regulatory measures for health facilities and the medical professions (Bloom and Standing 2008). The healthcare estate grew out of the publicly administered Local Authority workhouses and poor houses (which largely evolved into care homes and mental healthcare facilities), and from the facilities provided by charitable and monastic organisations, the healthcare establishments provided by industrialists and the academic institutions engaged in training the medical professions (Abel Smith 1960; Ham 1999, 2004).

The NHS estate is one of the largest and most complex property portfolios in Europe worth approximately £23 billion (Secretary of State for Health 2008). It has not proved possible to ascertain the extent of the estate at the time of establishing the NHS in 1948 as central records of the estate did not include General Practitioners (GPs) premises as these were often housed in their private homes. This was common practice until the mid-1950s when groups of GPs evolved

from single-handed practices to group practices, with the advantage, amongst others, of being able to share premises, running costs, administration and to give group cover to their patients.

Figure 2-15 shows the footprints of NHS sites for all the Trusts and PCTs in England between 1999 –2008. The fluctuations in size may be attributed to establishment of Primary Care Trusts (PCTs) and the building programme resulting from the policy to move care nearer the home

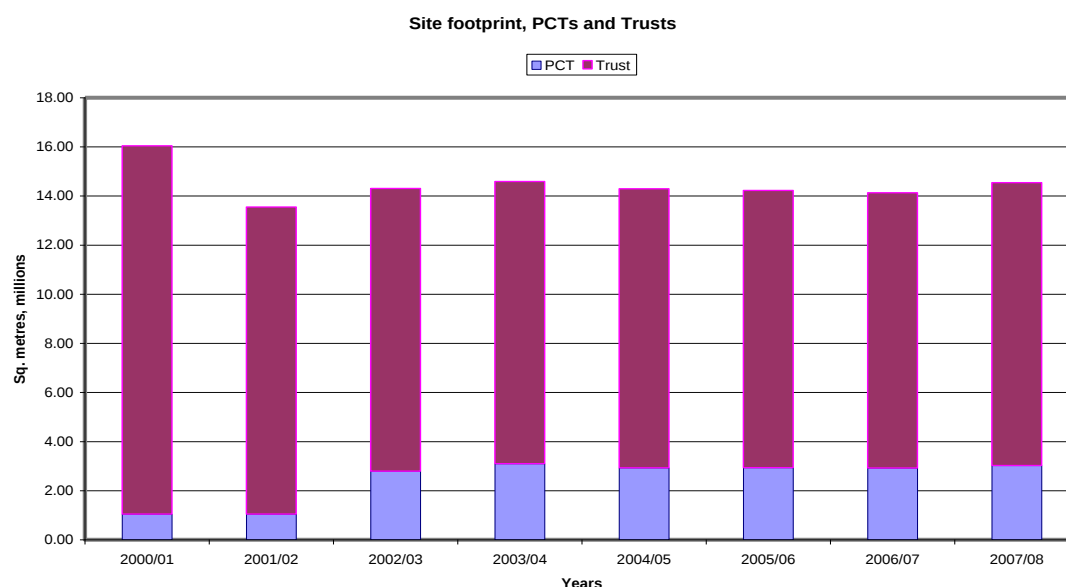


Figure 2-15: Site footprint for PCTs and NHS Trusts in millions of m^2 . Source: NHS Information Centre data collection ².

(Darzi 2008). This figure includes all the land owned by Trusts, not solely the areas that the buildings occupy. The drop from a high point in 2000/2001 is possibly the result of the primary care providers combining and sharing a single building and the sale of surplus land and premises. Even though the actual number of (PCTs) decreased, the floor area of buildings they were responsible for increased, probably resulting from an increase in the services provided to include minor injury units, and in some cases minor surgery.

By contrast, there has been a reduction in the overall estate site holdings compared with the figure for 2000/01, although there is a trend upwards over the three years to 2001/2003, decreasing again until 2007/8. It is difficult to account for these variations but the reduction could be attributed to the sale of the retained estate or land and buildings no longer deemed viable for NHS purposes, or too old and inefficient to warrant refurbishment or development (Department of Health 2012b; Edwards 2013).

There are many policy initiatives that affect the healthcare estate, including: matters relating to privacy and dignity; provision of effective infection control measures (Department of Health

2002c; 2004); and choices for patients (Department of Health 2005a). A search on the DH website for current policy initiatives gives information on all policy, 100% of which relates to clinical treatments, choices and progress on certain targets.

There has been a major investment in the healthcare building programme over the past two decades funded via several routes, notably PFI, and for smaller schemes, ProCure 21 (PC21) and Procure 21+ (PC21+). The length of the lifecycle of the procurement process, which for major schemes may take up to 10 years from inception to occupation, and the political cycle of an election taking place approximately every 4 – 5 years means that successive Governments may overturn a decisions and policies. Thus, in a major construction project of a total of 10 years from inception to completion and occupation, there would be a minimum of two elections. Even a Cabinet reshuffle can affect the progress of major schemes, such as at St Bartholomew's and the London Hospital in December 2005, when the Minister of State for Health halted the project for nearly 6 months and called for a major review. This politically-based disruption causes not only delay but adds cost to construction teams:

"According to figures from the NHS trust and Skanska Innisfree, each day's delay while that review was carried out added an extra £600,000 to the overall costs" (Booth 2006)

and eventually to the end-users – (tax-paying) patients.

The review "High Quality Care for All" by Lord Darzi directly impacted on the building programme by establishing "polyclinics" (Darzi 2008; Imison 2008). How these are defined is open to question (Imison et al 2009), but their overriding purpose is to co-locate existing community-based services and to encourage provision of services in local centres previously provided only in acute hospitals, e.g. outpatient follow up appointments (Imison 2008).

Through PFI, the transfer of ownership of NHS buildings and estate into the private sector affects priorities of the owners and occupiers: owners will need to achieve a return on investment (Harrison and McDonald 2008; Evans 2008) whereas the occupiers (healthcare providers) deliver services that may require considerable investment in expensive high technology in order to retain competitive advantage over other providers. This dichotomy may result in conflicting priorities requiring compromise such as extension of equity holding in the premises, as has been the case at the Norfolk and Norwich Hospital where the contract term has been extended to 39 years. The introduction of the private sector into mainstream NHS services has had a number of knock on effects: the ownership of NHS Foundation Trusts' equity has largely transferred into the private sector; ISTCs were introduced; and the whole NHS has been

forced to compete to provide healthcare services. The effects of these policies are far-reaching in that the logical end-result of private sector ownership would be that NHS services will be delivered from a smaller number of hospitals and privately-owned centres. Evans' monograph describes this in detail and poses the question:

“whether a market in health or Government planning provides the better outcomes?”
(Evans 2008).

The Government acknowledges that there is a need to ensure accountability is maintained through Parliament and declares that it is of “key importance”. Since 2000, there have been numerous significant changes to the structure and organisation of the NHS, which have affected the estate in terms of ownership, funding and location of services. Concerns have been expressed in some quarters that there had been too much “redisorganisation” and that, at very least, consolidation of policy was desirable (Maynard 1994; Socialist Health Association 2009).

2.7.2 Policy from 1990 - 2009

NHS Estates was formed in 1991 centralising the skills and experience relating to property and estates for the DH following re-organisation of the previous Department of Health and Social Security (DHSS) in 1988. NHS Estates was responsible for all matters relating to the estate, including the development and publication of the DH S&G. Architects and engineers provided a means of assessing building projects for suitability, the publications team produced the guidance, and other teams led development initiatives such as waste management, sustainability, decontamination policy and climate change issues etc.

A relatively small (in financial terms) but important responsibility held by NHS Estates was that of healthcare building and environment research, which linked to the generation of HBNs and HTMs. The research programme published reports that were made available free of charge, and although not considered formally as part of the guidance programme, these were influential and provided evidence.

The S&G were originally contained in HBNs and HTMs, and a paper-based system that was transformed into ADB in 1989. The HBNs replaced Hospital Building Notes and a Design Briefing System (DBS) but were essentially similar providing guidance to those involved in provision of facilities from which healthcare is delivered. The DHSS (predecessor Government department to the DH) had a sizeable team of experts responsible for producing HBNs and HTMs; NHS Estates

(formed by the DH in 1999) retained this responsibility but much of the production of the content was subcontracted to external organisations.

In the period 2009/10 – 2011/12, the DH S&G were published via the SpaceforHealth web site, and subjected to a disaggregation process into an electronic component content management system (CCMS), which was never completed. The availability via an electronic CCMS would have ideally enabled searching and facilitate easier and more effective management of the content, cutting production costs and improving content quality.

In 2005, NHS Estates was abolished as a part of the Government's arms' length body review (Talbot-Smith and Pollock 2006; House of Commons 2005b). It was widely surmised at the time that this would result in the loss of much of the specialist estates-related expertise and experience that had been available to Trusts and Health Authorities. A limited number of people were retained in the main the DH in the Gateway Review and Estates and Facilities Division (DH GREFD), and although this section remained responsible for estates-related matters, the reduction in staffing limited activities to more strategic functions.

DH policy since 2010 has been focused on delivering the major changes required by the move from central or regional commissioning of healthcare services to the local level. This has induced a major upheaval in administration and management of the estate and includes the whole procurement process. The further reconfiguration of the NHS with the abolition of SHAs and PCTs caused a further dilution of the remaining estates-related staff in these organisations.

Alongside this major change, the Care Quality Commission (CQC) has been charged with regulating all health services including accommodation and infrastructure. Although requests were made, the CQC did not respond to a question asking what standards would be applied to healthcare buildings and how they would be judged. The Judgement Framework (Care Quality Commission 2010a) contains a single "Outcome" (out of a total of 21) for matters relating to the safety of the healthcare environment.

2.8 Format of policy

It is generally accepted that there are four levels of Government-based authority: primary legislation; secondary legislation; judicial rulings; and best practice and guidance.

2.8.1 Acts of Parliament

Acts of Parliament set out regulations agreed by Parliament that must be complied with e.g. the Disability and Equality Act, 2010. An Act of Parliament forms Primary Legislation setting down

the legal requirements that the NHS must adhere to, e.g. the establishment of the Foundation Trusts, how they are accountable and to whom. A Statutory Instrument is a form of order, rule or regulation, and other subordinate legislation, known as secondary legislation.

2.8.2 White and Green Papers

White and Green Papers are issued by the Government as statements of policy, often presenting proposals for legislative changes, which may be debated before a Bill is introduced. Some White Papers may invite comments. Green Papers set out proposals that are still at a formative stage for discussion. These will include mandatory regulation, which is published by the DH, endorsed by the Secretary of State for Health. Regulation is a term often associated with standards where a standard is used for benchmarking, or acting as a measure against which performance or product might be measured. Mandatory regulations are those that it is essential to comply with.

2.8.3 Best Practice

Best practice is made up of generally accepted good examples. Although not considered to have legal status in law, it is used in healthcare estates to provide standards e.g. HBNs are considered to constitute Best Practice (Hansard 1999). Guidance (in the context of the DH's publications) usually refers to Government endorsed publications for use by practitioners in the healthcare sector. HBNs, HTMs and ADB data are all referred to as guidance. Guidance provides advice that may or may not be taken up, but in the case of HBNs is often regarded by Trusts as setting standards for healthcare accommodation. Best practice is sometimes published in the form of case studies, where examples have been accredited and accepted as high quality solutions, particularly with reference to clinical environments, and those that encompass the latest technologies and provide efficient environments whilst pleasing staff and patients. The NHS commits:

“to ensure that services are provided in a clean and safe environment that is fit-for-purpose, based on national best practice (pledge);” (Department of Health 2008b).

2.8.4 Other statutory instruments

Other statutory instruments include a variety of the DH papers, letters and review documents. Judicial reviews and case law may also include rulings on standards, e.g. the review of bed space provision at University College Hospital, London (Khan 2011).

2.9 Healthcare estates-related management in England

2.9.1 Background

Post-1948 responsibility for the provision of healthcare and its estate was undertaken by a Joint Association that included the voluntary hospitals and the Local Authorities. The voluntary hospitals were expected to continue to raise funds for maintenance and treatment of patients as state funding would not be adequate to provide full services. There was no mandate for health centres, only experimental centres. Klein (2006) described the British Medical Association's (BMA) hostility to

"any proposal which appeared to turn general practitioners into public servants",

that resulted in Government concessions in terms of payment to the medical profession, and the Government

"stuffing their mouths with gold" (BBC 1982).

When the NHS was established the focus was primarily on the key requirement that provision of healthcare should be "free at the point of delivery". Where this "point" was, rarely seems to be mentioned as an important factor, despite research providing evidence that there are links between the environment and patient outcomes (Reiling 2005; Phiri 2006; Ulrich et al 2008). Over time the public's view of a good NHS service has generally included environmental and locational factors such as cleanliness, ease of access, and concerns about the "postcode" lottery (BBC 8 December 2010; Trigg 2010).

2.9.2 Introduction of the "market economy"

The political climate since 1979 has been moving towards a "market driven" economy, initially being introduced as a means of achieving greater efficiency through competition, which in turn would provide patients with better clinical services. It has been argued that this market can never truly function to achieve these aims because medicine and healthcare do not form a "commodity", and the question should be "what can we expect from each of the various alternative sets of institutions?" rather than "what outcome is ideal?" (Friedman 1991).

2.9.3 The Independent Sector

Private sector healthcare provision has co-existed alongside the NHS since its establishment and has been taking a growing sector of the healthcare market (Office of Fair Trading 2011). This is corroborated by The Nuffield Trust statistics (Figure 2-16).

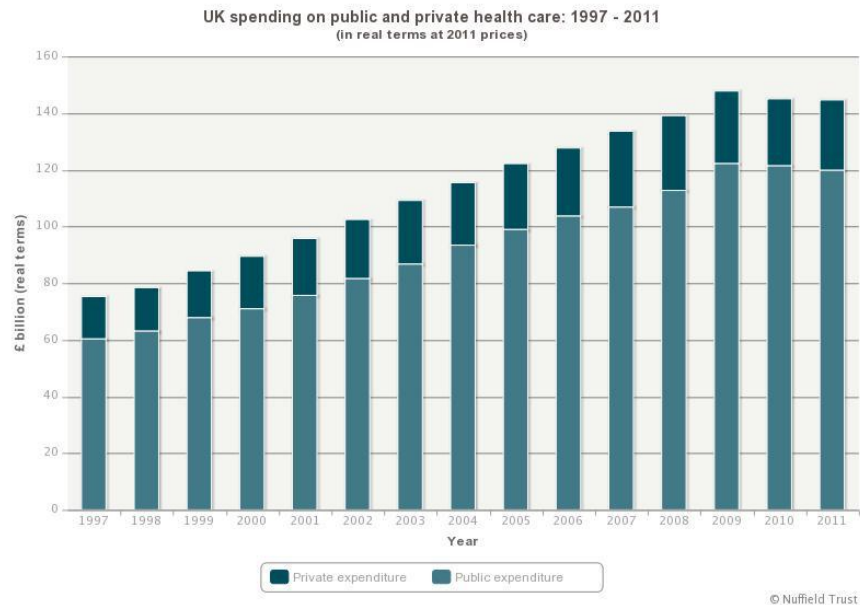


Figure 2-16: UK spending on private and public healthcare. Source: Nuffield Trust (2014).

During the 1990s and 2000s, the length of waiting lists for treatment was rising and became a hot political problem. The Government decided to implement a policy to increase capacity but could not afford to do so without the involvement of the private sector. In 2002, the Independent Sector Treatment Centres (ISTCs) were commissioned by the Government to help reduce the length of waiting lists (The House of Commons Committee of Public Accounts 2005-2006). The first ISTC was opened in 2003 (The House of Commons 2006). The aims of the programme were summarised as follows.

“The ISTC Programme is intended to be an efficient and cost-effective use of Independent Sector (IS) capacity and capability to reduce waiting times and offer more choice to NHS patients. ISTCs provide elective surgery procedures for a range of conditions, including orthopaedic procedures and cataract removal.” (Department of Health 2005c).

The policy was certainly seen as successful in its aims. However, the need for the extra capacity has since been called into question. The guidance for private sector accommodation was originally in the form of monitoring performance rather than the physical estate (Department of Health 2002b). Since the role of the CQC was extended in 2009, it has included all independent healthcare providers as well as those of the NHS.

GPs were enabled to purchase healthcare for their patients from Any Willing Provider (AWP), appreciably adding to the competitive forces within the NHS. The UK market for private healthcare in 2010 was worth an estimated £30 billion, whereas the public sector accounted for £80 billion (Key Note Editor 2012; Ramsay Healthcare UK 2012; Office of Fair Trading 2011).

2.9.4 Economic influences

Since the recession of 2007/8, the health service has been affected by funding cut-backs, despite the Government's assurance that it would preserve spending levels. Regardless of these reassurances there is a growing awareness that funding for healthcare services cannot be viewed as a "bottomless pit", and questions are being asked about the future of the NHS and whether some form of rationing is necessary (Weale 1998; Rumbold 2012). Strategic management of the estate is minimal, and lack of Estates representation at Board level may have a deleterious effect on priority setting within Trusts (Reeleader et al 2006). Private sector investment is separating the ownership of the buildings from the organisations delivering clinical services, the long-term effects of which are yet to be fully realised (Evans 2008). Even though modern surgical activity often requires a much reduced stay in hospital or day surgery, the costs of providing adequate accommodation are still very high. The debate remains open, with allegations that bed closures are compromising the delivery of healthcare, as expressed by the Royal College of Physicians (Triggle 2012b).

The NHS is becoming more and more similar to private sector organisations in the way that it is funded and capitalised, making a return on investment (ROI) for equity holders and their shareholders an important factor. Government spending on the NHS over the last ten years has increased by 70% from £60 billion in 2000-2001 to £102 billion in 2010-2011. This has enabled hospitals to invest in more, including improvement of buildings and equipment (House of Commons Committee of Public Accounts 2011). In spite of this substantial increase in spending, the Office for National Statistics (ONS) has estimated that total NHS productivity fell by an average of 1.4% per year in hospitals between 2000 and 2008 (Office for National Statistics 2010).

Resulting from the introduction of private finance, the principal strategic effect of private sector interests in NHS estates is the disconnect between the provision of NHS clinical services and the ownership of the premises from which the services are delivered (Evans 2008). There is little mention of managing the NHS estate at strategic level in either legislation or the DH policy; two exceptions are the SHAPE tool (Section 2.3) and Estatecode, which has recently been incorporated into the HBN series. The equity-holder of the PFI will need to demonstrate ROI to shareholders, which may weigh against capital development for clinical purposes, particularly where treatments are known to be expensive to the Trust. Consultants are occasionally commissioned to produce reports on aspects of the NHS, but these usually relate to

management or clinical policy rather than the estate which, in view of its extent, makes this omission a significant gap.

2.10 Overview of DH S&G for healthcare infrastructure

It has been mooted that, if the estates-related S&G were not there, the private sector would have to “invent” them (Kilvington 2009). The DH suggests that this would potentially add substantially to the cost of briefing, design and procurement of healthcare infrastructure. A full list of DH S&G publications is given at Appendix 1.

Patient safety is the highest priority for all involved in provision of healthcare. The healthcare environment must therefore be designed to promote safety (Ulrich 2001; Reiling 2005). This concept is linked with the mitigation of risk, and these two effects of the use of S&G appear to resonate with the interviewees and the survey group. That the S&G is considered to be out-of-date and could lead to briefing and design errors is a paradox. It is accepted that environments affect the perceptions of their occupants (Gesler 1992; Biley 1996; Gesler et al 2004; Andrade et al 2011; Curtis 2013). Arneill and Sloan Devlin (2002) go on to explore the relationship between the quality of the environment and medical care, and conclude that a pleasant environment raises the expectation and perception of patients regarding their quality of care. However, pleasant or not, the effect could prove to be clinically unsafe and not fit-for-purpose if the basis for the design and construction of the environment is out-of-date.

The need for a comprehensive set of DH S&G is supported by the RIBA (Francis 2007) and Zhao et al (2009) who described the complexity of healthcare buildings due to the required interrelationships between clinical spaces and the services they require and Architects for Health (AfH), an off-shoot from the RIBA for architects interested in the healthcare sector of the construction industry (Architects for Health 2014). A list of the titles issued in the HBN and HTM series of publications has been provided in Table 2-3 the majority of the HBNs relate to acute and in-patient accommodation, with a set of guidance for generic accommodation provision such as sanitary facilities that is standard throughout.

Table 2-3: Health Building Note numbering Source: www.SpaceforHealt.nhs.uk

Health Building Note 00	Core elements Support-system-based
Health Building Note 01	Cardiac care Care-group-based
Health Building Note 02	Cancer care Care-group-based
Health Building Note 03	Mental health Care-group-based
Health Building Note 04	In-patient care Generic-activity-based
Health Building Note 05	Older people Care-group-based
Health Building Note 06	Diagnostics Generic-activity-based
Health Building Note 07	Renal care Care-group-based
Health Building Note 08	Long-term conditions/long-stay care Care-group-based
Health Building Note 09	Children, young people and maternity services Care-group-based
Health Building Note 10	Surgery Generic-activity-based
Health Building Note 11	Community care Generic-activity-based
Health Building Note 12	Out-patient care Generic-activity-based
Health Building Note 13	Decontamination Support-system-based
Health Building Note 14	Medicines management Support-system-based
Health Building Note 15	Emergency care Care-group-based
Health Building Note 16	Pathology

An assessment of the development of HBNs over the past decade reveals that guidance for provision of primary care accommodation was treated in a completely different manner to the previous hard copy version being issued via a web site, since discontinued. This indicated that primary care was viewed in a very different manner from the traditional hospital-based guidance. It was also the only guidance that did not in any way relate directly to the data provided in ADB. This disconnect caused a significant degree of dissatisfaction and frustration on the part of users of both HBNs and ADB.

Of particular importance are the Darzi report (Darzi 2008) and related documents that encapsulate a major shift in Government policy, moving the provision of healthcare closer to the community. This resulted in a major building programme of primary care facilities including community hospitals, “polyclinics” and health centres grouping GP practices together. A King’s Fund review of this policy analyses this policy in detail (Imison 2008) and identified opportunities and risks in relation to: the quality of care, accessibility of services and cost.

The development of a research programme and establishment of evidence relating to the effect of the environment of those inhabiting it appears to represent a gap in policy. In “The State of the Estate in 2008” (Office of Government Commerce 2008) the Office of Government Commerce sets out the total running costs for the Government estate for the year 2007/2008 as in the region of £3.5 billion for “the mandated estate”, which is defined as “workspace, offices and other property (land and buildings) used to deliver departments’ activities that is owned,

leased, or occupied by a Government body including non-ministerial departments, agencies, executive non-departmental public bodies and Special Health Authorities in Great Britain. It does not include the operational NHS estate, the Prisons operation estate, the Foreign office overseas estate, the Department of the Environment, Farming and Rural Affairs (DeFRA) rural estate, the privatised rail entities, public corporations or the Defence estate (except for certain civil elements)” (Office of Government Commerce 2008).

The most recent major policy shift followed the May 2010 election when the new coalition Secretary of State for Health, Andrew Lansley, proposed major reform in the management and delivery of health services, taking the Darzi proposals on to a much more radical plane (Smith and Devlin 2010). Commentary and analysis of these proposed changes is largely contained in broadcast interviews, newspaper articles and blogs (BBC News 2010a; BBC News 2010b; The Times 2010; Lister 2011; Meldrum 2011).

In the media, reports on patient safety and cleanliness are two issues that excite attention, which relate directly to the healthcare environment. The high public profile of these two issues has resulted in the need for evidence of accountability for the estate and the healthcare environment. Visible regulation of the estate has become a political necessity that is provided by the National Patient Safety Agency through a reporting mechanism on their website (National Patient Safety Agency 2011). The policy related to healthcare estate regulation is available from the CQC web site (<http://www.cqc.org.uk/>). This has been developed since 2009 when the responsibilities of the CQC were increased from solely Mental Health to include the whole of the healthcare system.

2.10.1 Structure and content of existing S&G

The HBNs form what is often considered to be the complete guidance for in-patient accommodation as shown in Table 2-3. The stated audience for the HBNs and HTMs is:

“project teams designing and planning new buildings and adapting/extending existing buildings” (Department of Health 2011c).

The introduction to HBNs states that the content of the documents is:

“to give ‘best practice’ guidance on the design and planning of new healthcare buildings and on the adaptation/extension of existing facilities.

They provide information to support the briefing and design processes for individual projects in the NHS” (Department of Health Estates and Facilities Division 2009).

Guidance provided in the HTMs:

“remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle.” (Department of Health 2011c).

The DH is anxious to make sure that the latest guidance is used. Thus, when downloading a document a user must know that this is the most up-to-date guidance. Although superseded guidance is archived there is no mechanism to access guidance “as released” at a particular date – a serious flaw in case of disputes and potential judicial inquiries, such as that conducted in 2005 at University College Hospital, London into the changed standard for space allowed between beds (Khan 2011). The final two chapters of the HBN documents are largely standardised, but the two sections or chapters relating to general and specific functional and design considerations contain the detailed requirements for the particular topic or service. Appendices may be included providing schedules of accommodation, room layouts and references.

The SpaceforHealth web site provided disaggregated sets of information that could be downloaded, but are not re-constituted into documents. Where the HBNs or HTMs were not disaggregated, they were made available as .pdf files. The documents were typically structured fairly similarly into chapters as set out in Table 2-4.

Table 2-4: Content of text-based the DH S&G

HBN Topic/Department	
Chapter	Content focus
Background	General service considerations for the Department/topic
General functional and design considerations	Department specific considerations
Environmental and other topics	
Specific functional and design requirements	
Other general functional and design considerations	
Support facilities	Standard chapter
General Engineering principles*	
Cost information	Standard chapter
* Topic specific subject amplified in HTM S&G	
HTM Topic	
Chapter	Content focus
Introduction	Preamble, General, Legislation, S&G, Model engineering specification, Exclusions, Definitions,
Topic specific parameters	service source, service supplier, service specific regimens and treatments, capacity requirements, sustainability issues, storage capacity and locations, duct routing and specifications, valves and conduits required, service outputs required, construction materials, structural requirements, environmental considerations (light, noise, vibration, protection, energy), cleaning requirements, inspection, testing, commissioning, infection control issues, documentation requirements

2.10.2 Funding of the DH S&G

The Barnett formula provided, for about 30 years, a mechanism for allocating funds between England, Scotland, N Ireland and Wales for services provided that are common to all four provinces (Twigger 1998). A formula was in place until 2009 for funding to be allocated for the production of guidance relating to NHS premises and environments. The Barnett formula was perceived to be 'arbitrary and unfair' (Lords Press Notice 2009) and has now been replaced by a new organisation: the UK Funding Commission.

The S&G took the form of hard copy publications, but since 2002 were made available electronically, first of all in .pdf format via the NHS Estates Knowledge and Information Portal (KIP). A budget was held by the DH GREFD for the production of the HBNs, HTMs and ADB data and software. This was used to commission experts and highly skilled sub-contractors to produce the written texts (HBNs and HTMs) and the data sets for ADB. This amounted to approximately £2.1 million including administration and staffing costs and was made up of £1.6

million funded by the DH with the addition of the licence fee income from ADB that fluctuates annually between £600,000 – 800,000.

At a conference in 2008 arranged by the DH with selected architects, engineers and Trust Estates staff it was suggested that a “top slice” could be levied from all capital projects that would pay for the production of the guidance, which would be of benefit to all organisations involved. A charge of 0.05% on the total value of building projects would raise approximately £1.3 million, which could go a long way to funding the production of HBNs, HTMs and ADB, all of which provide users with the baseline standards for healthcare environments. Although no further action was taken, there was general but muted agreement that this proposal could provide a solution to the clear need for investment in generation of the guidance.

2.10.3 The current DH S&G

DH S&G for the healthcare environment have traditionally been written by teams of experts who contribute their acknowledged experience in the topic or subject area. An NHS Estates “editor” managed this process, and following the closure of NHS Estates the editors were transferred into the COI. The drafts and final documents are signed off by the DH personnel. In the early 2000s, the DH set up a series of Knowledge Network Groups, chaired by the relevant senior DH staff that contributed experience and evidence to the HBNs and HTMs until the Groups were discontinued at the time NHS Estates was abolished in 2005. This arrangement was similar to the Pebble Project in the USA, which aims to provide an open source of examples designed and built for healthcare facilities offering evidence for stakeholders. The development of such a source provided a good example of a similar process to the generation of HBNs and HTMs, with the difference that it is not badged as Guidance or Standards.

The HBNs and HTMs are classed by the DH as evidence-based. Clevenger and Haymaker (2011) assert that much of the Architecture, Engineering and Construction (AEC) industry relies on variously named precedent, experience or case-based design combining or adapting previously tested solutions. These descriptions could all be applied to the DH S&G. Further, Maynard and Rejeski (2009) comment that voluntary efforts to gather information are largely unsuccessful, and go on to say:

“evidence-based regulations benefit industry by reducing uncertainty”.

Evidence is sometimes referred to explicitly in text but does not necessarily lead to a ready recognition by users that S&G are evidence-based, partly because there is confusion between

experience with evidence (Hignett and Lu 2008). A failure to conduct post-project and post-occupancy evaluation results in failure to capture implicit and explicit knowledge from construction projects (Egbu 2004; Tan et al 2006). This leads to “reinvention of the wheel”, which can be a costly and resource-heavy process. The experts contributing their knowledge and expertise to the HBNs and HTMs could be considered as contributing their experience rather than evidence. However, clinical experience translates to evidence through oft-repeated clinical practices that is usually gained over years, working in different environments but providing similar clinical services. A designer may not have any or very little experience of hospital design or engineering and therefore depends on the S&G extensively to understand the needs of the clinicians.

2.10.4 Classification and Status of the DH S&G

The DH produces a large number of documents including draft legislation, policy, guidance, standards and “best practice”. Each of these categories determine the classification and status of their content, e.g. adherence to legislation is mandatory whereas guidance is not necessarily so. These documents are all disseminated on the DH web site, which lists many items where reference is made to “standards, “regulations”, “best practice” or “policy”, but when sorted by relevance, many of the returns are transcripts of speeches made by various Secretaries of State for Health over the past several years. A more productive way of ascertaining how these terms are applied within the DH is to search through the web sites of the several bodies creating standards within the DH. The principle ones are:

- National Patient Safety Agency (NPSA) – patient safety;
- National Institution for Health and Clinical Excellence (NICE) – largely clinical and medical;
- Care Quality Commission – Health Care and Mental Health services; and
- DH Gateway Review and Estates and Facilities Division (DH GREFD) –the built environment.

The following provides a very brief overview of the role and publications of these bodies. The NHS Confederation is another influential body; although it does not itself create standards, but represents those who are responsible for implementing them, and therefore has a significant voice.

NPSA

The NPSA publishes guidance as downloadable documents on the internet, for example:

- “Rapid Response Reports” (advice on patient safety issues that need immediate local attention);
- Patient Safety Alerts (advice on patient safety issues that are important and have a specific timeline for implementation);
- Safer Practice Notices (guidance on patient safety issues that contribute to improving patient safety);
- Patient Safety Guidance (Includes advice and information); and
- Patient Safety toolkits and e-learning packages (tools and modules that help and contribute to education and training sessions at a local level) (National Patient Safety Agency 2011);

It is noticeable that NPSA does not refer to its guidance as “standards”.

NICE

NICE refers to its publications and their contents as “guidance” almost exclusively and a search for “standards” on the NICE web site assumes that the searcher wants to access information in the form of guidance as follows (note: NICE categorises its guidance by type):

- guidance by topic;
- guidance by date; and
- other publications.

NICE also produces guidance inherited from the Health Development Agency and guidance for the NHS on clinical audit and referral advice (National Institution of Clinical Excellence 2009). A search for “standards” on the NICE web page all relate to “illness or health topic” (National Institution for Health and Clinical Excellence 2009), and do not include any infrastructure-related terms.

The Darzi report, (Darzi 2008), expanded NICE’s role to include setting and approving more independent quality standards for the NHS. The report highlights the difficulties clinicians face in keeping up with the best evidence. It states that standards should clarify what high quality care looks like with regard to:

- clinical effectiveness;
- patient safety; and

- patient experience.

Care Quality Commission

The CQC is the newest health and social care regulator for England, initially responsible for Mental Health services:

“We look at the joined up picture of health and social care. Our aim is to ensure better care for everyone in hospital, in a care home and at home. We regulate health and adult social care services in England, whether they're provided by the NHS, local authorities, private companies or voluntary organizations. And, we protect the rights of people detained under the Mental Health Act.” (Care Quality Commission 2010d)

The regulatory framework has extended the role of the CQC to include all healthcare organisations – both private and public sectors.

The NHS Confederation

The NHS Confederation is an independent body drawing members from the full range of organisations that make up the NHS. This includes independent healthcare providers.

In its publication “What’s it all for?” the NHS Confederation’s definition of standards is:

“..... the DH sets standards, but then each regulator sets its own compliance standards... leading to tremendous overlap. There are only so many headings in this space – governance, safety, patient focus, accessibility, staff and public health, care environment, clinical effectiveness and outcomes As a consequence of not having a single set of standards, there is variation in the definition of similar standards, which leads to IT issues such as differing numerators, denominators, time frame, standard target and audit targets, which usually result in bespoke data capture for very similar areas” (NHS Confederation 2009).

This highlights the particular problems with defining “standards” in health – across so many different disciplines and professional areas.

DH GREFD Publications

The ADB data, HBNs and HTMs are often referred to as reflecting “baseline standards” for the built environment for healthcare. The documents contain policy, which could be described as standards - but also contain specifications. The use of the word “standards” is frequent within the documents, and relates not only to the environment, but also to engineering and other externally required standards such as Chartered Institution of Building Services Engineering

(CIBSE) (CIBSE 2012). “Standard” is also regularly used as an adjective to describe services, systems, or items of equipment, furniture or fixings.

The results of a search through all documents resulted in a relatively limited return thus indicating that the term “standard” is not considered a key word and therefore does not appear in the summary of the document (Figure 2-17). Assuming the summary and keywords are written and assigned by those authoring the document this could indicate that the author(s) either do not regard these publications as setting standards, or simply that they are regarded as de facto standards not requiring specific definition as such. A further search of the same publications using the word “guidance” returned a far greater number of documents.

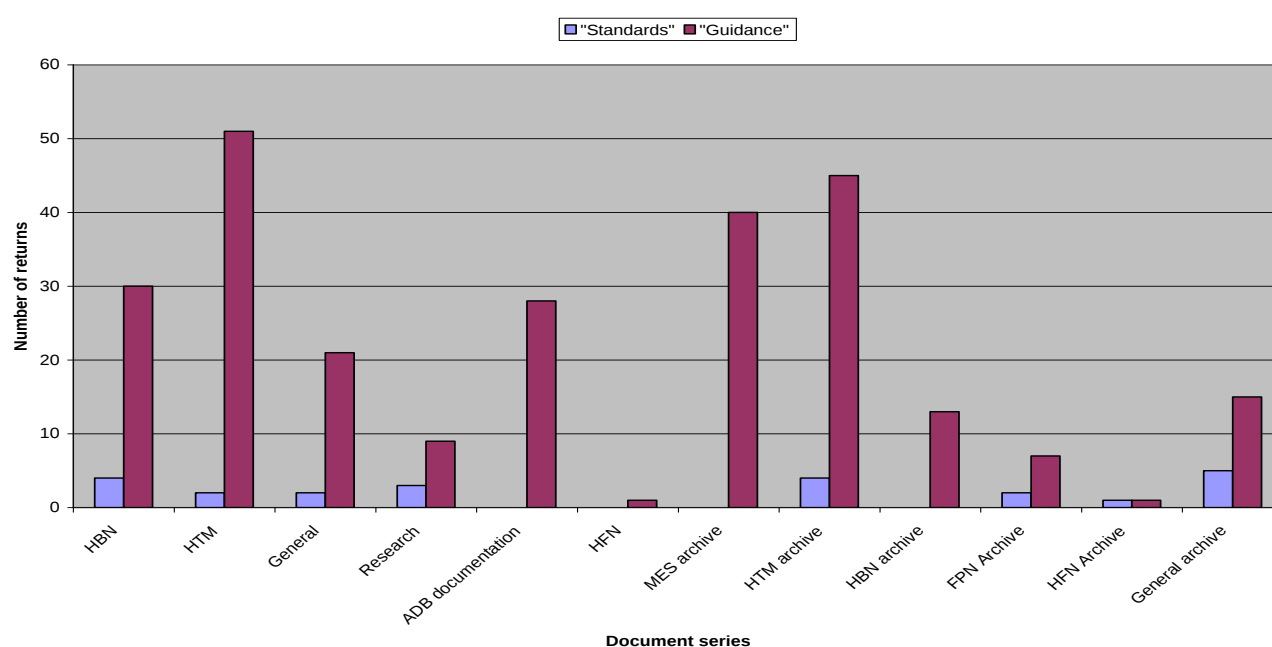


Figure 2-17: Search returns for “Standards” and “Guidance” in the DH GREFD documents from SpaceforHealth.
Source: Department of Health 2011c)

Standards are set out in a DH document (Department of Health 2002b) for regulation of the independent healthcare sector as developed under Section 23(1) of the Care Standards Act 2000, and covering all aspects of healthcare provision. Section 5 is devoted to premises, facilities and equipment setting out standards C17, 18 and 19 and their expected Outcomes. Other sections set out “core” standards relating to management and administrative procedures, and service-specific standards. The service specific standards mention provision for safety, infection control, adequate provision for specialist equipment etc.

2.10.5 Development of new and emerging S&G

The launch of the SpaceforHealth website in 2010 resulted in a major change in the format of the HBNs and HTMs. A component content management system (CCMS) was later introduced to enable the content to be held in a database of “units” of information and assembled into documents as required by a user. Each unit therefore needed to be available for inclusion in any relevant document, thus the rooms that are commonly repeated in the guidance may be held once, but available for inclusion in each document where that room is required. Any editing, addition or amendment is therefore only required once, rather than going through every document to change each instance.

The data in SpaceforHealth were incomplete, particularly of the more complex clinical departments such as Digital Imaging, Pharmacy and Pathology, and the work on disaggregation was not finished prior to the closure of the COI in 2012. This was a cause of dissatisfaction on the part of users. The advantages of standardisation of the HBN/HTM content would have improved search-ability, and more consistency of content.

2.11 Application of S&G

Procurement of healthcare buildings is readily divided into several major stages:

- capital planning;
- briefing;
- designing;
- equipping; and
- construction.

These stages are common to all building projects. The Royal Institute of British Architects Plan of Work (Royal Institute of British Architects 2013), includes a more detailed process for the Briefing through to construction stages. The need to provide S&G for healthcare accommodation is supported by a general move towards “evidence-based design” and the need to improve hospitals to provide safer, healing and better places to work (Ulrich 2001, Reiling 2005, and Sadler 2006).

DH S&G is set at both a more strategic level and also includes some very detailed content on issues such as Stakeholder Consultation (Department of Health 2011b) and Sustainability (Department of Health 2011e) Public sector construction procurement needs to demonstrate

Value for Money (Department of Health 2011f) and accountability (Department of Health 2009d) as set out in the NHS Constitution (Department of Health 2008b).

The HBNs produced by the DH aim to provide users with:

““best practice” guidance on the design and planning of new healthcare buildings and on the adaptation/extension of existing facilities. They provide information to support the briefing and design processes for individual projects in the NHS building programme.”
(Department of Health 2007a)

This statement is included in the Preface to each of the current HBNs. Guidance provided in the HTMs:

“remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle.” (Department of Health 2007b)

There are a number of checklists and assessment documents that, although they do not specifically set standards, act as guidance and self-assessment tools and therefore are considered as a part of the processes of planning (Department of Health 2010f), designing (AEDET) (Department of Health Estates and Facilities Division 2008a) and maintaining healthcare buildings, e.g. the Premises Assurance Model (PAM) (Department of Health 2009c; Department of Health 2010d) and ERIC (Department of Health 2009b).

Practitioners in the private sector who are involved in provision of professional services and expertise to the NHS use the DH S&G and tools on a regular basis. They usually specialise in particular sections of the process such as set out in Figure 2-18. The DH S&G do not include downstream processes such as Procurement/Commissioning processes or Facilities Management. These are not considered to be “core” activities for the DH but healthcare providers need to undertake these activities and ERIC and PAM require submission of returns for Trusts for self-assessment returns to assure the DH that they are maintaining their estate and healthcare environments appropriately (Department of Health 2010b).

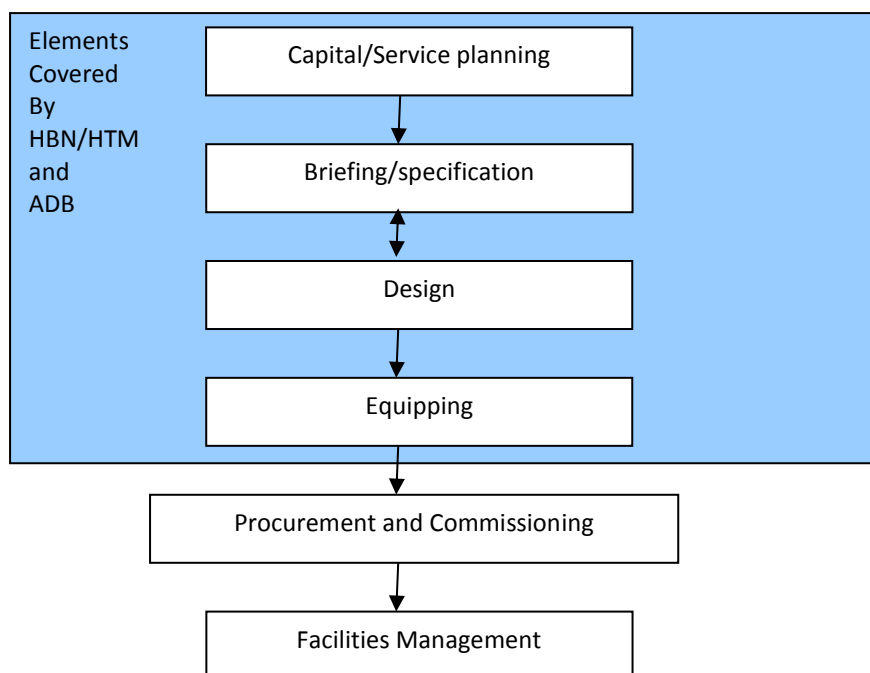


Figure 2-18: Procurement steps where ADB and data set are designed to provide guidance

The DH has formalised the funding for healthcare procurement into two principal procurement processes: PFI and Procure 21+, depending on the size of the project. PFI was introduced during the late 1990s, used for large projects with a value in excess of £10 million. The purpose was to inject sufficient capital to bring the health service buildings up to standard, and thereby provide patients and staff with environments suitable for healthcare and fit-for-purpose (Department of Health 1997).

The second procurement method is ProCure21, later re-launched as ProCure 21+ (PC21+). This model uses the concept of an established supply chain, where the DH has put in place a choice of six supply chains from which an FT, NHS Trust or PCT could select their preferred bidders. This system seeks to save time and money by circumventing the extensive EU regulations concerning Official Journal of the European Union (OJEU) tendering processes. The Local Initiative Finance Trust (LIFT) scheme is similar to ProCure 21+, but is specifically for primary care contracts.

2.11.1 Identification of processes

Prior to the introduction of PFI, PC21+ and LIFT, the planning process was relatively simple, in that there was a system of producing an Outline Business Case (OBC); on approval this would be developed into a more detailed Full Business Case (FBC). The business cases were scrutinised and approved by teams of specialist NHS Estates staff working in the NHS Executive Regional

Offices, in collaboration with Local Authority (LA) planning teams. Following the abolition of the NHS Executive in 2000 and NHS Estates in 2005 (Department of Health 2005b), the process has changed significantly to involve Ministers' approval of Expressions of Interest received from LAs and review by the DH and the Public Private Partnership Programme (Department of Health 2010c).

The DH publications and tools are used extensively to support the contributor organisations in the process of procuring and maintaining healthcare environments. The HBNs and HTMs provide textual descriptions of clinical contexts, policy and planning and design requirements for healthcare accommodation. The ADB dataset translates the HBN and HTM text into data that can be used for a variety of purposes:

- reference source;
- planning (production of room schedules for high level estimation of area and cost);
- briefing for a specific project by taking the data and editing according to each project's needs;
- designing (with the additional use of a BIM or CAD package) to reflect each room layout required; and
- equipping by editing lists of equipment and furniture to make them match the brief and design (including production of Bills of Quantities).

A schematic (shown in Appendix 2) of the decision-making design process produced by a major contractor in collaboration with three architectural practices demonstrates their use of S&G. It is fairly typical of most healthcare construction projects; the major contractors consider that ADB, HBNs and HTMs are used on over 95% of healthcare construction projects in England. This demonstrates the use of HBNs, HTMs and ADB at the various stages of the planning, briefing and design processes (Kilvington 2009). The ADB data can also be imported into two other "competitor" products, Codebook and ActivePlan. Whichever product is used, the practices are fairly standard for each stage of the project.

2.11.2 Applications of DH S&G

There are well established construction methodologies that are used by the construction industry throughout the sector. In healthcare projects, there are some practices that are dictated by funding mechanisms. These have changed significantly over the past 20 years with the perceived need to introduce private financing into the NHS building programme. Others

remain, such as traditional planning, briefing and specifying as described in the RIBA work plan (2013) and the Construction Industry Training Board (CITB) (2007).

Hignett and Lu's study in the use of HBNs highlights several issues: the need for standardised guidance; the perception that DH S&G stifle innovation; and the need to include consideration of the patient (Hignett and Lu 2008). Healthcare planners are usually employed by construction consortia to provide expertise in the provision of healthcare buildings. These are often ex-nurses or former clinicians who bring extensive experience in working in clinical environments. They use HBNs and HTMs, and sometimes ADB, to provide strategic information to their client. This information often consists of a schedule of rooms required, with basic spatial requirements, which is then passed on to the planning team, either within the Trust or the Trust's appointed consortium, to develop into a detailed brief. The brief usually comprises room data sheets detailing functions, personnel, adjacencies to other rooms, area, height, engineering services required (e.g. Heating Ventilation and Air Conditioning), lighting, acoustics, fire safety, clinical risk, architectural finishes such as floor coverings and a list of clinical and non-clinical equipment. Graphical room layouts are also produced, with a specific requirement that room plans and elevations for a percentage of rooms are submitted as a part of the business case assessment for PFI funding approval.

Drafting an output specification or standard is a challenging process, particularly for use in PFI, as it is required to incorporate flexibility for changing needs brought about by the speed of change in health policy, technology and medical advancement (Javad et al 2013). The DH S&G specify clinical departments and spaces, which are incorporated into PFI contractual documentation (Kilvington 2009), thus increasing the importance of their accuracy, completeness and consistency. The DH S&G include environmental and safety factors in addition to the clinical departments and spaces. The originator of a standard influences the perception of its status; this applies to most information which is generally coloured by the standing or reputation of the person or organisation providing it (Gil and Artz 2007). However, Shaw (2004) alleged that DH standards were not fit-for-purpose as they did not match other NHS Performance, European Framework Quality Model (EFQM) or international templates from either Canada or Australia. He also described their development by one agency within the DH and use by others, leading to a lack of coherent development. Although these criticisms relate to clinical standards, these points are also true of the estates-related S&G, particularly in the latter years when the generation and publication of the S&G was commissioned by the DH from

external contractors, and are used by a variety of private sector consultants in the construction industry as well as public sector managers.

2.11.3 Regulation and Accountability

There are several forms of regulation: Government; self-regulation; contributor regulation; and stakeholder participation (Burger 2012). Regulation helps to create the necessary structures for improving accountability to stakeholders (in the case of the NHS, patients, carers and staff) and usually takes place against a set of standards to maximise their effectiveness and fairness (Nunes 2009) and transparency.

Accountability for the NHS estate is enacted and published in White and Green Papers that have been published since 1948. A total of approximately 120 Acts have been passed since the NHS was formed, a list of which is provided at Appendix 3. Traditionally, the Local Authorities were responsible for the provision of institutions looking after the poor and insane, and this has largely remained the case. The Special Health Authorities for provision of Mental Health care are specifically included in the OGC report “The State of the Estate 2008” (Office of Government Commerce 2008), distinguishing them from NHS property, which is not.

Clinical governance is the method through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which clinical excellence will flourish (Department of Health 2010g).

Clinical governance has been defined as:

“A framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish”. (Scully and Donaldson 1998).

Scully and Donaldson did not define what they meant by “environment”: the physical environment, e.g. buildings and environmental factors, or the clinical culture and practices of the healthcare organisation providing the care, or both?

The overall purpose of the DH is to ensure healthcare is delivered safely, efficiently, and effectively for patients. It is therefore often the business of the DH, and many other Government departments, to regulate and set regulations. “Regulation” is a term often associated with standards where a standard is used for benchmarking, or acting as a measure against which performance or product might be measured. Luu et al (2008) suggested that the

benchmarking process has grown out of Deming's Principles for Quality (1982) and therefore it could be reasoned that the use of DH S&G for benchmarking with some key performance indicators (KPIs) would provide ways of ensuring compliance with standards but also emphasise that benchmarking should not be viewed as an end, but rather as a means to improve (Garnett and Pickrell 1998; Luu et al 2008; Toor and Ogunlana 2009; Maheshwari and Janssen 2013).

In order to regulate, there is usually a standard or benchmark against which comparison can be made, providing a benchmark, which must be equalled or exceeded. To regulate without a pre-set standard is to invite dispute and controversy (Baldwin et al 2012). Although the DH GREFD does not specifically state that HBNs and HTMs form a set of standards that should be achieved in healthcare environments, those using them very often assume them as such, so that they have a basis on which to develop their briefing and design activities.

The NHS Estates commissioned report from Burton et al (2002) which postulates that briefing is an important constituent process in producing efficient and effective buildings. The report sets out a clear set of objectives for consideration by procurement teams and although principally concerned with the quality of design it suggests that NHS Estates:

"... should continue to expand on their store of exemplar buildings. It is suggested that these should be illustrated and available project by project in a consistent format and should include international examples." (Burton et al 2002)

This appears to support the need for standard setting centrally, which can be accessed by a wide variety of users to ensure the quality of accommodation for healthcare services is of a high standard. The increasing emphasis on patient safety and patient outcomes has shifted the perspective of the healthcare sector as a whole. Policy and the downstream applications of the DH S&G are driving towards greater emphasis on patient-centred services and their regulation.

The move away from centrally imposed targets in the health service since the May 2010 election has been accompanied by the move to regulation by the CQC. The process used for the new way of working is unclear despite the publication of a document called the Judgement Framework (Care Quality Commission 2011). There is reference to the healthcare environment in "Outcome 10 (Regulation 15): Safety and suitability of premises" of this document the first "prompt" is:

"Is the design, layout and security of the premises fit-for-purpose to safely meet the needs of everyone receiving care and treatment including those with disabilities?" (Care Quality Commission 2010b)

Assessment processes are required but apart from the healthcare providers' need to register with CQC there is little further detail setting out how these standards are to be applied or monitored.

The DH regard Lord Darzi's Constitution, initially published in 2009, as the first specific mention of the estate as a factor in the delivery of healthcare services. The Constitution has been updated annually, and the commitment remains in place:

"The NHS also commits: to ensure that services are provided in a clean and safe environment that is fit-for-purpose, based on national best practice (pledge) (Department of Health 2012a)".

This implies that the DH is committed to provide exemplars of "national best practice". The HBNs and HTMs are described as "best practice" in Hansard (1999), but there appears to be a gap between provision of best practice and the measurement of implementation through such mechanisms as post-project evaluation (PPE) and post-occupancy evaluation (POE). Although PPE is expected to be undertaken as a part of the PFI process, three interviewees specifically stated that there was little or no such activity performed – there is a lack of incentive to produce such a report, and one went so far as to say PPE could be used against you, providing a very real disincentive to "stick your head above the parapet" when it would be "cleanly removed". This view accords strongly with that of Llewellyn and Northcott's paper (2005), suggesting that the "average hospital" was the preferred option for healthcare organisations, avoiding either excellence or poor performance and the resulting publicity.

It is important for all the stakeholder categories contributing to the planning, design, procurement and maintenance of healthcare-related buildings know what the expected standards are, when and how they will be applied by CQC. The National Audit Office (NAO) reported that there appeared to be a gap between what was expected of the CQC and what it could achieve (NAO December 2011). In addition, the CQC has not made clear what success criteria are applied to their regulatory activities and how they judge the safety and fitness-for-purpose of healthcare environments.

Self-regulation is a recurrent methodology within the healthcare sector whereby data are collected regularly and made available across the healthcare sector for benchmarking and comparison purposes (Malekzadeh 2012). These can provide useful resources but care must be taken to ensure their accuracy and use within the appropriate context (Bain et al 1997). It could

be questioned whether the ERIC and HEFS data are the right triggers to provoke CQC regulatory activity, as was suggested is the case by an interviewee.

Although the CQC appear to be regarded as independent of the DH, it is itself a publicly-funded body and therefore is not independent of the Government. Nunes (2009) described healthcare as “specially valued” as a major social right and therefore requires a specific definition of its major goals. Although the NHS estate cannot be described as “health care”, the fact that it accommodates the delivery of healthcare services, underlines the importance of ensuring its safety and fitness-for-purpose. The CQC published their goal for regulation as:

“... focused on outcomes rather than systems and processes, and places the views and experiences of people who use services at its centre.” (Care Quality Commission 2010c)

2.11.4 Effects of S&G on the healthcare estate

The practices and processes commonly used in the procurement of healthcare infrastructure have significantly changed the estate over the past decade in particular (Evans 2008). The use of the PFI funding mechanism has enabled NHS Trusts and FTs to procure healthcare buildings that would not otherwise have been affordable, but the price paid is the long lease-back periods, which have been negotiated between the equity holders and the Trusts’ Boards. LIFT has been used similarly to procure dedicated primary care premises where GPs and community-based services had previously been provided from privately-owned premises. This latter building process has resulted in a significant decrease in the age of the accommodation commonly used for primary care delivery.

The traditional processes that go to make up the development of a brief and design have not changed in terms of healthcare provision. However, the impact of PFI, PC21+ and LIFT on the production of documents and drawings has been significant in the way that planners and architects work. The DH S&G (in part) are written in to many of the contracts, particularly in Scotland.

Standardisation has been encouraged through the publication of the HBNs and HTMs and the ADB data (Hignett and Lu 2009). There are many advantages to standardised rooms and services, e.g. safety, but standardisation of the HBNs and HTMs themselves has not been achieved and nor is it necessarily desirable, for example, the final two chapters in each HBN are simply repeated verbatim at the end of each document. However, it would be helpful to standardise the scope of content and level of detail.

Issues around innovation are often raised when standards are applied. However, the DH has always stated that they view the standards contained in HBNs and HTMs as a “starter for ten”, and that, by providing users with these S&G, it is then up to the user to take these and build on them. This process should encourage rather than stifle innovation, and was never intended to provide a user with a solution “out of the box”.

Peters and Muraleedharan (2008) argue that regulation of health services in India would be more effective if central Government were to actively involve key stakeholder categories in the process. They reason that collaborative mechanisms can be used to enhance accountability. Much of the monitoring of the healthcare estate in England is performed through a process of self-regulation, which can, in part, be seen as a collaborative mechanism. However, Burger (2012) describes self-reported information is likely to result in intentional or unintentional inaccuracies. Self-assessment has been extensively used by NHS Estates and the DH to monitor healthcare services and facilities; to do otherwise would require a large number of staff with sufficient knowledge of clinical practices and construction design and technology. In the early 2000s, many hospitals employed a dedicated member of staff specifically to complete the ERIC data, which was at that time extremely detailed. However, the reliance on self-assessment brought many problems, e.g. in the calculation of backlog maintenance (Section 3.2.1).

This is a very different focus from that of the ERIC data collection, or HEFS, which are primarily used for internal (NHS/DH) regulation. Results from ERIC and HEFS are published so that comparison can be made between facilities and hospitals in terms of estates-related statistics. However, the statistics are collected and submitted by Trusts or PCTs themselves and as demonstrated in Table 4-4, are not necessarily reliable.

One of the problems of self-assessment is that regulation is complicated by the need for the monitoring body to see behind the results. Self-assessment cannot take the place of providing S&G; any form of assessment requires a benchmark against which to assess (Shaw 2004; Maybin and Harrison 2008; Mills et al 2012). Regulation requires specific information to be provided and is onerous, particularly during the construction lifecycle involving people outside the immediate healthcare sector such as Building Inspectors and Fire Inspectors, to provide authorisation for those elements of a building requiring regulation from external organisations. Post-project, regulation is provided by the CQC, but there is also an emphasis on self-assessment through the newer system - PAM (Department of Health 2011a).

The DH has commissioned research to provide some meaningful assessment of projects was to commission research, an example of which is the evaluation of the new building at Hillingdon Hospital (Martinez et al 2011). This was published on SpaceforHealth, but had no status other than that it was commissioned by the DH. Even so the findings could not be considered as the DH standards or guidance. R&D project reports do not appear on the www.gov.uk website following the closure of SpaceforHealth and the R&D programme appears to have been withdrawn since 2012.

2.12 Importance and Benefits of the DH Estates-related S&G

2.12.1 Importance, Benefit and Quality and Qualities

In the context of this research, “importance” denotes the priority or degree of worth that relates to the DH S&G. The benefits and dis-benefits are defined as the advantages or disadvantages obtained by applying a standard to achieve a requirement, and can relate directly to the degree of quality (high/medium/low) or characteristics of the standard itself or to the effects of applying the standard. Application of a standard may also be of benefit or dis-benefit to a process or the outcome of a process.

Benefit may refer to a financial cost or profit, or may be viewed as a benefit “in kind” such as improved outcome, reduced need for resource or shortened delivery time (Yates et al 2009). In light of this, benefit to the stakeholder of the DH S&G could be quantified by taking the savings accrued through use of BIM processes during the lifetime of a project, divided by the need to learn how to use the BIM software to a sufficient level to ensure optimal usage.

In the data collected for this research, frequent reference is made to the quality (e.g. high or low) and qualities or characteristics of the S&G (e.g. completeness, consistency etc.). The relative importance of qualities and characteristics is likely to vary for each stakeholder group. Thomson and Pronk (2010) described the difference between Quality and Qualities, and quotes Magrab (1997) who defined Quality as:

“the totality of the characteristics and performance that can be used to determine whether or not a product or service fulfils its intended application.” Thomson et al (2003).

Thomson also used Cargile’s (1995) definition that Qualities:

could, in everyday usage,[be] substitute[d by] ‘features’, ‘properties’, ‘traits’, ‘characteristics’, ‘attributes’, and some other terms for ‘qualities’. He continued to note

that 'a quality can be attributed to a number of things, truly or falsely' (Thomson et al 2003).

It can thus be seen that “quality” refers to the S&G as a whole, and “qualities” describe individual characteristics of the S&G, such as consistency, relevance or accuracy. Quality may be used to refer to a high worth or degree of importance e.g. an object of high quality will have a high worth and importance compared to a similar object of low quality.

2.12.2 Stakeholders’ benefits – their perspectives and needs

The stakeholder categories are shown in Figure 2-2. They principally include the DH, NHS, designers, contractors, estates and FM managers, and service users, each having a different need and perspective on their use and application of the standards produced by the DH GREFD.

The DH uses the S&G as a “baseline” or minimum standard of accommodation from which all healthcare activities should be delivered. This is used to measure against for safety, particularly that of patients especially as they are seen as a contributory factor to improving patient outcomes (Department of Health 1999; Department of Health 2002a; Department of Health 2004; Department of Health 2005a; Department of Health 2009b).

Designers and contractors who put together building projects for NHS or independent sector healthcare provision all require a complete, accurate, consistent and current source of information for the provision of clinical and clinical support accommodation. The benefit of the DH S&G to this major stakeholder group is obvious. Applying the definition of “benefit” above, with S&G of high quality, will save time and resource, and thereby money through the use of accepted standards.

Estates and FM managers use HBNs and HTMs to provide a reference source, and a benchmark for derogation. NHS clinical staff are consulted about the provision of new facilities and, despite their lack of experience in the process of construction, they are expected to be able to contribute meaningfully (Department of Health Estates & Facilities Division August 2007). This process is usually carried out by the design team together with healthcare planners. Patients are the ultimate “client” and therefore form an important part of the planning and design processes. Hospitals are often seen as inhospitable and according to an Italian proverb:

“Where the sun does not enter, the doctor does”. (Biley 1996)

Creation of healing environments is now seen as essential and several studies comparing old with replacement new facilities has emphasised the benefits of “therapeutic landscapes” to

patients (Gesler 1992; Biley 1996; Gesler et al 2004; Wood et al 2013). In the healthcare construction process their needs are usually represented through the healthcare planners.

2.12.3 Effect of recent Government policy on the DH S&G

Following the general election in the spring of 2010, it was widely discussed how the new Government would deal with the very high public economic deficit. Although healthcare is a high-profile and much vaunted “central plank” to the major parties’ policies, the rocky passage of the Health and Social Care Act 2012 has reinforced the use of private sector funding and services (Timmins 2012), with knock on effects to the provision of the DH S&G. Coupled with the EU Directive to make publicly-funded data available free of charge (Section 5.2.2), the effects could be wide-ranging and deep-cutting.

During 2010, an EU directive to make public-funded data available free of charge resulted in a further change, finally resulting in the documents being split between policy/context setting, and design/planning. Further change was announced in October 2010 by the Deputy Chief Executive of the DH that there was to be a review of HBNs and HTMs (Department of Health 2010a). The completion of the work on splitting up the documents, and the overall review has not been finalised, and in the meantime there has been little published, although there are a few drafts in preparation. The review announcement appears to have left blight on production and release of new S&G. Until 2013, NHS users were still able to gain access to all documents free of charge, whilst all other users were required to set up a subscription of £250 per annum to allow them to access and download documents. Following the closure of the SpaceforHealth web site, dissemination of the publications was transferred to the Government’s centrally managed web site, www.GOV.uk and all publications are available to all free of charge.

The process of making the content suitable for the component content management system behind SpaceforHealth has resulted in change to and loss of certain structural elements of the HBNs and HTMs, e.g. the paragraph numbers for HBNs are no longer provided, a small detail to some users but not to others who were used to using these numbers within contractual documentation.

The use of DH S&G provides end-users with the comfort that they are adhering to the DH standards although in practice, once the data within ADB, CodeBook or ActivePlan has been amended to reflect the actual project brief, the DH no longer endorses the data. However, on assessment for Gateway Reviews, as long as the brief or design does not provide accommodation of a lower specification or smaller area, it is deemed to conform to standards. If

there is a deviation, this is usually the subject of a process of derogation, which is estimated to cost much time and therefore money in many contracts.

In 2010, Paul Morrell (the Government's chief construction industry advisor) indicated that the BIM process will be required for all Government construction projects by 2015 (bdonline.co.uk 2010). This initiative is likely to significantly affect the flows of information for building projects, as it brings a much stronger requirement for sharing and co-operation throughout the process. It is expected that BIM will promote efficiency and cost saving but how effectively has yet to be proved in practice (Oppenheimer 2009).

The Labour Government elected in 1997 set many targets for the health service as a means of improving the NHS and its standards (Department of Health 1997). It is significant that targets became somewhat discredited over time and not become viewed as an end in themselves, the allegation being that one target might only be achievable at the expense of others (Maheshwari and Janssen 2013). In their paper "The Average Hospital" Llewellyn and Northcott (2005) allege that most healthcare providers prefer neither to excel nor fall short of standards, so that they are not thrust above the parapet for praise or criticism. The result, they surmise, is a move towards standardisation.

The practice of regulating healthcare accommodation is one that has been evolving over the past 20 years, often in tandem with the introduction of new policies but also in response to events such as failed inspections e.g. maternity provision at Barking, Havering and Redbridge University Hospitals NHS Trust (Care Quality Commission 2011). The main areas of regulatory inspections are quality of services and safety. Quality often refers to quality of services provided, whilst safety encompasses provision of adequate equipment, and a fit-for-purpose environment (Care Quality Commission 2010c).

2.12.4 Application of the DH S&G

The primary declared purpose of the DH S&G is to provide assistance to briefers and designers to achieve an environment for healthcare services that is fit-for-purpose. This includes the important elements of patient safety and reducing risk. Underlying these two elements is: the need to provide an efficient and effective environment that enables staff to work and care for patients; and the reduction of risk entails an environment that is not only safe but reduces the dangers inherent in performing care and treatment to patients. These purposes are contained in the NHS Constitution drawn up by Lord Darzi (Department of Health 2008b) and Section 10 of the CQC's Judgement Framework (Care Quality Commission 2011). What is not provided in

either of these documents is any detail regarding the source of actual standards or methodology for achieving them.

Current Government policy is to reduce what is referred to as “the heavy hand of the DH” (Cuff 2011). The regulation of the NHS currently rests with Monitor and CQC, neither of which bodies have demonstrable or recognised expertise or experience in provision of healthcare procurement systems or environments. The reliance for ensuring standards are applied and adhered to remains largely one of self-assessment, and although the DH produce tools and checklists to assist with this, there appears to be little willingness to formalise the regulatory role in relation to the healthcare environment.

The DH’s vacillation regarding the classification of the DH S&G affects the way in which the stakeholder categories variously apply them, and this could be seen to undermine their efficacy. In their study of effectiveness of policy instruments, Urge-Vorsatz et al (2007) concluded that regulation is the most efficient method of producing results, particularly when used in combination with other mechanisms such as market-based and information-related measures. If the DH wishes to encourage use of the S&G a SMART (specific, measurable, achievable, relevant and timely) form of regulation is likely to prove more effective (Mills et al 2013).

The DH’s stated policy is to provide S&G as baseline standards from which planners, briefers and designers can work. Given the basic requirements and specification, a provider can then research and innovate to add detail to the baseline provided. This does not always work in practice, in that many users of the S&G, particularly the ADB data, are keen to maximise their fee-earning ability, thus reducing their willingness to spend time researching, in their view unnecessarily. It is difficult to reconcile these divergent viewpoints as they are driven by totally different pressures and aims: the DH wish to ensure a safe and risk free environment, whilst the S&G users have commercial demands.

The DH’s vacillation regarding the classification of the DH S&G affects the way in which the stakeholder categories variously apply them, and this could be seen to undermine their efficacy. In their study of effectiveness of policy instruments, Urge-Vorsatz et al (2007) concluded that regulation is the most efficient method of producing results, particularly when used in combination with other mechanisms such as market-based and information-related measures. If the DH wishes to encourage use of the S&G a SMART (specific, measurable, achievable, relevant and timely) form of regulation is likely to prove more effective (Mills et al 2013).

One of the DH goals for its S&G is to encourage innovation. In papers discussing the aims of the PFI process, Barlow and Koherle-Gaiser and Gesler et al describe one of these as being an encouragement or opportunity to innovate (Barlow and Koherle-Gaiser 2008; Gesler 1992; Gesler et al 2004). A more widely aired reason for the introduction of PFI was to inject private sector capital into the healthcare estate, without which the major building programme of the past 15 – 20 years would not have been achievable. Use of the S&G as a baseline from which to work and within the PFI process should facilitate rather than inhibit innovation.

The hypothesis is that PFI will deliver price certainty for departments and timely delivery of good quality assets (National Audit Office 2003).

The concept that standards can lead to standardisation is described (Hignett and Lu 2008). Studies have been carried out on standardisation by Reiling (Reiling 2005) as a means of ensuring safety for patients. It is agreed in North America that common codes and standards assist with patient and staff safety in the healthcare environment (Martin 2013). Standardisation of certain aspects of healthcare provision, including accommodation, is sometimes seen as highly desirable from a safety aspect such as patient charts, (BBC 2012b) but this also applies to elements of building engineering services such as provision of medical gases being provided at the bedside in a standardised format.

The use of the DH S&G is often described as a direct saving in that they stop organisations reinventing the wheel – the wheel being the basic requirements for healthcare accommodation and infrastructure.

2.12.5 The Benefits of the DH S&G

The stated principal aim of the NHS is to provide free healthcare at the point of delivery. However, until relatively very recently the “point of delivery” was rarely defined and more rarely still regarded as a constituent element in the process of delivering appropriate care. Over the past decade this has begun to attract research, and various tools and datasets have been developed to address the need for providers of healthcare to deliver care from premises and environments that are “fit-for-purpose”. Furthermore, some studies have now been conducted that directly relate the quality of the environment to patient recovery rates and staff morale (Lawson and Phiri 2003; Codinhoto et al 2007; Thomson and Pronk 2010), The NAO endorsed the benefit in a report, which says:

“Buildings that are designed well will have improved functionality and lower whole life costs and will deliver beneficial environmental and social impacts” (National Audit Office 2005)

However, Fornara et al (2006) suggested that the effect of good design on staff is less than on patients. This view is in part answered by Mourshed and Zhao (2012) who found that environmental factors affected staff in a variety of ways. Macmillan (2006) explores the relationship between the built environment and human behaviour, but found that, because of the difficulty in capturing intangible effects, this type of research is limited.

In order to assess the benefit of existing S&G, the question of relative costs arises. It is an often-repeated fact that procurement of healthcare buildings is a “once-in-a-career” project. This is borne out by interviewees from the DH and NHS Trusts or Foundation Trusts, and is attributable to the length of time taken for the project from start to finish and the cost of such projects. It was suggested that the expertise gained during the life of a project is largely lost once the project has been completed. There are several barriers to capturing such information that include identified issues relating to development, possession and sharing of intellectual property, movement of staff, and the length of time allowed to elapse between project completion and any formal evaluation processes post-project and post occupancy (Froud and Shaoul 2001).

The total annual budgets for the NHS building programme increased year-on-year for the decade to 2009 as shown in Figure 2-19. As a proportion of this spend of £2,705,089,830 for England in 2009 (NHS Information Centre 2009a), the cost of generating the guidance and tools by the DH is very small.

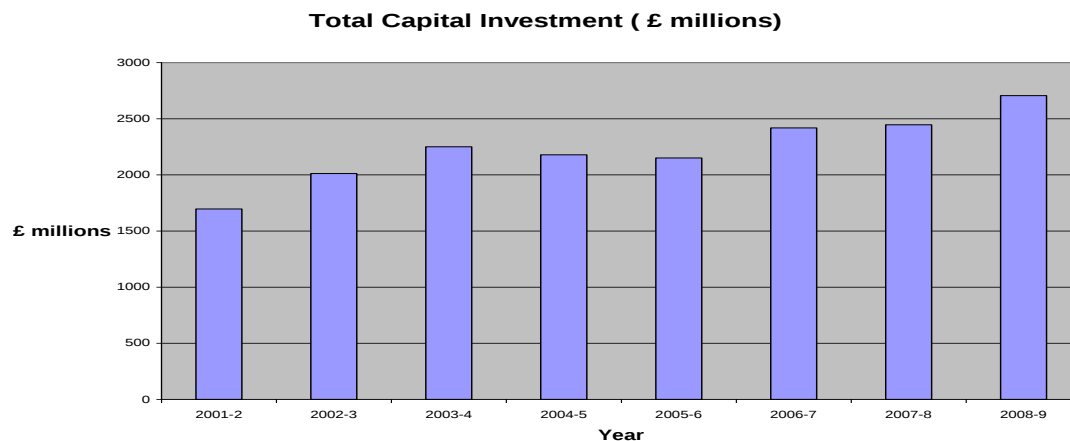


Figure 2-19: Total capital investment¹ in NHS healthcare estate, source: NHS Information Centre 2009a

2.13 Overview of UK territorial healthcare infrastructure policy

This research includes a brief review of the current position regarding the estates-related policy in Scotland, Wales and Northern Ireland to establish how the DH S&G are used and affect and are affected by differences between the policies in each of the Provinces.

The policy of devolution was introduced in England in 1997 and 1998 following referenda in Wales, Scotland and both parts of Ireland and has resulted in diverging healthcare policies across the UK ranging from a “command and control” model being applied in Scotland, to a “hands off” approach in England. The different models apply a mix of healthcare policy but S&G are shared with minor differences applied by each of the Provinces’ administrations (Greer 2004).

The SpaceforHealth web site contained the S&G applied in each of the Provinces, appropriately labelled. It is noticeable that the differing policies result in differing applications and attitudes towards regulation (Greer 2004). The DH applies S&G through the CQC, although their focus is more on the clinical services than the physical accommodation, and depends heavily on self-regulation. Scotland exercises a much closer regulatory control through Healthcare for Scotland (HfS). Wales makes use of the Standards and Guidance centrally to check that designs do not slip below the S&G, similarly to the DH Gateway Review process which are:

1 It is difficult to compare capital spending over long periods of time because of changes to Government accounting processes. Other sources show considerable variations.

“a series of short, focused, independent peer reviews at key stages of a project or programme. The reviews highlight risks and issues, which if not addressed would threaten successful delivery.” (Department of Health 2011g)

The N Ireland Health Social Services and Public Safety web site sets out Controls Assurance categories and status:

“Regulations, which in tandem with the standards, will be mandatory and regulated services will have to comply with them. Taken together, and in conjunction with the requirements set out in other relevant legislation, the Regulations and standards constitute the way a provider or agency should operate to provide a quality service.” the Regulation and Improvement Authority in N Ireland (NI) inspect services against the standards drawn up by the NI standards Development Task Group.
(<http://www.dhsspsni.gov.uk/index/hss/governance/governance-carefaqs.htm>).

2.14 Identification of other relevant industry sectors’ standards

Healthcare is considered to be one of the most complex of the Government’s industry sectors. There are commonalities with other major industry sectors and some useful parallels may be drawn as presented below. These range from issues related to safety through to triage, circulation and flows, service delivery, cleanliness, comfort and accessibility.

2.14.1 Aerospace

The aerospace industry can be likened to the construction industry in that it involves many teams of people, often working in different locations, each contributing different parts of an aircraft. The need for collaborative working across multi-disciplines involves

“context, support, tasks, interaction processes, teams, individuals, and overarching factors” (Patel et al 2011).

All of the factors apply both to construction and to healthcare provider teams, both of which include individual organisations applying well understood and vitally important common standards and without applying some principles of sharing knowledge effectively whole projects can be compromised. Safety is also a common factor to both industry sectors.

2.14.2 Formula 1

Motor racing also has parallels with healthcare provision - problems are analysed and diagnoses made at speed under pressure (Dimbleby 2009; Catchpole et al 2010). A recent study of practices in Formula 1 garages where “emergencies” occur frequently and a fast response is critical to success by an Accident and Emergency (A&E) consultant at Great Ormond Street Hospital realised that:

“the handover disciplines from theatre to Intensive Care Unit in their hospital and what they were seeing in the pit lane of a racing team” (Dimbleby 2009).

Dimbleby drew the analogy that the pit lane garage bears some resemblance to triage in an A&E Department with common practices regarding the analysis and diagnosis.

2.14.3 Hotels

Hospitals are often divided into different sets of accommodation depending upon the level of acuity or clinical complexity provided (Zweers 2010). The circulation areas providing a check in or reception desk, waiting areas, restaurant facilities and even bed spaces where low level care is provided, are all similar to hotels (Diamond 2006). Zweers describes the division of the hospital into a “hot floor” of high level clinical acuity, the technical (clinical support) area, and the “hotel” area, which is made up of the bedroom areas or wards (other than high clinical dependency), with en suite facilities, waiting areas, reception areas etc. These latter areas are considered to be very similar to those provided in hotels, and require planning for circulation, patient or customer pathways, and use similar standards for layouts, but not architectural finishes such as floor coverings.

2.14.4. Oil Industry

The oil industry has rigorous standards for quality control and safety. Quality control was established by suppliers early in the 20th century and, despite enormous changes in automation and technology, this operation remains relatively unsophisticated. Changing the standard process has proved very difficult to achieve in much the same way, it has proved very difficult to change the control of quality of accommodation in the NHS, although for rather different reasons: the variable age and condition of the healthcare estate stands in the way of updating and raising the overall standard. There have been several bodies set up by DH over the past 20 years that have been responsible for various aspects of quality, lastly the CQC, and yet the quality of accommodation has remained “bottom of the list” even though the environment has

been proven to have a significant effect on patients and staff (Biley 1996; Lawson and Phiri 2003; Gesler 1992).

With regard to safety, the oil industry has had a culture of encouraging reporting of “near misses” to learn from and therefore ensure the near miss does not turn into a bigger incident. The health service also has a system of reporting “hazards”, often relating to decontamination and infection control. However, these are not incorporated into a form that could be shared and used for learning, merely expressed as a number.

2.15 Summary

The literature review has principally concentrated on the history and policy surrounding the healthcare estate, the development of DH policy regarding the DH S&G and their application, and procurement lifecycle processes. Also included is a review of literature describing application of the S&G and an overview of the benefits and quality as it applies to the S&G.

Much of the published literature emanates from the DH itself, and describes processes and use of tools, guidance and data. Unpublished documents have provided details of budgets and some detailed background to the production of the DH S&G. The development of Government policy and its implementation by the DH is the subject of Government publications and web sites. Commentaries on S&G and Government health policy have indicated an ever more pressing need to demonstrate commitment to healthcare infrastructure, whilst achieving value for money in increasingly straightened circumstances.

Technical information covering IT tools, data structure and content has also been included in this research. The use of new technologies and software offer ways of developing the DH S&G and tools to maximise the use of the data thereby ensuring standards are more likely to be adhered to.

Press and media coverage have been a fertile source of information, but this has to be tempered to account for sensationalism. Journal papers and conference reports have also been accessed, but there are few articles or presentations directly relating to the benefits and dis-benefits of standards and standardisation to the NHS estate.

CHAPTER 3: GOVERNMENT AND DH POLICY

3.1 Introduction

This chapter takes the form of a specific review of the Government and the DH policy relative to the healthcare estate and any allied data and aligns it with data collected during interviews and from the survey responses. Government policy may be regarded as providing the strategic plan which the Secretaries of State and their Ministries implement. For the provision of the healthcare estate, Government policy relates particularly to capital funding, regulation and accountability, and it is these policies that provide the structure within which the Secretary of State operates. The drivers of policy are therefore largely driven by economic factors, taking into account the pressures of satisfying the electorate that the NHS is not threatened by privatisation, and that healthcare provision is not compromised.

The DH policy is developed to implement Government policies. The DH is one of the largest Government departments, and is responsible for a wide range of organisations and services. The scope of strategic planning is usually principally dictated by the availability of funding to undertake the plan. However, there are some more specific policies relating to healthcare accommodation such as provision of single-sex wards, single bed rooms, and more strategically, matters relating to capacity of specialist service provision.

3.2 Government policy

3.2.1 Funding

Policy is developed to address issues such as the commissioning of healthcare services through to provision of healthcare environments. The literature review revealed the size of the healthcare estate, and that despite fluctuations, remains one of the largest in Europe. Maintenance and upkeep (revenue costs) of such a large estate is inevitably high, and together with capital costs, the drain on the Treasury has become unsustainable. This has led to the introduction of private sector finance (PFI) into the NHS for capital development. Despite this, central Government direction and accountability is still looked to by all involved in the healthcare sector, both for matters relating to the estate through the DH GREFD and for clinical direction via NICE.

Table 3-1 provides a summary of the financial costs for capital schemes, both PFI and publicly-funded, approved since 1997, and exposes the high level of capital spending that has taken

place. Apart from PFI, another mechanism to inject private finance is sale/leaseback, which was described by the DH interviewees, but this is not used. Capital spending represents a small proportion of the total Government spending for healthcare: to this can be added the revenue costs of running NHS services (Table 3-2).

*Table 3-1: Prioritised and non-prioritised Capital Schemes approved to go ahead since May 1997 (England).
Source: Department of Health (unpublished)*

Prioritised schemes	£m
Total operational PFI Schemes	5,723
PFI Schemes reached Financial Close with work started on site	3,829
Total PFI Schemes released OJEU notices but not yet reached financial close	419
PFI schemes which have not yet placed OJEU notices	1,972
Total PFI	11,943
Public Capital Funded Schemes completed	182
Public Capital Funded Schemes under construction	75
Total Public Capital Funded schemes yet to commence construction	478
Total Public Capital Funded schemes under construction	735
Total prioritised capital investment given go-ahead	12,678
Non-prioritised schemes	
Total operational PFI Schemes	1,262
Total PFI schemes reached Financial Close with work started on site	66
Total PFI	1,328
Total Public Capital Funded Schemes operational	898
Total public capital funded schemes under construction	135
Total public capital funded schemes operational and under construction	1,033
Total non-prioritised capital investment	2,361

*Table 3-2: Current (revenue) and capital healthcare expenditure.
Source: Office of National Statistics (2014)*

United Kingdom, 1997-2012	£bn	
	Current	Capital
1997	51.7	3.0
1998	55.3	2.9
1999	60.0	3.7
2000	64.8	3.4
2001	71.0	3.3
2002	77.5	3.8
2003	85.1	4.2
2004	91.9	4.0
2005	99.0	4.8
2006	106.5	5.3
2007	113.4	6.1
2008	120.5	8.0
2009	130.1	7.8
2010	132.9	6.3
2011	136.6	5.2
2012	139.3	5.1

Table 3-3 shows the high cost of Backlog Maintenance for the year 2010/11. Backlog maintenance is the figure which Trusts are required to report to the DH detailing the work identified to bring their estate up to required standards.

Table 3-3: Backlog Maintenance costs for the year 2010/11. Source: Health Estates Facilities Statistics

2010/2011 Costs to eradicate Backlog Maintenance (£)				
High Risk	Significant Risk	Moderate Risk	Low Risk	Risk Adjusted cost
321,727,688	1,021,582,831	1,523,588,369	1,298,650,708	1,571,592,322

These figures represent a daunting amount of money, and although the total estate spend (capital plus maintenance costs) is far lower than revenue spending on service provision, they are still very high. The private sector provides a comparator in terms of management of the estate, and the DH appears to have learned some lessons, according to a DH interviewee, the ISTCs have:

“shamed the NHS in the area of performance of the estate. This is an area where in terms of efficiency and challenge of the current economic climate will drive the use of the estate and efficient performance will form a part of this”.

The change to introducing private sector funding sparked consternation and discussion concerning the privatisation of the health service, and in the literature much concern was expressed regarding the effects on construction projects. It was alleged that the nature of the PFI contract would result in the construction and standards being compromised in order to achieve higher profits. This concern is borne out by the high level of backlog maintenance described below. The PFI process itself is considered over-burdensome, as described by an interviewee:

“The whole process is believed to be so bureaucratic, complex, time consuming – take for example the outline business case process, full business case process. I have got up on my shelf there the OBC for ... I am willing to bet you that no individual has read the whole thing.”

3.2.2. Regulation and Accountability

Regulation of the NHS, which includes the healthcare estate, is important for reasons of accountability to Parliament. What does regulation mean and how can it be measured? To be

credible, the standards must be seen to be “reasonable” and achievable, and should be attainable without unreasonable cost.

Government regulation does not always produce the intended result, as was the case when performance targets were introduced to monitor waiting lists resulting in delays in referring patients for treatment to ensure the waiting list was kept to an acceptable length. However, deregulation of other industry sectors has not met with much long-term success, often leading to an anarchic application of market forces such as has been exposed in the financial/banking industry, and was exemplified by the catastrophic collapse in April 2013 of an unregulated factory in Dacca, Bangladesh.

Despite attempting to clarify exactly what standards are being used as a regulation benchmark, the CQC did not respond. One DH interviewee was of the opinion that HBNs and HTMs were being used, and another stated that “on site” inspections would be triggered by identifying abnormal or aberrant returns from the ERIC or other self-regulation returns. However, in view of the lack of evidence that the DH S&G are being used to hold hospitals to account the process of regulation appears to lack rigour (House of Commons Committee of Public Accounts 2011).

3.3. DH policy

Policy is developed both by the Government or Secretary of State for Health, and also by the DH to support the Government’s strategic intentions. The Secretary of State for Health depends on the DH for advice and background information to support the development of Government policy. The DH thus produces policies that assist with the implementation of Government policy.

3.3.1 Funding

Healthcare issues are often considered newsworthy and the NHS has a high political sensitivity and visibility. Successive Governments have sought to reassure the electorate that the NHS is sacrosanct, yet over the past two decades it has become more and more evident that financial constraints are affecting the provision and delivery of healthcare services. This has been exacerbated by the recession, which from 2007 started to stretch to the utmost the Government’s ability to maintain essential healthcare services. In early 2012, an initiative to save £20 billion in efficiency savings across the NHS by 2014-15 was announced involving all aspects of the health service, (House of Commons Committee of Public Accounts 2011).

To facilitate the introduction of cross-sector health and social care, projects have been established to provide co-located facilities such as GP surgeries, with a walk-in centre,

dispensing pharmacy, chiropody, minor surgery, diagnostic services, dental services and counselling services. Local Authority support services, e.g. Hull PCT and Hull City Council have established a city centre based service where the premises are co-owned between the care providers and the City Council. The effect on the estate has been to provide facilities for joint health and social care, whilst significantly improving patient care within both services (HEJ Editor 2011).

3.3.2 Regulation and Accountability

The NHS Constitution (2008) explains that the NHS is responsible for a budget of in excess of £100 billion of taxpayer's money each year. Accountability for this spending rests with Ministers, and Parliament debates policies on behalf of the public (ibid). The NHS as a whole therefore has a high profile and regulation and accountability for the estate forms a part of this.

Major changes in regulation and accountability have been instituted over the last five years. The role of the CQC has been extended as described in Section 2.7.3. The establishment of the NHS Foundation Trusts led to the need for a different method of regulation to accommodate their new operational, particularly financial, freedoms. This gave rise to the formation of Monitor to regulate the financial aspects of NHS Foundation Trusts. NICE can also be seen as a regulating authority principally for clinical and treatment-related matters.

3.4 Political drivers for current policy development

3.4.1 Capacity

Tables 3-4 and 3-5 show the fluctuations of the total land area over the years from 1999/2000 - 2010/11. There are two figures in Table 3-4 data that are aberrant highlighting the need for validation of self-assessment as suggested in Section 2.11.4. The 2001/2 and 2006/7 figures are clearly incorrect when put into context. The method of collecting and disseminating these statistics was changed in 2009, and it was not possible to generate them from the NHS Information Centre using the same methods as before.

Table 3-4: Site land area in hectares. Source: NHS Information Centre Data Collection (<http://www.hefs.ic.nhs.uk/>)

Year	Site land area (Ha)
1999/2000	8599
2000/01	9833
2001/02	24408
2002/03	9833
2003/04	8694
2004/05	8920
2005/06	7467
2006/07	85415
2007/08	8049

Table 3-5: Site and Building footprints for PCTs and NHS Trusts in millions of m². Source: NHS Information Centre Data Collection

Year	Site Building footprint (m ²)		Total	Site land area (Ha)		Total
	Trust	PCT		Trust	PCT	
2008-9	11502874	3042203	14545077	6337	1429	7766
2009-10	11507181	3132593	14639774	6099	1362	7461
2010-11	11454338	3185436	14639774	6066	1395	7461

It is generally accepted within the DH that there is a surplus of healthcare accommodation in the acute sector, but closure of hospitals and reconfiguration of specialist services is recognised as a real problem for the local politicians involved. A survey of surplus capacity was conducted and mapped in 1988. This surplus is largely still extant. The DH interviewees spoke of McKinseys' study in the North East, which demonstrated a surplus of about 1700 beds, yet there is a proposal to build a further new hospital.

2011 saw the first NHS hospital taken over by a private sector organisation (Hinchinbrooke Hospital, Huntingdon), the NHS Trust having been running at a deficit of £25.6 million. Similar and competitive services are provided in a newly-opened NHS hospital in Peterborough and at Addenbrooke's, Cambridge both of which drain patients away from what is a general hospital, providing fewer specialist services. However, a proposal for closure of even a few departments at Hinchinbrooke met with huge local opposition.

3.4.2 Age of the estate

At the end of the 1980s, the upgrading of the estate was seen as necessary to bring the quality of the building stock up to modern standards (Smith 2008). The hospitals built as part of the

Best Buy, Harness and Nucleus building programmes form the bulk (75-80%) of the healthcare estate, with the remainder having been built since 2005. This includes many new primary care facilities. It is evident that the latest building programme could not have been funded without the injection of private funding.

Some of the buildings, particularly old city centre hospitals, are Georgian or Victorian, e.g. Bristol Royal Infirmary “Old Building” was built in 1785 and is still in use (a full breakdown is provided in Table 3-6). In 2000, the NHS Plan contained a major policy statement that:

“40% of the estate, by value, [should] be no more than 15 years old by 2010” (Secretary of State for Health 2000 p 44).

However, the target was allowed to drop quietly without any explicit withdrawal. A DH source estimated that between 20 – 25% of new buildings have been built since 2005, with the bulk of the estate dating from 1960s/1970s, and further maintained that, in light of the economic climate

“we will have to learn to live with old buildings. This may change if major incidents occur; the political priorities may rise again”.

Table 3-6: Age Profile of the NHS Estate as at 2000, expressed as % of Total Gross Internal Area of all buildings, Source: The State of the Estate (NHS Estates 2004b)

Years	%
1995+	6
1983 – 1994	19
1973 - 1982	19
1948 - 1972	23
1919 - 1947	12
1900 - 1918	11
1851 - 1899	8
Pre - 1850	2

3.4.3 Ownership of the estate

The DH confirmed that no change from the current position is planned for the ownership of the estate, which is generally locally owned by the Foundation Trusts (FTs) and LIFT partners. The DH interviewees remarked that they understood the Treasury would like to change this position as they find the FTs “uncontrollable”, but the DH acknowledge it would be too expensive in the present economic circumstances to buy out LIFT and/or PFI contracts. This bears out the prediction by Evans (2008) that eventually the NHS services will often be delivered from

accommodation owned by the private sector, with all the potential conflicts of interest between stakeholders that this would bring.

3.5 Current policy

Current Government policy is overwhelmingly driven by the implementation of the programme of austerity. The need to save £20 billion announced in 2010 has been further emphasised by announcements that the Government's public sector reforms alongside the austerity programme is to be extended for a further two years (National Audit Office 2013). A DH interviewee's view that much of the savings could be made by optimising community health services has yet to be evidenced, particularly in the context of the major organisational changes contained in the Health Act 2012. In the meantime, the NHS organisations that are charged with making these savings have since been abolished, presumably partly as part of the savings programme.

3.5.1 Accommodation

Several policies introduced in the last five years have had a major impact on healthcare accommodation: the provision of single bedrooms; the abolition of mixed-sex wards; the elimination of Nightingale wards; and the mention of fitness-for-purpose of the healthcare estate in the NHS Constitution.

The policy for provision of single rooms was introduced in 2005 when the DH advised that between 50% - 100% of single bed rooms should be provided for in-patients together with evidence supporting provision of sufficient space around the bed (NHS Estates 2005). Hospitals designed in the intervening period have taken this on board, e.g. Pembury hospital provides 100% single bed room accommodation, North Bristol Trust 75% and Papworth 97%. Studies have been conducted into the advantages and disadvantages (Phiri 2004; Clews 2009). There were divergent views expressed in interviews; some recognised that for some patients there is a benefit for the patient in having company, particularly for the elderly, but that infection control issues were often reduced in single rooms.

The DH interviewees stressed that flexibility of use and re-use of space is highly desirable. The proportion of single to multi-bedded rooms has been widely debated with a mix of solutions put forward. One solution to achieve flexibility is to provide single-bedded rooms which can be used for male or female accommodation without loss of privacy or dignity, as opposed to having to provide segregated multi-bed bays, which may not allow as flexible a split between

male/female. Another parameter extensively discussed was the proportion of single-bed rooms versus treatment rooms. The Papworth team contended that certain treatments could be performed in a single room, but a multi-bedded bay or room was not always suitable for such activity resulting in the need to provide some additional treatment accommodation. Thus the saving of space by providing 4-bed bays can be seen to introduce the need for separate treatment rooms, offsetting the space saved. Further arguments in favour of single rooms are those of flexibility of use by other specialties when specialist wards are full, as well as patient privacy and dignity.

A health planner described his ability to reduce by one-third the space required for a primary care organisation when effective timetabling was introduced to their premises. Instead of providing dedicated accommodation for each partner in a group of GP practices, use of any office, as long as networked computer cabling gave access to relevant patient notes, meant that different GPs could use office space at different times of the day. Also, waiting rooms and treatment rooms and even minor surgery, could be timetabled through the use of a booking system to access centrally provided facilities.

The move of care closer to home is also likely to affect the need for in-patient accommodation. One interviewee explored the need for an “intermediate” level of care for the elderly and convalescent patient who does not need the high-cost, high-tech. environment required for tertiary care. Provision of this type of accommodation could significantly reduce the need for acute beds.

Any patient in hospital is likely to mention the state of their accommodation and other environmental factors as well as their actual clinical care e.g. single bed room, privacy and dignity, multiple-bed bays, food, noise, heat/ventilation, access to toilets, waiting room provision and restaurant/dining facilities. These factors are generally accepted as important to the patient; they are also known to be important to staff and have been evidenced to have an effect of staff morale, retention levels and therefore on revenue costs (Phiri 2006). Why then is there so little appetite on the part of successive Governments to regulate more closely the environment in which care is delivered?

3.5.2 Regulation and Accountability

Regulation of the Government’s estate is provided by Act of Parliament, Statutory Instruments, and White Papers and through published guidance. Public enquiries, judicial reviews and court cases also add to the regulatory obligations. In terms of legislation, regulation of the NHS estate

appears rarely to have been explicit. However, a major change was made in 1986 when crown immunity was removed, enabling law suits to be brought against the NHS in respect of food and health and safety regulations. Acts of Parliament tend to refer obliquely to the estate through mention of Health and Safety, Access to services, and Quality. It is more frequent to see property issues referred to in White or Green papers, but even these are relatively rare. One exception is Mental Health (MH) services, which are the subject of legislation in their own right, or mentioned as part of other specialist Commissions, Reports and Enquiries. In the *List of Legislation and Government Papers* attached at Appendix 2, which include 13 reports and Acts specifically for Mental Health. Many of these by the very nature of requirements for the mentally ill have affected the estate in that MH services will always require closer regulation and attention.

The Government's commitment to the de-centralisation of healthcare services changed lines of accountability within the health service significantly. Firstly, in 2004 the introduction of Foundation Trusts (FTs) (Department of Health 2003) enabled these Trusts to raise capital for development projects with private business partners. These Trusts were regulated for their financial management and accredited prior to their being accepted for FT status. Regulation overall, once the Trust had achieved FT status, is lighter and perceived by some as out of control as it is mainly carried out through self-regulation with checks made by Monitor, which was established in 2003 to provide financial regulation for the newly established FTs (Department of Health 2003).

The DH has, over the years, introduced several self-regulatory schemes where Trusts and PCTs submit their own data e.g. ERIC, and the PAM. This may lead to errors (Table 4-4), or “massaging” of the figures. An example of this was in 2001 when each Trust was required to place a value on “backlog maintenance” i.e. work required to bring healthcare premises up to an acceptable standard, a recognised costly problem, and:

*“In 1998 the bill for repairs in England alone had climbed to about £3.4 billion”
(Department of Health 2001).*

Edwards (2013) contends that this value has now risen to more than £4 billion. The DH interviewees contended that some Trusts saw the opportunity to make a sizeable bid and procure funding for major projects, whilst others were loath to admit their premises did not meet extant standards and the data collected ranged from the sublime to the ridiculous. A

follow-up publication was produced in 2004 to clarify and provide guidance on how the assessment of backlog maintenance was to be conducted (NHS Estates 2004a).

The DH GREFD guidance is considered, for regulators, as “best practice”, but for healthcare providers wishing to demonstrate that they conform to regulations, it is considered to be quasi-mandatory (unless an acceptable reason can be provided for any deviation). They, therefore, expect consultants to adhere as closely as possible to the guidance provided by the DH GREFD in the absence of any other form of regulation for healthcare accommodation and environments such as the Gateway Design Review process.

Although the stated aim of successive Governments has been to move away from the “command and control” model of management of the NHS, it is the DH’s perception that regulation still rests fairly and squarely in the realm of central Government. Klein and New (1998) described the potential for conflict between local needs and central policies arising when regulation and accountability are devolved away from “the centre”. Self-regulation of the NHS and independent sector healthcare estate does little to provide proof of conformity and accountability unless there is visible monitoring. This description seems to fit the current model for healthcare accommodation, despite the advent of the CQC’s involvement. In its 2011 report the House of Commons Committee for Public Accountability (2011) concluded that:

“Boards are not benchmarking nationally nor does the Department [of Health] use the performance information to challenge and hold hospitals to account.”

3.6 Summary

The last two decades have been fairly turbulent for healthcare in England with the introduction of far-reaching policy changes. Although much the DH policy focuses on the delivery and performance of clinical issues, it has also significantly affected the NHS estate over its life: it declares a “hands off” style of management whilst maintaining strong control over much of the implementation of policy regarding the estate. Despite the recent recession and the need to save £20 billion, rationalising provision of healthcare services has proved difficult largely because of local and national pressures and the sensitivities to changes in local health services. There is a dichotomy between public consultation and a strong steer from central the DH policy. Introduction of private funding into healthcare estates has had and continues to have a profound effect. Ownership of equity in many newly built healthcare facilities is held by private sector organisations answerable to shareholders rather than to the NHS Trust providing healthcare services from those premises. Concerns are expressed about the developing

potential for conflicts of interest, but the high value of these premises precludes any other funding model.

DH policy concerning accommodation has resulted in new buildings that are more flexible and provide much improved privacy and dignity for patients, but the standards for new build projects are not necessarily repeatable in pre-existing estates. A detailed analysis of the DH S&G and their effects is contained in Chapter 5.

CHAPTER 4: METHODOLOGY

4.1 Introduction

This chapter sets out the philosophical position, the research process, the available methodologies and the processes adopted to achieve the objectives of the research. It also includes a detailed description of the data collection processes, why they were chosen and the analysis methodology. The objectives are to establish how the use of DH estates-related S&G benefit and affect healthcare accommodation, what is important about them and how they are applied by the stakeholder categories who use them.

4.2 Research philosophy

4.2.1 Philosophical context

The importance of providing a safe and fit-for-purpose healthcare environment has been enshrined in The NHS Constitution, first published in 2009, indicating recognition that the need to provide adequate healthcare environments is important. Over time, the HBNs and HTMs have been described in various ways by the DH, principally as Minimum Standards, Guidance and Best Practice. In general, publications emanating from Government departments are likely to be regarded as requiring close attention or prompt and effective action. The DH S&G may therefore be regarded by users as representing standards which they should apply and adhere to even though they state that their purpose is to provide assistance to the briefing and design processes for healthcare accommodation. It is thus important for users to respect such publications, and that the DH S&G should be seen to provide what users need, and represent value for money from the client/Government and contractor's perspectives. It is therefore important to understand the values users apply to the DH S&G, their perceptions of its status and the characteristics they appreciate or find a hindrance. Such an understanding would lead to a view of the benefits and effects of their use.

As publicly-funded organisations, the DH and NHS (and the services they provide and are responsible for) should be accountable ultimately to the electorate, including all the staff, patients and carers who manage, administer and use healthcare services. Government policy regarding management of the health service has waxed and waned ever since its foundation from "close" (Beveridge 1942) to a more "hands off" approach (The Conservative Party 2010). Klein (2006) contends. However, that the DH maintains a fairly close hand in management,

despite pronouncements to the contrary. The NHS represents a very highly valued service to the electorate but Government is hard pressed to provide sufficient funding to meet expectations of patients. Ensuring a safe and fit-for-purpose environment is clearly part of such a service and the development and issue of guidance, best practice or standards to achieve this has been undertaken continuously since the 1960s, but as a set of guidance to assist briefing and design, rather than a tailored, purpose-built system to provide a tool for regulation and accountability. Therefore it is necessary to understand how stakeholder categories perceive the DH S&G from their own contexts.

There are many groups of stakeholders with widely differing interests in the effects and benefits of the standards and guidance provided by the DH. Exploring the different contexts from which users of the S&G emanate will highlight their different needs and expectations. It will also demonstrate which characteristics are most important to them, and what benefits and dis-benefits each group of stakeholders gain through their use.

This research spans both the scientific and social worlds in relation to healthcare environments (buildings) and to policies and processes (funding, design, procurement and construction) as defined by Easterby-Smith (Easterby-Smith et al 2008 pp 61 – 3). The social constructivist epistemology (Table 4-1) describes closely the position for this research project.

Table 4-1: Positivism vs. Social Constructivism. Source: (Easterby-Smith et al 2008 p 59)

	Positivism	Social Constructivism
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progresses through:	Hypothesis and deductions	Gathering rich data from which ideas are inducted
Concepts	Need to be defined so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to simplest terms	May include the complexity of “whole” situations
Generalisation through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	Small numbers of cases chosen for specific reasons

A social constructivist research methodology takes advantage of a close relationship between the researcher and stakeholders, thus making it important to separate out personal viewpoints from evidence and factual responses. Reality may be observed either subjectively or objectively, making a significant difference to our view of the world. This research is subjective resulting

from the researcher's involvement in day-to-day development and application of the DH policy and guidance. A framework has been used to analyse data allowing comparison between the data collected from the different groups of stakeholders, the literature and secondary data where this is available. Approaching this project from a subjective view allows personal perspectives from the stakeholders to be captured, but also means that a detached and unbiased view has been more difficult to achieve. A survey was conducted with the aim of collecting a less subjective data set to provide a basis for comparison and validation for the interview process.

The literature review findings highlight the "fit" of social constructivism with this research. The researcher was involved in the DH S&G programme, though not directly in their production. The large number of stakeholder categories involved in the production, application and uses of the DH S&G highlight the potential for varied interests on the part of each group. It is those varied interests that determine the degree to which the DH S&G may satisfy overall needs, and in certain cases may conflict with each other. A study of the effects and benefits of the DH S&G could not be undertaken without including all these groups, which should then result in a comprehensive view.

The social construct relating to the DH S&G and tools varies according to stakeholder perspectives and exposures to its outcomes. In order to accommodate this variety of positions constructionism is used, defined as follows:

"a flexible attitude to interpret the views of participants" (Bryman and Bell 2003 p 726).

Constructivism typically includes a small number of cases, and for the purposes of this research project, these may be considered to be provided by the interviews conducted at the outset of the research.

4.2.2 Definition of natural scientific and social schools of thought

Construction industry research does not fit neatly into either the scientific or social areas of research. The scientific world is principally concerned with sets of rules, and the proof of theories and measurement of what is already known (Knight and Ruddock 2008; Easterby-Smith et al 2008) and the social is more concerned with personal perspectives such as relationships and environments. The scientific model can be brought to bear on some elements of the research, such as measurement of the physical NHS estate and how it is constituted. Although this gives a snapshot of the status quo, it does not provide an in-depth view of how Government

policies have affected its development, or how the patients or staff might view the healthcare environment. Social Constructionism enables an assessment of policies and other less easily quantified external influences. Selecting theories is complicated by predictions and personal prejudices as discussed by Runeson and Ruddock (Knight and Ruddock 2008 p 80). The paradigm of social constructionism, as set out in Table 4-1, allows the researcher to view reality subjectively, as influenced by contributors to the research, bringing together the natural scientific and social worlds.

4.2.3 Rationale for the ontological position

There are two concepts that affect the way in which research is conducted. The first is where reality is perceived to be governed by inter-relating theories that are investigated scientifically and tested so that an objective view of the reality can be described in terms of those theories. The second concept is that of a subjective view of reality or social construct, which changes depending on the perspective of the viewer, and therefore the reality and context will vary from person to person (Knight and Ruddock 2008). It is this second, subjective view of the reality that is used to research into how defined stakeholder categories perceive and apply the DH policy and standards, and whether their perceptions lead eventually to fit-for-purpose environments and healthcare buildings from users' perspectives (Knight and Ruddock 2008 p 75). Table 4-1 describes the social constructionism ontology aligned with the positivist.

4.2.4 Reason for choice of epistemology

Easterby-Smith (2008) p60 describes epistemology as a:

"General set of assumptions about the best ways of inquiring into the nature of the world".

This accords with the general approach based on Interpretivism. The variety of stakeholder categories identified in Figure 2-2 makes it important for the different perspectives and needs of each group to be taken into account (Chandra and Loosemore 2010). Such an epistemology is Interpretivism, which is described by Bryman and Bell is one that:

"respects the difference between people and the objects of the natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action" (Bryman and Bell 2003 p 17).

The importance of understanding the different needs and perspectives of each stakeholder group and how they influence their use of the DH S&G is expected to shed light onto the

underlying reasons for important characteristics and the effects and benefits derived. By contrast, a positivist approach would be expected to result in definitive outcomes, which in the case of this research is inappropriate, as the benefits and effects of the DH S&G will vary according to the viewer's perspective.

4.3 Research methodologies

4.3.1 Research background

This research focusses on the effects and benefits for the stakeholder categories that use and apply DH estates-related S&G. Effects and benefits could include cost savings, sharing information, re-purposing information, standardisation, other interoperability benefits relating to Information Technology (IT), and the use of Building Information Modelling (BIM). Dis-benefits may include effects such as stifling innovation and change, or characteristics of the S&G such as out-of-date content resulting in suppression of new technologies, practices and services, in addition to the more common financial ones. Figure 4-1 identifies some of the more obvious potential uses and benefits and assigned to their relevant stakeholder categories.

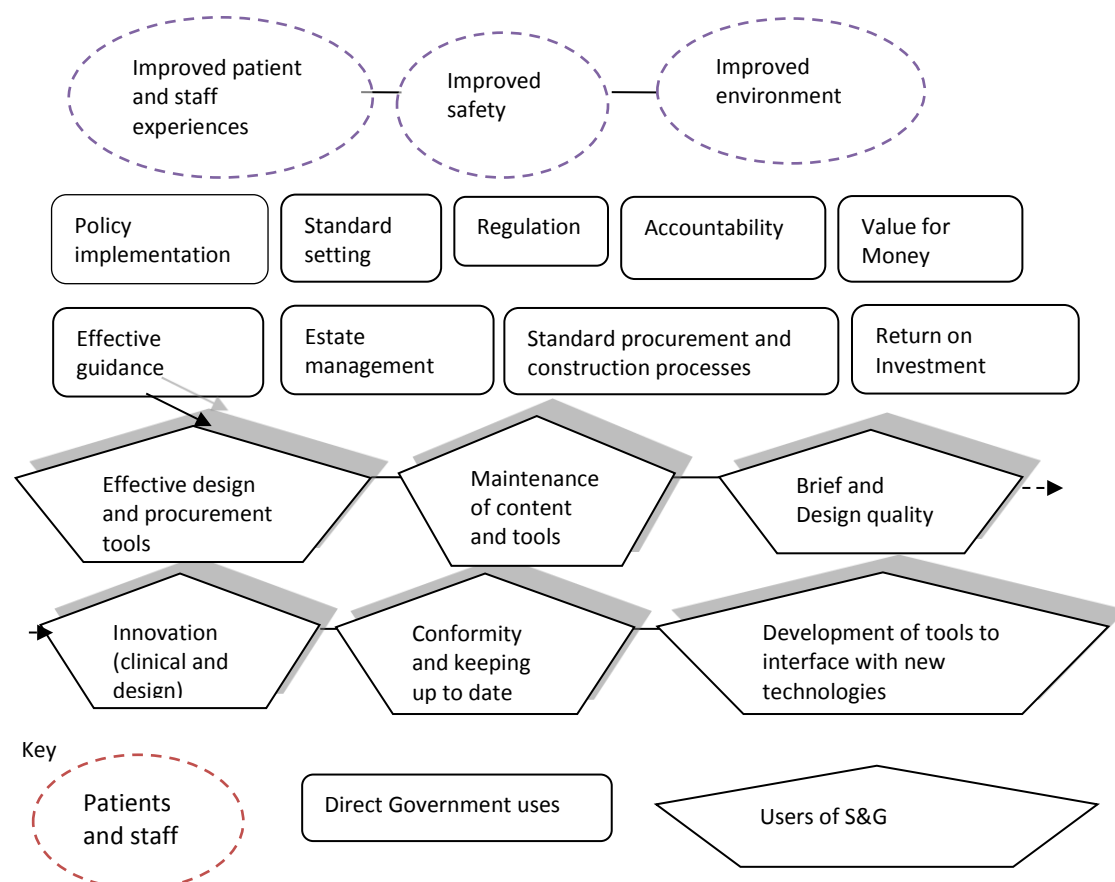


Figure 4-1: Potential uses of the DH S&G for stakeholder categories

There are a large number of stakeholders (Figure 4-2), some fulfilling more than one role in the process of procuring and maintaining healthcare infrastructure, and all have different perspectives. The three principal groups are the staff and patients, the DH/Government, and the Users of the S&G. Patients are excluded from the research because, although the ultimate aim of the S&G is to improve patient outcomes, the patients themselves do not use the estates-related S&G. The various relationships between the groups demonstrate how their interests can align, conflict and overlap. The benefits and dis-benefits identified as part of this research have different resonances with the different groups, and interpretation will need to be applied to the data collected to account for their different perspectives.

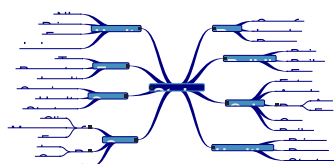


Figure 4-2: Healthcare environment stakeholders

In order to reduce the complexity for the data analysis, the stakeholder categories were narrowed down to the following five categories, as set out in Table 4-2.

Table 4-2: The five stakeholder categories and their constituent membership

Group	Membership
DH/NHS	DH and NHS capital planners
Designers	Architects, engineers
Contractors	Construction organisations, project managers, equippers
Estates/Facilities Managers	NHS and independent sector estates, maintenance and facilities managers
Service Users	Healthcare planners, acting proxy end-users

Several strategic areas of research are explored to bring an all-round view of how the DH S&G are used in the planning, briefing, design, procurement and equipping of healthcare environments. These topics include:

- the development and effect of Government policy on the healthcare estate;
- the current scope and depth of the DH S&G;
- new and emerging clinical and IT developments; and
- how new developments can be incorporated into the DH S&G.

4.3.2 Methodologies adopted to achieve objectives

Options

Research methodology is typically dictated by the nature of the subject-matter and the perspective of the researcher and a study of research methodologies to ascertain the most appropriate means of achieving the aims of the research was undertaken (Bryman and Bell 2003; Easterby Smith et al 2008; Knight and Ruddock 2008; Krippendorff 2004; Miles and Huberman 1994; Mingers and Gill 1997). There are a number of arguments for adopting a multi-methodological approach for research in the construction industry (Knight and Ruddock 2008 p9; Mingers and Gill 1997). In order to achieve the objectives of this research, several different methodologies have been used. As Skyrme explains:

“Real situations are ‘messy’ and call for a variety of approaches that are very context dependent and may change almost daily” (Skyrme 1997 p 217).

The methodologies adopted for this research were influenced by a number of factors: the typical lengthy life-cycle of the capital planning through to completion of construction of healthcare accommodation projects: the fast-diminishing number of healthcare building projects from which to derive evidence; the fast-changing political context; the national economic conditions; and the accessibility of contributors to the researcher.

Objectives

The first and second objectives of this research are to gain an understanding of the **historical background** of healthcare accommodation and the **political drivers** that have governed the healthcare environment. To do this a literature review of the history and background policies relating to the healthcare estate was performed. This included legislation and Government papers as well as general publications.

The third objective was to **assess the current DH S&G** which was undertaken by conducting an in-depth review of the HBNs and HTMs (Appendix 1). The fourth objective took this a stage further by **identifying the stakeholder groups**, and gaining users' views of the **characteristics, qualities and benefits of the S&G**. This was undertaken through semi-structured interviews using questions developed using the findings from the review of the HBNs and HTMs. Following analysis of the interview data a survey questionnaire was drawn up to explore further the interview findings and to validate the interview data. The fifth objective was to understand how the S&G may **affect and benefit the procurement and maintenance of healthcare accommodation** and therefore ultimately on patient outcomes. The survey questionnaire also asked respondents to identify any benefits and dis-benefits they experienced in their use of the S&G, which was included in objectives 4 and 5. The process is set out in Figure 4-3:

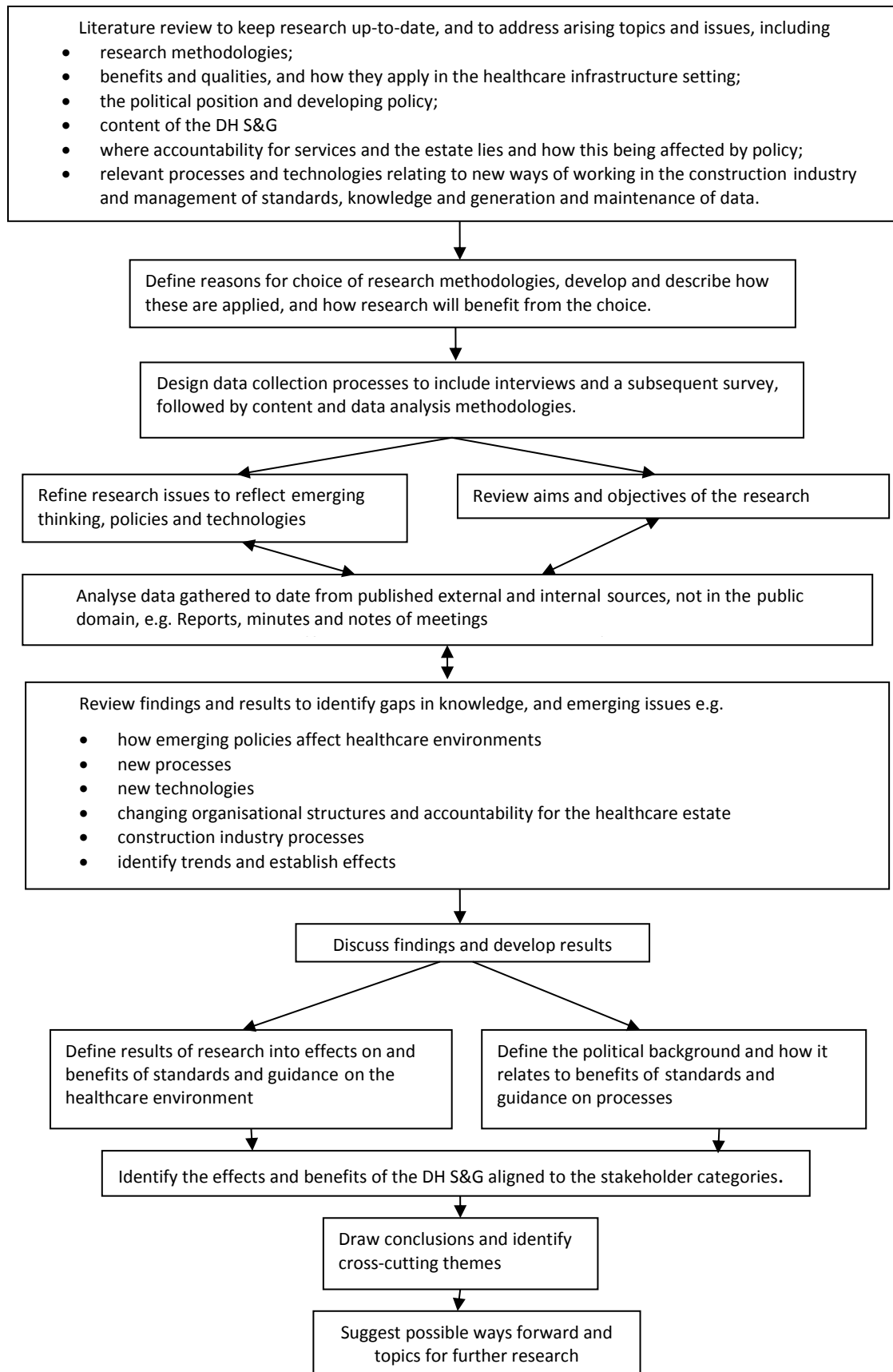


Figure 4-3: The research process

The literature review was used to establish and evaluate the historical background (Objective 1) of the DH S&G (Abel Smith 1960; Baggott 2004; Francis et al 1999; Francis and Glanville 2001) and how this may have affected the current position. This also included many Government, National Audit Office and DH publications and documents. The review also addressed Objective 2 which was to determine the drivers leading changes in policy and the healthcare accommodation building programmes after the foundation of the NHS (Greer 2005; Ham 1999; Ham 2004; Klein and New 2001; Klein 2006).

Objective 2 encompassed exploration of the effects of the Government's funding policy on hospital accommodation, and PFI in particular has been extensively researched and includes publications by Akintoye and Chinyio (2005), Broadbent et al (2003), Froud and Shaoul (2001), Hellowell and Pollock (2006 and Pollock et al 2002a and 2002b) amongst others. Policy regarding the regulation of the healthcare estates was also included in the review as a part of Objective 2 (Baldwin et al 2012; Burger 2012; Care Quality Commission 2010a, 2010b and 2010c; National Audit Office 2011; Nunes et al 2009).

The literature review included an examination of the DH S&G itself to review its purpose, scope and content (Objective 3). Concerns regarding the content of the DH S&G had been raised from time to time (Burton et al 2002; Hospital Design/MARU forum, 2005; Hignett and Lu 2008). However, translating these concerns into possible effects on and benefits to healthcare environments was not included in these works. This research has therefore been undertaken taking their findings into account. Access to documents which are not in the public domain provided an in-depth look at some of the content of the S&G, in particular a detailed study performed by TSO looking at the content of the HBNs and HTMs with a view to possible migration into a content management system.

There were no publications explicitly examining the effects of the DH S&G and how they benefit healthcare accommodation, but other related literature consisted of research which focussed principally on the effects of design on environments, which included amongst others Burton (2002) Gesler et al (2004), Hignett and Lu (2009), Lawson and Phiri (2003), Macmillan (2006), Reiling (2005) and Ulrich (2001).

It was anticipated that during the course of the research period some of the elements affecting the social and scientific positions under examination might change. The development of policy is the most obvious of these. Another variable is the development of new IT software and programmes introducing new ways of working. Data and dissemination tools must be kept up-

to-date otherwise they will cease to be relevant or usable. Several “alerts” in scientific, IT and policy-related journals were set up, and a watching brief kept on the DH developments.

To keep the research up-to-date, contacts within the DH have been maintained, and further interviews with policy formers have taken place both before and following the May 2010 general election. The Secretaries of State for Health since May 2010 have introduced many far-reaching new policies including a radical re-organisation of management of NHS service delivery, abolishing Strategic Health Authorities (SHAs) and Primary Care Trusts (PCTs), together with a big reduction in the DH central staffing. These proposals have provoked much opposition, and resulted in calls for consultation and reworking of such far-reaching changes. Close attention has been paid to progress on these and how they may affect the estate by setting up an alert and monitoring news-related web sites such as the British Broadcasting Corporation (BBC).

In order to assess the characteristics and qualities of the DH S&G and those that benefit and affect healthcare accommodation (Objective 4), semi-structured interviews were undertaken early in the research process to take advantage of the researcher’s involvement in the industry sector at the time which provided ready access to a number of potential contributors working at various stages throughout the process of procurement and provision of healthcare accommodation. The purpose of using the semi-structured interview method was to enable a flexible exploration of each interviewee’s context and sphere of knowledge whilst ensuring each interviewee was aware of the whole extent of the research. Each interviewee represents one or more stakeholder group, and it was therefore important to understand fully how their perceptions and views were coloured by the context in which these were developed. This was followed up through an on-line survey questionnaire. The questions for the survey were developed following analysis of the interviews, to provide a form of validation, and to extend the research to include a greater number of respondents. Full details of the data collection process are provided in Section 4.4.

The purpose behind using this flexible methodology was to try to capture the richness of people’s knowledge in their field of expertise, whilst also gaining a perspective of their particular part of the whole process of briefing, design and procurement of healthcare buildings. Many of the interviewees had been working in the field for numbers of years and have developed their own expertise and tacit knowledge in very specific parts of the process.

This method of working indicated the choice of an iterative process of deductive and inductive methodologies, for which a mix of qualitative and quantitative data was collected which allowed

for revisiting certain areas of the data collected for further detail or to fill any gaps. This way of working typically results in a subjective approach to a research topic because the researcher is actively involved. Deduction of the position of a group of views and opinions needs therefore to be handled with care to reduce the possibility of bias, and taking account of contexts, cultures and positions of contributors.

Grounded theory is defined as an approach to the analysis of qualitative data that aims to generate theory out of research data by achieving a close fit between the two (Bryman and Bell 2003; Knight and Ruddock 2008). This theory lent itself to the researcher's circumstances, as demonstrated in Figure 4-4.

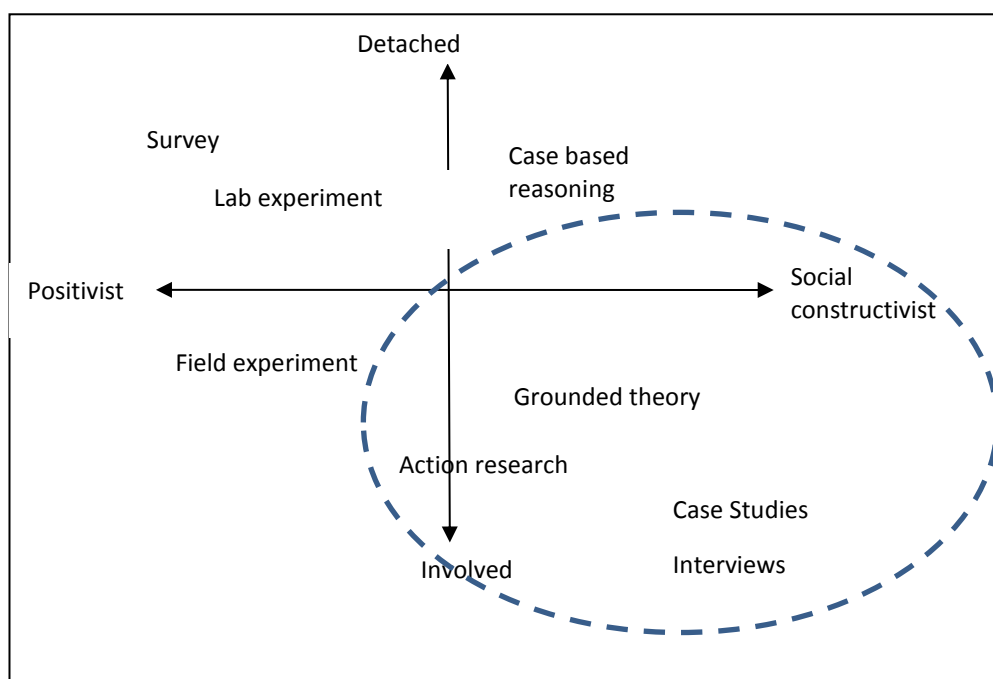


Figure 4-4: Research methods driven by deductive approach, Source: (Knight and Ruddock 2008)

The development of the survey questions based on the findings from the interview data has helped to ground the survey results in reality. The use of grounded theory enabled the researcher to use an inductive approach to explore further the issues raised in the interviews. Therefore, the results from the interviews were aligned against the more objective responses from the survey questionnaire to provide a form of validation whilst also highlighting where there was convergence or divergence between the two sets of data.

The term Phenomenology describes a methodology as well as a philosophy (Goulding 2003); as a methodology it has been used as it enables the researcher to shed light on the subject through perceptions (Lester 1999). There has been an emphasis in this research on the personal

perspective and interpretation of data, and phenomenology enables the different viewpoints of the interviewees to be developed and incorporated into the data findings.

Although Action Research falls within the quartile illustrated in Figure 4-4, this methodology was not used because there was no intention to develop a theory or output for testing in the field or adaptation following consultation with users.

Figure 4-5 shows a model of how the process of deduction can be used to develop a theory.

Figure 4-6 shows an adaptation of the process of building up theory based on Figure 4-5, applying the known parameters.

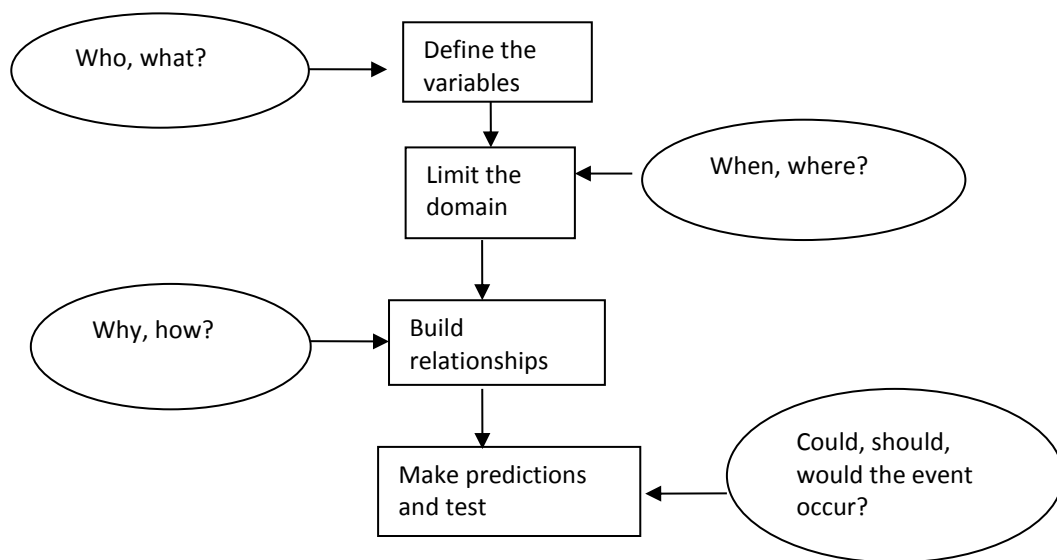


Figure 4-5: General procedure for theory building: (Source: Knight and Ruddock 2008

p 87)

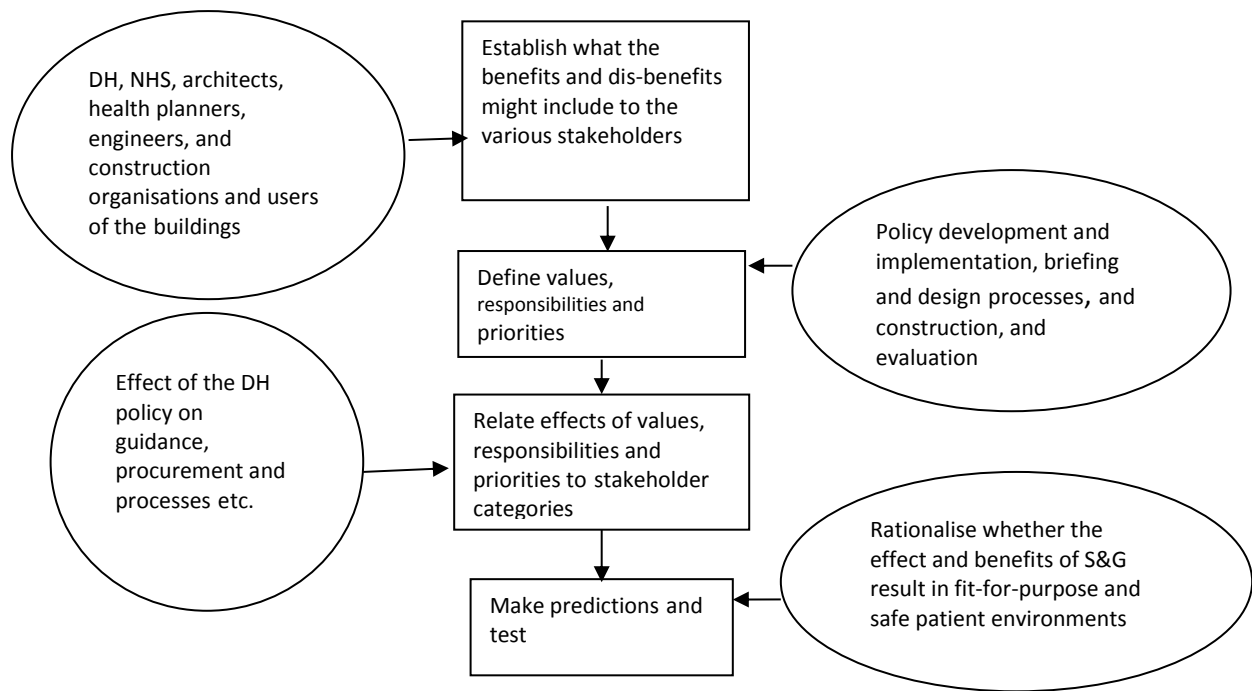


Figure 4-6: Adaptation from Figure 4-5 to show applied research strategy

Content analysis of the interview transcripts was undertaken using NVIVO, MS Excel was used for statistical analysis of the survey results. Following analysis a ranked result was developed evaluating the S&G for the stakeholder categories using them, and suggestions made for possible new ways of working in the future to address emergent findings.

4.3.3 Primary and Secondary data sources

The primary data collected included qualitative and quantitative, and subjective and objective data. This was used to deduce from participant individuals and organisations what their views and perceptions are regarding the elements in the research objectives. An iterative inductive then deductive process was used to assess overall policy, followed by the S&G themselves, and finally the effects and benefits of the S&G.

The secondary data included statistics from the ERIC and HEFS (NHS Information Centre 2009a; NHS Information Centre 2009b). Findings from the literature review and the data collected were compared using Constructionism and grounded research methodology to provide a mechanism for aligning the viewpoints and interactions between the groups of stakeholders.

Primary data collected in this research were made up of the interviews and survey responses and included data not in the public domain such as budget statements.

Secondary data were obtained from external sources, such as published material included in the literature review (Chapter 2), the NHS Information Centre, which publishes the annual statistics

for HEFS and ERIC, (NHS Information Centre 2009a; NHS Information Centre 2009b) and DH publications. Other secondary sources have been accessed from the internet, such as data relating to Government statistics (Office of Government Commerce 2008).

4.3.4 Qualitative and Quantitative data

Qualitative and quantitative data were collected during the course of this research. Qualitative research is inexact and in order to bring rigour to any findings, a framework structure has been applied to the process for analysis. Quantitative data are reproducible and consist typically of data that have quantities or simple quantifiable responses to a set of questions. Quantitative data lend themselves to mathematical analysis, and in this work have been used to underwrite the findings of the qualitative data. Section 4.4 describes in detail the primary data collection processes used for this research.

4.3.5 Subjective vs. Objective research

Subjective research relates to personal views and opinions held by contributors. Subjective data have been collected in the form of discursive semi-structured interviews from a stratified sample of known experts. Views and circumstances change according to the subject's context, organisation (e.g. private or public sector), or position within an organisation (e.g. middle or senior management). Subjective research could be considered to be flawed through bias and lack of repeatability, but this may be offset by the advantage of accessing specialist findings through active involvement. It is thus less easily validated than objective research.

Objectivism assumes that the object of research has an existence independent from any relevant social issues (Bryman and Bell 2003 p 22). Objective data are usually collected through the use of a set questionnaire that asks the respondents to pinpoint their views within a given range of responses. Surveys are usually disseminated widely and provide quantitative data. This type of data collection is much more easily repeated because of its set format, and therefore can be used to underpin and validate subjective data.

An objective view of the NHS estate and the DH policy development has been taken using secondary statistical data from the DH sources to measure such quantifiable data as the amount of capital investment in the estate, the size of the estate, and using these measurements to compare with policy developments to assess any possible correlation.

4.4 Data collection

This section describes the methods chosen and used to collect qualitative and quantitative data. It is important to ensure a balanced approach. To do this the interviews with known specialist users were backed up by an on-line questionnaire survey which could demonstrate how much support there was for the findings from the interviews. The interviews were analysed, survey questions developed from the results, and deductions aligning the findings developed. To achieve this both qualitative and quantitative data were collected, providing subjective and objective perspectives from the stakeholder categories.

4.4.1 Qualitative research methods

Qualitative research deals with words rather than figures (Bryman and Bell 2003 p 731), attempting to analyse findings and observations rather than collecting statistical data and using mathematical models to produce repeatable results. Qualitative research is inexact, thus triggering the need to collect quantitative data. Dainty described complementarity as a means of dovetailing the qualitative and quantitative data (Knight and Ruddock 2008 p 8). This is applied to support the various elements of research across the whole project and result in the calibration of the findings.

Alternative methodologies for collection of qualitative data such as focus group discussions and participative observations were not used for this project because the contributors were in many cases quite a distance away from each other. The people concerned were, in the main, senior managers with limited time and therefore it was felt that asking them to attend a group event would have been likely to result in their declining the invitation. It was considered that, by offering to travel to their offices, at a time to suit them, would result in a more positive response. In addition, as the contributors would have varying perspectives of the subject-matter, it may have been difficult for them to express personally held views in a public forum, particularly if they represented client or contractor groups, with opposing opinion and possible conflicts of interest. Also, for those less senior contributors, they may have been inhibited and not expressed themselves so freely as during a one-to-one interview.

Case studies were not conducted: the overarching strategic nature of the subject-matter of this research did not lend itself to such a technique, which is more suited to a series of comparable studies. In addition, the lengthy life-cycle of most hospital and healthcare-related building projects means there are very few complete projects that take less than 5-10 years. It would

therefore not be possible to collect data throughout the lifetime of a project, representing all the processes and stages through which construction projects pass.

4.4.2 Development of Interview Questions

The main thrust of this research is to ascertain what effect the DH S&G have and how they benefit healthcare environments. The literature review therefore included an in-depth review of the DH S&G as well as research publications, journal articles and policy-related publications from the DH and Government. The review of the DH S&G revealed a set of publications produced over a long span of time, with a degree of repetition and overlap, and in various formats. It was clear that S&G for some clinical departments were not available, and that as a whole they had been the subject of several revisions in format, content and structure. They appeared to be the only S&G of their kind in England, and the other UK territories, and it was important to ascertain how these factors affected users' perceptions of their characteristics, status, classification and use. The questions were also informed by the work of Burton (2002), the Hospital Design/MARU forum (2005) and Hignett and Lu (2008 and 2009). One way in which the S&G may have been seen to be of benefit is in standardisation. The literature review revealed some research into this subject (Edum-Fotwe et al 2004; Edum-Fotwe and Gibb 1999; Gibb and Pendlebury 2001), but this research did not link the DH S&G with the principles of standardisation of design. The questions under the heading of Value in the Draft notes sent to interviewees (Appendix 4) were drawn up to explore these issues.

The literature review showed that the development of regulation of the estate has risen in importance (Darzi 2009) and has therefore become more formalised (Care Quality Commission 2010a, 2010b, 2010c). Hignett and Lu's research into the use of HBNs and HTMs pre-dated the introduction of the CQC and therefore findings in their work would not reflect this change. The status, classification and use of the S&G also informed the questions under the sub-heading of *"Responsibility and investigated users' views on the processes used for regulation of the healthcare estate, how accountability was achieved, and how the S&G contributed to this."*

Scrutiny of the CQC documentation revealed that there is in fact very little content regarding the physical environment, although the NHS Constitution lists safe and fit-for-purpose accommodation as a priority. It was considered to be important to see how stakeholders interpreted these requirements. The literature regarding regulation and the status and classification of Government and non-Government standards was also used to gain a view

regarding the usefulness of benchmarking, audit and required levels of detail and information for users of the S&G.

The DH S&G are badged as Best Practice, but are often referred to as minimum standards. There is extensive literature regarding design quality and how good design can affect environments and those that occupy them (Gesler 1992; Gesler et al 2004; Curtis et al 2013; Macmillan 2006; Phiri 2004 and 2006; Lawson and Phiri 2003). This led to the investigation of users' priorities and how they apply the S&G to achieve high quality environments whilst adhering to the S&G and delivering VFM whilst ensuring the accommodation conforms to minimum standards. The final question sought to see whether the users of the S&G might have ideas on how they may be improved to enable them to achieve safe and fit-for-purpose environments.

4.4.3 Interview data collection

Following the constructivist approach, data collection from a relatively small number of active users of the DH S&G was undertaken, and the findings used (see Appendix 5) to develop further questions to tease out anomalous or contradictory results. Each contribution to the initial data collection was designed to explore specific perspectives enabling representation of all the various stakeholder categories to be achieved. To obtain the most comprehensive set of perspectives possible, 15 semi-structured interviews were conducted. It was anticipated that they would provide evidence and insights into the development of policy regarding the estate and its current position relative to standards and regulation.

The interviews also elicited the interviewees' perceptions regarding the DH S&G, how they have been applied, and their perceived effects and benefits. The interviews were conducted with a stratified sample of known experts who use the DH S&G. Of the original 12 interviewees contacted, recommendations for a further 3 interviewees were made, which were included. This ensured coverage of the disciplines and viewpoints of public and private sector interviewees, and their involvement with the healthcare estate at the various stages of procurement and/or management. Table 4-3 displays the stakeholder categories of the interviewees. Where an interviewee is considered to qualify as a member of more than one group, this is indicated, e.g. a project manager previously employed as a nurse. The views and responses of these interviewees reflect their in-depth knowledge of clinical issues from the Service Users' perspective, even though they may have moved into a different role.

Table 4-3: Interviewees Stratified sample showing stakeholder category affiliations

<i>Interviewee</i>	<i>DH/NHS</i>	<i>Designers</i>	<i>Contractors</i>	<i>Estates /FM</i>	<i>Service Users</i>
1			✓		✓
2			✓		
3				✓	✓
4			✓		
5	✓			✓	
6			✓		✓
7		✓			
8			✓		
9					✓
10	✓		✓		
11		✓			
12		✓			✓
13	✓				
14		✓		✓	
15					✓

Although the chosen interviewees could be considered as providing a biased source of data, they represent the whole gamut of processes that take place during the planning through to construction of healthcare infrastructure. A full list of interviewees is provided at Appendix 6. Each interview was conducted in a manner to encourage the interviewee to express views from their own experience and perspective, rather than following a set series of questions. Bias is readily evident and can therefore be taken into account during analysis.

The interviews were arranged to take place at the interviewees' convenience and were recorded, obviating the need for note-taking. Transcriptions were made in preparation for coding and entry into NVIVO.

The interviews explored how specialist individuals or small groups of people view the content, characteristics, qualities and status of the DH S&G. These interviews also enabled an assessment of how each contributor views the effects and benefits of the S&G. A series of questions (Appendix 4) was provided to each participant prior to the interview itself, enabling them to decide which areas they felt best qualified and able to discuss, if not all, as it was not expected that each interviewee or group would have a view on all the topics listed (Easterby-Smith et al 2008). This stratified sampling has ensured that the perspective of each of the stakeholder categories is included.

Each interviewee had a specific perspective, dependent on a number of factors:

- private sector versus public sector organisation/practitioner;
- stage or process in which the interviewee is engaged, i.e. architect acting as informed client (DH/NHS stakeholder group) or as designer (Designer stakeholder group);
- professional discipline; and
- strategic application of standards versus detailed implementation.

The data collection process was designed so that topics could be bracketed together to form empirical evidence from a number of viewpoints on the research questions. This concept has been described by Miles and Huberman (1994 p 6). It is evident from the coding process that there are close relationships between policy and standards and guidance, and their effects, which apply to the five stakeholder categories.

4.4.4 Quantitative research methods

Quantitative research typically starts with a theory and, through deduction, tests this theory (Bryman and Bell 2003 p 28). In this research, it is assumed that the DH S&G benefit healthcare infrastructure design and therefore ultimately provide fit-for-purpose and safe healthcare accommodation. Selection of an on-line survey was felt to be the most appropriate methodology; the contributors would be likely to come from a variety of stakeholder categories, and therefore have differing views and perspectives of the subject matter.

Other mechanisms to quantify the benefits and effects of the DH S&G on the healthcare environment were not thought to be practical. To run an experiment measuring the effects and benefits of the S&G and users' satisfaction with them would have had too many variables to provide a reliable result in that these may be different or even opposing between the stakeholders groups, e.g. provision of a standard may be viewed as helpful for those attempting to achieve consistency whilst those attempting to provide an innovative solution may find the imposition of standards as stifling and therefore a hindrance.

The nature of the research precluded the use of observation methods. The processes of planning, briefing, design and construction of healthcare accommodation can span several years and to be able to observe these processes from start to finish would in many cases be impractical. In addition, over the course of building projects, there are often changes in personnel involved. Further, changes in the political and economic context may result in different priorities, changing the standards themselves, and the introduction of new technologies and their application.

4.4.5 Development of the Survey Questionnaire

The survey questionnaire was partially informed by the findings from the DH S&G and literature reviews, but full development took place following the analysis of the interview data and was influenced by a related survey conducted relating solely regarding the use of ADB (Mills and Phiri unpublished). It was aimed to expand some of the issues raised during interviews as well as filling in any gaps or amplifying data that was either inconclusive or unclear and was also devised as a way of validating the results of the interview data. Building on the interview data, some additional direct questions were asked concerning the benefits and dis-benefits to respondents of using the DH S&G. Although the literature review revealed some research on the benefits of good design (Gesler 1992; Gesler et al 2004; Curtis et al 2013; Macmillan 2006; Phiri 2004 and 2006; Lawson and Phiri 2003) as with the interviewees, it was important to understand how respondents regarded the S&G as being of benefit, and therefore how they use them (Burton (2002); the Hospital Design/MARU forum (2005); Hignett and Lu (2008 and 2009). A wider view of S&G at a less detailed level was also revealed, which further enabled comparison between the different perspectives of the stakeholder categories.

The classification and status of the DH S&G emerged as an issue during the interview process, and this was thus included in the survey. The S&G have been variously described over time: Best Practice (Hansard 1999), and in several HBNs and HTMs descriptions vary including Minimum Standards, Guidance and Guidelines. In order to understand the importance of this issue to respondents, questions regarding classification and status were included.

4.4.6 Survey data collection

Collection of quantitative data took place through an online survey questionnaire (Appendix 7) of as many stakeholder group members as possible. The aim of the questionnaire was to gain an understanding of how practitioners, including contract managers and healthcare commissioners view the DH S&G, how they are used, what is valued within and about them, whether they are considered to provide a useful basis for infrastructure procurement and development and how they affect or benefit healthcare accommodation. The quantitative data were amplified by qualitative comments, views or statements. These were categorised and analysis carried out inductively and deductively, and compared with the results of the interview data. The full survey data results are provided in Appendix 8.

Organisations contacted include Architects for Health (AfH), The Institute of Hospital Engineering and Estate Management (IHEEM 2014) and Trust and PCT estates and facilities staff,

and ADB users. The survey provides a view of the DH S&G from a broad spectrum of participants across all the stakeholder categories.

Quantitative data were collected from a total of 65 respondents. They included: Trust-based Estates and FM Directors and Managers; and architects, engineers, equippers and construction companies representing organisations in both the public and private sectors, which supported the connections between analysis and judgement (Knight and Ruddock 2008 p 9). Table 4-4 details the numbers of survey respondents by discipline.

Table 4-4: Respondents to the survey questionnaire by discipline

Responses to survey from:	Quantity	Stakeholder groups
Architects	15	Designers
Engineers	4	
Health planners (NHS)	3	Service Users
Health planners (Private sector)	11	
Contractors	2	Contractors
Project Managers (Private sector construction)	1	
Project Managers (public sector)	4	
Equipping specialist (Public sector)	1	
Estates Manager/Directors(Public sector)	5	Estates/FM
Estates Manager (Private sector)	1	
Hospital surveyor (public sector)	1	
Capital Planners (Public sector)	5	DH/NHS
Publisher (Public sector)	1	

Eleven respondents did not complete the question asking for their job role or discipline, so these results have had to be omitted from the detailed stakeholder group and role/discipline analyses. Eight respondents did not complete any personal details at all and three indicated that their employment was in either the public or private sector, without indicating what their role/discipline is. These latter have been included where comparisons are made between public sector and private sector responses.

The initial response to the survey was disappointing and was followed up by personally contacting as many potential participants known to the researcher as possible forming a further stratified sampling approach. This significantly increased the response rate, but could be seen to introduce bias. In a few instances participants recommended contacting other colleagues who were unknown to the researcher, thereby offsetting some of the potential to skew results.

4.5 Data not in the public domain

Data have been collected from a number of sources that are not available in the public domain or published other than internally within the DH or the organisations subcontracted by the DH. These documents include a report generated by TSO in 2003 which was commissioned by and provided to NHS Estates which analysed the content of the DH S&G in detail. This was a commercial proposition, and therefore remains confidential. Further, from September 2005 until April 2012 the Central Office of Information (COI) was responsible for generation and dissemination of HBNs, HTMs, and sales, support and marketing of ADB under a Memorandum of Understanding (MOU) with the DH. This MOU ceased in March 2012 when COI was abolished, and the agreement was novated back to the DH. All documents in any way relating to this arrangement and proposals for the future are not publicly available. They include the following:

- DH and COI budgetary information relating to the generation and writing of HBNs and HTMs;
- proposals for future development, working practices relating to the generation of HBNs, HTMs and ADB data and other related information worked up by subcontractors involved in these processes; and
- proposals from sub-contractors for the development, maintenance and production of ADB and its data.

4.6 Secondary data (e.g. NHS information Centre statistics)

Secondary data includes publications included in the literature review, such as data included in books and journal articles. There are also a number of publicly-available quantitative secondary data sources from a variety of organisations such as the NHS Information Centre, the DH itself, the European Health Property Network (EuHPN), and other non-health-sector organisations such as the Organisation of Economics, Commerce and Development (OECD), National Audit Office (NAO) and Office of National Statistics (ONS).

Secondary quantitative data are available from the annual estates-related data collection (ERIC) and Hospital Estates and Facilities Statistics (HEFS) across the NHS published by the NHS Information Centre. The data are used to analyse the NHS estate, and how it has developed over time. Further information can be accessed from the Patient Environment Assessment Team (PEAT) reports (Department of Health 2010), now replaced by Patient Led Assessment of the Care Environment (PLACE), which provide quantitative data on patient views regarding the hospital environment. Consideration has been given to the fact that published work in this area

is no longer necessarily current because the policy changes since May 2010, coupled with the Government cutbacks, have had a major impact on the underlying purposes for guidance.

The NHS Information Centre publishes sets of statistics that are collected annually through a system of self-assessment within NHS Trusts and Foundation Trusts. These statistics include definitions of the statistics making it easy to search for and access relevant information and include data gathered between 1999/2000 – 2008/9 (NHS Information Centre 2009a; NHS Information Centre 2009b). The statistics are available via the internet, and reports can be user-tailored and generated. Statistics used for this research include the floor and site areas of healthcare buildings by Trust, PCT and Mental Health Trust and reports produced each year so that fluctuations in area are shown.

4.7 Data analysis methodology

There are several methodologies available to a researcher undertaking a mixture of qualitative and quantitative research. Interpretation should take into account the subjective nature of any data collected.

The following methodologies have been employed during the process of analysis:

- interpretivism: to capture the emphasis of the position of the participants in the processes making up the chain of planning, design and procurement in the construction industry (Bryman and Bell 2003 p 728);
- relativism: to take account of the content of the data collected using deductive research (Easterby-Smith et al 2008 p 332) so that it can be related to the literature findings and secondary data;
- grounded theory and inductive methodology was used as the basis from which to develop the survey questions following the interview process; and
- Social Constructionism enables different viewpoints from different organisations to be identified and taken into account.

The qualitative data have been analysed by stakeholder group and by professional role or similar discipline. The results from analysis of the data have been calculated using the formula as follows:

$$\frac{\text{Total score for each sub-question}}{\text{Total number of respondents in group}} = \text{Average score per stakeholder group}$$

It has been useful in certain instances to calculate the level of interest each stakeholder group has for a particular aspect of the S&G where sub-questions or choices have been included. The level of interest has been calculated by dividing the average responses for each stakeholder group by the number of sub-questions e.g.

$$\frac{\text{Average score for each sub-question in Q7}}{\text{Number of sub-questions in Q7}} = \text{Level of interest}$$

The healthcare planners are considered as a group representing the Service Users by proxy for the purposes of this research. It is this discipline or role that is most closely aligned to and involved with the patients and staff as they usually run user group consultations involving staff and patients, and act as the interface between the design team and the end users.

The coding structure is provided in Appendix 9. The interviews were treated as explorations of the interviewees' perceptions of the DH S&G, how they have used them and how they might be improved, changed or disseminated differently. The conversations were wide-ranging and freely included all aspects of the subject-matter.

Analysis draws together findings from qualitative and quantitative research to form a structured and balanced body of evidence as shown in Figure 4-7. A weighting system has been developed and comparisons made as described by Dainty in Knight and Ruddock (2008) p8, to correlate qualitative research findings with those from quantitative research. The data sets are considered as complementary rather than mutually exclusive, and therefore should support the connections between analysis and judgement (Knight and Ruddock 2008 p 9).

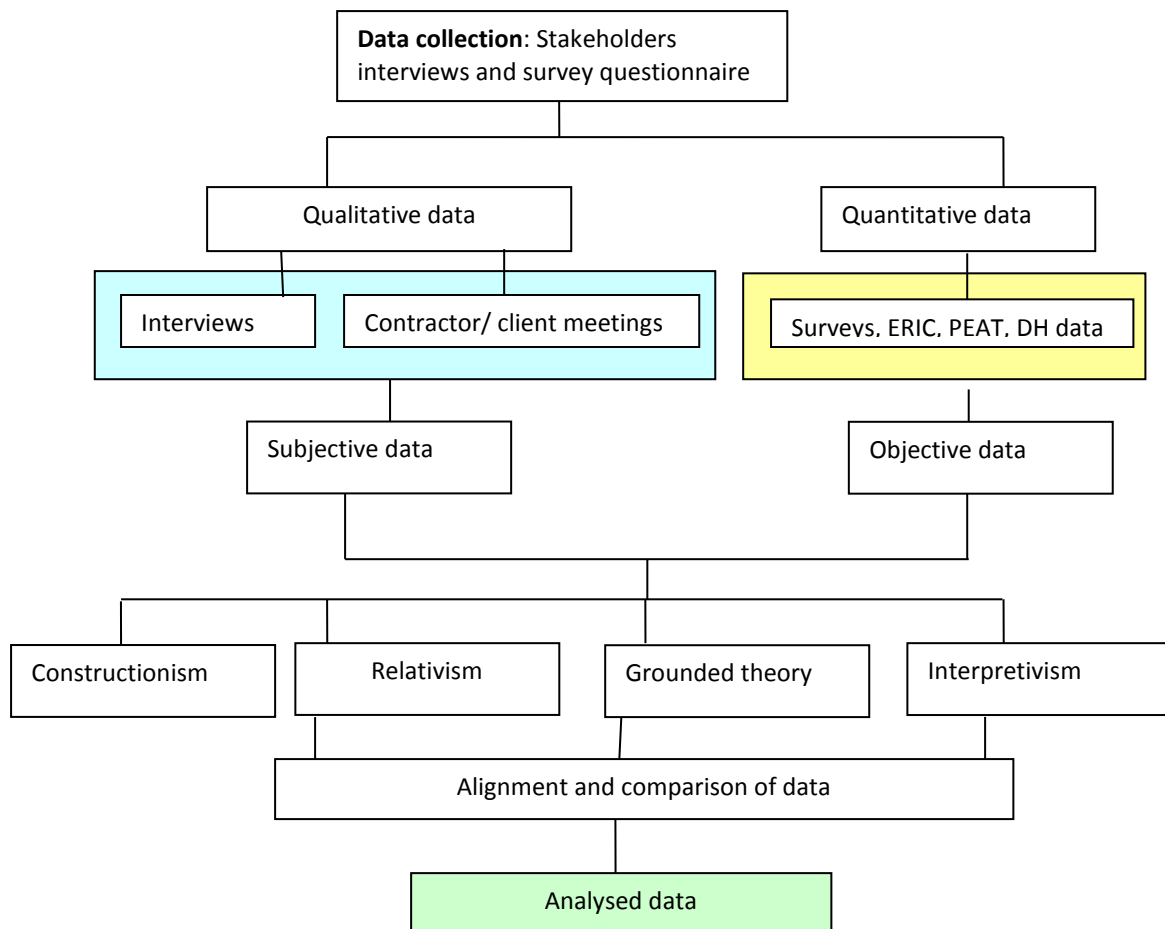


Figure 4-7 Data analysis methodology

4.7.1 Content analysis

Content analysis of the data draws inferences from the interview transcriptions. These can be made whilst performing analytical processes, or interpretation of findings, and can be divided into the following categories:

- deductive – general to particular;
- inductive – general to similar instances; and
- abductive – particulars of one kind to particulars of another kind e.g. individual policies to effects on designs.

It is argued that the most informative of these are the abductive inferences (Krippendorff 2004 p 37) as they draw explanations from the data. The inferences are coloured by the perspectives of the various interviewees and therefore need to be recorded and reconciled with each other and any commonalities or gaps in the data can be identified. The three themes of policy, S&G

and their effects (Figure 4-8) have been analysed from the following perspectives of the significant stakeholder categories, applied as described by Bryman and Bell p308 (2003):

- DH/NHS;
- designing;
- contractors;
- estates management and maintenance; and
- service users.

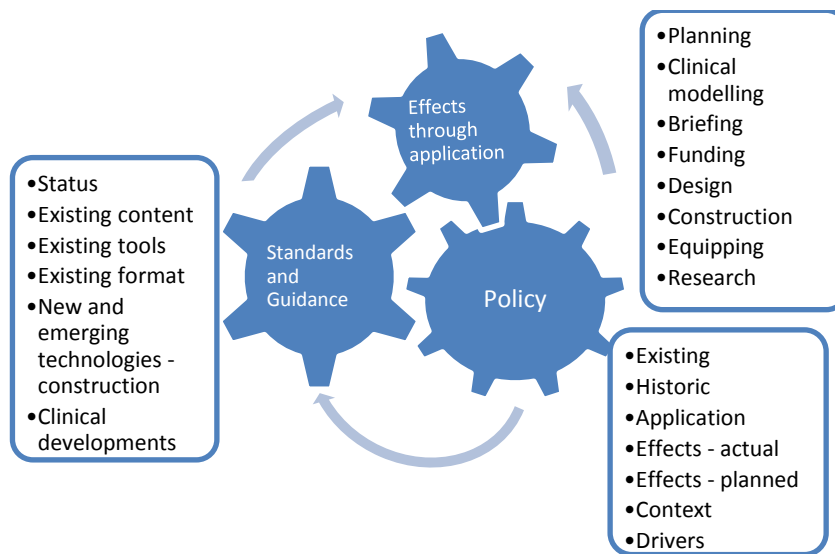


Figure 4-8: Intendant themes and sub-themes identified in coding.

Krippendorff described Content Analysis as:

“a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (Krippendorff 2004).

The interview process not only includes the data collection in the form of recordings or subsequent texts, but also takes note of contextual parameters and perspectives that lend depth and detail to the raw data. The principal advantage of conventional content analysis is that of gaining:

“direct information from study participants without imposing preconceived categories or theoretical perspectives” (Hsieh and Shannon 2005).

Each interviewee has included definitions of elements within the research questions, which vary according to their perspectives of the processes they are involved with and these emerge during the analysis.

4.7.2 Analysis techniques

Thematic analysis of data allows themes to emerge from the raw data as it is collected. Themes have sub-themes as shown in Figure 4-8. In this research project, the interviewees were specifically identified for this research and therefore the three main themes listed were pre-set. During the process of conducting the literature research and the interviews, and as a consequence of using deductive research methodology, themes and sub-sets have been inducted and confirmed as the research has progressed. The themes have been used as top level themes for coding, and sub-themes have been developed during the coding process (Level 2 in Carney's diagram, Figure 4-9). Themes were not given any priority or order in the Figure 3.8.

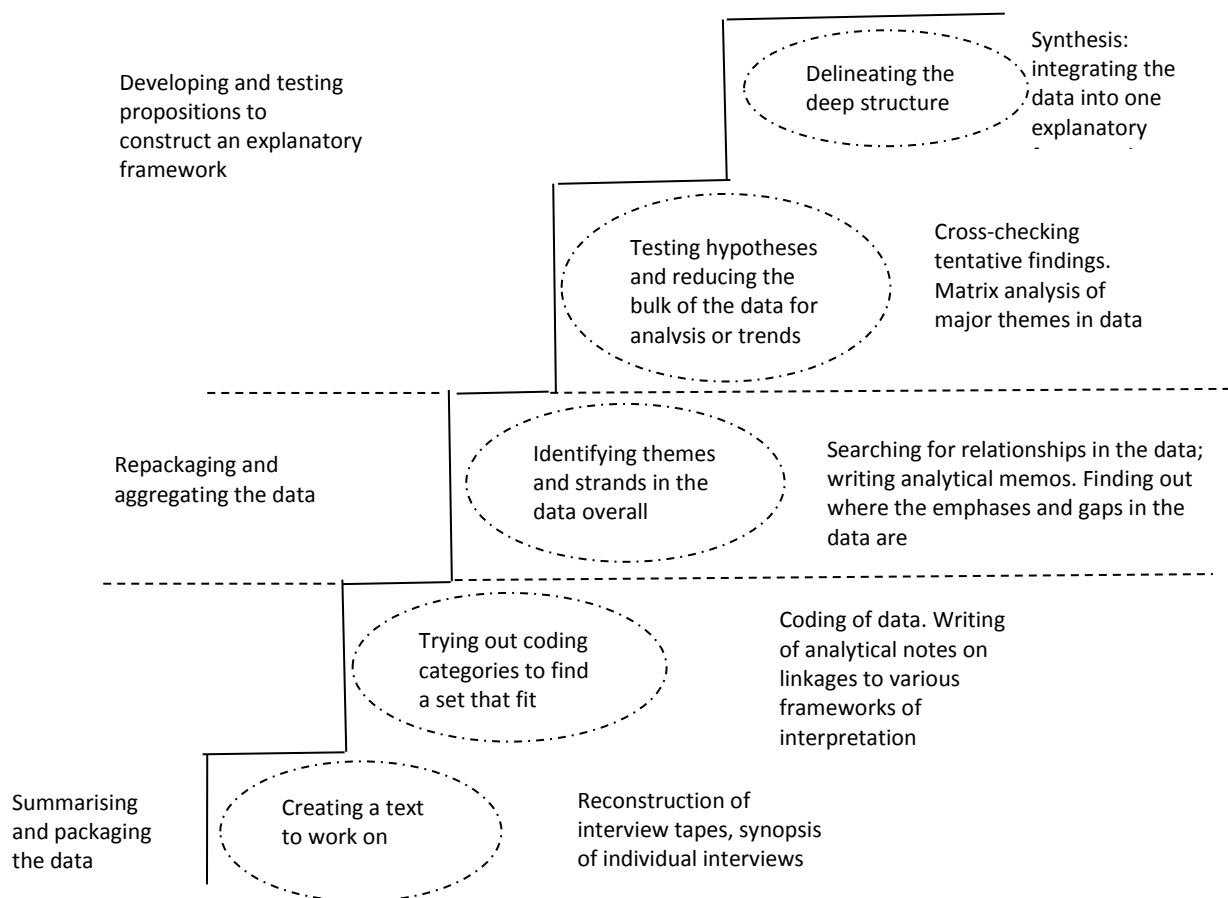


Figure 4-9: The Ladder of Analytical Abstraction, (Carney 1990 in Miles and Huberman 1994)

This inductive pre-structured system was adopted in preference to the more usual method because the research questions pose strong themes in themselves and to gain alignment between themes and the stakeholder categories, a more structured approach is preferred. However, in addition, to identify any gaps or phenomena a deductive approach has been taken to identify and extract any additional themes or sub-themes, which would not have otherwise been evident.

It is important that analysis of the data collected for any research is repeatable, therefore the method of analysis must be suitable for the type of data as well as extracting as much useful evidence as possible. The data collection has taken place over an extended period, in particular where there was an opportunity to gather additional responses. The context during this period has changed fairly significantly with the change of Government in May 2010 and the ensuing public sector reforms (National Audit Office 2013), but views of most interviewees and participants in the survey have proven to remain fairly static, only in a few cases have differed significantly.

4.8 Summary

This chapter describes the methodologies used to establish the focus of this research which is to establish the effects and benefits of the DH S&G. These are likely to vary according to the people and organisations that use them. It has been essential to define the stakeholder categories so that data collected are relevant and perspectives on issues are identified and compared. The philosophical context is explored.

The influences on the development of the semi-structured interview questions and the survey questionnaire are described. The methodologies available for use in qualitative and quantitative data collection sets have been discussed, together with reasons for the choice of the methodologies used.

This research spans both scientific and social issues including the need for standards, the Government policy and procurement and construction issues, requiring a mixture of methodologies. Dainty (2009) contends that research in the construction industry often combines methodologies as the scope of research includes both natural science and social elements. A social construct has been developed that assumes the DH itself, and patients and staff using healthcare environments benefit from the S&G. An Interpretivist methodology is proposed, which also includes relativist principles where different viewpoints are to be gathered and compared.

It is anticipated that deductive research will result in the majority of the interview data collected being subjective. An interpretivist methodology and the use of inductive principles informed the development of a survey questionnaire which has been used to amplify and validate stakeholder viewpoints gathered during the interviews and has provided objectivity.

The data analysis methodologies are described. A system of weighting is planned to reflect the importance to the research of the views expressed and information provided. Deduction has

been used to modify and review the initial qualitative data findings, enabling the research to be adapted to incorporate other important elements that arise. As this study includes Government policy that is subject to constant revision, flexibility was built in to ensure the research remains relevant.

CHAPTER 5: DH STANDARDS & GUIDANCE

5.1 Introduction

This chapter explains the background to and nature of the DH S&G. Section 5.2 describes the context of the DH S&G, their production, dissemination and who the users are. Section 5.3 looks at the definition of the S&G and the data collected to analyse how the users view the nature of the S&G, their aims, scope, structure, status and classification. Section 5.4 concentrates on users' views of the DH-related characteristics of the S&G and Section 5.5 explores how the users apply the S&G. Section 5.6 looks briefly at the relevance of standards from other industry sectors.

As described in Chapter 1, this research took place at a time of political and economic turmoil for the health service, and this affected the background against which the DH S&G are developed and applied. It also affected users' perceptions of the S&G to varying degrees for the following reasons:

- the DH S&G are applied across projects with a lengthy life-cycle, and the users need to apply current standards to their estates whatever the project timetable and the political position;
- the extent of the building programme for the NHS and other healthcare providers is dropping away, largely because funding is dependent upon both private and public sectors, both of which have been adversely affected by the economic climate;
- the changes in the process of regulation of the estate by the CQC;
- the dissemination of the DH estates-related S&G has undergone extensive changes in an effort to keep in line Government policy and with IT developments; and
- IT has developed rapidly over the past decade enabling far more effective use to be made of computer aided design (CAD), information exchange and knowledge capture.

All these factors have impacted heavily upon the DH estates-related S&G: their format; use; dissemination; and application by the construction industry. It is thus timely to carry out an assessment of the effects, benefits and dis-benefits stakeholders attribute to the S&G that are the subject of this research.

5.2 Context of the DH S&G

Standards are usually developed in response to a need. In the construction industry they are commonly used to set a level of performance (output specification) or set of criteria that must be matched in order to demonstrate compliance with regulations or benchmarks (e.g. NBS, Building Regulations), or to satisfy an audit process. Standards may be used to set out requirements for an environment directly, or they may form a part of a regulatory system containing output specifications. All NHS organisations and the independent healthcare sector are expected to apply and conform to DH S&G in order to demonstrate their ability to provide healthcare in fit-for-purpose and safe accommodation.

Figure 5-1 maps the scope and sources of standards and guidance, highlighting where this does not emanate from the DH. There are certain elements of healthcare accommodation that are governed by the NHS Trust or Foundation Trust directly such as Infection Control and Safety as these will be affected by local contexts, and other regulations and standards are provided by external organisations such as the CQC, BRE, HSE etc.

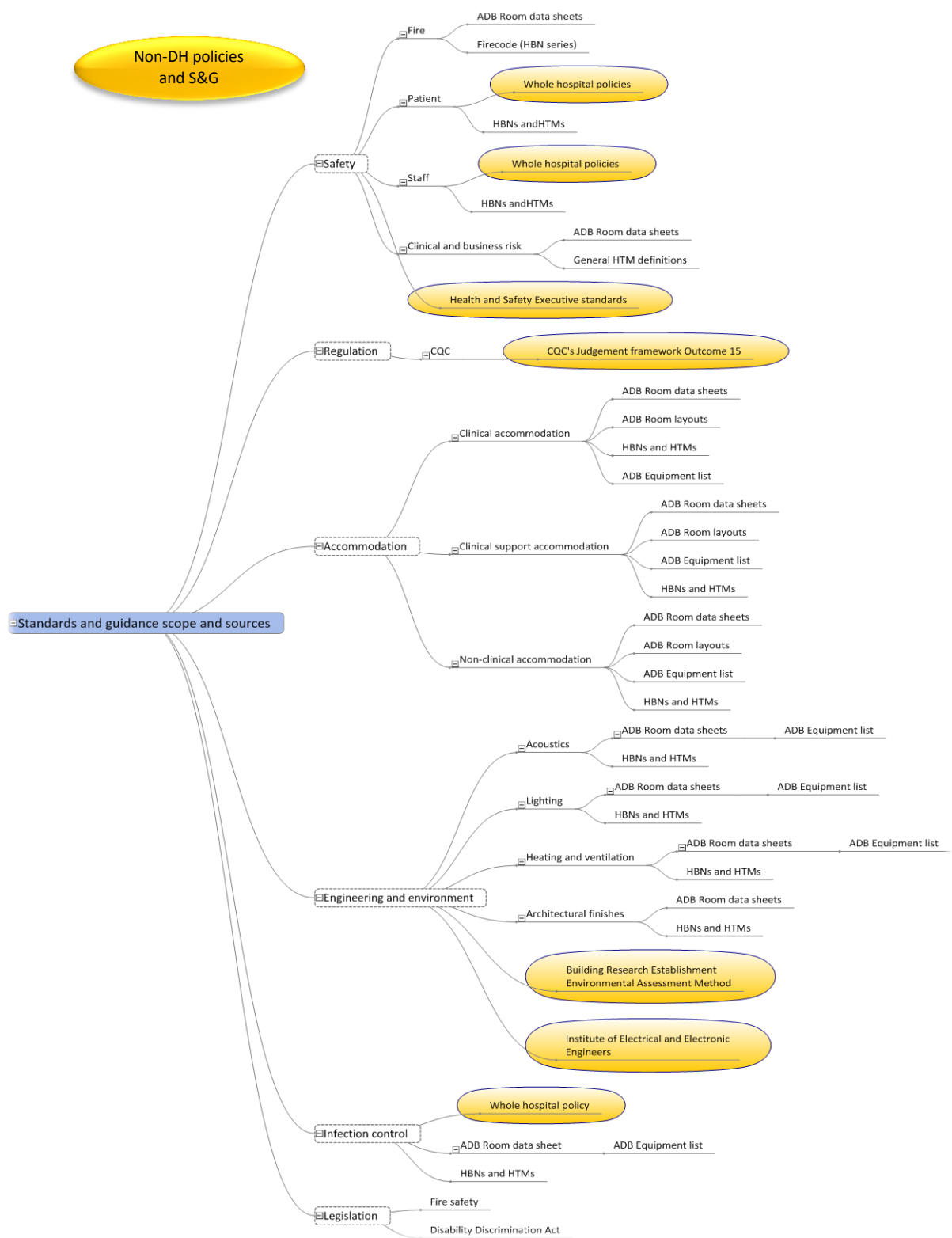


Figure 5-1: Scope and sources of Standards and Guidance

5.2.1 Production of content

The production of the DH S&G has evolved over a period of 40 – 50 years, each topic drawing on the collective experience of between 10 and 15 clinical and other professional experts including

clinicians (often a consultant and a nurse specialist), member(s) of relevant professions allied to medicine, an architect, engineer, healthcare planner and an equipping specialist. They are invited to contribute by the DH recognising their high reputation and degree of experience in their specialist field. The ADB data are developed alongside the production of the text drafts. The expert team will typically visit two or three relevant clinical departments recognised to provide good examples, in part or whole, of service delivery and accommodation. The findings from these visits are distilled, together with the team members' expertise and knowledge, into textual form. A final draft is sent for consultation to the relevant clinical Royal College(s), to provide a mechanism preventing "the loudest voice" in the team holding sway and to ensure the respective Royal Colleges support the clinical aspects of the S&G. Representatives of the non-clinical professions are also consulted. After further revisions the text and the ADB data are sent out for validation and sign-off by the DH according to the following process (Figure 5-2).

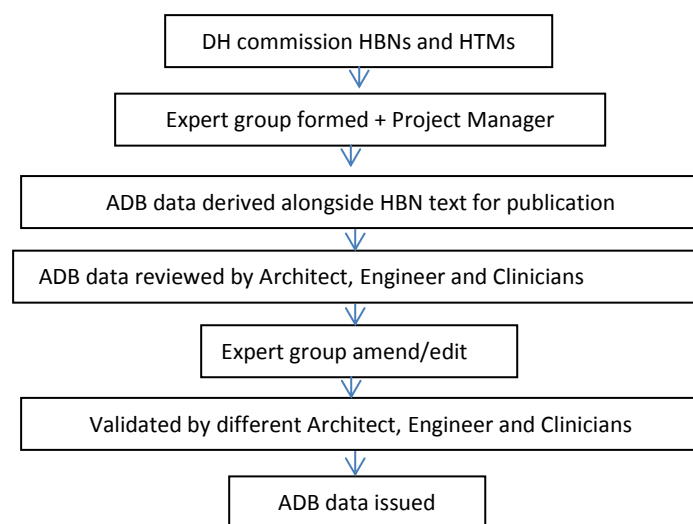


Figure 5-2: The validation process for ADB data

The DH S&G are usually regarded as reliable and accurate largely because they are reviewed and validated by clinical and professional experts other than the actual authors of the publications or data. Validation is seen by DH and users alike as a critical part of the production process, underpinning the benefit of the DH endorsement. This methodology results mainly in experience-based S&G rather than evidence-based ones. Even though they are described as evidence-based and users often assume that this is so, HBNs cannot truly be considered as entirely evidence-based, experience playing a large part in their development.

5.2.2 Dissemination

Policy regarding dissemination of the DH S&G has been very varied over the lifetime of the HBNs and HTMs. This has in large part been dictated by the policy regarding charges made for publications. The hard copy versions of HBNs and HTMs were always made available free of charge to NHS organisations, but private sector organisations were obliged to pay a significant price for them, e.g. £50 – 75 each, depending on their complexity and length. At times prices have been considered high, but this did not detract from the substantial sales of publications from The Stationery Office (TSO) the Government publishers - and via Barbour Index and Technical Indexes (TI) who provided dedicated subscription services until 2005. Many architects and engineers subscribe to Barbour and/or TI for their technical libraries, thus the DH ensured circulation to the planning and design teams.

Whilst the hard copy versions of HBNs and HTMs were the only option available, (i.e. pre-electronic format) the DH charged private sector users a cover price. This policy was maintained with the introduction in 2001/2 of the NHS Estates Knowledge and Information Portal (KIP) downloadable versions, KIP having a mechanism to restrict access to documents if required. This meant that Trusts and NHS users were able to download electronic versions, whilst their professional consultants had to pay. At that time it was also regarded as important for paper copies to be available to Ministers for use during Parliamentary debates.

This position remained unchanged until 2004, when the CCMS was proposed, using a coding system similar to that developed for ADB data. An independent review of the content of the HBNs and HTMs was undertaken by publishing specialists based in TSO. It was estimated that there was a lot (40%) of repetition (TSO Report unpublished). The aim was to disaggregate the HBNs and HTMs into units of information and manage them in a single database. This would have resulted in enabling users to use and re-use the data in a variety of ways, e.g. in-patient accommodation should be repeatable in different departments, therefore a single entry in the database could be used many times. Through a coding system each piece of data would therefore have been held only once, easing maintenance of the data and ensuring consistency. It was then planned to extend this to include ADB data either as a single source for all S&G or via a link between the two sets so that users could switch easily from one to the other.

The 2004 review highlighted that standardised content and format would assist readers so that they would know where to find relevant information, it would also reduce repetition and inconsistency. The original system was not implemented, but in 2009 a new proposal was made,

to make HBNs and HTMs available via a dedicated web site: SpaceforHealth in .pdf format. The plan to disaggregate the HBNs and HTMs was resurrected and steps taken to put the content into a new system, but without links to the ADB data. The SpaceforHealth web site made the publications available free to public sector users, and for a subscription of £250 per annum to private sector users².

A further change in 2005 involved the EU policy directive that data and information paid for by the taxpayer should be made available free of charge for re-use (Minister for the Cabinet Office 2005). At the time there was discussion about how this could affect the DH estates-related S&G; if they were to be made available free of charge under this directive there would be no funding available to develop and maintain the library of documents. Under “an exclusion” it was agreed with the Office of Public Sector Information (OPSI) that, because of the specialist nature of the HBNs, HTMs and ADB data, and the need to recover costs for re-investment in new and reviewed content it would be impracticable to implement the policy for the DH S&G.

Another major change took place in 2010 when it was agreed, partly in relation to the *Re-use of Public Sector Information* that the content of the HBNs would be split into two sections: policy and context, and planning and design. The policy and context information would be made available free of charge to all users, whilst a charge would be levied for the planning and design information from private sector users. NHS/public sector users would not have to pay. This compromise protected the ADB data, which generates over one third of the funding required to generate and maintain the DH S&G.

Since 2010, there appears to have been very little progress. The DH announced a major review of the guidance programme in October 2010, which appeared to throw the future of the whole DH S&G programme into doubt. Added to this uncertainty, it was announced in 2011 that the COI was to be abolished in April 2012, with the attendant “run-down” taking place during the 12 months up to closure.

The total sales in the mid-2000s amounted to a figure in excess of £500,000. The only mention of the DH S&G representing good value for money was from the DH interviewees, one of whom managed the programme of production of HBNs and HTMs, and ADB data. None of the other

2 In December 2012 DH announced the closure of SpaceforHealth at the end of March 2013. In April 2013 all S&G were transferred to www.gov.uk, and published in .pdf format and are free to download.

interviewees or the survey respondents mentioned the actual cost of the S&G was too high, but neither did they mention that they might represent value for money.

5.2.3 Production costs

Until 2005, the DH allocated approximately £1.2 million per annum to the HBN/HTM and ADB programme, for management, administration and production costs, as well as the cost of writing and producing a quarterly magazine Quarterly Briefing (QB). ADB generates an income which is used to support the generation of its own data and software development, as well as the content of the HBNs and HTMs. QB contained news and was a "voice" from the DH/NHS Estates to keep stakeholders informed on DH matters such as cost comparators, and policy changes.

The 2005 MOU with COI provided that DH would support the programme financially on a diminishing scale for the duration of the MOU, the aim being to encourage COI to develop marketing and dissemination strategies to make up the shortfall. The process of producing HBNs is costly: the total budget for 2008/9 was estimated at £878,500 for the HBNs and HTMs, excluding any input for ADB, which requires a minimum of approximately £250k per annum for the maintenance and development of software and data. At that time the HBNs and HTMs were made available free of charge so there was no income expected to offset against expenditure. The expert groups (Section 5.2.1) provided their services for an honorarium or hourly fee plus expenses.

5.2.4 The users of DH S&G

DH S&G are applied by each stakeholder group for different purposes according to their disciplines and roles in the construction process. The following groups span the public and private sectors, as set out in Table 5-1:

Table 5-1: Stakeholder groups in Public and Private Sectors

NHS or Public sector	Estates Director Estates Manager Capital Planner Project Manager Equipping Manager Regulator (CQC)
Private sector	Architect Engineer Estates Manager Health Planner Project Manager Construction Director/Manager

NHS organisations and the independent healthcare sector are expected to apply and conform to standards in order to demonstrate their ability to provide fit-for-purpose accommodation to deliver healthcare. Patients have not been included in this research as they are not direct users of the S&G.

5.3 The nature of the DH S&G

5.3.1. Definition of the DH S&G

The DH considers the S&G to represent the minimum standard on which users can base briefs and design and construct healthcare premises. Other standards are generated through Parliamentary legislation, by the Executive (Ministers and their advisors) and by Non-Government Organisations, (e.g. BRE, BSI etc.) and the judiciary. Section 2.4 of the literature review describes the use of the word “standards” in the context of the DH and in particular the DH Gateway Review Estates and Facilities Division (DH GREFD) publications. Standards in themselves may not be mandatory, but individual specifications may be. It is therefore important that users are clear about their status and have confidence that the S&G provide accurate and consistent information.

The DH estates-related S&G contain references to many forms and types of standards. From the list in Table 5-2, British Standards, and Fire Safety Standards are well recognised national standards. The remaining instances are comprised of a mixture of construction industry-related terms or adjectives describing services, systems or furniture and equipment.

Table 5-2: Types of standard referred to in the DH estates-related S&G.

Types of Standards referred to in HBNs
Design standards
Premises standards
Service standards
Organisational standards
Standard data
Standard modules
Standard space standards
Standard equipment
Standard furniture (i.e. bed, storage cupboards)
Standard engineering services
Fire safety standards
Standard specifications
Space standards
British standards

5.3.2 The Aim of DH S&G

The stated aim of the DH S&G is:

“.... give “best practice” guidance on the design and planning of new healthcare buildings and on the adaptation/extension of existing facilities. They provide information to support the briefing and design processes for individual projects in the NHS building programme” (Department of Health 2007a).

Other implicit purposes emerged during the data collection process the principal ones being regulation, and dissemination of evidence-based information regarding healthcare building. What otherwise would be the purpose of providing practitioners with a source of “best practice”?

The above-quoted aim indicates the breadth of the audience for S&G. To address the needs of all the stakeholder categories the scope and content of these documents and data need to include sufficient detail whilst not straying into the realms of dictating solutions. The S&G are also “generic” in that they do not endorse any products such as specific equipment. The DH has been very conscious that the expression “may be” is used, not “will be”, i.e. there is no intention to force users to adopt guidance. This is not always welcome as a modus operandi; some groups of users would prefer a more mandatory stance as shown by the survey respondents (Figure 5-3).

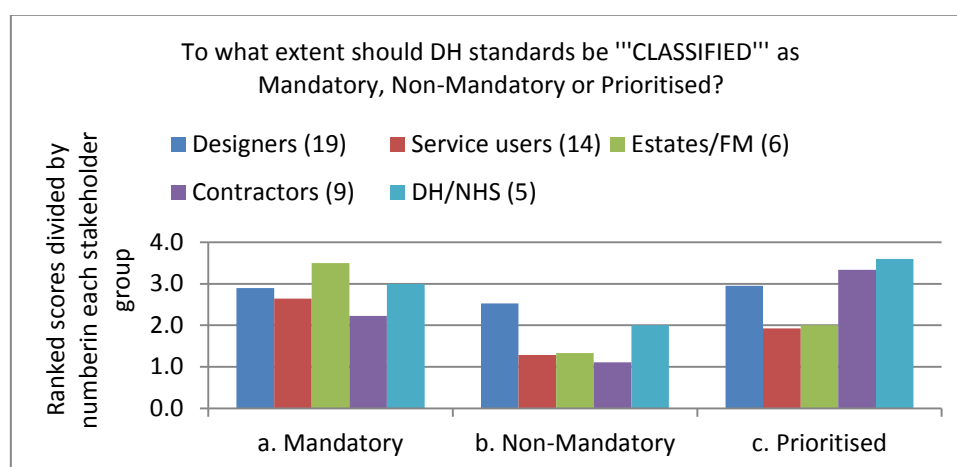


Figure 5-3: Scores for respondents’ preferences regarding status of S&G

5.3.3 Scope

The estates-related DH S&G relate to England only, but are adopted and adapted by the other three territories in the UK. Many of the publications in the English section of SpaceforHealth were not classified as part of any particular series. They included several documents giving background and supporting information for design and planning including some specific guidance for NHS staff on Town Planning issues, and similar generic issues such as requirements

for the disabled, sustainability (Department of Health 2011e) and climate change (Department of Health/Health Protection Agency 2008). Since the SpaceforHealth web site was archived the number of current S&G documents for England has reduced to 25 HBNs and 25 HTMs, which are available from www.gov.uk.

The DH appears to be shifting the emphasis towards technical publications rather than the building notes, which contain more general guidance. Figure 5-4 compares the numbers of HBNs and HTMs up to 2005, and from 2005 to the present, showing how the emphasis on HTMs has increased emphasising the importance placed on the technical as opposed to the design and planning content.

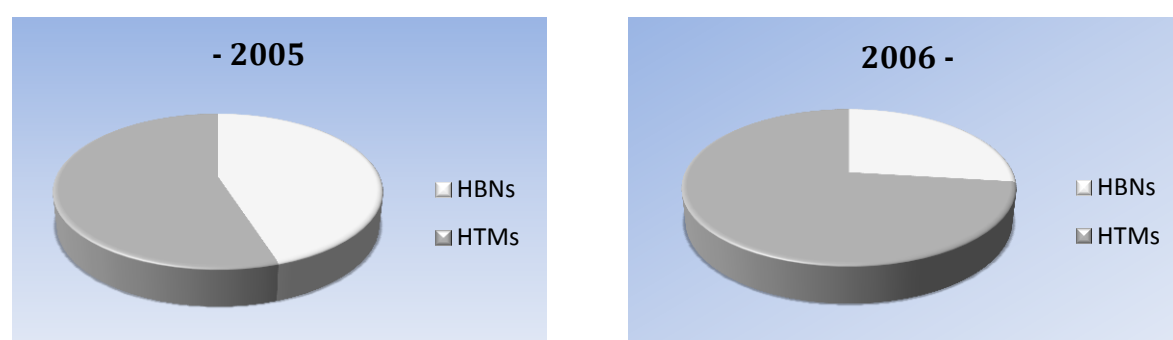


Figure 5-4: Pre- and post-December 2005 HBN: HTM split for England (Source Department of Health (2010e))

5.3.4 Structure

The structure of S&G is partially standardised, but the lack of a comprehensive system of content management has resulted in an untidy and inconsistent set of contents. The HBNs and HTMs were originally written as individual entities, and their overall management has lacked coherence, particularly since 2005. Although a CCMS was introduced on the SpaceforHealth web site, the associated work was not fully completed, and many users complained about its functionality as shown in the survey results (Table 5-3).

Table 5-3: Dis-benefits listed in survey responses

	Designers (19)	Service users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)	Total Score
Complicated to use				1.0	1.0	2.0
Difficult to match against brief	1.0			1.0		2.0
Used as blanket spec in NHS brief		1.0		1.0		2.0
User understanding can be lacking	2.0			1.0		3.0
Total score	3.0	1.0		4.0	1.0	9.0

Standards may be made up of performance, output, technical or process specifications. The HBNs and HTMs contain output as well as technical specifications. The terms Performance or Output specification describe part of the requirement/definition for the end product defined in the specification; and Method or Technical specifications explain the means of achieving the requirement e.g. the exact process to be followed to achieve an end result (Heavisides and Price 2001).

Performance specifications largely include engineering requirements e.g. water temperature, and an output specification relates to services to be provided in terms of their output. A method specification provides guidance on how to achieve the standard required, whilst a technical specification describes the detail required for equipment e.g. a two- or three-section couch. Any or all of these specifications may combine or separately form a standard as shown in Figure 5-5.

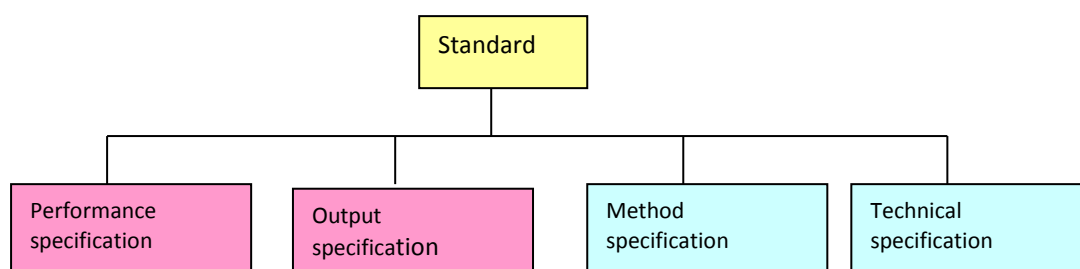


Figure 5-5: Standards and specifications: Source: Ricks (2009)

Some HBNs include a set of Schedules of Accommodation (SoA) for the topic or clinical department that is the subject of that HBN. These are used to indicate the patient pathway through the accommodation of each department. The SoA provide a very quick overview of the quantities of rooms required to provide a certain service level and capacity. They are used alongside the ADB room data forming a useful starting point for planning. An interviewee explained the process as follows.

“In practice what happens is that an assessment is made of the level of spend on the estate. It is then quick and easy to do a costing very early on (at proposal stage) using guidance, which can then be developed into a full brief.”

The SoA provide planners and Project Managers with a quick “first stab” at assessing accommodation areas, which can then be taken forward in ADB to develop into room layouts and floor plans. The SoA are also used alongside the Departmental Cost Allowance Guides

(DCAGs) that provide a cost per square metre for each Department. This enables users to calculate a very rough estimate of a project without having to access all the S&G in detail.

ADB is used by the DH to generate and maintain the dataset developed from production of the HBNs. It therefore reflects and extends the detail contained in the HBNs and HTMs. A software layer enables manipulation and edition of the data to produce room data sheets and graphical room layouts. The ADB data provide users with the basis from which project specific data are developed.

Table 5-4 shows the overall subject-matter for Firecode, which is typical of the way the HBNs and HTMs are generally provided: for HTMs an overarching document, guidance and operational provisions, and design and validation; and for HBNs guidance on planning and design of a hospital department, with a number of sub-sections, e.g. HBN 12 Outpatients Department, and HBN 12-01 Consultation, examination and treatment facilities – Supplement A: Sexual and reproductive health clinics.

Table 5-4: Titles and publications dates of HTM 05 series: Firecode

HTM 05-01: Managing healthcare fire safety	Jul-06
HTM 05-02: Guidance in support of functional provisions for healthcare premises	Jan-07
HTM 05-03: Operational provisions, Part B – Fire detection and alarm systems	Oct-06
HTM 05-03: Operational provisions, Part C – Textiles and furnishings	May-07
HTM 05-03: Operational provisions, Part E – Escape lifts in healthcare premises	Jul-06
HTM 05-03: Operational provisions, Part G – Laboratories on healthcare premises	Dec-06
HTM 05-03: Operational provisions, Part J – Guidance on fire engineering of healthcare premises	Jan-08
HTM 05-03: Operational provisions, Part L – NHS fire statistics 1994/95–2004/05	Mar-07

The ADB data include:

- lists of rooms/Schedules of accommodation (SoA);
- room titles;
- activities/functions undertaken in the room;
- personnel;
- planning relationships or adjacencies;
- room area and height;
- engineering specifications;
- architectural finishes; and
- equipment schedules.

The ADB data set is structured, coded and classified to facilitate searching, grouping, filtering and sorting. It includes graphical room layouts that are connected to the textual data so that changes made in text are reflected on the drawing, all of which are manipulable by users.

5.3.5 Status

The status of the DH S&G was not raised by any of the interviewees directly. However, it had been the subject of discussions within the DH in that when clarification had been sought where conflicts arose between different HBNs, or between the DH S&G as a whole and guidance published by other organisations. It was included in the survey questions, which explored the respondents' level of agreement with six options to describe the perceived status of DH S&G. Figure 5-6 shows the results by stakeholder group. DH S&G is badged as Best Practice and described as such in Hansard. It is notable that the Estates/FM Managers generally accept the DH S&G as having a higher status than the other stakeholder categories, reflecting their use of the S&G as a "bible" to which they need to conform, rather than looking critically at the content in relation to design and briefing; they are dealing with their own internal organisational needs.

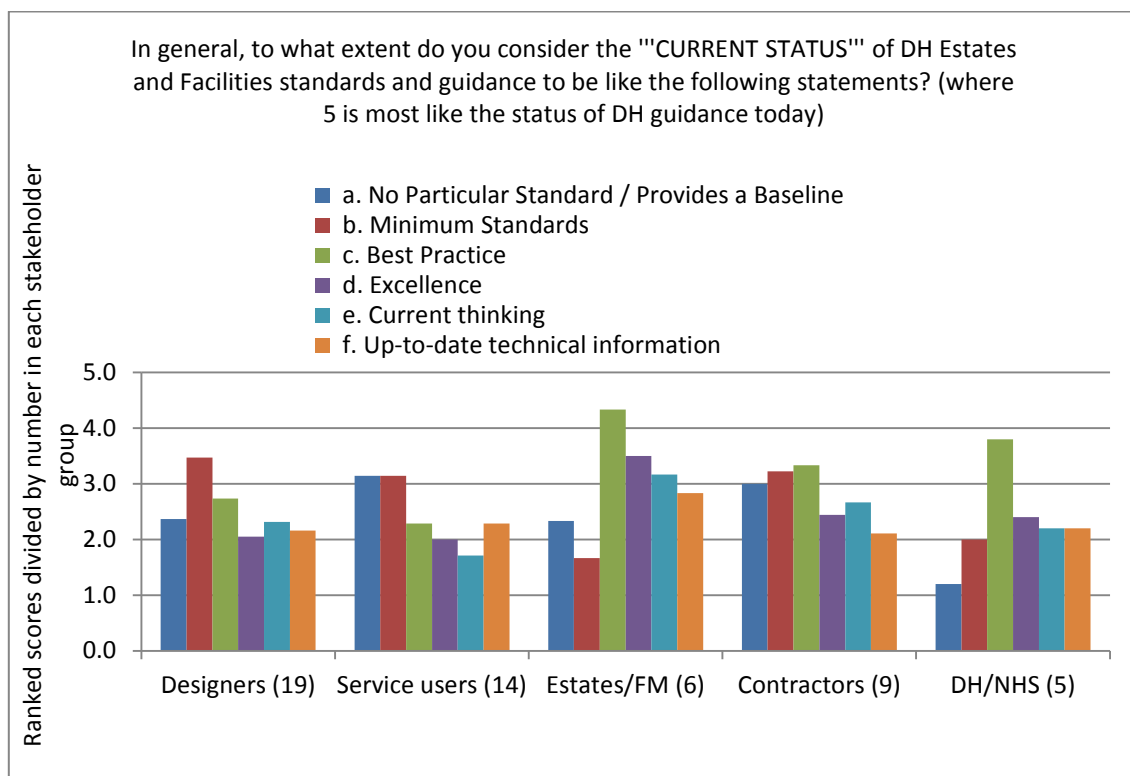


Figure 5-6: Stakeholder groups' responses to what they consider the status of the DH S&G to represent

The survey reveals a split between the DH/NHS-based groups, for whom they represent Best Practice and the others who indicated that they represent Minimum Standards. The same split applies to "No particular standards/provides a baseline". Current Thinking and Up-to-date

Technical Information are both rated at a relatively low level, as is Excellence except for the Estates/FM group who consistently generally rate the DH S&G higher than the other groups. None of the groups rated Current thinking and Up-to-date technical information highly. The generation and publication of HBNs and HTMs has, in the past, taken numbers of months, and in some cases, years. Inevitably the S&G contained are likely to be in part out-dated before the date of publication. This is a major problem for the DH in that, although not mandatory, the S&G are commonly perceived as not representing current thinking.

The option of “no particular standard or baseline” is considered different to “minimum” in that a baseline may be indicative, whereas “minimum” suggests that the standard should not be undercut.

These differing views of S&G can in part be explained by understanding what each group is responsible for. Healthcare planners are employed as consultants representing the service users in the process of assisting with project planning and design. They therefore look to introduce the most up-to-date clinical practices and latest technical efficiencies i.e. looking forward and probably a number of years, whereas estates managers are responsible for ensuring the existing estate runs efficiently and safely, and is fit-for-purpose.

Many efforts have been made to address the need to keep the HBNs and HTMs up-to-date. In the past this has been inhibited by the time taken to produce each publication, for example. the guidance on Diagnostic Imaging departments has been promised for over 7 years, and is still outstanding. This has meant new facilities have been built that are unsupported by any DH S&G, forcing designers and planners to look for other guidance or examples of such accommodation, often overseas in Australia or United States of America (Gusack 2008).

5.3.6 Classification

An Act of Parliament carries the force of law, whereas a standard disseminated as “guidance” through a web publication by a Non-Government Organisation (NGO) such as the BRE is open to interpretation. On the other hand, legislation such as the DDA sets out requirements that must be met in relation to providing suitable facilities and accommodation for disabled people. Building Regulations are produced by Local Government: some elements are contained in legislation, and others in a series of “approved documents” (Communities and Local Government 2010). There is thus an inherent hierarchy of standards embedded in policy, guidance, best practice etc. depending partly on the publishing body.

Standards and specifications may have mandatory or non-mandatory status. Some specifications may be discretionary, whilst the standard that they form a part of is obligatory, e.g. the specification for a motor cycle helmet is discretionary but the requirement to wear a motor cycle helmet is obligatory. The DH S&G are not considered mandatory, but some of the standards contained in the guidance are enacted, they are therefore mandatory e.g. provision of equipment and accommodation under the DDA.

Judgements handed down in a court of law or findings from a Judicial Enquiry may also have the status of being legally binding. For example, in 2002 NHS Estates issued guidance stating that the space between patients' beds should be increased from 2.7 m. to 3.6 m. centres to mitigate against spread of infection. University College Hospital London was planned in 2000, and the Trust stood to lose a significant number of beds if the new standard was implemented (Khan 2011). The lifecycle of a hospital building project is so long such a change in the DH S&G could easily be made between briefing and sign-off of the design.

Table 5-5 displays ranked responses to a survey question asking "To what extent should the DH standards be classified as Mandatory, Non-Mandatory or Prioritised?" The responses reflect the views of users, not the actual position. There is a preference for mandatory standards over non-mandatory with the exception of the Designers group who show little difference between each of the options. However, the Designers, Contractors and DH/NHS groups indicate a preference for prioritised standards, not currently an option. Several interviewees thought prioritised standards would be very useful and save clashes of option and derogation.

Table 5-5: Survey responses to the question "To what extent should DH standards be "CLASSIFIED" as Mandatory, Non-Mandatory or Prioritised?"

Options	Designers (19)	Service users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)	Total
a. Mandatory	55	37	21	20	15	148
b. Non-Mandatory	48	18	8	10	10	94
c. Prioritised	56	27	12	30	18	143
Total	159	82	41	60	43	385
Group average of total score	8.4	5.9	6.8	6.7	8.6	7.3
Group level of interest	2.8	2.0	2.3	2.2	2.9	2.4

Respondents were asked to rank their scores in the range 1 – 5 where 1 indicated a low level of agreement. The stakeholder group average indicates the score for each group where the average has been divided by the number of options available, (a, b, and c) (e.g. for Designers, 8.4 divided by 3), indicating a level of interest in the question for each group. This shows that

the Designers and the DH/NHS groups are clearly the most interested in this question. The reasons for this are likely to include the need for clarity on the parts of the Designers, and also for the Capital Planners in the DH/NHS Group. The application of the S&G by the other groups is arguably less critical, and although surprising, the contractors' low score could indicate their reliance on their designer colleagues within the consortia.

The definition of the DH estates-related S&G as "best practice" allows flexibility, and it often suits the users of the DH S&G, to interpret them as they see fit according to their role and responsibilities. The flexibility of interpretation is also advantageous for the DH, which does not want to be seen to be over-rigorous and thereby stifle innovation, but needs to promote best practice and demonstrate some form of standard-setting for patient safety and regulatory purposes.

Users have no other healthcare-related standards or guidance in England against which to benchmark briefing or design drawings and service plans, and therefore are comfortable that they conform to the extant guidance. Feedback from users demonstrated a wish for tighter definition of what is considered mandatory, advisory or voluntary. This would fit with a classification indicating priority of one standard over others, such as infection control which applies across healthcare accommodation of all types, as opposed to specific requirements for specialist services that do not apply in other clinical departments. Such a system would require rigorous debate and could be considered counter the DH policy of maintaining a "hands off" approach to management. However, in the application of standards to accommodation, a pre-agreed set of priorities, once set, could be very helpful to practitioners and regulators alike.

5.4 DH-related Characteristics of the DH S&G

The DH-related characteristics of the S&G are those that apply across the whole range of what the DH consider S&G to be. Survey respondents were asked to indicate how important certain characteristics are to them, and asked for comments. The statements are generalist in nature, applying to all S&G, as set out in Table 5-6 displaying the survey results by stakeholder group.

Table 5-6: Questions regarding characteristics of the DH S&G

a. Is DH Endorsement of DH Estates and Facilities standards / guidance important to you?
b. Is Clinical Institute/Royal College Endorsement of DH Estates and Facilities standards / guidance important to you?
c. Is Independence from commercial considerations of DH Estates and Facilities standards / guidance important to you?
d. Do you consider that DH Estates and Facilities standards / guidance stifle Innovation ?
e. Do you consider DH Estates and Facilities standards / guidance Evidence-Based ?
f. Are DH Estates and Facilities standards / guidance sufficiently Integrated with other relevant Construction standards (e.g. CIBSE)?
g. Do DH Estates and Facilities S&G ensure Legislative Safety requirements (e.g. DDA, Fire)?
h. Does DH Estates and Facilities S&G assist your Risk Mitigation policy?

The results have been calculated using the formula as follows:

$$\frac{\text{Total score for each sub-question}}{\text{Total number of respondents in group}}$$

5.4.1 DH endorsement

Figure 5-7 shows the survey results asking for comments on some given aspects of the S&G that relate to DH-based parameters. The two most important qualities of the DH S&G emerge as the DH endorsement, and that they are free of commercial interest and pressure, followed closely by assistance with risk mitigation and that they are evidence-based. DH endorsement was also included in the main benefits to respondents, identified by all but one stakeholder group, and is one of the highest scoring characteristics.

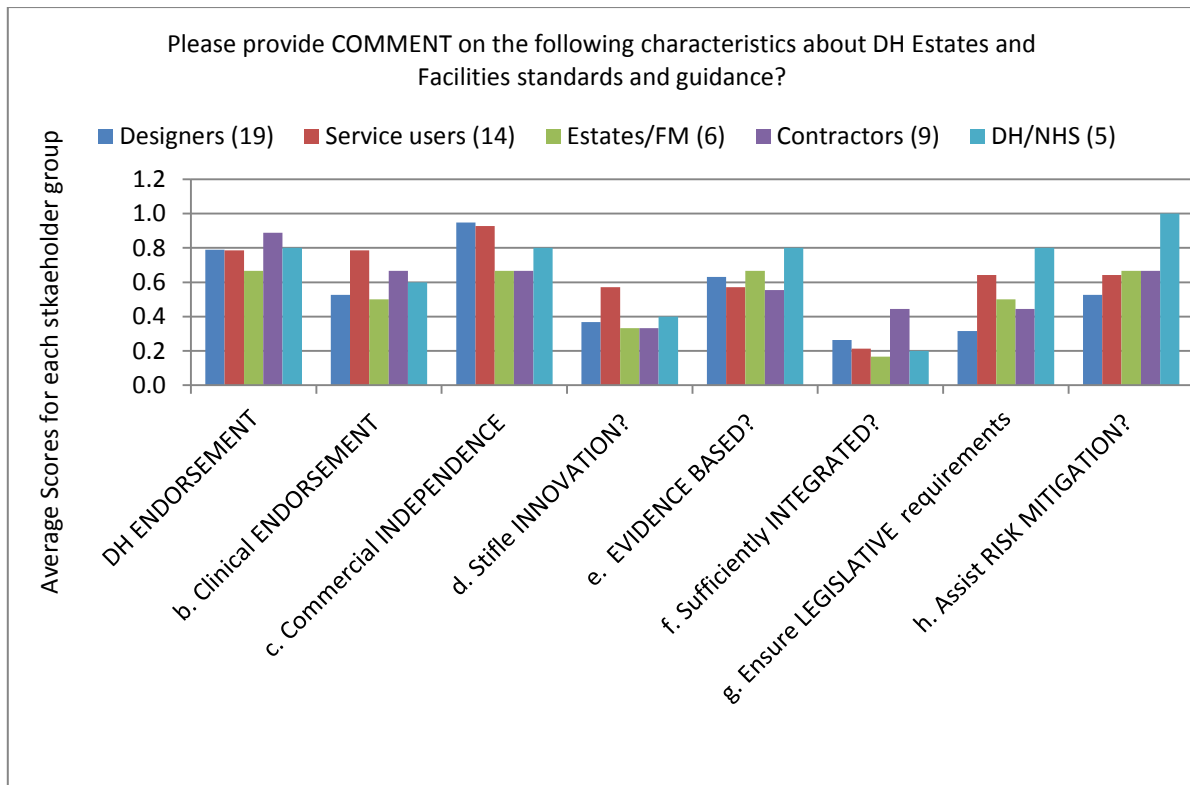


Figure 5-7: Stakeholder groups responses showing extent of agreement with DH S&G characteristics

5.4.2 Clinical Endorsement

It is interesting that clinical endorsement is not seen as important as that of the DH. Although the survey response shows agreement that clinical endorsement is appreciated (Figure 5-8), it does not achieve the same level of importance as that of the DH endorsement. Several comments were fairly equivocal.

“We appreciate that such input is important, but as our view is commercial not clinical. It is important to us that the client has endorsed the standards, but in general how they have been arrived at is less so.”

“A ‘nice to have’ if a specific clinical area e.g. Oncology, Ophthalmology, Radiology for the HBN guidance, but this brings in wish lists for space.”

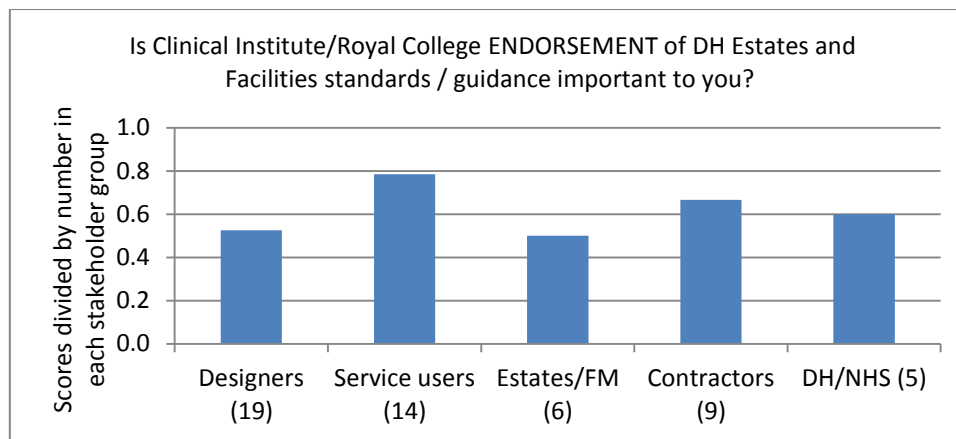


Figure 5-8: Is Clinical endorsement important?: Survey responses

Respondents appeared to assume that the DH endorsement is sufficient and one went so far as to comment:

“..... Institute / Royal College endorsement are rarely sought”.

Interviewees were generally happy to accept that there is a set of the DH S&G, but were not exercised by the idea of requiring further clinical endorsement. One equipping specialist was concerned about the potential for conflict between professional organisations and the DH S&G, i.e. the HBN describing the endoscopy suite is significantly different to that provided by the Joint Advisory Group for Gastro-Intestinal Endoscopy. Such potential for conflicting guidance or recommendations leads to the need for derogation and negotiation between stakeholder categories.

Twenty eight percent of survey respondents said that clinical endorsement was not important to them at all, typified by the following comment:

“You would think [it would be] taken into account by users.”

Counter to this show of indifference, clinical content is one of the top scoring benefits identified in the survey asking respondents to identify three main benefits to them of the S&G. Although clinical content is slightly different, it is surprising that there is not a higher score placed on its endorsement as it is the clinical aspect of the S&G that differentiate them from other construction sector guidance.

It is predictable that the highest level of agreement to the importance of clinical endorsement comes from the Service Users, which could be interpreted as an indicator underlining their need to achieve a high level of accord between clinical, construction and end user requirements. It is surprising that the Estates/FM group is not as concerned with clinical endorsement. This shows that there is a perception that the Royal Colleges are not involved in the standards relating to

provision of healthcare accommodation, even though they contribute to HBNs and HTMs. This may in part be explained because later guidance provided via the SpaceforHealth web site, did not necessarily include acknowledgement to authors or contributors where the content had been disaggregated from whole publications into smaller elements. However, the www.gov.uk web site has re-aggregated the content and published the HBNs and HTMs in .pdf format, including the full list of contributors enabling users to check whether the relevant Royal College(s) may have contributed to the S&G.

5.4.3 Commercial Independence

Commercial independence of the S&G is important to most of the survey respondents (Figure 5-9). There is little differentiation between public and private sectors for this attribute of the DH S&G (82% of private sector and 88% of public sector respondents).

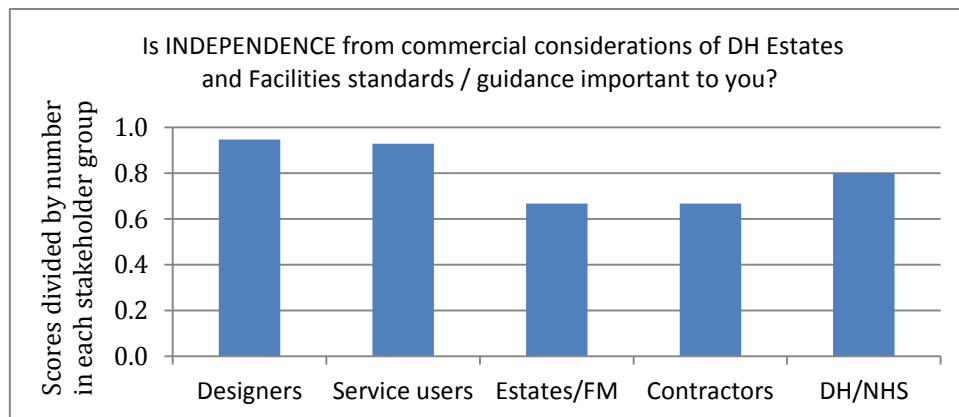


Figure 5-9: Is Commercial independence important?: Survey responses

When broken down by stakeholder group, the figures show this aspect of the S&G to be a high priority for the Designers, Service Users and the DH/NHS groups. This may be explained by the Designers' need to know that there are no commercial pressures or advantages available to any competitor Designers. The Service Users are also anxious to ensure that the S&G come without any commercial pressures so that they can ensure probity and complete openness in their negotiations. This latter point also applies to the DH/NHS group. It is noticeable that the Estates/FM and Contractors groups are not as concerned as the other groups about commercial independence, but their results still show over 60% agreement that it is important. The DH goes to great lengths to ensure that any commercial prejudice or preference is kept to an absolute minimum; the only exception to this is where equipment can be identified by simple drawings in the ADB data set because there is only one manufacturer. As a Government department, the DH could not be seen to favour or endorse any one particular commercial organisation.

The major contractors indicated less (but still positive) agreement. A major contracting organisation indicated that if ADB data did not exist, they would have had to “invent it”, but recognised the high cost involved. They were not concerned about independence, because they would then own the data and could use it for commercial gain. In reality, the high cost of generating and maintaining data appears to have inhibited commercial organisation from producing a similar set of S&G, and all other sets of S&G available internationally are generated by Government organisations or professional institutions.

5.4.4 Stifles Innovation?

DH has often reiterated that providing a baseline to health planners, briefers and designers should enable users of the guidance to undertake research and therefore encourage innovation. There is quite a divergence of opinion apparent in the responses to the survey question “Do you consider that the DH Estates and Facilities standards/guidance stifle innovation?” The Service Users provided the highest score, but even that was only just over half of the group. Interestingly the response from the Designers group falls below 0.4 (Figure 5.10).

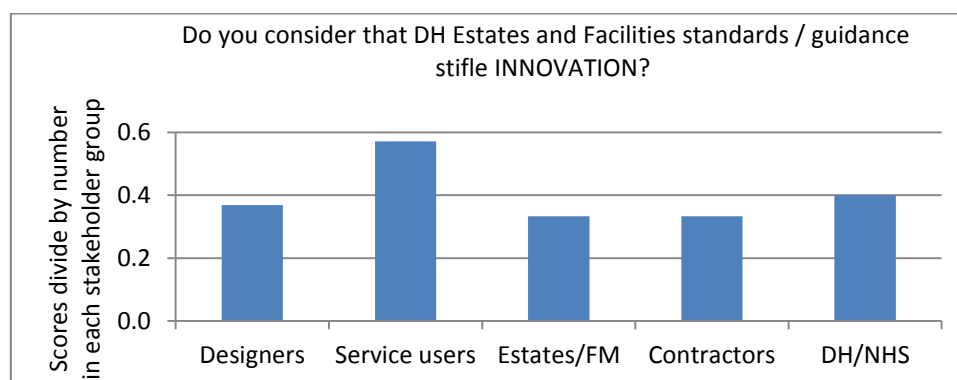


Figure 5-10: Do DH S&G Stifle innovation?: Survey responses

That standards stifle innovation is an oft-repeated maxim, about which there is much debate (Edum-Fotwe et al 2004; Fairclough 2002) which is borne out in the analysis of the Dis-Benefits identified in the survey responses (Section 6.6). This view was countered emphatically by two of the Project Managers and Architects interviewed who felt that, used constructively the guidance should encourage innovation rather than stifle it. Both the survey group and the interview group were selected contributors so this contradiction is difficult to explain. The only difference between the two groups is that the interviewees had the opportunity to “unpack” and expand on their views whilst the survey group may reflect a more “off the cuff” response.

Some have argued that evidence-based design can stifle innovation and the DH S&G are described as Evidence-Based. However, this view is proving fallacious as innovative design

solutions now build on evidence (Cama 2011) and that the proven and dis-proven solutions are shared in groups such as The Pebble Project which provides examples for learning (Section 2.10.3).

The need for innovation is seen as important because of the increasing rate of change in healthcare-related technologies and clinical practices. Although the S&G attempt to keep up-to-date with these changes, it is extremely difficult. It is a well-recognised adage that, as soon as something is published, it is out of date. This is particularly true of IT-related and technical specifications and the survey highlighted users did not always agree that the DH S&G represent current thinking.

5.4.5 Experience and Evidence-based DH S&G

DH S&G are produced using the collective experience of clinical and other professional experts, and are described as “Evidence based guidance” on the title sheet. When asked whether they felt the DH S&G were evidence-based, 39 out of the 65 respondents answered in the affirmative and 11 negatively. The survey results are displayed in Figure 5.11.

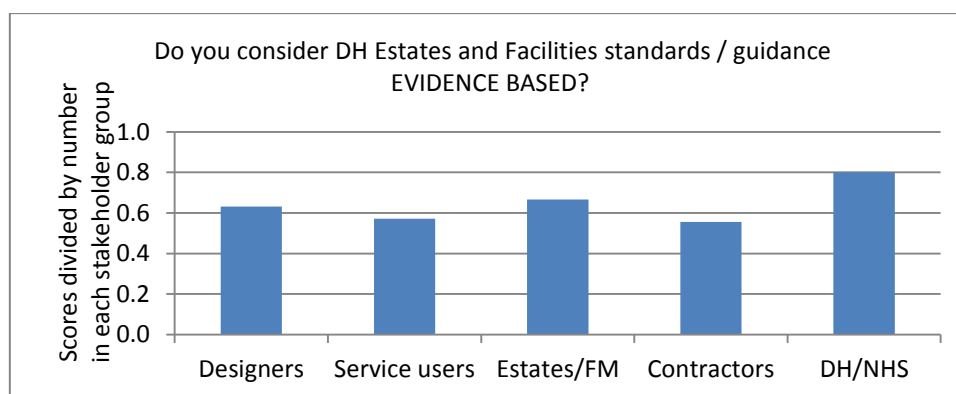


Figure 5-11: Are DH S&G Evidence-based?: Survey responses

Demian and Fruchter (2006) described the high worth of experience in re-use of information and development of corporate memory, but what should not be confused is the difference between experience and evidence. As the most experienced architects and engineers are often employed as contributors to the S&G programme, the above confusion may well apply therefore, caution should be exercised when assuming that HBNs are evidence-based. There is very limited reference in the S&G to evidence from research outside DH or NHS Estates literature or organisations providing standards such as BRE, CIBSE, etc.

In addition to the HBNs and HTMs, a programme of research was commissioned by NHS Estates. The reports, although not classed as standards or guidance, inform the DH and its advisors. The

research teams were usually comprised of collaborating practitioners and academic staff. They have no status in terms of DH S&G.

Of the interviewees, 7 discussed the question of evidence at varying length, some negatively, saying evidence-based guidance is necessarily backward-looking, and that evidence in relation to decision-making is of more benefit than a statement of facts. A further interviewee comment was that there is a lot of evidence “out there” to which good and bad qualities apply, leaving the question of how to sift out what is relevant, then whether it is worth considering. Of the 65 respondents to the survey, 23 used the S&G “to make clear, evidence-based” decisions, whereas 10 specifically said that they did not, some with clarifications as follows:

- *“the standards do not contain the whole audit trail”;*
- *“[we] use other sources of information for evidence-base”;*
- *“Use in conjunction with other sources of evidence-based knowledge, dependent upon the client end-user speciality and needs”;*
- *“Probably, but the evidence link is often unclear and manipulated by the authors opinions”;* and
- *“Case study in back [of HBN] or separate documents provide evidence, not HBNs themselves”.*

There was an overall general lack of clarity or explicit understanding on this aspect of the DH S&G. Two interviewees agreed that just providing examples of what the DH regard as best practice is not sufficient: an explanation of the reasons why would be of greater interest. A Contractor group interviewee said:

“At a recent NPSA meeting, we were talking about H&S [Health and Safety] and infection control, and then on to evidence-based derogation, and the next stages. Someone said that was fine, but give me the evidence supporting decisions. Just saying ‘best practice’ is not good enough.”

This view is supported by Fixsen et al (2011) who described healthcare events that require the application of competency to support evidence-based research particularly where rapid changes are taking place, such as in healthcare environments. They concluded that legislation, strong evidence and guidance are only the start of achieving improvements.

In the Designers’ group the engineers expressed 100% agreement that can be explained by the fact that they use HTMs that are specifically written to provide engineering specifications. By

contrast, 60% of the architects contradicted this view. This can be explained largely because the engineers who responded to the survey are all contributors to the HTMs expert teams, it can thus be assumed that they are very familiar with and regard their content in terms of evidence, confusing experience and evidence. One interviewee comment put this very succinctly:

“They have been developed by engineers and construction specialists who have had first-hand experience in managing risk and working within the service”

Survey respondents appear to regard the S&G as evidence-based, but again, this was accompanied by various comments such as:

“Often feels subjective”

“Assume so”

“Not sure”.

The remainder of the stakeholder categories express scepticism including the following comments:

“not sure” “hopefully” “not necessarily”;

“Often feels subjective”;

“Evidence-based is tricky due to complex interaction of effects”;

The high score from the DH/NHS group is surprising and interesting in that it may reflect an assumption that the provenance of the DH S&G implies a degree of evidence, but may also reflect the confusion between evidence and experience.

5.4.6 Well integrated with other relevant construction standards

Of the 65 respondents, only 30% responded positively that they regard the integration of DH S&G with other relevant construction standards, and 42% felt integration was either non-existent or inadequate. Two commented that there are inconsistencies within the DH S&G themselves, let alone with other standards. The survey results are shown in Figure 5-12.

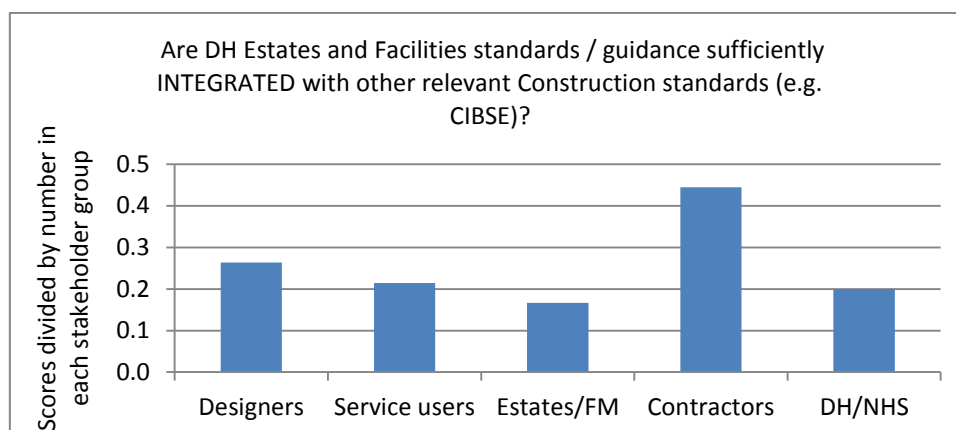


Figure 5-12: Are DH S&G well integrated with other S&G?: Survey responses

The Estates Managers commented that updates needed to be made more frequently and that:

“[the non-DH standards] should be read in conjunction with DH Estates and Facilities standards / guidance in order not to conflict”.

Their response rate was the lowest, and reflects their need to be aware of many clinical standards such as those for medical equipment, which is often complex, requiring specialist knowledge.

The Designers work in a wider sphere than the DH/NHS-side groups and may be assumed to have a broader knowledge of related construction standards other than healthcare-related ones. The DH S&G is written with the Designers and Briefers as their principal audience. This should ensure that their needs are uppermost in the compilation of the S&G. This aspect of the DH S&G shows a generally low rating which could be assumed to reflect a policy within DH that repetition of standards and guidance from other parts of the construction industry should not be repeated within the HBNs and HTMs, thereby reducing the need to update the DH S&G whenever there is a change made by an external body. The need for integration was recognised. To address this, signposting or providing links to relevant web sites were included in the text. Within the ADB data, this is complicated by the need to ensure the graphical data reflects the latest provision for disabled accessibility, which cannot be incorporated as a web link.

5.4.7 Legislative safety

Patient safety is high on the agenda of all organisations involved with provision of healthcare whether from the construction sector or clinical service, and therefore any legislative requirements receive the highest priority. Any breaches of legislative requirements would carry a high risk and be extremely damaging to the organisation(s) concerned. Figure 5-13 displays the results for this aspect of the DH S&G, which are varied. This may be because the two lowest ratings (Designers and Contractors) are responsible for applying legislative safety requirements in a very practical, “hands-on” sense and take the professional risk of non-compliance, whereas the DH/NHS group is not really involved in this aspect of the design and construction processes, relying on the Designers and Contractors. The Designers/Contractors groups’ view is epitomised by the following comment from a survey respondent:

“I do think this could be improved on as legislation changes and standards [are] not updated immediately”.

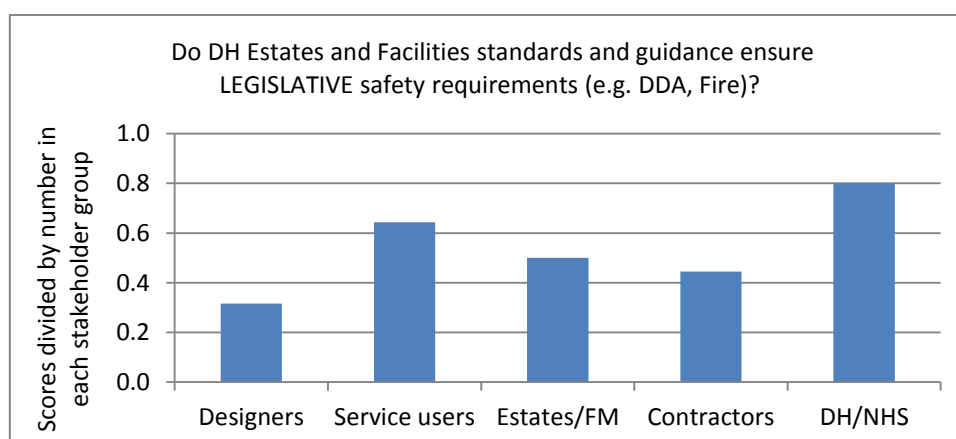


Figure 5-13: Do DH S&G ensure legislative safety requirements are met?: Survey responses

DH/NHS survey respondents agreed there was emphatic corroboration of the importance attached to this aspect of the S&G.

“I believe that one of the most important elements of the DH standards, particularly the HTMs, is that they are designed in such a way that adherence to the guidance they contain is sufficient to ensure that legislative safety requirements are met.”

On the other hand, there were qualifying comments to positive responses generally represented by the following:

“It tries, but legislation moves faster than Revisions! [DH] could put a list of relevant Legislation as a front piece to each, and it would be up to users to ascertain that it is up to date. The updated info could also be provided on the Web.”

There are strong links between legislative safety requirements and risk mitigation.

5.4.8 Risk mitigation

There is a varied response to the suggestion that S&G assist with mitigation of risk (Figure 5-14), but all groups rated this aspect of the S&G positively, even if not highly, with the exception of the Designers who were evenly split. When asked to identify three benefits pertaining to the use of the S&G relatively, few respondents raised risk mitigation, although the need to minimise risk is considered an important factor by many involved in the provision of healthcare.

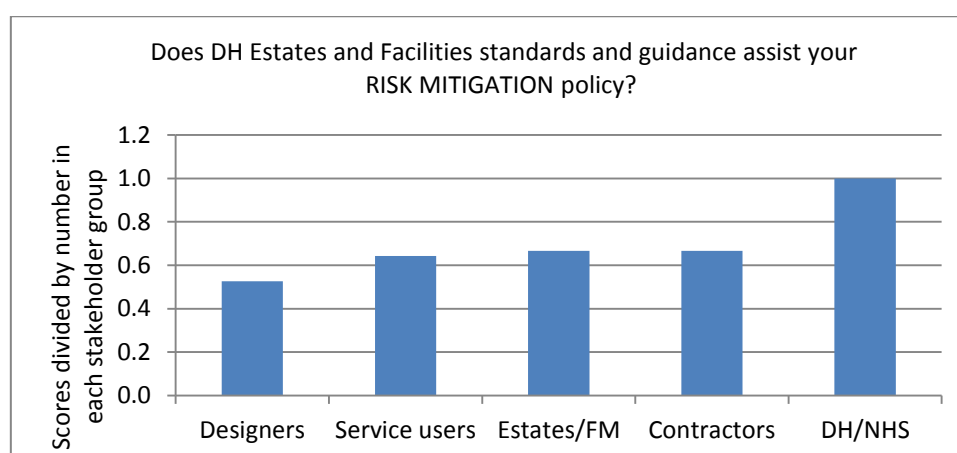


Figure 5-14: Do DH S&G assist with Risk mitigation?: Survey responses

One positive response from an architect was:

“By the fact that, if you have not deviated from a DH Standard or Guidance and you comply with the guidance, then you are working to an agreed and assessed standard / document. ”

This assumption is common, but by contrast another architect said that people tend to ignore the S&G, and another remarked that unless a document specifically states that a standard is mandatory, it does not assist with risk mitigation. The healthcare planners ranged in their views from a completely negative:

“Absolutely not”,

to:

“In theory”,

“Assist – yes – but one also has to check the current requirements.”

In other words, there remains a need to check that the latest standards and guidance from other external organisations are incorporated into the DH S&G.

Interviewees discussed this aspect of S&G at length; the DH/NHS Project Managers in particular explained that they usually sign off the project and the risk rests with them for ultimate delivery of the project. Despite their criticisms of the content of the HBNs and HTMs, it was preferable to have them than not.

DH/NHS and Estates and FM Managers felt the DH S&G provided them with a “handbook” or reference source to enable them to ensure the estate they are responsible for is fit-for-purpose. There was a caveat: instances where the standards were considered too high added to their potential risk. This also applies to some policies or overall directives that are not necessarily contained in the HBNs and HTMs, e.g. elimination of mixed-sex wards. An instance was quoted where an Estates Director was unable to achieve this because the hospital concerned was built in the 1960s, there was insufficient capital to invest in eliminating mixed-sex accommodation by the target date, and therefore the Trust Board were having to face incurring a fine. He went on to explain that the way the funding mechanism for healthcare providers works is a major contributor to the difficulties many Trusts have in finding capital to invest in the estate, which, in his view, was why PFI was the only effective way of raising capital despite its’ procedural and financial drawbacks.

The more positive responses included comments such as:

“If works are done to [conform to] HTMs etc. it is the required standard”,

contradicting the quotation above regarding the need to check the S&G are up-to-date, and:

“It helps anticipation of risks that could be associated with the proposed works”

In the Contractors group, two members represented the construction organisations who agree the S&G mitigate their risk, but the overall rating for the group shows a lesser level of agreement than their “client group” – DH/NHS - which may be explained by the equipping specialists and project managers who are often critical of the S&G in terms of their consistency, currency and lack of detail. This may lead to a conclusion that the various members of the contractors group have differing needs and priorities of the S&G.

5.4.9 Level of detail, timely, complete and well linked to external standards

The survey provided further insights regarding the level of detail by asking for ranked responses to the questions: “With regard to the practical 'use' of the DH Estates and Facilities S&G, to what extent do you consider the DH Estates and Facilities S&G to be ...

1. provided at an appropriate level of detail;
2. delivered in a timely manner;
3. complete; and
4. well linked to external standards (e.g. NBS)”?

Figure 5-15 shows the results as ranked by survey respondents. Highest is that of the level of detail provided in the S&G. However, several of the interviewees did not agree.

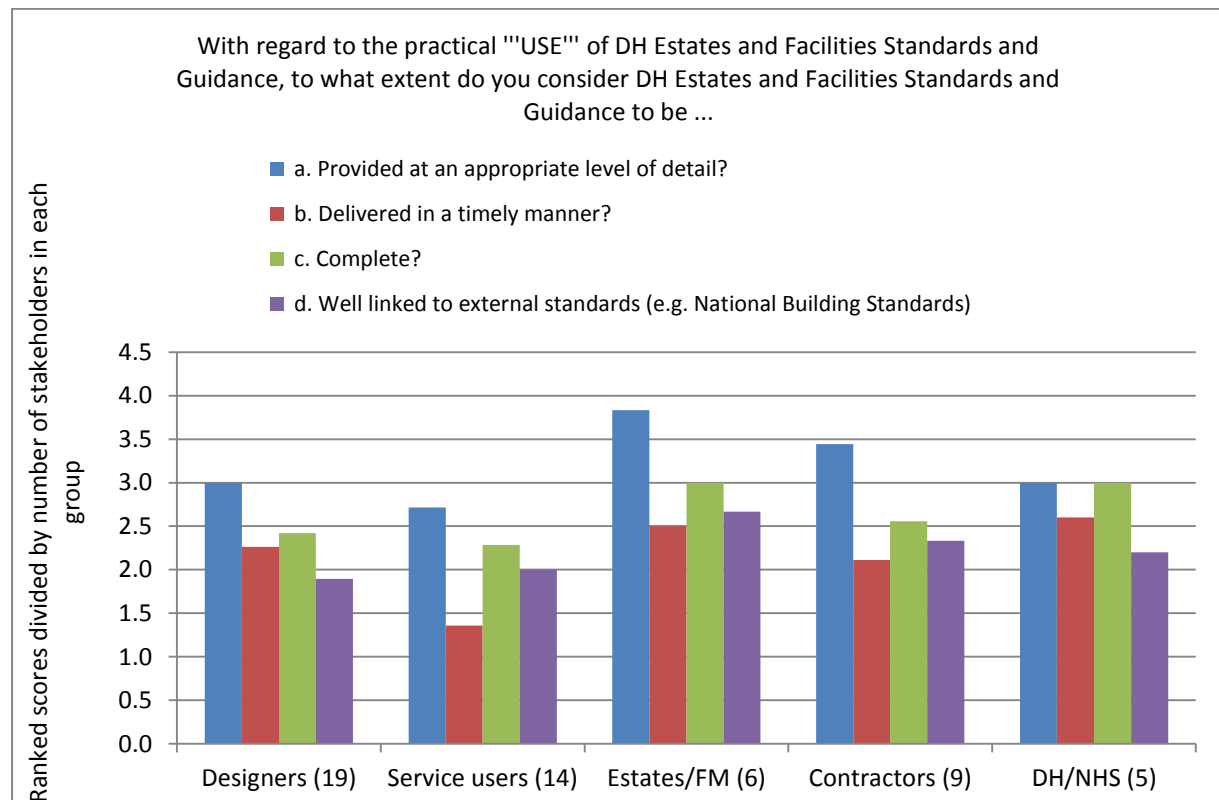


Figure 5-15: Regarding practical use of DH S&G: survey responses

An equipping specialist said:

“Problem for the (DH) – the guidance is suitably vague as to be non-prescriptive. Really vague. Key clinical functionality, adjacencies etc. are defined, but there are lots of very specific details [not included] which can end up costing a lot of money relating to the function of the room”.

A member of the Contractors group commented:

“I think it is variable, depending on the age of them, some don’t necessarily match up.”

HBNs and HTMs have been developed over a period of at least 40 years, and users commonly remark that the earlier HBNs are more useful than those produced more recently. They contain more specific clinical requirements, whereas the newer ones are more generic. Depending on

the use they are being put to, this will suit some users but not others; NHS estates managers, and other NHS groups of users ranked the level of detail higher than those respondents in the private sector which may be because they principally use the HTMs which are significantly more detailed and complete than the HBNs.

All respondents ranked timeliness as less than ideal. Some of the interviewees mentioned the timing of publication of HBNs and HTMs: there needs to be an understanding of when guidance is likely to be revised and released, so that, during the course of a project appropriate steps can be taken to ensure that the latest guidance is used. In some instances, draft copies of S&G have been provided to assist users by giving them a preview of new requirements, albeit issued with a caveat regarding status and stating further changes might be made. Although attempts have been made, a “publishing programme” has never been entirely successfully implemented. This is partly because the production process is prone to delays and DH does not want to be held to ransom on publication dates.

Less than half the Designers and Service Users group members responding to the survey agreed that the S&G are complete, whereas slightly more than half the Estates/FM and DH/NHS groups indicated they feel the S&G are complete. As explained above, the Estates/FM group is usually more engaged in building maintenance of the estate and therefore be regarded as having less need for the HBNs than the HTMs, which are more complete. The Designers and DH/NHS groups reflect lesser scores for this question, particularly in relation to the HBNs, for example Diagnostic Imaging (Radiology), which was accurately identified by one Trust Director as being unavailable for a number of years. Diagnostic Imaging is an area of clinical activity that has increased in importance very significantly over the past decade and guidance is sorely needed. The development of new clinical practices and clinical technologies has rendered several of the HBNs in need of extensive review and update, such as In Vitro Fertilisation Clinics (IVF), accommodation for Cyber Knife treatment, and other significant changes to practices in pathology, pharmacy and acute mental health. Although there was guidance on these a number of years ago, practices and safety requirements have changed so radically over the past decade that their replacement is urgently needed. Certain other more general aspects of healthcare are not addressed, such as provisions for bariatric care, which has a significant impact on the sizes of spaces and furnishing and equipment.

A Designer interviewee raised the issue of how HBNs should be updated, wishing to see an organised schedule rather than what appears to be an ad hoc development, stating:

“I would structure them so there was a clear and definite route of what the total package of what all these HBNs look like. Rather than "Oh let's think of another one, I will do one on dermatology" Then we can actually have a consistent structure for all of them so the same questions will be answered in all of them, so there is consistency. “

Some users of the DH S&G in the Middle East expressed concern over the incompleteness of the S&G, and also the fact that much of it is out of date when compared to guidance from the USA, and Australia.

Links to other S&G within HBNs, HTMs and ADB data have, until relatively recently, been merely by quotation of organisations' publications, sometimes with paragraph/page/section details, for example:

See “‘Safer surfaces to walk on – reducing the risk of slipping’ (CIRIA) for further guidance on appropriate floor finishes.” (Department of Health 2007b)

*“Throughout this document, the following voltages are used (see BS 7671:2001)”
(Department of Health 2007b).*

Electronic links have become almost universally used over the past few years, and with the disaggregation of the HBNs into a CCMS this should have enabled such links to be made very much easier. However, this assumes that organisations providing such guidance make this information available freely, for instance NBS charge a subscription for access to their principal database, so it may become necessary for users to hold a number of such subscriptions to ensure connectivity and access to relevant links.

5.4.10 Level of Information

The survey asked “Is the right level of information provided in the DH Estates and Facilities S&G?” (as opposed to the level of detail). A response was completed by 77% of the total 65 respondents, and of those 39% confirmed that they feel the level of information is correct, but 20% disagree. No-one felt there is too much detail. Table 5-7 shows the results as a percentage of the total number of respondents.

Table 5-7: “Is the right level of information provided in the DH Estates and Facilities S&G?”

Response	% of total (65) respondents
Yes	39
Partially	12
Generally	6
Too much	0
No	20

Of the 20% who responded in the negative, comments were invited to amplify the reasons for their responses, as indicated in Table 5-8.

Table 5-8: Qualitative comments about the level of information

Responses	% of total responses	Positive/ Negative
Improving from too little	8	+ve
Comprehensive	4	+ve
Accurate	4	+ve
Lacking detail	15	-ve
Incomplete and SoA missing	12	-ve
Room sizes too generous	4	-ve
Inconsistent	8	-ve
Out of date	12	-ve
Content quality deteriorating	23	-ve
Conflicting	4	-ve
Differing uses/disciplines	8	-ve

Three interviewees upheld these overall views, stressing that almost as soon as guidance is published it is often out of date because technology in healthcare is moving ahead so quickly and the length of time it takes to produce the guidance has, in the past, resulted in a significant lead time for new or revised S&G.

5.4.11 Quality Assurance

The interviewees clearly regard the S&G as providing minimum standards and not much more (Table 5-9). A few regard the S&G as Best Practice, but there is a low score for “Guidance”. This could be explained by their regarding the S&G as Minimum Standards and that they are therefore applied as minimum standards whatever the options available to ensure conformity to DH Standards.

Table 5-9: Interviewee responses regarding the desired level of Quality Assurance

Interviewees views regarding the Quality Assurance level S&G should represent (Average scores for each stakeholder group)						
	Designers (4)	Service Users (3)	Estates/FM (2)	Contractor (4)	DH/NHS (2)	Total (15)
Best practice	0.5	0.3	0.5			0.3
Guidance	0.3		0.5	0.3		0.2
Minimum standards	1.0	1.0	1.0	1.0	1.0	1.0
Excellence						
Expected standards						
Prioritised standards		0.3			0.5	0.1
Should give more guidance	0.3	0.3		0.5		0.3

The notions of Excellence and Expected Standards do not arise. The proposed concept of Prioritised Standards was keenly accepted by one DH/NHS interviewee in particular, but other than the Service Users, this idea was not taken up. However, the survey response shows a clear result in favour of the S&G being regarded as Best Practice (Table 5-10). This may be because the respondents are more familiar with the actual documents, which clearly state that they are regarded by DH as Best Practice. The other four options are fairly evenly spread, but score approximately half as much as Best Practice.

Table 5-10: Survey responses regarding the desired level of Quality Assurance

What level of Quality Assurance do you think DH Estates and Facilities standards and guidance SHOULD represent? (Optional) (Average scores for each stakeholder group)						
	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)	Total responses (53)
Best practice	0.5	0.6	0.7	0.9	0.8	0.6
Guidance	0.2	0.4	0.3	0.7	0.6	0.4
Minimum standards	0.3	0.4		0.4	0.4	0.3
Excellence	0.1	0.3	0.5	0.4	0.2	0.2
Should give more guidance	0.4	0.4	0.3	0.4	0.4	0.4

The Estate/FM managers show a completely contradictory result between the interviewees and the survey respondents. This may result from the nature of the qualitative and quantitative data collection processes in that qualitative interviews provide an opportunity to discuss concepts in depth and seek clarification of terms and expressions used, whereas the nature of a survey is one of a response to a question without the opportunity to rationalize where any nuance or misunderstanding may have arisen in the mind of the respondent. The options provided may have given rise to some confusion or have been interpreted in different ways for these reasons.

The lowest score overall for the survey comes from the Contractors, which may reflect some impatience with the S&G; Contractors could be considered to be at the “sharp” end of applying the S&G, and are keen to know that they can be relied upon, whereas the options provided were of less interest than those regarding Status or those asking how S&G should be classified.

5.5 Application of the DH S&G

5.5.1 Introduction

Many of the qualities of the S&G identified by survey respondents also give an indication of their application. Separating out the public sector responses from those of the private sector is sometimes useful to show where emphasis from either group might differ significantly. Likewise, it is sometimes illuminating to break the survey respondents down by discipline, or role to ascertain where more particular differences in responses may lie.

5.5.2 Up-take of DH S&G

The survey questionnaire showed that 92% of those who work in the healthcare building sector use the DH S&G and 95% are aware of them. It has been alleged by a major contractor that 95% of healthcare projects use ADB at some stage in the procurement process in England and certainly in Scotland. This is reflected in the flow chart (see Appendix 2) drawn up by a major contractor. Analysis of the survey results by discipline (Figure 5-16) shows that actual use is predictably lower than awareness, in that not everyone would need to actually use ADB or HBNs and HTMs to fulfil their role in the process of procuring healthcare infrastructure, e.g. Senior staff and directors would expect their staff to use the S&G, whilst they themselves need only to be aware of their basic content and scope.

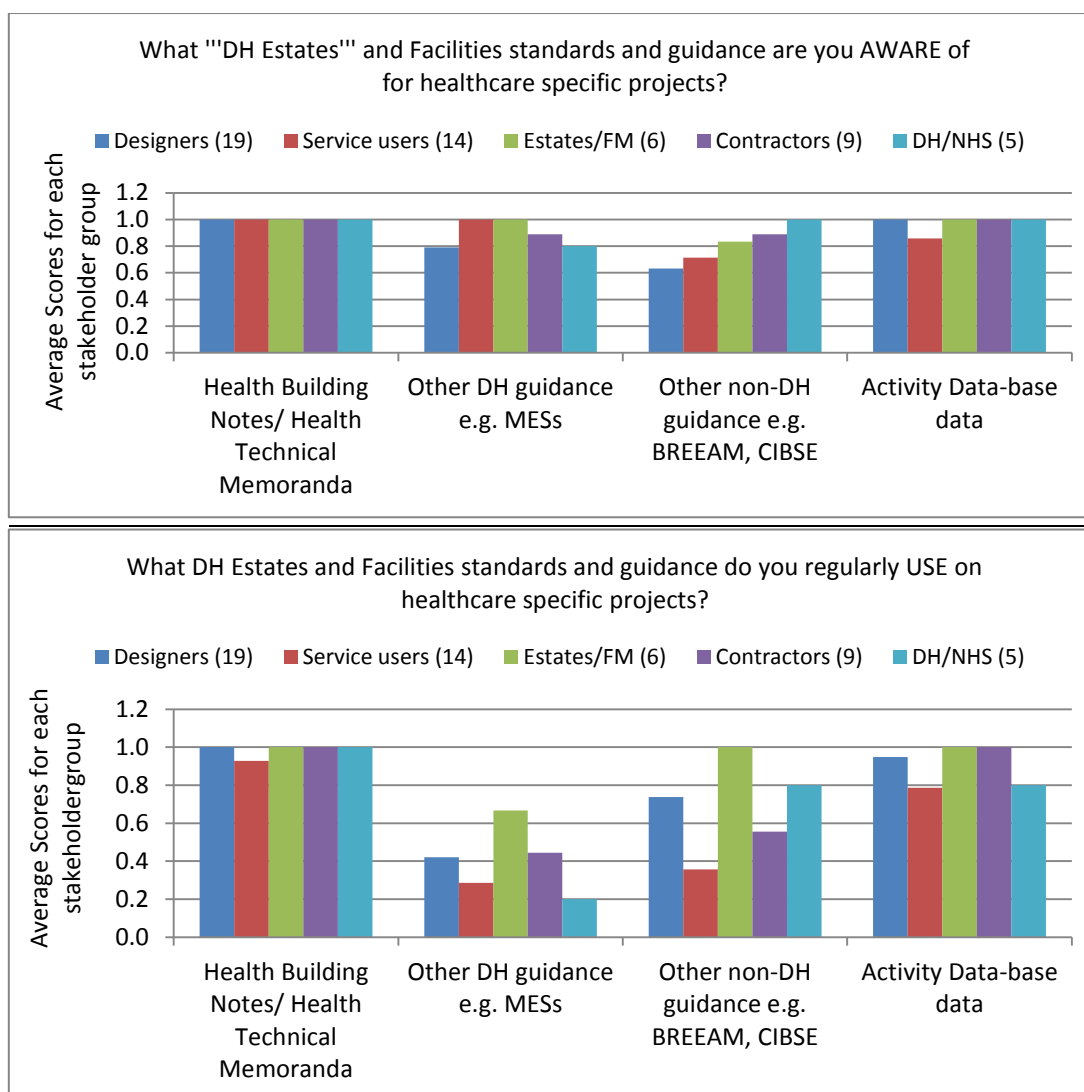


Figure 5-16: Awareness and Use of the DH S&G: survey scores

The survey questionnaire was completed by ADB users and contacts so the figure for ADB usage may be disproportionately high. Without exception interviewees agreed that HBNs and HTMs were essential for anyone involved in provision of healthcare environments:

"I don't know of any one of my counterparts who isn't actually going out there and using all those things as the basic standard spec."

The survey responses bore this out, in that nearly all respondents know of and use HBNs and HTMs. It may be debatable whether the way they are used is what the DH anticipates or wants, but from the DH perspective it should be viewed as positive in that the S&G are reaching their target audience. It is also debatable whether the effect of applying DH S&G is as positive as DH would expect.

Several of the interviewees expressed views indicating a preference for standards issued by other organisations than DH, for instance those from the European Union (EU), although it was

not made clear which ones, Australia, or United States of America (USA). It is also the case that DH S&G are used extensively in the Middle East, certain areas of the Far East and parts of Europe. One interviewee pointed out that the Australian standards are based on the English ones, and that each State also has its own set of standards, some of which have been adopted nation-wide. The Australian standards appear to be updated more regularly and much more recently than the DH S&G. It was not clear from the interviewees what the differences are between the DH S&G and others, but the question of timeliness and currency were mentioned as a factor. The list of additional non-DH standards accessed also shows that reference is made to many other sets of S&G (Table 5-11). These are often specialist e.g. CIBSE for Building Services Engineers, to which the DH S&G make reference but does not wish to repeat or quote verbatim. This table provides an indication of the broad spectrum of knowledge and expertise that is required by many of the people and organisations involved in provision of healthcare facilities.

Table 5-11: Non DH S&G identified in survey

Non-DH S&G used by survey respondents	
Building Regulations	Architects design guidance
British Standards Institution	CIBSE/IEE regulations
Capita Consulting clinical guidance	Guidance from Royal Colleges
DDA/legionella/asbestos	BSRIA *
Health and Safety Executive (HSE)	Institute of Mechanical Engineers
National Building Standards (NBS)	Royal Institute of Chartered Surveyors
Clinical Output Specifications	Heating/ventilation
Joint Contracting Tribunal (JCT) Contracts	Infection control
Building Property-related statutes	Evidence basis
Fire regulations	Materials guidance
OCG programme management best practice	Facility Guideline Institute
Colour research	Secure by Design
Wiring/Electricity	Care Design Guidance
Construction Design and Management regulations	Carbon Reduction standard
International Standards Organisation (ISO)	BREEAM
Town planning	Autocad
Manufacturers guidance for specialist/clinical equipment	SNIP norms (Russian building regulations)
Overseas guidance (Australia, USA etc.)	Drug Identification Numbers and Available European guidance
New public sector approaches	Local Pharmaceutical Committees design guides

* *A building research organisation*

5.5.3 Users and uses of the DH S&G

The DH S&G have a multiplicity of uses, dependent on the viewpoint of the user. Table 5-12 summarises the main groups of users, and the reasons they may wish to refer to and/or apply the S&G provided by the DH. These are not prioritised.

Table 5-12: Principal user groups and reasons for application of the DH S&G from the interviews and survey responses identifying benefits.

DH/NHS	Provide relevant clinical requirements Ensure application of standards to achieve a fit-for-purpose healthcare environment Encourage standardisation for patient safety purposes Encourage modular development to promote flexibility of use Provide examples of Best Practice Promote repurposing of briefing and design expertise Provides baseline or minimum standards for regulation Highlight links to other relevant guidance
Designers	Provide relevant clinical requirements Reduce risk Promote confidence with and for the client Provision of baseline or minimum standards Ensure legislative safety requirements met Drive innovation (mixed view) Include in contractual documentation Develop standard rooms Derogation
Service Users (Healthcare planners)	Provide relevant clinical requirements Represent end-user interests To ensure healthcare environments are “fit-for-purpose” Consultation with user groups Reduce risk Promote confidence with and for the user groups Ensure legislative safety requirements met Derogation
Estates / FM Managers,	Provide relevant clinical requirements Ensure legislative safety requirements met Reduce risk Support asset and maintenance records Include in contractual documentation Develop standard rooms Derogation
Contractors	Provide relevant clinical requirements Reduce risk Promote confidence with and for the client Provision of baseline or minimum standards Ensure legislative safety requirements met Include in contractual documentation Derogation

The benefit of having an S&G “bible” to work from is very valuable to the construction consortia. They are assured that each member of their team is working to the same standards. They also use conformance with the S&G as proof of fitness-for-purpose when submitting tenders and bidding for work and Gateway Reviews. The elements of information provided by the DH are required by the various stakeholders at different stages in the processes of planning, briefing and design and construction.

The DH S&G are not mandatory – with the exception of Fire Regulations and DDA requirements. This leaves the level of application open to interpretation. The Contractors find the S&G very helpful in dealing with clinical colleagues, especially when there is a need to demonstrate new technologies or introduce different ways of working to senior clinicians who may be involved in

projects towards the end of their careers, and have become set in their ways. One contractor explained that managing expectations can be difficult but that with the use of the DH S&G:

“You can reign that back in because you say ‘well no, this is the standard, and you’ve got come up with a really strong case if you want to make it bigger’...”

Managing expectation is an important function of the contractors, whose use of the S&G to support decision-making and therefore curb any excesses was described by several of the interviewees.

5.5.4 Briefing

Briefing is the process by which client requirements are investigated, developed and communicated to the construction industry. Briefing of some kind always takes place during a construction project, though the quality and level of detail can vary considerably (NHS Estates 2004). In most healthcare projects, the brief includes the detail contained in room data sheets such as those provided by ADB (Section 2.11.2).

5.5.5 Design

Once a brief has been signed-off as agreed by the client organisation, this is passed to the Designers (architects and engineers) to work up into the design, which will accommodate all the requirements specified in the brief. Professional bodies such as the Royal Institute of British Architects (RIBA) and Architects for Health (AfH) bring pressures for change in seeking to ensure their members use latest practices and technologies to improve healthcare environments (Architects for Health 2014).

5.5.6 Regulation

One purpose of setting standards is to set a benchmark for measurement against which a regulator can measure conformity. In seeking to define the word “regulation” and its use by the DH, it is helpful to ask the questions “why is regulation required”, and “what purpose(s) does it serve?” by Mills et al (2012) who discussed the need for an integrated set of standards with a direct relationship for regulatory purposes. Although listed above as a DH use of S&G, there are different models of regulation that can be applied. A straightforward comparison between a built environment and the standard or guidance that relates to that environment is not sufficiently flexible to achieve satisfactory quality control. Mills et al posited that a smarter combination of flexibility and “agility” in standards,

“taking account of values, behaviour, attitudes and cultures”

is required to achieve a sensible form of regulation (Mills et al 2012).

Interviewees agreed that regulation was necessary and there was consensus that HBNs and HTMs provided good advice to ensure premises were fit-for-purpose. A Project Manager discussed the need for a level of background knowledge on the part of regulators; regulation of healthcare buildings with little previous experience of clinical environments would be extremely difficult, even with a full set of DH S&G.

Despite several attempts at contacting CQC direct, it has not been possible to ascertain how the CQC apply the DH S&G in relation to the estate. However, it was stated by a DH interviewee that, in his opinion, the HBNs and HTMs are used, but that there was a lack of expertise in understanding how best to interpret them. This was corroborated by an NHS Project Director who was adamant that:

“we don’t want them on buildings – that is not their forte”.

An architect felt:

“they are not your well informed small group of people – how do they know what they are looking at? That worries me”

A private sector Project Manager commented:

“I would like to think the CQC would take that information on already as it stood, but would interrogate a little further, but not be too prescriptive.”

The NHS Confederation and Independent Healthcare Advisory Service have called for a review of regulating bodies and the:

“698 standards that map to Standards for Better Health (SfBH).” (NHS Confederation 2009 p 2).

They also suggested that the DH should take the opportunity provided by the extension of the remit of the CQC to align the information requested for audit and performance management more closely with the information that healthcare organisations would naturally collect to ensure they achieve their objectives.

5.5.7 Sign-off against DH S&G

Allied to the process of regulation is that of taking responsibility for adhering to standards in the planning, briefing, design and construction processes. At the hand-over stage of each process, a

sign-off function takes place, which provides each party to the handover with assurance that requirements and standards have been applied as dictated by the client, legislation, the DH, etc. Responsibility and accountability for the standard of healthcare facilities rests with the healthcare provider organisations. However, it was difficult to ascertain who took this responsibility during the processes during a construction project. One way was to ask whether and who signed-off elements of the project, thereby indicating their acceptance of responsibility. Tables 5-13 and 5-14 give an indication of the number of survey respondents who acted in this capacity. The two highest scoring elements demonstrate clearly that the S&G are used for design/drawing production, derogation and validation/checking. This may be because compliance is considered as implicit in the derogation and sign-off of drawings.

Table 5-13: Survey respondents who use the S&G to assist with signing-off elements of their projects

Please describe how (if at all) "you" use DH Estates And Facilities Guidance and Standards to approve, sign-off or veto schemes? Number of responses in each stakeholder group					
	Designers	Service Users	Estates/FM	Contractors	DH/NHS
Yes	7	2	2	5	3
No	3	4		1	

Table 5-14: Project Elements signed-off

Number of responses in each stakeholder group					
	Designers	Service Users	Estates/FM	Contractors	DH/NHS
Derogation/comparison with HBNs	2	1	2	4	
Drawings and ADB	1	3	1		2
Stakeholder sign off procedure	1	1			
Confirm costs			1		
Evidence based validation	1	3		1	
Compliance		1		2	1

Figure 5-17 shows the stakeholder categories' responses to a question which asked "In order to understand what building elements you have an influence over, please indicate the extent to which you have an existing influence over the following?" The results provide an indication of where each group's principal responsibility lies though some caution is needed in making too firm a conclusion. Designers are asked to perform several different roles, for instance the following are all areas of work that they might be asked to provide: acting as informed client, undertaking feasibility studies, working up a brief, design. Their influence will vary accordingly. The responses show clearly that the responsibility for signing off rests principally with the Estates/FM, Contractors and DH/NHS groups, which reflects that the Contractors consortium

could be deemed to act as Client for the Designers, and that the Estates/FM and DH/NHS groups act as client for the Contractors consortium. Although the Designers are the initiators of project designs, applying the DH S&G, they then pass them to their clients for sign-off.

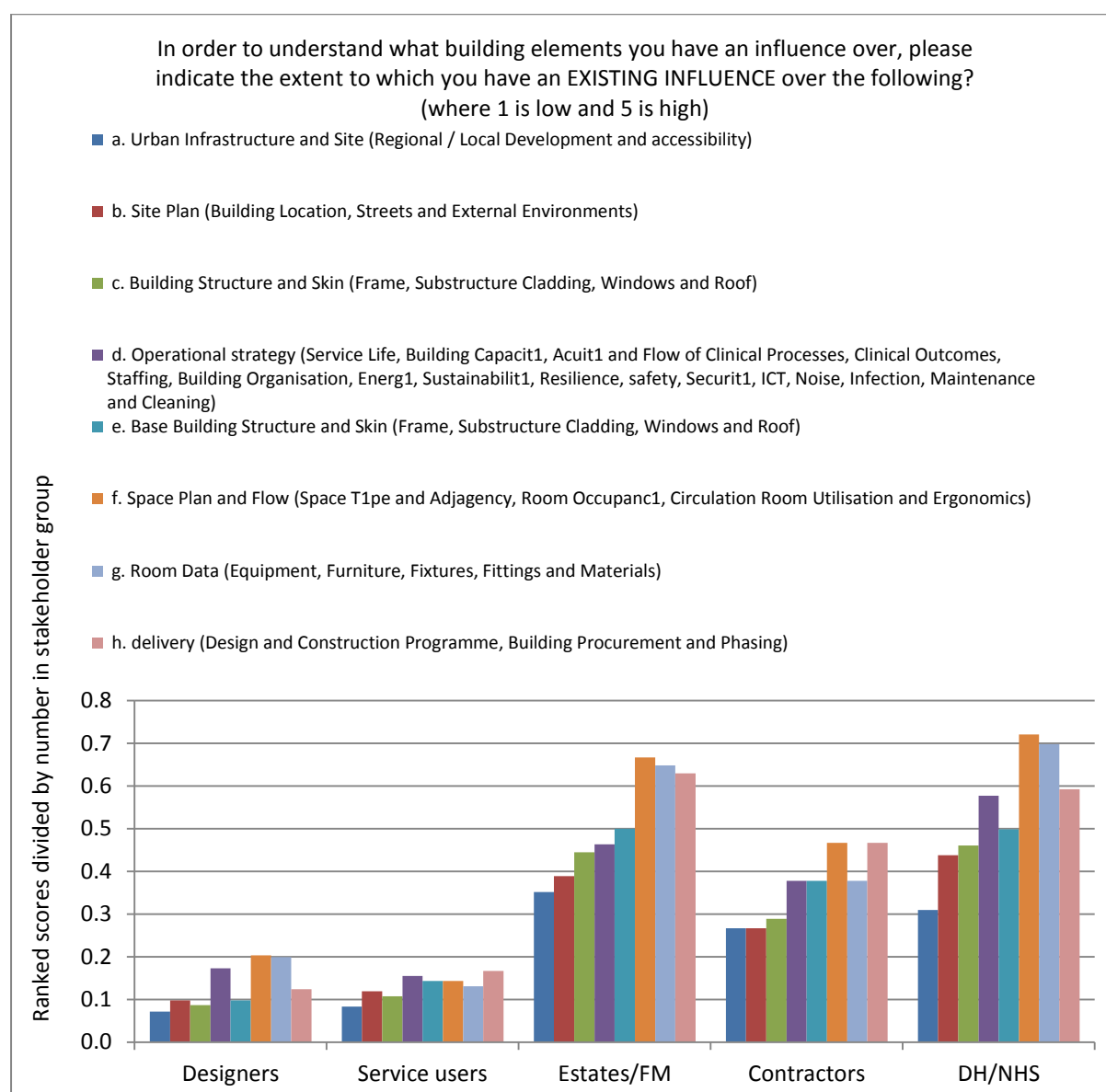


Figure 5-17: Survey Responses indicating the extent to which the respondents have an Influence

5.6 Other industry sector standards relevant to the healthcare estate

Standards are generated by a wide variety of organisations in both public and private sectors to give assurance to the user of a quality, measurement or expectation that the provider conforms to required criteria or levels of service. This means that there must be a clear understanding of what “standard” means, and its application must be acceptable to those responsible for achieving them and well understood by the end user. The survey asked respondents to identify non-sector specific standards that they refer to, as provided in Table 5-11.

5.6.1 Development of industry standards

There are several industry sectors whose standards are transferable to healthcare, such as airports (circulation spaces, reception areas, way finding, and security) and hotels (single bedroom layouts, sanitary facilities). Each industry has its own standards, often developed by committees of experts, as for the DH. There are also standards for products, services, qualities, practices and processes. Some standards have developed over many years and become established as de facto industry standards almost by default e.g. Whitworth's standardised nut and bolt sizes enabled manufacture, use and maintenance of machines across the World. Professional organisations such as the RIBA and the CIBSE also develop standards for their own services, and for their membership, as a means of accrediting the standard of performance of its members.

5.6.2 Public sector standards

Public sector standards may apply to a wider audience than the Department or Ministry from which they originated, e.g. procurement of Government buildings through framework agreements from the Cabinet Office, and applies to the whole of Government and funding policies such as PFI are used extensively for Health and Education.

5.6.3 Private sector standards

There are many organisations that set standards and provide guidance, e.g. professional bodies, but there are other organisations that are almost accepted as public sector because they provide such a wide range of information, e.g. The British Standards Institution (BSI). BSI acts as a national standards organisation and introduced the Kite mark, which gives suppliers of products and services a means of providing quality assurance. There are also industry-wide standards, such as for safety in aerospace and motor racing, standard measurements for engineering components and standards for IT and software. The importance of standards across global industries is hard to over-emphasise.

5.6.4 Transfer of standards within and between industry sectors

It is important that S&G do not contradict one another, within an industry sector, or externally. It is also advantageous for standards to be transferable from one sector to another. The need for electrical standards to be applicable across all industry sectors is crucial, so that appropriate lighting levels can be specified, and safety standards from the Health and Safety Executive (HSE)

must be relevant to hospital environments. The importance of clarity and interpretation is emphasised by these crossovers, for example, advice was given by an HSE officer concerning the use of floor coverings, which conflicted with the HBN recommendation. Clarification from the HSE was sought; their second opinion corroborated the HBN over their own earlier advice.

5.7 Summary

This chapter has looked at the DH S&G, how they developed and their scope/content, characteristics and the processes they contribute to. The stakeholder categories have differing perceptions of them, and therefore how they affect their sphere of influence. In turn this can be seen to affect the impact the S&G have on the healthcare environment.

The interviews and survey data show that the SH S&G are extensively used, which fulfils the DH's aim: to assist and support the briefing and design of healthcare environments. The perception of DH endorsement is of high importance to all the stakeholders, but conversely many stakeholders consider the S&G are incomplete, out-of-date-and inconsistent. This raises the question: how do the DH S&G benefit or dis-benefit its users, and what effect do they have on the healthcare environment?

CHAPTER 6: DH S&G - BENEFITS AND EFFECTS

6.1 Introduction

Chapter 6 explains the benefits and effects of the DH S&G identified by the stakeholders in the interviews and survey. The survey included an open question asking respondents to identify three benefits and three dis-benefits: the responses fell into four categories: Scope/Content; Characteristics; Processes; and Effects. The results included some of the characteristics which are the subject of more direct questions in the survey.

The interviews and survey demonstrated the importance that certain aspects of the DH S&G had for them. The survey also asked for rated responses and comments regarding other aspects of the S&G which acted as a means of identifying their effect on the application of S&G, leading ultimately to their influence on the healthcare environment. Importance does not necessarily translate into benefit, but indicates a relative significance or ranking of characteristics.

6.1.1 Background

The S&G themselves are affected by the economic climate both for content and the process as of production and dissemination (see Sections 5.2.1 and 5.2.2). Figure 6.1 shows the flows of influence

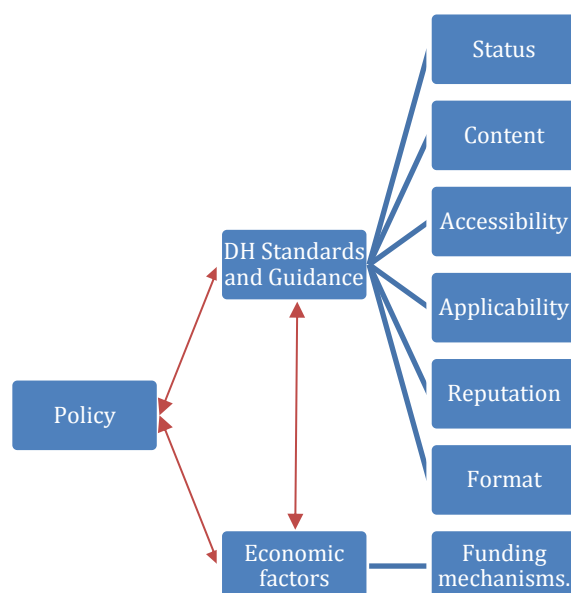


Figure 6-1 Factors contributing to effectiveness of DH S&G

6.1.2 Benefits and Importance

Benefit is defined as the advantage or disadvantage gained by applying a standard to achieve a requirement. Taking this definition into consideration, the question arises: how can an assessment of the literature demonstrate the benefit of the S&G? The literature review shows some references to standards and guidance and their generalised benefits and dis-benefits, but specific references to healthcare accommodation standards are very rare. The benefits and dis-benefits of the S&G identified in the interviews and the survey indicate how and at what stage they are applied, and what they contribute.

Analysis of the effectiveness of the S&G is provided through evaluation of the positive and negative responses in the survey where the users' identify benefits and dis-benefits. Another method used is to identify the S&G benefits and dis-benefits in the application and execution of the processes and practices that form the lifecycle of the procurement and maintenance of healthcare environments i.e. are they assisted or hindered through application of the S&G (Sher 2006)?

Characteristics mentioned in the survey data refer to descriptions or characteristics of the S&G as well as ranking them as being of higher or lower importance. The characteristics of the S&G are often the subject of debate (Burton 2002; Hospital Design/MARU forum, 2005; Hignett and Lu 2008): users from the same stakeholder group may have very different but strong views that are driven by their individual roles. An example of this is where architects working at different stages of a project require less detail at the strategic level, and more at the working detail level. The interviews and survey responses provided strong evidence of this.

The survey questionnaire responses included several positive and negative effects of the use of S&G. The effects of DH S&G on healthcare infrastructure are hard to measure. An "effect" is defined as the "result or consequence of an action or other cause" (Oxford English Dictionary 2011), therefore the effects of the use of S&G will include effectiveness of the design of the accommodation itself, as well as consequences for their users.

6.1.3 Summary of results by stakeholder group

The survey questions regarding benefit and dis-benefits of the S&G were completely open resulting in a very wide range of responses. Keywords were identified in the response and grouped into the four themes where they were the same or very similar. Table 6-1 provides a summary of the benefits and dis-benefits identified in the responses of the interviewees and the

survey group split into the four themes: scope and content; characteristics; processes; and effects.

Table 6-1: List of benefits and dis-benefits identified in the survey responses

Qs 4 and 5		Q7
Interviewee responses	Survey responses	
Positive		
	Scope/content	
Baseline/minimum standards	Baseline / Minimum standards	
Policy compliant	Policy compliant	
Reference source	Reference source	
	Confidence with and for the client	
	Characteristics	
Experience/evidence backed	Accessibility	Accurate
Mitigates against risk	Complete	Comprehensive
Enables standardisation	Consistent	Improving from too little
	Clinical content	
	Relevant	
	Specifications/exemplars etc.	
	Processes	
Data management	Design	
Referencing/benchmarking		
Space planning		
Brief development	Brief development	
Generally accepted	Maintaining standards of accommodation	
Drives innovation		
Negative		
	Scope/content	
Concerns re regulation		
Status unclear		
	Characteristics	
Incomplete	Incomplete	
Lack of consensus	Out of date	
Need more detail	Inconsistent	Lacking detail
Out of date		
Areas too big/over specified		
Complicated to use		
Used as blanket spec in NHS brief		
Insufficient DH investment		
Difficult to match against brief		
User understanding can be lacking		

Table 6-2 shows the total averaged survey and interviewee responses for each stakeholder group for the four groups of benefits and dis-benefits. It is immediately obvious that the benefits outweigh the dis-benefits, with the notable exception of the characteristics of the S&G. The Estates/FM and Contractors groups also rated the dis-beneficial characteristics higher than

the beneficial, which is in contrast to the overall strong rating of the S&G as a whole by the Estates/FM group. The figures also indicate that all but the Contractors group find the S&G of positive benefit, although some benefits are more significant than others. In addition to the benefits and dis-benefits identified, other characteristics appear to be of greater benefit, e.g. DH endorsement appears to outweigh all other benefits (Figure 5-7).

Table 6-2: Summary of Benefits and Dis-benefits score results

Interview results. (Total score divided by number of stakeholders in each group)											
Benefits	Designers (4)	Service users (3)	Estates/FM (2)	Contractor (4)	DH.NHS (2)	Dis-benefits	Designers (4)	Service users (3)	Estates/FM (2)	Contractor (4)	DH.NHS (2)
Scope/content	2.8	2.0	3.5	2.0	2.0	Scope/content	7.3	4.3	7.0	3.8	3.0
Characteristics	2.0	1.7	3.5	1.8	1.5	Characteristics	4.8	6.7	4.5	4.5	4.5
Processes	3.5	3.7	2.0	3.5	1.0	Processes					
Effects	1.8	1.0	2.0	1.3	0.5	Effects	3.8	5.3	1.5	3.3	2.5
Survey results. (Total score divided by number of stakeholders in each group)											
Benefits	Designers (19)	Service Users	Estates/FM (6)	Contractors (9)	DH/NHS (5)	Dis-benefits	Designers (19)	Service Users	Estates/FM (6)	Contractors (9)	DH/NHS (5)
Scope/content	1.1	0.6	0.5	0.7	0.8	Scope/content	0.3	0.6	0.5	0.6	0.0
Characteristics	0.5	1.1	1.0	1.2	1.6	Characteristics	1.4	0.7	1.5	1.6	1.4
Processes	0.4	0.1	0.3	0.4	0.2	Processes	0.2	0.1	0.0	0.4	0.2
Effects	0.8	0.5	1.3	0.3	1.0	Effects	0.3	0.4	0.5	0.2	0.2

The positive results from the DH/NHS group on the Scope and content and Effects are predictable: they are pre-disposed towards the S&G and their application of them, because they could be regarded as “internal” to their organisations and therefore perceived as a handbook. The Estates/FM group also shows a high score for Effects; again this is predictable in that they work “at the coal face” in applying the S&G. The highest numbers of negative comments in the survey from all the groups on the characteristics of the S&G and principally relate to the incompleteness, being unclear, and out-of-date. Although the negative result for characteristics from the Estates/FM group appears high, this represents only nine comments, four of which relate to incompleteness and inconsistency. The fairly close result for the Service Users group indicates S&G as beneficial, but not emphatically so, which may be because members from this group are often from clinical backgrounds, and therefore they may have hands-on experience that conflicts with some of the guidance. There are many debates about several principles such

as the provision of clinical hand wash basins and their location, appropriate floor covering materials to prevent infection whilst also preventing slips, trips and falls. Further detailed analysis breaks down the data in Sections 6.2, 6.3 and 6.4.

6.2 Scope/Content

6.2.1 Benefits and Dis-benefits

The Scope and Content of the S&G cited may be translated into benefits and dis-benefits because they facilitate efficiency, saving time and effort in searching for relevant legislation and relevant healthcare information. Table 6-3 shows the interviewees' responses relating to the scope and content.

Table 6-3: Scope/Content benefits and dis-benefits identified by Interviewees

Benefits (Number of responses)					
	Designers (4)	Service Users (3)	Estates/FM (2)	Contractor (4)	DH/NHS (2)
Experience and evidence	4	3	1	3	
Enables standardisation	1	2	2	2	
Risk management assisted	1	1		2	1
Connects with other standards	1	1	2		
Equipment schedules	1	1	1	1	
Enables cost control			2		1
Schedules of Accommodation		1	1		
Guidance on Safety			1	1	
Room type unit preferred				1	
Sufficient detail		1	1		
Technical content	1				
Value For Money (VFM)					1
Average scores for stakeholder categories	2.3	3.3	5.5	2.5	1.0
Level of interest	0.8	0.8	0.9	0.8	0.2
Dis-benefits					
	Designers (4)	Service Users (3)	Estates/ FM (2)	Contractor (4)	DH/ NHS (2)
Incomplete	4	3	2	4	2
Inconsistent	3	1	1		
Incorrect content	2				
Lack of consensus	1	1	2	1	
Need more detail	4	1	1	2	
Clinical content (need more)	1	1		1	
Need output spec.	4				
Out of date	4	3	2	4	2
Not innovative		2	1		
Should give more guidance	1	1		2	
Must allow flexibility	1		2	1	
Technical content (-ve)	3	1		1	
Too rigid	1		1		2
Vague content	1		2		
Average scores for stakeholder categories	7.5	4.7	7.0	4.0	3.0
Level of interest	2.1	1.0	1.0	1.1	0.4

In the words of an interviewee, providing a set of the DH S&G enables the user to:

“become an expert overnight”.

Most notable of the positive benefits are references to experience and evidence. Several interviewees had contributed to the S&G because of their acknowledged experience, and they did not see a problem with referring to HBNs and HTMs as representing evidence. However, when pushed, one interviewee explored the difference between experience and evidence, and felt that the expert teams provided with experience and evidence on which to base the content. Interviewees identified a range of dis-benefits, significantly the highest of which was that the Standards provided in the S&G are incomplete and out of date. Overall, the interviewees were less concerned with scope and content of the S&G, but more with their application and effects to enable them to achieve results (e.g. cost control, standardisation) or perform certain functions, (e.g. manage risk). It was surprising that there were not more positive benefits identified, particularly in view of the extensive use most of the interviewees make of the HBNs and HTMs.

The highest rated scores of dis-benefits from interviewees include issues such as incompleteness, being out-of-date and inconsistent. There is a clear view that some other S&G provide better content than the DH HBNs and HTMs and the interviewees described several avenues they follow in obtaining such S&G, for instance the Royal Colleges, European, American, Australian, other industry and professional bodies' guidance (e.g. CIBSE). This does not appear in the survey results, but a question was included in the survey asking what other guidance was accessed by respondents, and the wide range of responses bears out that the DH S&G do not cover all their requirements (Table 5-11).

Table 6-4 identifies the provision of room data in the form of specifications and data sheets providing by far the greatest benefit. This is hardly surprising, particularly as it was followed up by the benefit of S&G "Providing of benchmark".

Table 6-4: Number of Scope/Content benefits/dis-benefits identified by survey respondents

Benefits (Number of responses)					
	Designers (19)	Service Users (14)	Estates/ FM (6)	Contractors (9)	DH/ NHS (5)
Benchmark	2	1		1	
Clinical content	3		1	1	1
Confidence for and with client	4	2			1
Equipping			1		
Evidence	1	1		1	
Exemplars	1			1	
Expert	1				
Fire safety				1	
Interrelated with other standards			1	1	1
Link to Schedules of accommodation	2				
Specifications/room data/space requirements	6	4			1
Total score	20	8	3	6	4
Average score for Scope/content per stakeholder category (level of interest)	1.8	0.7	0.3	0.5	0.4
Dis-benefits (Number of responses)					
	Designers (19)	Service Users (14)	Estates/ FM (6)	Contractors (9)	DH/ NHS (5)
Acute sector focus	1	1			
Component information not detailed enough			2		
Lack of evidence cited	1				
Less prescriptive than earlier documents		1		2	
New subject split/numbering system confusing	2				
No joining up of departments (space and cost saving)		1		2	
Not specific to architects	1				
Oversized (spaces)		2			
SoA often missing or separate from HBN		3	1	1	
Too generic/not enough detail		1			
Total score	5	9	3	5	
Average score for Content/Scope per stakeholder group (level of interest)	0.5	0.9	0.3	0.5	

Providing a source of Reference/legislation and making available Specification/room data/space requirements form the majority of the reasons for the stakeholders to use the S&G. The Designers and the DH/NHS groups were particularly positive in their responses on the Content/scope aspect of the benefits, both groups scoring above the average.

The Contractors identify a fairly high number of dis-benefits, together with the Service Users. This appears to indicate that they appreciate standards to work to, but believe that some content is either incomplete or, in certain instances, inappropriate or not relevant. Added to this, there is a preference for S&G to be mandatory, or in some way prioritised (Table 5-5).

The results for this sub-section of the Dis-benefits identified are sparse and should be treated with some caution. The overall impression is one of a lack of joining up all the possible links between the content that is provided. The most commonly cited criticisms of the content are headed by the incompleteness of the content and the inconsistency of what is provided.

The perceived advantages and disadvantages expressed are personally held views, but the majority tend to prefer the content of the older HBNs and the newer HTMs. This may also be attributed to the fact that much of the investment over the past 2-3 years has been spent on the HTMs, and that the HBNs have suffered as a consequence of their disaggregation on the SpaceforHealth website. This is also reflected to some extent in the response in Table 6-4 regarding the lack of joining up departments.

Table 6-5 has been drawn up by matching the comparable benefits and dis-benefits relating to Scope/Content as closely as is reasonably possible. In one instance, the same positive has been used to compare against two different negatives. There are some clear differences between the benefits and dis-benefits, e.g. the S&G are regarded as evidence-based, with only one Designer pointing out that there is a lack of evidence actually cited. One of the survey respondents pointed out that evidence was usually contained in case studies, but that there are not a lot of them.

Table 6-5: Benefits and Dis-benefits of Content compared by stakeholder category (survey)

Comparison of Benefits and Dis-benefits of Content compared by stakeholder category (survey) (Number of responses)						
	Designers (19)	Service Users (14)	Estates/ FM (6)	Contractors (9)	DH/ NHS (5)	Total responses (53)
Evidence	1	1		1		3
Lack of evidence cited	1					1
Clinical content	3		1	1	1	6
Too generic/not enough detail		1				1
Specifications/room data/space requirements	6	4			1	11
Not specific to architects	1					1
Specifications/room data/space requirements	6	4			1	11
Oversized spaces		2				2

The provision of specifications and exemplar room layouts is clearly recognised as a benefit.

Comparing this response with the two dis-benefits of:

“not specific to architects” and

“oversized spaces”

have been included in the table separately as they represent different aspects of criticism but could be seen to relate to the provision of this type of information.

6.2.2 Completeness/relevance of content

The overall impressions provided by the interviewees regarding the completeness and relevance of the content of the DHS&G are those of poor quality, incompleteness, and that some other standards and guidance are better (Table 6.6).

Table 6-6: Views regarding the use of S&G.

With regard to the practical "USE" of DH Estates and Facilities Standards and Guidance, to what extent do you consider DH Estates and Facilities Standards and Guidance to be ...					
Interviewee responses (Average scores for each stakeholder group)					
	Designers (4)	Service Users (3)	Estates/FM (2)	Contractors (4)	DH.NHS (2)
Provided at an appropriate level of detail?					
Vague content	0.3				
Should give more guidance	0.3	0.3		0.5	
Clinical content (needed)	0.3	0.3		0.3	
Delivered in a timely manner?					
Out of date	1.0	1.0	1.0	1.0	1.0
Complete?					
Incomplete	1.0	1.0	1.0	1.0	
Schedules of Accommodation missing	0.5	0.3		0.5	
Equipment schedules incomplete	0.3			0.8	
Well linked to external standards?					
Needs better connections with other standards	0.3	0.7		0.3	0.0
Survey responses (Average scores for each stakeholder group)					
	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)
Provided at an appropriate level of detail?	3.0	2.7	3.8	3.4	3.0
Delivered in a timely manner?	2.3	1.4	2.5	2.1	2.6
Complete?	2.4	2.3	3.0	2.6	3.0
Well linked to external standards (e.g. NBS)	1.9	2.0	2.7	2.3	2.2

The shaded rows show the sub-question from the survey

The figures for the Interviewees are based on a simple count of whether the interviewee agreed with the question or not. Survey responses are rated between 1 and 5, where 5 indicates the highest degree of agreement and 1 the lowest. The results show negative responses regarding currency and completeness of the S&G. The scores from the survey are more positive, but underwhelming. Both interviewees and survey respondents confirm they consider the S&G to be incomplete and not delivered in a timely manner. That the level of detail is considered appropriate by nearly two-thirds of the survey respondents is somewhat diminished by the

more negative responses to the other elements of the question. One equipper interviewed remarked that:

“New guidance tends to be less prescriptive which means that frequently corners are cut because finance cannot meet the minimum standard”.

6.2.3 Legislative Content

Surprisingly, the need to ensure legislative safety did not feature strongly in the interviewee group overall, the Service Users and Contractors being the only two groups responding. However, they are both very positive that this is an important benefit. As the Service Users represent the end-users of the accommodation, this seems a logical concern. The Contractors are tasked with ensuring the commissioned building project conforms with legal requirements, so again, this is a fairly predictable result. On the introduction of the more stringent standards for access for the disabled in the late 1990's there was a call for all DH S&G to be updated to ensure conformity with legislative requirements. This took some years to achieve and was overtaken by newer standards and requirements as the work proceeded.

This question attracted a higher response from the survey respondents, but three groups showed a score lower than half, and the two higher-scoring groups (Service Users and DH/NHS) predictably are concerned to know that the S&G promote legislative conformance. Contrary to the Contractors interviewed those taking part in the survey do not give a particularly high score and their comments indicate a need to check the legislation for latest versions rather than depend on the DH S&G for current standards.

6.3 Characteristics

6.3.1 Benefits and Dis-benefits

The interviewees were generally less exercised by identifying positive or negative characteristics of the S&G than discussing their effects. Their assumption is that they exist to provide the user with the information they need, and as long as they are endorsed by DH, that is the most relevant factor, which accords with the perception that their principal characteristic is that of baseline or minimum standards and they are therefore used as a reference source. However, their criticisms of the characteristics were fairly numerous.

The characteristics of the DH S&G identified by the survey were wide-ranging, but notably there were more negative than positive ones for both qualitative and quantitative data sets.

6.3.2 DH-related characteristics

DH endorsement

Section 5.3 describes the nature of DH S&G and Figure 5-7 indicates the importance of the DH endorsement. Of the questions about aspects of the DH S&G's importance to users, DH endorsement is seen as most important. It provides users with an accredited set of standards and guidance which, if adhered to, ensures their projects conform. The highest score from the Contractors reflects their need to conform to the DH standards for their clients, providing fit-for-purpose healthcare accommodation. The Service Users also demonstrate a high rating for DH endorsement. As they represent the eventual users of the accommodation, it is important to ensure clinical conformity and reflect latest clinical practices as far as is practicable. The high priority given by all the survey respondents to DH endorsement reflects the high level of dependence on the DH S&G to achieve conformity with the DH standards.

Commercial independence

Commercial Independence of the DH S&G is of varying importance to each stakeholder group, but is generally a characteristic of value to all. The Designers and Service Users scored the highest. The Designers rely on the independence of the S&G to ensure there are no prejudicial commercial pressures brought to bear on the project briefing and design. Service Users, for similar reasons, are keen to ensure commercial independence is retained. There is also an acknowledgement by all that for a publicly-funded national service, the S&G should emanate from a Government organisation. This ensures probity and accountability. It has sometimes been mooted that the S&G might be commissioned by DH from a commercial organisation, which met with dismay and protest on the part of the majority of the interviewees, and other users (Sher 2006).

Evidence-based S&G

The move towards the concept of evidence-based design has been gathering momentum over 10 years, alongside the earlier espousal by the DH of clinical evidence-based medicine. The concept of evidence-based S&G is clearly well established and considered as a desirable characteristic and the DH S&G are often assumed by users to be based on evidence. Nearly half the survey respondents agreed when asked "Do you consider the DH Estates and Facilities standards / guidance evidence-based?" but many responses were qualified with comments ranging from:

"I assume so",

Through to disagreeing, saying that:

“Generally the HTMs have more of a habit of reflecting the trends [at] the time they are written”; and

“An opinion of a panel is how they read with the strongest opinion winning out”

thus also highlighting the difference between evidence and experience. The effect of the DH’s S&G could be to perpetuate existing designs and practices, at worst repeating mistakes as the following comments picked up:

“Some are following failures or hazards”;

“Evidence-based is tricky due to complex interaction of effects”;

and

“Probably, but the evidence link is often unclear and manipulated by the authors’ opinions”.

It would seem that users would like to assume that the DH S&G are evidence-based, but are unsure whether this is really so. There is confusion between evidence and experience and this probably reflects the same confusion on the part of the authors themselves. It is therefore questionable whether the DH S&G influence the practicalities of healthcare design as much as other tools developed outside but endorsed by the DH such as AEDET (Section 2.3).

Well Integrated

The DH S&G are used in conjunction with many other sets of standards such as National Building Standards, and the DH National Service Frameworks. It is therefore important for users to have easy access to all the relevant information, legislation, guidance and standards they require.

Level of information

The survey asked respondents to indicate whether they felt the right level of information was provided by the S&G, and if not, sought their further comments. Interviewees and survey respondents alike were fairly critical of this aspect of the S&G. In both sets of results, the Designers groups was the most negative, although there was a majority in agreement that the right level of information is provided. Despite this, the comments from the Designers group were the only positive ones, but they made a greater number of negative ones. The comment regarding “improving from too little” is surprising in that many users of the HBNs and HTMs prefer the older versions of the S&G. It is also interesting in that it is directly contradicted by a response identifying Dis-benefits, and in both cases the responses emanate from the Designers

group. The other notable results are for the Service Users and the Estates/FM groups, which were negative. The comments regarding the quality of S&G:

“improving from too little” and “content quality deteriorating”

are interesting in that there is a clear divergence of opinion as to whether the newer HBNs and HTMs are as good or not as the older ones.

6.3.3. General Characteristics

The DH S&G are used by a much wider audience than they were originally designed for - the designers and briefers – and this is reflected in the differing needs and wants of the stakeholder categories using them (Chandra and Loosemore 2010). Tables 6-7 and 6-8 show the range of

Table 6-7 Characteristics of Benefit and Dis-benefit identified by Interviewees

Positive characteristics identified by Interviewees (Average scores for each stakeholder group)					
	Designers (4)	Service Users (3)	Estates/ FM (2)	Contractor (4)	DH/ NHS (2)
Baseline/minimum standards	1.0	1.0	1.0	1.0	1.0
Easily accessible				0.5	
Good reference source		1.0	0.5	0.5	0.5
Format			0.5		
Used by all			0.5		
Averaged total score	1.0	2.0	2.5	2.0	1.5
Negative Characteristics identified by Interviewees					
Accessibility	0.3				
Areas too big/over specified	0.8	0.7		0.5	
Changed over years				0.3	
Clinical content (need more)	0.3	0.3		0.3	
Concerns re regulation		1.0		0.8	
Cost of design/application		0.3	1.0	0.3	0.5
Future of standards uncertain			0.5		
Incomplete	1.0	1.0	1.0	1.0	0.0
Inconsistent	0.8	0.3	0.5		
Lack of consensus	0.5	0.3	1.0		
Links to other guidance	0.3	1.0	0.5	0.3	
Loss of DH expertise			1.0		
Must apply with care (spirit and status)	0.8	0.7		1.0	0.5
Other standards are better	0.5	1.0			
Out of date	1.0	1.0	1.0	1.0	1.0
Prioritised standards					1.0
Requires investment	0.5	0.3	1.0	0.8	1.0
Stifles innovation	1.0	1.0			
Status unclear	0.3	0.3	0.5	0.3	0.5
Technical content poor	0.8	0.3	0.0	0.3	
Unachievable	0.3			0.3	1.0
Vague content	0.3			0.5	
Averaged total score	4.8	6.7	4.5	4.5	4.5

positive and negative characteristics of the DH S&G, identified by the interviewees and survey respondents respectively. The totals for each characteristic were relatively low, and therefore statistically unreliable. Shading has been used to highlight similar characteristics in both tables.

Table 6-8: Characteristics identified in survey responses

Positive Characteristics (Average scores for each stakeholder group)					
	Designers (19)	Service Users (14)	Estates/ FM (6)	Contractors (9)	DH/NHS (5)
Accurate		0.1		0.2	
Authoritative	0.1				0.2
Best practice/quality		0.1		0.1	
Complete		0.1			
Consistency		0.1	0.2	0.1	
Continual update		0.1		0.1	
Detailed			0.2		
Easily accessible		0.1		0.1	0.2
Generally accepted	0.1	0.1	0.2	0.1	
High quality content and presentation				0.1	
Plain English					0.2
Policy compliant / endorsed	0.1	0.2	0.2		0.2
Relevant	0.1	0.1	0.2	0.1	0.2
Averaged total score	0.3	0.9	0.8	1.0	1.0
Q5. Negative characteristics					
ADB link not available					0.2
Accessibility/searchability	0.1	0.1			0.2
Incomplete	0.2	0.1	0.3	0.2	
Inconsistent	0.1		0.3	0.2	
Inconsistent across UK (format)	0.1				
Insufficient DH investment			0.2		
Irrelevant/too descriptive/ detailed	0.1				
Keeping up to date with associated software	0.2	0.1			
Less useful than earlier documents					0.2
Not possible to implement (refurb)	0.1	0.1		0.1	
Require specialists to use (costly)	0.1			0.1	
Out of date	0.4		0.2	0.4	0.2
Status unclear				0.2	
Too prescriptive	0.1		0.2	0.1	0.2
Unclear/woolly and vague	0.1	0.4	0.2	0.1	0.4
Uneven application	0.1		0.2		
Averaged total score	1.4	0.7	1.5	1.6	1.4

Some additional characteristics included in the interviews and mentioned in Table 6-9 do not readily fit with the survey questions. They are important in that they show a concern, particularly from the Designers, that the DH is seen as having an uncertain future and they cannot assume the S&G will continue. When combined, the impact of these two criteria is high. If there is sufficient uncertainty, and the quality of the S&G deteriorates or loses credibility, this could significantly affect their reputation and usage.

Table 6-9: Characteristics identified by interviewees not included in the Survey responses

Characteristics	Designers (4)	Service Users (3)	Estates/FM (2)	Contractor (4)	DH/ NHS (2)
Loss of DH expertise	0.8	0.3		0.3	
Future of standards uncertain	0.3			0.5	
Must be respected	0.8	0.7	0.0	0.5	

Benefits

The survey results showed the top characteristic of benefit is that of Relevance, followed closely by the Provision of Policy Compliant and DH Endorsed S&G. Most of the positive characteristics cited are identified by the DH/NHS followed by the Contractors and Service Users and Estates/FM managers. The low score from the Designers group reflects a generally more negative view of the characteristics. For S&G to be effective they must be generally accepted and applied across all whole projects. This benefit was cited by both interviewees and survey respondents (Used by all, and Generally accepted).

Dis-benefits

The dis-benefits identified by the interviewees were rather more numerous than those in the survey, headed by the need for investment in the S&G. The need to apply S&G with care, or within the spirit of their status, was a recurrent theme for all the groups except Estates/FM. This reflected the interviewees' perception that there is a need to interpret and flex them to fit with their status, policy, other building standards and clinical needs. The general dis-benefit of not having a clear classification of the S&G highlights the commonly held view that some form of classification would assist with the application of S&G. Several of the interviewees were concerned to explain some of the reasons why they had difficulties with the S&G. Taking the two characteristics regarding status and classification together, this is a clear call for some clarification from DH.

That the S&G is costly or difficult to use is principally a comment from the private sector interviewees as they do not receive free or discounted access, as the NHS organisations do.

A Service User interviewee referred to S&G as providing over-generous room areas and the need to curb clinicians' "wish lists". The dis-benefit of S&G being Costly/difficult to use is concerning. It could be said that one of the costs of applying S&G is that it stifles innovation, but in this case the comments referred to cost of over-specifying areas or services. "Too prescriptive" is mentioned, and relates to the common criticism of all standards that they stifle

innovation; the DH has always been at pains to make clear their view that exemplar rooms were provided as a “starter for 10”, not a specified solution.

Several complaints were made during the interviews as well as through the survey that Ease of Access was a problem whilst the SpaceforHealth website hosted the S&G. There were a number of changes introduced over a relatively short space of time that led to confusion. In particular the inclusion of the Scottish, Welsh and Northern Irish versions of the S&G together with the English which became a source of irritation. The filtering/sorting functionality of the web site was heavily criticised, failing to reduce time spent sifting through many irrelevant documents, and many marked as archived.

Standards must be relevant, which in the present case can also be taken to mean that they are possible to apply and affordable in terms of cost to the project. Public sector standards in particular must be achievable within funding allowances from the public purse. The need to restrain spending on capital projects remains imperative despite the major improvements achieved through the injection of private sector funding. One way in which this has been encouraged is to prevent reinvention of the wheel in terms of basic standards and specifications, but taking this further, standardisation and modularisation of certain elements of buildings is also seen as desirable. A DH interviewee confirmed that flexibility of use is a DH priority, as a means of ensuring clinical space is used to the fullest capacity possible.

6.4 Processes

The DH has aimed their S&G at assisting the processes of briefing and design. This section looks at who uses the S&G and for what purpose. Table 6-10 shows the processes or uses which the interviewees and survey respondents considered to benefit from their use of the S&G (average scores for each stakeholder group).

Table 6-10: Processes benefiting from S&G

Interviewees						
Processes	Designers (4)	Service Users (3)	Estates/ FM (2)	Contractor (4)	DH/NHS (2)	Total (15)
Referencing/benchmarking	0.8	0.3	0.5	0.8	0.5	0.6
Space planning	0.5	0.3		0.5		0.3
Briefing		0.7	0.5	0.5		0.3
*Data management	0.5	0.3	0.5	0.3		0.3
Care pathway planning	0.3	0.3		0.5		0.3
Produce standard rooms	0.5	0.3		0.3		0.3
Project management	0.3	0.7		0.3		0.3
Design	0.8					0.2
Project “control” (for equipment)		0.3	0.5	0.3		0.2
Costing		0.3			0.5	0.1
Derogation/Independent Assessment				0.3		0.1
Additional comments						
Enables standardisation	1.0	1.0	1.0	1.0	1.0	0.5
Enabling (design for) flexibility	1.0	1.0	1.0	1.0		0.3
*Enables cost control	0.8	0.3	0.5			0.1
*Sharing information encouraged	2.3	1.3	2.0	0.8	1.5	0.1
Survey respondents						
	Designers (19)	Service Users (14)	Estates/ FM (6)	Contractors (9)	DH/ NHS (5)	Total (53)
Design	0.2	0.1	0.3	0.1	0.2	0.2
Brief writing	0.2				0.2	0.1
Planning	0.1	0.1				
Project management	0.1			0.1		
Derogation	0.1			0.1		
Equipment scheduling	0.1			0.1		

The survey responses shown in Table 6-10 demonstrate that DH’s aim to ensure the S&G support the processes of briefing and design is at least partially achieved. They also show additional applications to which users put the S&G. The use of S&G for project management is most likely to relate to the use of ADB, as is the equipment scheduling, which forms an important part of the functionality of the ADB software.

6.4.1 Design

The Designers interviewed nearly all use the S&G for designing but the absence of a score for the other stakeholder categories could be interpreted as a “reluctant acceptance” of the standards, in light of other responses to the survey that identify a perception that they inhibit innovation, are out of date, incomplete, and inconsistent.

Two Designers interviewed did not include space planning as a separate process, perhaps on the assumption that this process is commensurate with design.

The scores for Design by the Designer group in the survey responses are surprisingly low. An explanation for this could be that, as an open question, the process of design in relation to use of the S&G is “a given”. This may also reflect the respondents’ roles or stage of the contract they are normally involved in, such as Designers acting as informed client,

6.4.2 Briefing

The Service Users interviewed predictably use the S&G to produce briefs, and the two Estates/FM group interviewees use them to assess briefs. The Contractors acting as part of a consortium will depend on the brief to instruct the Designers on what is required.

In the survey responses, the results are opposite to those of the interviewees in that it is the Designers and the DH/NHS who have mentioned briefing. For smaller projects, the Architect may work with the client to develop a brief, and the client could be represented in the DH/NHS group rather than including the employment of a Service User.

6.4.3 Other Purposes of DH S&G

Most stakeholder categories use the DH S&G as a reference source or for benchmarking.

The processes of briefing, space planning and data management and project control generally relate in part to the use of ADB, whose database of exemplar rooms and components is quite frequently used for these purposes (Phiri and Mills 2011). An example of this is the lists or schedules of equipment that can be edited within ADB and used for quantity and placement scheduling. They also record changes which can be used for audit purposes, and tracking changes as a scheme develops.

Standardisation of elements of healthcare accommodation is encouraged by the DH because it promotes cost saving and safety. The use of the S&G to develop standard rooms is also mentioned as a positive benefit. Table 6-10 also includes several additional comments relating to processes, i.e. standardisation, enabling flexibility, enabling cost control and sharing information. Flexibility of use is encouraged by the DH to optimise use of resources in the built environment. The comment about enabling cost control refers to the use of ADB, as does the sharing of information: ADB data sets can be edited to reflect project specific briefs and designs, with costing information added, and may be shared across consortia members.

The use of ADB for project and data management is increasing with the introduction of BIM principles, potentially encouraging the sharing of knowledge as it enables direct comparison between versions of the data set. Thus, it is possible to compare the “signed-off” version of a

brief against the “as-built” version, saving a significant amount of time where derogation is required, and enabling justification for changes to be easily identified and demonstrated. The use of the data for these purposes is being recognised particularly by Service Users and Contractors groups, both of which are very influential in the life-cycle of a construction project as they provide the essential information in detailed briefs, and apply the brief respectively.

The response concerning risk mitigation is not consistent with Q14g (Table 6-11), which is surprising because it could be assumed that safety and risk are closely linked. This result is hard to explain, but may be related to the way users view the characteristics and scope of the S&G, and that the interviewees have concerns about the classification and status of the S&G.

Table 6-11: DH-related characteristics of S&G (Q14)

	Designers	Service Users	Estates/FM	Contractors	DH/NHS	Total
14g. Do DH Estates and Facilities S&G ensure LEGISLATIVE safety requirements(e.g. DDA, Fire)?	0.3	0.6	0.5	0.4	0.8	0.5
Concerns re regulation		1.0		0.8		0.4
Safety			0.5	0.3		0.1
14h. Does DH Estates and Facilities S&G assist your RISK MITIGATION policy?	0.5	0.6	0.7	0.7	1.0	0.6
Risk management assisted	0.3	0.3		0.5	0.5	0.3

Table 6-11 shows the interviewees (shaded) and survey respondents’ data relating to ensuring Legislative Safety requirements are met, and Mitigation of Risk. There is a fairly close degree of commonality between the two groups overall for the suggestion that DH S&G ensure legislative safety requirements are met. The Safety requirements are set out in law and therefore well defined. Their inclusion in the S&G is very important to all parties, and there is little room for manoeuvre in their application. There is a degree of correlation between the two groups regarding risk mitigation, and the absence of this element from the Estates/FM group interviewed could indicate that Risk is seen as a Board Management responsibility.

6.4.4 Derogation

The use of the S&G for Derogation is predictable: there are many refurbishment projects where Designers and Service Users will need to know what the minimum standards require, and match the existing spaces as closely to the current standards as possible, or justify why they differ. In practice, Derogation takes place on most projects.

The process of Derogation is almost always performed by the Designers group, as is shown in Figure 6-2. It is often required for refurbishment projects where the designer is charged with providing certain accommodation, which has to be fitted into pre-existing buildings that may not have adequate space according to up-to-date standards. Derogation also takes place where budgetary constraints tighten during a project, and design compromises become necessary.

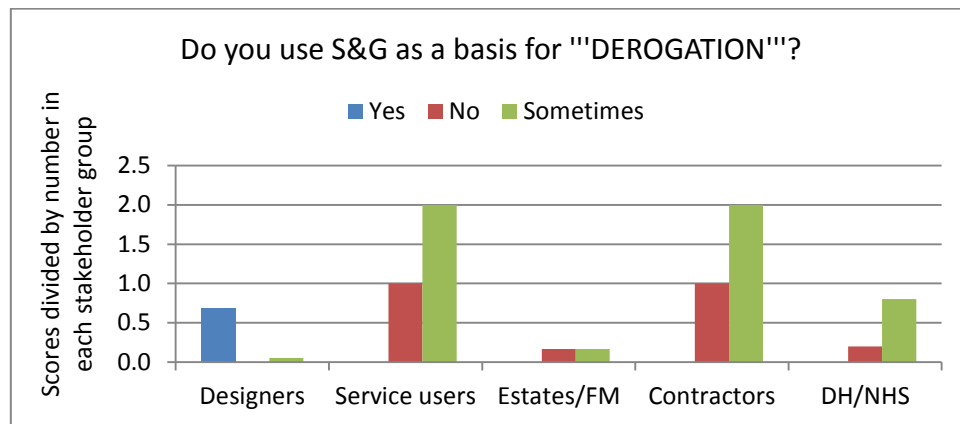


Figure 6-2: Responses to: Do you use the DH S&G for Derogation?

A further trigger for the derogation process is where new technologies or clinical practices are introduced during the briefing or design process that may significantly change the range, size or configuration of rooms or their specifications to enable new ways of working to be accommodated (Khan 2011). This process is universally deemed to add considerably to the cost of most projects, as an interviewee pointed out:

“So it has become an industry..... ”,

although the actual cost is extremely hard to quantify.

Only two interviewees referred to Derogation; a construction industry Project Manager as a standard part of the process of managing a project, and an NHS Director mentioned that in his view and experience derogation was a process that was frowned on by the DH because any deviation from the S&G was discouraged.

The results from the survey showed that all the groups sometimes use the S&G for Derogation purposes, if only very occasionally. This reflects the role of the other stakeholder categories who need to satisfy themselves in the case of DH/NHS, Service User and the Estates/FM groups that the Designers have provided the optimum solution when compared to the S&G, and the Contractors group will wish to ensure appropriate standards have been applied on schemes where there is any difference from the DH S&G.

Although there is a divergence of opinion amongst users of the DH S&G it is generally acknowledged that some DH standards are known to be too stringent. A Trust Director expressed the view that:

“conform to” is quite strong. I would say you should “take cognisance of the spirit” rather than slavishly stick to the letter. There are some things which are not mandatory, which are guidance and which should be a jumping off point. It should be a starter for 10...”

However, the interviewee went on to say that:

“... every single time you do a scheme you have got to say ‘I need to derogate from HTM ..., because we can’t do it’. [DH] then say ‘its derogation’ - ...but we all know you can’t do it – so why scold people. I always think of these things as being – ‘what’s going to send me to prison?’ so if I am not doing something that’s statutory – that’s serious. If it is mandatory – fine, but if it is guidance, please leave me alone to interpret it in my own way as long as what I am doing is safe..... I am not saying we absolutely know best, but its saying that [I am using them as] a risk assessment.”

A further point regarding derogation was raised by a Contractor-based Project Manager who combined the need for experience alongside standards for Derogation:

“From my point of view I have said HBNs/HTMs are the foundation, ADB reflects that, build on that, then take user requirement and then put project experience on top of that and then a nice model. In an ideal situation. My experiences of PFIs were that there was reliance upon ADB and HBN standards and it was a prerequisite to say you must all comply with them. If a stakeholder said “no”, you could derogate out and quantify derogations. “

The survey asked respondents who use the DH S&G for Derogation to indicate typical derogations. Table 6-12 shows the responses, which indicates that the standards are considered generous for room sizes, and that room layouts often require alteration.

Table 6-12: Survey respondents' indication of typical derogations

Typical Derogations	No. of responses
Layouts	9
Room sizes/heights	9
Cooling towers	4
HTM 06 (Electrical)	4
Audit trail	2
M&E	2
Acoustics	2
Bed space area	1
Functionality	1
HBN 23 (Hospital Accommodation for Children and Young People)	1
HTM 63 (Fitted furniture-related guidance)	1
HVAC	1
Medical gases	1
Part M (Building Regulations relating to provision for the Disabled)	1
Sanitary accommodation/Assisted toilets	1
Schedules of accommodation	1

6.4.5 Refurbishment

The survey questionnaire asked respondents to indicate whether they use S&G for refurbishment (Table 6-13).

Table 6-13: Survey respondents' use of S&G for Refurbishment

Do you consider DH Estates and Facilities standards and guidance suitable for "REFURBISHMENT" projects? Number of responses in each group.					
	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)
Yes	11				2
No	4	6	5	6	
Sometimes		2		2	

Several qualitative statements were included to the effect that it was difficult to use the S&G for refurbishment because of the disparity between old and new standard room areas and that it would be useful to have a definitive minimum standard or starting point. This reflects some of the comments regarding the content of the S&G where users consider some of the required areas are too generous, and that engineering services are over-provided. In seeking to re-use spaces, refurbishment projects are less likely to be able to accommodate services in the same way as new build projects because standards have often changed room areas, or ceiling heights since the original building was completed. Some exceptions to this are where equipment size has decreased because of technical advances in electronics e.g. ultrasound equipment is now mobile, the change from static PCs to lap-tops and hand-held tablets.

6.5 Positive effects of applying DH S&G

Analysis of the effects identified by the interviewees and in the survey responses enables extrapolation of how the content and characteristics of the S&G affect their use and application. Table 6-14 shows the results of analysis for the interviewees and survey, and Table 6-15 displays the totals for the two groups, matched where possible.

Table 6-14: Beneficial effects of the DH S&G

Interviewees					
(Average scores for each stakeholder group)					
	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/ NHS (5)
Assists with Risk management			0.5	0.3	0.5
Drives innovation	1.0				
Effective project management	0.3		0.5	0.5	
Encourages data sharing		0.7			
Encourages standardisation	0.5			0.3	
Generally accepted	1.0	1.0	1.0	1.0	1.0
Maintains standards			0.5	0.3	
Management of equipping		0.3	0.5		
Survey respondents					
(Average scores for each stakeholder group)					
	Designers (4)	Service Users (3)	Estates/ FM (2)	Contractors (4)	DH/ NHS (2)
Baseline / Minimum standards	0.3	0.2	0.3	0.3	0.2
Confidence for and with the client	0.6	0.3			0.1
Drives innovation			0.2		
Ensures legislative safety requirements met			0.2		
Equipment codes and descriptions	0.1				
Maintain standards	0.1	0.1	0.3		0.0
Reduces risk	0.1				0.2
Standardisation			0.2		0.4
Supports asset and maintenance records			0.2		

The provision and maintenance of standards are clearly perceived to have a beneficial effect, and this is connected to the confidence for and with the client, which in turn aligns with the general acceptance of the S&G mentioned by the interviewees.

Table 6-15 shows the totals for each set of data. The effects not mentioned by the interviewees are the Support of asset and maintenance records, and Equipment codes and descriptions. Both these effects are likely to arise from the functionality of ADB software rather than the ADB data. The interviewees cite Management of equipping as an effect when used in relation to the procurement process. This aligns loosely with the survey response of Equipment codes and descriptions which enables ADB users to schedule lists and placement of equipment.

Table 6-15: Comparison of Interviewee and Survey results from the Beneficial Effects identified

Interviewee responses	Number of mentions	Survey responses	Number of responses
Generally accepted	15	Baseline / Minimum standards	15
Maintains standards	2	Maintain standards	5
Drives innovation	4	Drives innovation	1
Standardisation	3	Standardisation	4
Risk management	3	Reduces risk	2
		Ensures legislative safety requirements met	1
Effective project management	4		
Encourages data sharing	2	Equipment codes and descriptions	2
Management of equipping	2	Supports asset and maintenance records	1
Total	20	Total	31

The results are discussed below, in the order that they appear in Table 6-14. Where the Survey respondents have repeated issues that are raised by the interviewees they have been combined.

6.5.1 Assists with Risk Management

Users of the DH S&G are understandably risk averse. Management and reduction of risk are mentioned in both sets of results, although the survey respondents do not give this as high a rating as the interviewees. The use of S&G to manage risk seems obvious and has been identified by the groups principally engaged in the delivery of construction projects and is likely to refer to that of not providing fit-for-purpose facilities for healthcare delivery and attracting censure from CQC.

Linked to legislative safety is the attribute of assisting with mitigation of risk, which attracted a higher ranking, the DH/NHS agreeing 100%, and the lowest score being assigned by the Designers group. This may be because they carry less risk than the other groups, but also because they are designing, rather than taking responsibility for the delivery of a project right up to commissioning and occupancy, which in the healthcare sector is usually undertaken by the Contractors group. The survey results include an effect: “Ensures legislative safety requirements met” which could also be interpreted as mitigation against risk. The mitigation of risk is also cited by the interviewees as a benefit, particularly in relation to their strongly expressed concerns regarding regulation. This accorded with some of the survey respondents who had reservations (Section 5.4.7).

The Designers and Service Users arguably have less need to manage risk in terms of whole projects but neither designer nor client can afford to ignore risk for financial and operational reasons. From the Designer’s point of view, ensuring his design conforms to the DH standards

provides both himself and his client with assurance that the project will be approved as fit-for-purpose. Designers' companies will be concerned to ensure they stay in business and therefore their risk is primarily based on making a profit, although that will depend on their providing clients with suitable, fit-for-purpose projects. DH/NHS will not have the concern of profitability to stay in business, (although they will need to control spending) but they will have as their prime responsibility the efficient and effective delivery of their projects and maintenance of the estate so that it is fit-for-purpose to deliver healthcare services.

Section 5.5.7 aligns Risk mitigation with the process of signing-off elements of a project. Signing-off in the construction process represents acceptance of responsibility for that element. It is noticeable that this is a concept that interviewees found slightly uncomfortable. Briefers are expected to sign-off a design as being conformant to the brief, and seemed to need a caveat that the design is underwritten by the DH S&G even though these are not necessarily what they consider ideal. Likewise, Service Users developing a brief will get it signed off by the DH/NHS, but they accept that the design might need to deviate from the brief during the construction phase of the project usually for reasons related to budget management.

6.5.2 Drives innovation

The Designer group ranked Driving innovation highly; this could have been anticipated, but again is encouraging in that often standards are considered to stifle innovation (Section 5.4.4). S&G relating to engineering services is often quoted by stakeholder categories as excessive, consuming a high percentage of capital budgets. However, keeping up-to-date with external factors is important. Policy and practices addressing requirements for climate change are requiring significant new standards and regulation for building design, e.g. access to an external window or view is recommended but solar gain requires the provision of brise-soleil panels, and reduction of air conditioning for energy conservation represent only two of the more recent changes in design practices. A report by DH and the Health Protection Agency (HPA) was produced in 2008 and included the following conclusion:

"In the longer term, improved building design could minimise the need for increased energy use, and the consequent acceleration of climate warming by air conditioning"
(Department of Health / Health Protection Agency 2008).

The single interviewee who indicated that the DH S&G drive innovation is a Designer who is well-versed in the DH philosophy about provision of S&G, and is close to the generation process of HBNs and HTMs. Although the DH has been promoting the use of the S&G as a "jump off"

point, enabling practitioners to research and innovate, but in general the message seems not to have got across, or is negated by the difficulties experienced in getting approval for innovative designs, a factor which the Designer interviewee corroborated strongly.

6.5.3 Effective project management

The identification of Effective Project Management was encouraging. The benefits associated with data-sharing are allied to project management in that the principles of BIM rely on data sharing. The use of CAD and BIM technology should provide assistance to project managers as information-sharing is simplified and encouraged, which was more difficult until the introduction of CAD processes (Meniru et al 2002).

All future Government projects are to use BIM from 2015 for contracts worth over £5 million, but as this benefit was only identified by Service Users, it appears as yet to have received limited recognition. One Contractor interviewed identified the advantage of a common format that can be used throughout the project lifecycle, particularly planning, briefing and design, enabling him to share relevant data across the whole construction team. Bryde et al (2012) reported on the benefits BIM affords to project stakeholders, but this is limited to a single case study so the effects of BIM have yet to be analysed across the whole industry sector.

The DH S&G are used extensively in the briefing process, and the data collected confirms that this aim is fulfilled. Development of a brief is a critical element of the construction process: time spent in putting a project plan and brief together should save time later in the project, as confirmed by a member of the DH/NHS group:

“...and spend[ing] even more time – double the time - on the health planning so you really know what you want – will shorten the process eventually.”

The brief forms the basis of the design – get the brief right and the design will fulfil the project aims (Yu et al 2006; Chandra and Loosemore 2011). The data collected indicates that use of the S&G for the brief gives the user assurance that legal standards are met (DDA and Fire Safety) and that the accommodation will be fit-for-purpose in terms of the DH requirements. An interviewee explained there was little merit given for setting out project aims at the start of a process and then measuring the final project against them through PPE, but this should form a useful measure for success.

The use of BIM on all projects by 2015 on contracts valued at £5 million or over is likely to change the processes for construction teams. There are many claims for BIM: it will improve

efficiency, knowledge- and data-sharing, reduce repetitious work and by enabling massing and 3D design from the outset of a project, improve visualisation and modelling. In the event, it is as yet unproven that all these claims are justified (Oppenheimer 2009; bdonline 2010; Bryde et al 2012).

6.5.4 Encourages data sharing

There is a move, encouraged by Government policy, towards sharing data in the construction of all publicly-funded buildings including healthcare ones, in order to reduce contract costs. The compulsory introduction of Building Information Modelling (BIM) was the first step in this process, and is to be further underwritten by the use of Construction Operation Building Information Exchange (COBie) for transfer of data in a form that can assist facilities management.

Sharing data can only take place if contributors use the same systems and this is encouraged by the use of ADB where data can be entered at the briefing stage, passed on to the designers in the form of a database, and amplified throughout the design process without the need to re-enter all the original detail. As the Service Users are often responsible for building up the original brief, it is clear from Table 6-14 that this is seen as a benefit.

6.5.5 Encourages standardisation

The DH policy to provide preferred standardised whole hospital planning solutions died with the Best Buy, Harness and Nucleus specified solutions (Francis 1999). The DH has recently introduced a set of generic standardised rooms for PC21+ supply chain members.

Standardisation remains a subject about which there is much debate: too much and it stifles innovation, eliminates competition, dumbs down the ability to enhance the design of the healthcare environment; and too little and the variations cost more because economies of scale cannot be made, safety can become an issue, and it can result in unnecessarily bespoke solutions. Standardisation is therefore seen as a double-edged sword.

The Contractors and DH/NHS without fail mentioned the benefits of standardisation (of single bed room layouts in particular). The survey data also shows that Standardisation is regarded as a benefit. Many projects start by attempting to design a set of standardised rooms (often referred to as generic rooms) which may be repeated many times throughout a project, e.g. a consulting/examination room, waiting area, or outpatient clinic. All these rooms are likely to be of a standard size and will only vary if required for a special purpose needing specialist

equipment. The scores for Standardisation by interviewees and in the survey responses emphasize the fact that this is seen as a desirable effect.

Standardisation can be seen as a way to cut costs. The cost-saving factor is debatable. An Estates/FM interviewee explained the benefits of standardisation as follows:

“ the good thing about the standardised room sizes, the standardised areas, is ...that you should find that whatever you’re doing in scheme five, it should be in some respect cheaper than [it was in] scheme one because not only have you learnt things on that project but in order that procurement and everything else you’ve learnt to procure cheaper ...”.

Modular buildings are also highly desirable in that they provide a flexibility of use not otherwise achievable. In 2004, the primary care web site suggested modules of 8, 12, and 16 sq.m., which was seen as able to accommodate the typical rooms required, but because of their sizing, could be re-fitted easily should capacity or care pathways drive changes in functions of spaces.

6.5.6 Generally accepted

The need for standards to be accepted across a whole industry sector is paramount. If different standards are applied at different stages of a building contract, it would cause immense problems. The fact that the DH S&G are considered to be generally accepted is clearly important to ensure common standards are applied across the whole healthcare sector.

6.5.7 Maintains standards

Maintaining standards, and Ensuring legislative requirements are met, are both identified as benefits of the DH S&G. One of the ways in which standards are maintained is through the use of benchmarking. The DH S&G and related tools have developed over many years, and are applied to buildings and facilities that have been procured since the founding of the NHS, using many different practices and processes. The introduction of the PFI process in 1997 can be seen to have affected application of the S&G by encouraging Trusts to achieve Best Value that has in some cases resulted in sacrificing S&G for a cheaper solution. Carlisle Hospital was one of these where the corridors were too narrow to allow the movement of beds from room to room (Pollock and Shaoul 2002). Guidance was available at the time, but the procurement consortium allegedly reduced many of the recommended spaces by 10% to save money. There has been an on-going discussion regarding the adequacy versus over-provision of space in the recommended standard layouts evidenced by the results of the survey where a total of 40% of respondents

using the S&G for derogation considered the room areas and bed space area to be over-generous.

Maintaining standards can be problematic in refurbishment projects where old facilities may not provide sufficient space to allow all the standards to be fully applied. 65% of respondents to the survey considered that they could use the DH S&G for refurbishment projects, and 14% disagreed. Of the 65 respondents, many were cautious and made the point that it depended on the nature of the project, or that some standards are too high, e.g. room areas, engineering services. This point is further discussed in Section 6.6.8.

6.5.8 Management of equipping

Equipping specialists are employed on large projects to provide their expertise in this very specialist field. Typically, they and the Service Users group use ADB as a tool for producing schedules of equipment and for keeping track of progress throughout the project. The Service Users usually start a project using the ADB data as a guide for what equipment is likely to be required as the data contain lists of the major pieces of equipment for each room. Equipping specialists often take this data on and add specific detail such as manufacturer, exact dimensions, cost, etc. At the completion of a construction project these data are usually passed to FM and Estates Managers (Section 6.5.4).

It is interesting that the interviewees in the Contractors group, which included an Equipper, did not mention this element as a benefit. However the service users did, as did the FM/Estates Managers. The survey respondents also mentioned two closely related benefits: Equipment codes and descriptions, and Supports Asset and Maintenance records. These two benefits form the downstream activities described above. The equipment codes are those contained in the ADB data, and over the years many of these have almost become industry standard “shorthand” for certain items, and are quoted in some manufacturers’ catalogues. The support of asset and maintenance records refers particularly to the ongoing need to monitor and maintain schedules of equipment post-handover for capital asset management and management of maintenance processes.

6.5.9 Provides Baseline/Minimum Standards

Maintaining Standards may refer as much to an effect of S&G as a process. The benefit of the DH S&G for an ex-nurse in the Contractor group was described as:

“invaluable, coming from a clinical background into capital projects and never having done anything like it previously, they are a safety net in a lot of ways. They also give you the heads up. I can read through one of those before I go into a meeting and feel very confident that I've got a good idea of what I'm going to be talking about and how to steer things... if your architects have followed it as well then you're on to a fairly good footing. There will always be fine detail to mash out, but you're on to a fairly good footing in the over-arching design.”

Another Contractor group member mentioned that the benefit of having a “bible” acts as a technical and clinical reference source. A Designer’s comment was:

“There must be so much repetition and reinventing the wheel. ..., it gives you the basis on which to start and then you take it forward If the guidance was used in that way – and I don't believe it is – then it would have real big time value and you wouldn't need to go anywhere else for some of the technical stuff.”

This comment not only underwrites the benefits of having a Baseline from which to work, but also brings into focus the benefit of S&G obviating the need for repetition not only of underlying architectural and clinical research, but also in design processes.

In addition to having a baseline or minimum standard, the use of S&G as a reference source is highly valued. In certain instances these two qualities could be interchangeable. The other characteristics are far less highly rated.

All the interviewees are aware of, and nearly all are hands-on users of the S&G, which reflects the reason they were selected for interview, rather than that this necessarily reflects a benefit. However, it is certainly an advantage that all members of a team of organisations know that they are working to generally accepted standards. Most of the positive responses fall into the use of S&G for benchmarking/standard setting and DH endorsement/compliance fields. An exception occurred where a member of the Contractor group had worked as an Independent Assessor on a scheme where the Designers had innovated in their use of building materials resulting in creating an unusable space. The innovation answered what was considered to be an important benefit for patients (a view of the outside world) by incorporating a south-facing glass wall rather than attenuating solar gain, which made the space unusable for its original planned purpose – chemotherapy for cancer patients who particularly need to be cool.

Alongside the provision of S&G there is a need for recognition that their content is accepted and attracts confidence. The interviewees generally felt that a benefit of the S&G was their general

acceptance throughout the healthcare construction sector. This implies that the effects of the S&G are felt throughout the procurement and construction processes, and should therefore result in healthcare accommodation conforming to DH standards and be fit-for-purpose.

6.5.10 Confidence for and with the client

The response that the DH S&G provide confidence with and for the client follows directly from the need to have minimum or baseline standards identified, but takes it further in that users of the DH S&G need to demonstrate that they know what they are talking about, and the reasons for their decisions as described in a survey response:

“We use the standards ourselves and compliance [with the HBNs/HTMs] provides confidence to stakeholders”.

The Contractor group members use the DH S&G for rather different purposes than the other stakeholder categories. They use ADB for project management, and look to the S&G for evidence, and as a baseline from which to work (Kilvington 2009). An advantage cited is that the S&G are generally accepted throughout the healthcare construction sector. These findings are generally supported by a Contractor interviewee, who explained that ADB and its data provide him with:

“a management tool giving you the potential for procurement stages, identifying high cost or over budget items, and if from the Board or Trust perspective, potentially you could use to manage the costs to the builder, variations etc. so at the beginning of the project you could work out what your objectives are, what you want to achieve”.

Confidence for the client is also provided through the knowledge that common standards apply across the whole industry sector giving a measure of comfort that all projects, however large or small, attract the same requirements.

6.5.11 Ensures legislative safety requirements met

One of the ways in which consultants and consortia can prove their worth to their clients is to be able to demonstrate their knowledge and application of standards. This applies particularly to Fire Safety and DDA requirements, the two mandatory sets of standards. The requirements for achieving conformance with both of these are included and therefore provide users with confidence. Although not enacted, the HSE requirements are also important, especially in the healthcare environment. They are not always consistently applied because they sometimes conflict with DH S&G.

6.6 Negative effects (dis-benefits) of applying DH S&G.

The negative effects or dis-benefits (Table 6-16) of applying DH S&G fall into two categories: those relating to perceived over-specification raising the cost of building, and those related to the effects on ways of working. Table 6-17 displays the totals for the two sets of qualitative and quantitative data for ease of comparison.

Table 6-16 Dis-benefits of applying S&G

Interviews (Average scores for each stakeholder group)					
	Designers (4)	Service Users (3)	Estates/ FM (2)	Contractors (4)	DH/ NHS (2)
Stifles innovation	1.0	1.0			
Concerns re regulation		1.0		0.8	
Must apply with care (spirit of status)	0.8	0.7		1.0	0.5
Other standards are better	0.5	1.0			
Status unclear	0.3	0.3	0.5	0.3	0.5
Cost of design/application		0.3	1.0	0.3	0.5
Unachievable	0.3			0.3	1.5
Areas too big/over specified	0.8	0.7		0.5	
Clinical content lacking	0.3	0.3		0.3	
Survey results					
	Designers (19)	Service Users (14)	Estates/ FM (6)	Contractors (9)	DH/NHS (5)
Too costly to implement		0.1	0.2	0.1	0.2
Stifles innovation/flexibility	0.1	0.1	0.2	0.1	
May impede new ways of working		0.1	0.2		
Blunt competitive edge	0.1	0.1			
Can perpetuate outdated design	0.1				
Hard to track changes	0.1				
Adds costs	0.1				

Table 6-17: Comparison of Interviewee and Survey results from the Dis-beneficial Effects

Interview responses	Total number of responses	Survey responses	Total number of responses
Areas too big/over specified	7	Too costly to implement (specifications)	4
Unachievable	4		
Stifles innovation	7	Stifles innovation/flexibility	5
		May impede new ways of working	2
		Can perpetuate outdated design	1
Cost of design/application	5	Adds costs (processes/effects)	1
		Hard to track changes	1
		Blunt competitive edge	2
Status unclear	5		
Clinical content lacking	3		
Concerns re regulation	10		
Must apply with care (spirit of status)	10		
Other standards are better	5		

As with the Benefits, it is possible to match some of the Dis-benefits between the interviewees and the survey responses. The results have been paired where a direct comparison can be

made, and grouped where relevant. The top two scores for the survey are mirrored in the interviewees' responses. Discussion of the negative effects is presented in the order in which they appear in Table 6-16.

6.6.1 Stifles innovation/flexibility

Stifling innovation may be regarded as a “cost” in that new ways of working and innovative solutions can reduce cost with regard to production processes (e.g. off-site construction) and also to the end-product itself. However, there were several instances given during the interviews where attempts at innovation had been either dropped because of cost, or because it was necessary to fight the DH Gateway Review process during a project to introduce anything out of the ordinary, which involved additional Designer-based costs in defending the innovation. This latter point aligns with the high score for concerns over the regulatory process.

The DH provides some overarching principles, such as innovation, flexibility of use and modular construction. The advent of the private sector into the procurement and management of healthcare estates has prompted the DH to regard the need for greater efficiency in the use of the estate (Edwards 2013). This has led to a push for flexibility to be incorporated into designs for healthcare accommodation. One DH/NHS interviewee stressed this:

“a heavy emphasis on the desirability of flexibility/re-use of space. It is preferable to provide standard-sized rooms even though these might be bigger than essential, if used for a particular specialist purpose that might change in future”

or for differing clinical uses requiring different equipment or layouts throughout the course of a day or week (i.e. timetabling). The introduction of modular designs enables such flexibility to be built in, but may result in larger buildings, and therefore a view must be developed regarding the possible pay-back or return on investment of such developments.

Three interviewees felt that innovation was frowned upon by the DH, and who had, over many years, had battles to get schemes or solutions accepted because they did not completely conform to the guidance to the letter, e.g. the cruciform 4 bed-bay layout described in Figure 6-3.

The Service User said:

“This is the cruciform [4-bedded bay], which is the same size [as the HBN] but they had a problem because the bed centres are not 3.6m as required by the DH” ... “I have had some problems getting the DH approval ... There were some issues because they were unusual.”

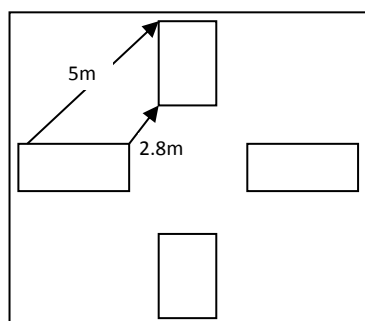


Figure 6-3: 4-bed bay showing non-conformant bed centres

This new layout was finally passed by the Gateway Review Panel, but not without “robust” discussion. The interviewee pointed out that its advantage is a lot of space in the corners of the room, which allows for specialist equipment that might be needed for a patient, without it impeding access to the bed as would be the case with a traditional layout. This relatively revolutionary layout is not described anywhere in the guidance.

There have been discussions about the application of module sizes: should this be 5, 10, and 15 sq. m. or 4, 8, 12, and 16 sq.m.? This was left open, but the principle of flexibility is retained. Designers may like to be able to decide on the module size they use, but as shown in the data analysis, appear to feel that HBNs, HTMs and ADB tend to stifle innovation and prevent the introduction of flexibility.

There are some important considerations to take into account. A member of the Contractor group sounded a note of caution in the development of S&G as best practice and being able to include innovative elements:

“There needs to be a careful balance between innovation and practicality because operational matters would affect [them].”

“[we] have had to have two different grids – the 4 bed bays have an 8.4 grid rather than the 7.5 grid elsewhere. Otherwise you would have had columns everywhere. [We] have a

7.5 grid in the majority of areas. A ward environment will have a mixture of 7.5 and 8.4.

The HBN recommendation – you end up with columns everywhere.”

Another Service User group member expressed reservations regarding modular planning whilst still recognising the advantages it could bring:

“We have struggled with this. If we had had to hold to a grid as well, we would have really struggled.”

The same interviewee explained that they have deliberately provided for future expansion/contraction of services by providing flexibilities within the building, for instance:

“.....about orthopaedics. Laminar flow has been fitted to 66% of theatres. 100% have got the required engineering services so it can be moved between theatres if required.”

6.6.2 Concerns re Regulation

Regulation of the healthcare estate is a process that attracts quite a negative reaction from several of the interviewees. Section 2.11.3 traces the provision and different types of regulation applied to the NHS estate and Section 3.2.2 describes the present Government’s need for regulation. Comments from interviewees demonstrate a degree of frustration and impatience with the processes used as well as those currently applying regulation. According to an NHS Estates Director, the Gateway process requires that:

“You must comply with all of the guidance”. But you can’t. It’s easy to sit there and say ‘you have got to comply with whatever’ – I know, but I can’t. So how do we make that better? Firstly the reviews should be done by people who have credibility.”

Engineering seems to pose particular difficulties as an NHS Project Manager explained:

“Why is it that in healthcare we spend roughly 40 – 50% of our project budget on engineering? Why? Why do we have to have all of that redundancy, all of that, which bluntly, is hardly ever used?”

From the interviewees, it is clear there is concern that CQC are not considered necessarily to be the right people to assess the healthcare estate; there is also a lack of clarity about how assessment would be performed and who by and what would be used as a benchmark? The CQC was originally only responsible for the Mental Health Trusts, which are now, with the extension of the CQC’s remit, included with all other NHS and private sector premises. Five interviewees expressed concerns:

NHS, Estates Director: “that’s the huge concern we’ve got at the moment, how are they applying things...”;

NHS, Project Director: “...you have got the CQC who are now regulating – and I haven’t yet found anywhere to tell me what they are regulating against”;

Private Sector Project Manager: “I would like to think the CQC would take that information on already as it stood, but would interrogate a little further, but not be too prescriptive”;

Private Sector Architect: “They are not your well informed small group of people – how do they know what they are looking at? That worries me ...”, and

NHS, Project Director: “We don’t want them on buildings – that is not their forte”.

A sixth view was that whoever regulates the estate should be looking at patient outcomes rather than the physical environment, and the interviewee went on to say:

“If you were to do that, the consequence would be – take this hospital as an example – by any measure we are up there in the top – I am not going to argue the top two or top one. This hospital without question in terms of outcomes is one of the best around. But, if you go and look, a significant proportion of our estate would be shut down.”

Regulation of the estate is clearly seen as a double-edged sword, particularly when capital for investment is in short supply, and standards are unrealistically high, for example:

“I can’t do many of the things that we want to do for patient safety in our existing estate; single sex compliance. We now get fined for non-compliance of single sex accommodation. We have not got the money.”

The survey asked respondents whether DH endorsement is an important factor for users of the S&G (Figure 6-4). Despite criticisms levelled at the content by some respondents to the survey, they overwhelmingly indicate that they choose to apply the S&G because they regard the DH endorsement by the DH as important. This reliance on the S&G indicates that it is regarded as the standard against which regulation is undertaken.

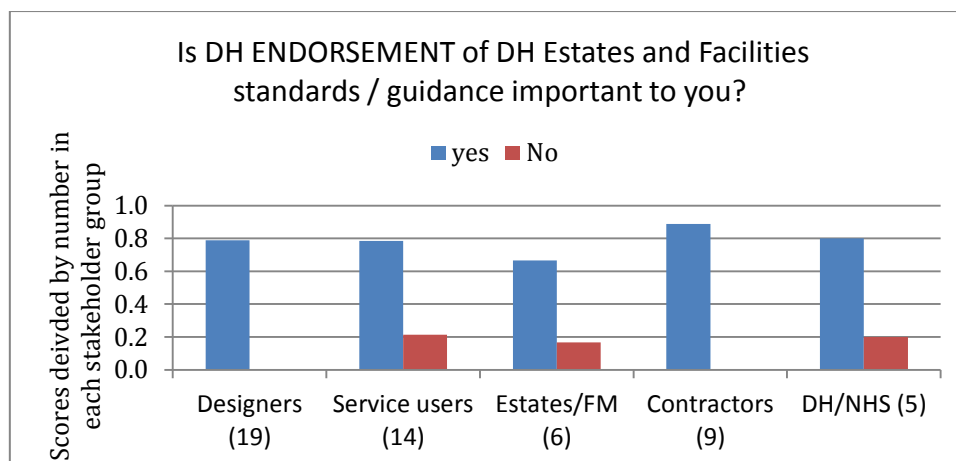


Figure 6-4: Is DH endorsement important? Survey responses

The few negative responses regarding DH endorsement were qualified by comments such as:

“Why would DH need to endorse its own guidance? It is either guidance or [it is] not.”

or were from respondents whose background and experience is clinical, and therefore their reliance on DH endorsement may not be so pressing. This appears to indicate an assumption that the DH provides S&G and formal endorsement is unnecessary.

6.6.3 Must apply with care (spirit of status)

The need to apply S&G with care, in “the spirit of its status”, implies that it is necessary to take a pragmatic approach to applying S&G, adhering to those standards that are safety oriented or required by law, and negotiating a path through others that are likely to involve high cost for comparatively little return.

The DH S&G are usually considered to represent Minimum Standards (Section 6.5.9), and although the DH state that they wish to promote innovative solutions, there is a perception amongst the interviewees and survey respondents that any deviation from the S&G causes problems, may not be accepted through the Gateway Review process or be the subject of criticism by the CQC. In the opinion of one of the interviewees, one way to address this negative reaction is to pay lip service to the standards, even if there is a slight deviation. Although this appears to be a rather cynical view, it came from members of the Services Users and DH/NHS groups who both have proven track records of completing healthcare construction projects, and who clearly know their way around the DH S&G sufficiently well to know what they must do to achieve conformity and get through the Gateway Review process.

The only group amongst the interviewees who did not mention this need for careful application of the DH S&G was the FM/Estates group. This is likely to reflect their tendency to use the S&G

as a “bible” to ensure the physical estate they are responsible for conforms to the requirements of the S&G, rather than applying the S&G in the briefing and design processes.

The survey respondents did not pick up on this potential dis-benefit, which may have occurred during the interviews because there was opportunity to explore such issues in depth.

6.6.4 Other standards are better

Of concern to the DH must be the fact that other standards are considered to be better than the DH S&G. Although this is not raised by all the groups, it is at the design/briefing stages that this point has arisen, which shows that the Service Users and Designers are aware of and use other standards and guidance. There were many other standards identified, many of which are complementary to the DH S&G such as NBS, Building Regulations (Communities and Local Government 2014), and CIBSE. However, there were others such as guidance from overseas and corroborated by one interviewee saying that the European standards are of higher quality than DH ones. This negative view is related to the cost of design and application (Section 6.6.6) and that specified areas are unachievable, too big, and over-specified (Sections 6.6.7 and 6.6.8).

6.6.5 Status unclear

Section 5.3.5 describes the Status of S&G. In terms of characteristics of the S&G, Status is important as it affects the reputation and standing of the S&G, and relates directly to its general use and acceptance by all the stakeholder categories.

The status of the DH S&G impacts on many aspects of the estate: the lack of clarity causes confusion, whilst it also allows a degree of flexibility. This is a paradox that is advantageous in differing ways to the different stakeholder categories. The NHS Estates Managers tend to use them as mandatory in spite of their status of Best Practice and representation of baseline or minimum standards. The confusion is further underwritten because the CQC do not define what standards they are using to assess healthcare accommodation. Some enlightened architects and engineers use this to their advantage and take the “baseline” and develop designs that conform to the minimum set out, challenging and adding further innovative ideas. However, these can fall foul of the DH Gateway review process.

One interviewee made the point that the good reputation of the S&G is essential and that if they were too stringent or inflexible this would be severely compromised. Standards originating from organisations with the highest influence and reputation will naturally carry a high degree

of influence. However, this may be undermined through unachievability, inappropriateness or over-specification (Table 6-17).

A common standard across the whole health service could reasonably be expected, especially as the Government would wish to avoid the periodic media references to a postcode lottery for healthcare. Although this usually refers to healthcare services rather than their accommodation, fitness-for-purpose is now enshrined in the NHS Constitution, with the consequence that agreed standards must be applied (Department of Health 2012a). The provenance of the S&G and their DH origin and endorsement helps to give this comfort as it provides a safety net for users despite the lack of mandatory classification and the negative views of some users relating to consistency, completeness and currency.

6.6.6 Cost of design/application

The survey group's perception that the DH S&G are often too costly to implement is confirmed by several of the interviewees. This is particularly evident in that there is also criticism that the DH-defined room sizes are considered too large, even by some staff in the DH itself. In the early part of the 2000s, there had been an initiative from central Government known as "Consumerism", which put the patient's needs and comfort at the centre of the service. This included accommodation, which resulted in a proposed increase in the footprint of hospital accommodation. The cost of implementation was considered too great and the Consumerism agenda was abandoned although the aspiration to improve patient outcomes remains a top priority shaping not only design, but also policies and working practices in the healthcare environment (Bromley 2012). One interviewee reckoned that a cost per square metre for healthcare buildings would be approximately £3,000 for a Regional Hospital. A comparison between UK and German costs for internal spaces for hospital buildings shows a high figure for Regional hospitals in the UK as shown in Table 6-18. Costs are shown in US\$ for ease of comparison.

Table 6-18: Comparative for internal building costs. Source: Turner and Townsend 2012

UK	US\$/sq.m.	Germany	US\$/sq.m.
Day centre	2,546	Day centre	1,960
Regional hospital	4,180	Regional hospital	3,130
General hospital	2,881	General hospital	3,410

6.6.7 Unachievable

Following from the cost of applying the DH S&G, interviewees in the Designers and Contractors groups felt that the standards, in certain cases, were unachievable (Table 6-17). Views were expressed by one of the DH/NHS group in particular regarding the high level of engineering services required. High cost is one aspect of achievability, but there are others such as use of the S&G for refurbishment projects where spaces requiring refitting or alteration to accommodate new clinical services may have been designed for very different purposes. Some of the standards required for certain aspects of clinical environments such as levels of acoustic protection have had to be amended as the original, albeit highly desirable standard, was very high and for practical and cost purposes was considered unachievable.

When a standard is considered unachievable there is a risk of users not respecting it and it therefore not being generally accepted as described in Section 6.5.6, or that it reflects badly on other standards allied to it. Several of the interviewees highlighted this point.

6.6.8 Areas too big/over-specified

The high cost of implementing certain of the S&G is underwritten by the responses to the survey asking whether they are considered suitable for refurbishment projects. Room sizes and other non-spatial specifications are considered to be too high, e.g. acoustic protection. One interviewee in particular criticised the cost of implementing such high standards, and felt that imposition of centrally developed standards (e.g. mixed-sex accommodation) was likely to cost the Trust Board a considerable financial fine for non-compliance (Section 6.6.2), but they had insufficient capital to enable work to be undertaken. It was pointed out, that although conformity is highly desirable, there is a trade-off between high waiting lists, costs of refurbishment of 1960s and 1970s accommodation, and the ability to attract sufficient capital funding to replace accommodation that is in constant use. The lack of connection between capital (PFI etc.) and revenue through the funding mechanism of the Payment by Results (PbR) makes it difficult for Trusts to budget for such work.

The figure for a day centre is also higher in the UK, but that for a general hospital is higher in Germany. Some of the difference may be explained by differing models of service provision, but points to a generally higher cost in the UK.

It is commonly acknowledged in the data that recommended room areas are over-generous. The survey asked for an indication of the typical elements of S&G that required derogation.

Figure 6-5 provides the list, demonstrating that these are considered too generous, over-provided or simply do not meet the project requirements.

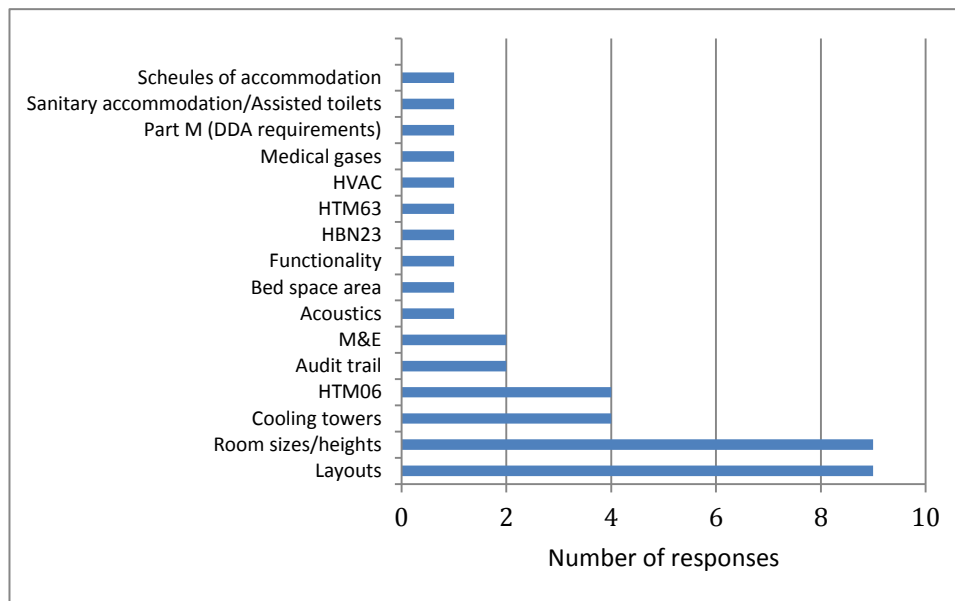


Figure 6-5: Typical derogations identified by respondents to the survey

The high score for room sizes and heights and the (room layouts) is a clear indication that the S&G are considered over-specified. These elements will not only carry a cost in terms of building footprint, but if there is a need for derogation away from the sizes recommended in the S&G, the derogation process will also carry a cost in terms of time and resource spent achieving a solution, agreed by DH and then implemented in the design.

6.6.9 Clinical content lacking

The dis-benefits indicate that the content quality is judged by some to be deteriorating and even the DH/NHS agrees that the S&G are out of date. This reflects an acknowledgement that there is a need to regularly review and update the existing S&G, agreed as a pressing need by all the other groups. It is also significant that the DH/NHS group acknowledges the view that the S&G are sometimes Unachievable; it has long been recognised that this is a problem with the expert teams working on the HBNs having high expectations and attempting to wield their influence to improve the standards by increasing the specifications.

In the survey results, the highest scoring negative characteristics of not being current, being unclear, woolly or vague, incomplete and inconsistent, may indicate the differing needs of the stakeholders and the benefit of providing different levels of detail for different purposes during the course of a project.

6.6.10 May impede new ways of working

This finding relates to the role of ADB in the processes of planning, briefing and design. This response is also allied to stifling innovation (Section 6.6.1) and perpetuation of outdated design (Section 6.6.12). Software packages that assist with the management of information and CAD are ever-developing, making it incumbent on practitioners in any industry sector to keep abreast of the latest technologies and practices. ADB interfaces with a number of proprietary software systems which means that its software must be kept up-to-date alongside their development, which the DH funds. The data within ADB must also be kept up-to-date and if users do not maintain their licences they do not have access to the new data which may result in the use of old data and technologies. A further difficulty arises when users are not familiar enough with the ADB software to ensure it is used correctly, or to best effect.

The Government's requirement that all public sector building contracts over £5 million must use BIM has put pressure on the healthcare sector to update their use of CAD to incorporate BIM technology. Although this is available through ADB, not all designers have upgraded to the external software providing BIM facilities.

6.6.11 Blunt competitive edge

This aspect of the S&G was not raised by the interviewees. The survey responses identifying that S&G may blunt the competitive edge is interesting in that the two responses are made from different perspectives. The Designers are concerned to retain their competitive edge against rival designer organisations, whereas the Service Users wish to ensure their suppliers are competitive in providing solutions and services, thus achieving the best value.

The argument that rigid use of the DH S&G reduces their ability to compete is dismissed by the DH which argues this is a fallacious argument and responds by saying that, without the S&G documents and data, each organisation would have to develop their own library of healthcare related documents and exemplar room layouts, which would surely cost them more. Very few private sector organisations argue with the need for the DH S&G. It is difficult to quantify whether application of the DH S&G reduces project costs overall, but it is certain that they are used by all organisations involved in providing healthcare accommodation at some stage of the process and this would not be the case unless they were considered worthwhile and provide value for money.

6.6.12 Can perpetuate outdated design

This effect can be viewed as very similar to the stifling of innovation but relates to keeping up-to-date with progress rather than innovating. Clinical practice and new technologies are continually evolving. Unless the DH S&G are regularly updated, the briefers and designers using them may not be either aware or have access to the requirements of such changes. Their brief or design may be overtaken during the course of the construction project because of an over-reliance on the S&G (Khan 2011). The construction industry as a whole encompasses many professional and commercial organisations. This may make it hard to access and judge the potential on innovations or new ways of working (Oster and Quigley 1977). The PFI process results in more co-ordinated working than was the case in the 1970s, so it is likely that this has improved, and the use of BIM is likely to draw construction teams together.

The Service User and Estates/FM group interviewees were keen to see new ideas developed as a means of improving efficiency and cost effectiveness. The incorporation of new technologies and designs is therefore seen as important in ensuring the DH S&G do not include old and outdated content.

The concept that the DH S&G may impede new ways of working, although not scoring highly, is notable in that the Estates/FM group, and to a lesser extent the Service Users, perceive the S&G overall as beneficial but at the same time feel they are restrictive which aligns with the views expressed by Gorur (2013). This may be because the very importance and worth of S&G is at once in their “authority” and “policy compliance” and they are therefore likely to restrict methods of solving problems. As Gorur goes on to say, the process of using standards

“is feared by some on the grounds that it promotes mechanistic behaviour, devalues tacit and professional knowledge ... voiding individuality, creativity, intuition and emotion”
(Gorur 2013).

6.6.13 Hard to track changes

This comment relates to the use of ADB software, rather than the S&G, and is also allied to the use of technology described in Section 6.6.10.

6.6.14 Adds costs

This dis-benefit refers to the overall project cost. The over-generous provision of space, commented upon above is evidently a factor and links to the overall contract cost. At the level

of hospital projects, the DH standards for engineering can also add significantly to costs. An interviewee Service User said:

“We have got the most over-engineered hospitals in the world. 30 – 40% of my money is hidden in the wall. We go ... overkill with the HTM guidance.”

Of the Designers group the four engineers were unanimous that the DH S&G are provided at the right level, but three of them suggested that they are too prescriptive, implying a certain amount of sympathy with the Service Users. It could be assumed that engineers are risk-averse particularly in respect of patient safety, and the alleged over-provision of engineering services is a matter for negotiation between the Service Users and Designers. The conclusion remains that there are certain elements of the S&G that are considered unnecessarily onerous and therefore add cost.

6.7 Summary

Chapter 6 has taken a detailed look at the benefits and effects of the DH S&G and analysed the data collected from the interviewees and survey respondents. Analysis has shown how the users of the S&G regard them, and by identifying the benefits and dis-benefits it is possible to understand the resulting advantages and concerns that their application raises. The effects of the S&G are influenced by many factors, such as the overall classification and status, content, accessibility and applicability. The current general economic position has also had an effect through the funding mechanisms for capital development of the estate, and the S&G. Access to sufficient private sector capital over the past 15 – 20 years has been seen to vastly improve the quality of the estate as a whole. There are, however, “costs” in that private sector investors bring a different agenda to the health estate, requiring consideration of shareholders, return on investment, etc. Central funding from the DH for the S&G has been drastically cut over the past five years.

Users of the S&G are critical of the quality of the content, but overall the stakeholders find them beneficial. They set great store by the DH endorsement which outweighs any disadvantages. The principal application of the S&G is as a baseline or set of minimum standards. Analysis shows that perceptions of the S&G vary between the stakeholder categories, and also between the private and public sectors organisations. The planning, briefing and design processes all apply S&G but the processes are changing with the introduction of BIM; it is too early to evaluate the effects of the BIM process but it is being embraced by architects.

CHAPTER 7: DISCUSSION

7.1 Introduction

This research aimed to discover how the historical background and policy regarding the healthcare estate has impacted on the current DH S&G and to assess the current DH S&G and what the effects and benefits of the DH S&G are on the provision and management of the healthcare estate. This Chapter discusses the findings from the literature, primary data collection and secondary data under each of these broad headings, and analysis of the data highlights a number of issues.

The provision and management of the healthcare estate could be regarded as a rather amorphous challenge consisting of many inter-related yet discrete functions and processes such as planning, briefing, design, facilities management, construction and regulation. There are many factors affecting provision of healthcare services, of which the estate is one, but a vital one. The challenges affect all levels of administration and all stakeholder categories.

Chapters 5 and 6 identify and define the nature and important characteristics, and benefits and dis-benefits of the DH S&G, and their consequential effects on the healthcare environment respectively. The current DH S&G have been reviewed to discover how they are used (processes) and by whom (stakeholders), their characteristics, including scope and content, and how they benefit users and the healthcare environment (effects). In this context, “benefit” is identified not only as the advantage or disadvantage gained by applying a standard to achieve a requirement, which may include financial gain or loss, but also includes intangible benefits such as DH endorsement, commercial independence, and in negative terms e.g. over-specification, and reduction of competitive edge etc. The relevance of assessing the effects and benefits of the DH S&G on the healthcare estate was supported by a DH interviewee’s view:

“It is generally recognised within the DH that the Independent Sector Treatment Centres (ISTCs) have shown the NHS that the estate should perform better.”

This raises the question: “why do the S&G not explicitly promote a more efficient use of the healthcare estate”?

The primary data collected have provided a wide range of views from the contributing stakeholder categories and individuals. It has helped expose a more nuanced understanding of the benefits of S&G and the importance of some of their characteristics to each stakeholder category concerned with infrastructure provision, as well as the effects on its users. The benefits

and effects were mapped against the stakeholder groups to identify where there are gaps or shortcomings in the S&G. Assessing the positive and negative outcomes (satisfaction of needs or benefits) of the S&G, and how they are used, can highlight issues and risks requiring consideration during the lifetime of a construction project.

The focus of this research has been on the DH estates-related S&G contained in the HBNs and HTMs, and the ADB data, which is directly derived from the HBNs and HTMs. These three sources specifically define the requirements of clinical departments, and the rooms within them. Figure 7-1 draws together the themes used for analysing the relative importance of DH-related characteristics of the DH S&G and their benefits and dis-benefits. The blue sectors of the diagram indicate the means by which the S&G contribute towards the end results as identified in the responses to the survey, and the effects (red sector) that they are intended to achieve within the healthcare environment, extracted from the data collected during this research. The overall DH-related characteristics are shown in a separate box indicating their fundamental DH basis.

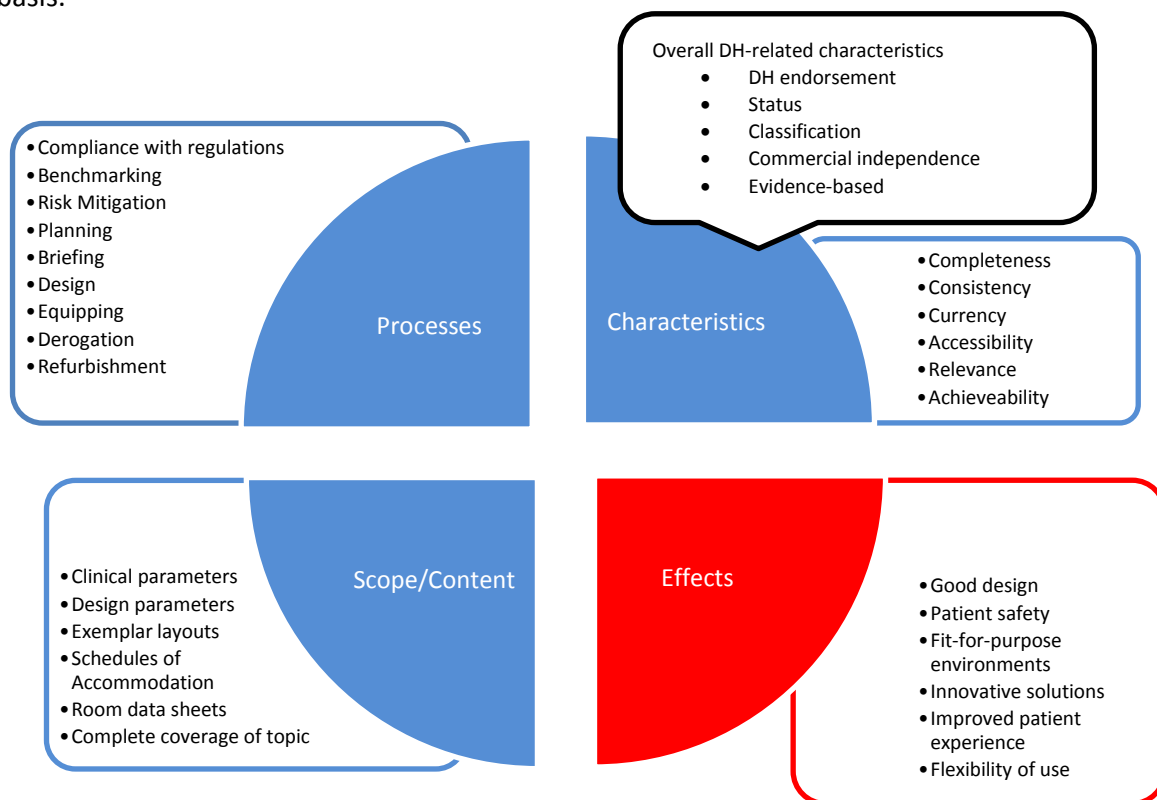


Figure 7-1: Diagram showing identified characteristics and effects of the DH S&G

Construction of healthcare infrastructure is a very lengthy process, and the S&G are required to apply against a backdrop of fast-changing political and organisational change. A means of establishing the smooth flow of information throughout a building project to be produced at the relevant time in the process would be of use to all involved in the provision and maintenance of clinical accommodation throughout the lifecycle of healthcare buildings. The construction industry is not noted for its efficiency and use of technology (Latham 1994; Latham 2001; Egan 1998; Fairclough 2002), and the qualitative and quantitative data gathered in this research further emphasise some of the need for effective S&G to help improve construction processes and healthcare outcomes.

7.2 History

The first objective of this research was to evaluate how the historical background and policy have contributed to the DH S&G. Sections 2.6 and 2.7 of the Literature Review describe the background to the healthcare estate and policy relating to it. It is clear that the history and policy have had a major effect on the estate since the foundation of the NHS and that there are many pressures and influences, and chief of those are the national political and economic agendas.

The need for capital investment to achieve a consistent level of quality of healthcare accommodation in England is evident. The lack of such investment is compounded by the mounting value of backlog maintenance, which serves to highlight the degree of repairs and improvements required, categorised as high risk, medium risk and low risk (Section 3.2.1).

Although they originated to implement a “preferred solution” system during the 1960s and 1970s, the DH S&G have evolved into being seen as a “bible” for anyone engaged in the provision or maintenance of healthcare environments. The DH has moved away from the policy of providing a preferred solution, but the use of the HBNs, HTMs and ADB continue, in effect establishing and promoting standards for, if not standardised, designs.

7.3 Policy

Objective 2 of this research was to determine how political drivers have affected the healthcare infrastructure. At the macro level, Government policy has had a major influence on the effect and effectiveness of the healthcare estate through policy development and implementation. The need for the DH to provide consistent, complete and, arguably most importantly, current

guidance is identified at high level. Although this seems obvious, the policy behind the provision of S&G is complex.

7.3.1 Capital investment and Estate-related Funding

Some concern was expressed by interviewees regarding the lack of investment in the DH S&G and also that the level of expertise in the DH and Estates/FM community was diminishing. The survey respondents echoed the concern regarding the lack of investment which some considered to have led to inconsistency, incompleteness and not being kept up-to-date. The survey also shows that accessibility can be problematic (Table 6-8) and that there appears to be a lack of certainty regarding the future of the S&G overall (Table 6-9). These factors all point to a lack of investment which has been going on for some time.

In 2005, many DH Arm's Length Bodies (ALBs) were closed in an effort to save money (Department of Health 2005b). This included the closure of NHS Estates and was seen as a severe dilution of estates-related expertise. NHS Executive regional offices were closed at around the same time, disbanding the regional estates-related teams, further diluting the provision of advice and guidance to capital project schemes. These cut-backs reinforced the need for specialist S&G for all the organisations involved in estates capital projects.

The economic downturn since 2007/8 and post-election reforms have resulted in further DH cutbacks (Department of Health 2010a). This includes staff reductions in the DH, with the consequence that the DH appear to be losing expertise, as has been identified by the Estates/FM group (Table 6-9), who will be aware of and often directly affected by the organisational and policy changes within Government and the DH. It would be interesting to understand whether this translates into a diminution of this group's perceptions of the S&G; although this observation comes from one group only, both contributors mentioned it.

The DH faces a dilemma in that, as a Government department, it is not a commercial organisation, but needs to fund the production of any guidance and data it produces. A policy of "cost recovery" was adopted by selling the publications to non-NHS users during some periods in the past 20 years. At other times they were made available free of charge, and are again via the new www.gov.uk website. The DH recognises that the income from ADB maintains funding for the whole DH S&G programme. Although not a private sector "product", ADB is sold in the public and private sectors on the strength of its data, based on HBNs and HTMs, and its interface to current software packages. It is therefore operating as a commercial product. This results in a need to invest to ensure the S&G delivery mechanisms interface with up-to-date software, IT

and procurement processes. The majority of the income goes to support the generation of the content of HBNs and HTMs.

There is pressure to treat the S&G as a going commercial concern. There has been almost constant change in format and dissemination of the S&G over the past eight years, which has never seen completion of any one element of development work. Given that the S&G are sold commercially in the form of ADB, the lack of consideration given to communicating effectively with users is disruptive and disturbing. This is exemplified by the suddenness of the announced review in 2010, and the closure of SpaceforHealth; on neither occasion was any effort made to provide users with more than a very basic statement as to the future of their source of S&G (Section 6.3.3).

The cost of production and maintenance of the S&G is known to be high. The approximate total cost of producing an HBN is between £50,000 – £75,000 per annum for three years, and a further £5,000 - £10,000 further extending this information into the ADB text and graphical formats. The cost of employing experts to consult on and validate the guidance forms a major part of the costs to the DH. One interviewee put a cost of producing an HBN to his own organisation at £12,000; however, this figure did not include the cost of external experts, validation or the production of the ADB elements. The assurance of availability, high quality content and continuity of format is vital if users are to be encouraged to purchase expensive licences or subscriptions.

7.3.2 PFI

There is a considerable body of literature describing the PFI process, its benefits and disadvantages (Gaffney and Pollock 1999; Pollock and Vickers 2002; Pollock et al 2002a; Broadbent et al 2003; Hellowell and Pollock 2006; Paton 2008; Beck 2010; Rhamani 2011; Evans 2008). The NHS Estates Directors interviewed unanimously questioned the overall principle of using the PFI process to achieve an economic building solution; as one said:

“The reality is that they often don’t save you as much as the business plans would suggest.”

but that the up side was:

“there is absolutely no doubt that, across the nation, the quality of the physical [healthcare estate] has improved markedly. No question about that.”

One of the Contractor interviewee's criticisms of the project planning process is the lack of time taken to develop project plans; up-front planning time tends to be squeezed by the PFI and PC21+ processes that require provision of relatively detailed drawings very early on in the project. By providing a set of exemplar room layouts the S&G enable users to produce the 10% of rooms in a project required to be worked up to a level of detail at the OBC stage of the PFI contract. Without the S&G this would prove a very onerous and costly task, particularly for relatively inexperienced contributors to the healthcare construction sector. An Estates Director asserted that PFI and associated Gateway processes are over-demanding and costly:

"if ever here I suggest that one of our schemes will be a PFI project, everybody just laughs and just say "you have got to be joking. No way will we ever go through that ever again."

7.3.3 The Independent Healthcare providers

The DH interviewee's opinion that ISTCs would no longer be needed in 2 -3 years' time aligns with the need for rationalisation of capacity, and with the policy that Any Willing Provider (AWP) can provide healthcare services, some hospital department closures are more than likely. All the interviewees expressed the opinion that there is a need for rationalisation of healthcare services across the country but this could result in closure of some facilities, e.g. specialist cardiac services being reduced to three major centres in England. This policy has been widely debated in the media (BBC 2012a). The overall effect would potentially reduce the size of some hospitals, and could lead to patients having to travel longer distances to receive specialist treatment. However, proposed Government services reconfiguration together with the concept of a healthcare operating as a "purchaser/provider market" presupposes that healthcare can be treated as a commodity or a "widget" (Friedman 1991), and that competition in a healthcare market results in improvement to services (Maynard 1994). Evans' survey evidences that:

"If there were a market in healthcare, Government would need to step in to fill in the gaps because some people would not get adequate provision. They believe almost as strongly, however, that the state 'cannot do it all' and that the private sector and charities need to supplement state health provision" (Evans 2008).

The interviewees from the DH felt that the Independent Sector had shown up the inefficiencies of the management of the NHS estate. Hospital accommodation is hugely expensive to provide and maintain, and it is therefore a major concern to central Government to ensure adequate

capacity is provided, that over-provision is kept to an absolute minimum, and that it is effectively and efficiently used and managed.

7.3.4 Standards for Accommodation

Policy has dictated that certain aspects of healthcare accommodation are governed by mandatory standards, e.g. fire and DDA requirements, and others through financial pressure, e.g. a penalty is imposed on Trust Boards where mixed-sex accommodation still exists (Section 6.6.8). Where there are shortcomings in the estate they may be included in the backlog maintenance figures submitted to the DH by NHS Trusts and FTs. These failures to meet current S&G are usually the result of use of old buildings or buildings constructed to old standards, and may occur anywhere across the whole country. There is a valid argument that the DH standards must be achievable, but should also take account of the age of the estate. It could be argued that the oldest buildings should have been replaced, but until financial constraints allow, it is not realistic to expect 100% compliance with all standards in the pre-NHS and the early NHS buildings. With backlog maintenance recently valued at approximately £4 billion in England (Edwards 2013), this will take time to be addressed. The short-lived policy that, by 2010, 40% of NHS buildings should be no more than 15 years old (Section 3.4.2). This policy was issued in an attempt to address both the need to improve accommodation, but probably also to try to substantially reduce this very high level of backlog maintenance.

The policy to provide a minimum of 50% of single bedrooms in new build projects was introduced in 2004 on the grounds of safety, infection control and patient privacy and dignity. Coming relatively soon after the 2000 abandoned policy to update the estates on cost grounds, this policy could appear not to have taken cognisance of funding difficulties. However, the single bedroom policy was limited to new builds only, which introduced the possibility of phased implementation of changes that affect accommodation built to old standards. Phiri's 2004 study into the effects and benefits of this policy has shown that there are many factors to consider regarding the proportion of single rooms to multi-bed bays. This is borne out by interviewees who described one hospital that has opted for 100% single rooms (Pembury) and for 97% at the new children's hospital in Cambridge, 57% in Peterborough and 75% in North Bristol. The policy can therefore be seen to be taking effect, though it will naturally take some time for older accommodation to be converted.

The literature review highlighted the pivotal importance of The Darzi report (2008) and ensuing NHS Constitution (2009), which provided strategic guidance affecting the estate dramatically by

recommending the move of as much care as possible nearer to the patient, i.e. away from the expensive acute setting. The DH published S&G governing provision of primary care premises, but originally this was not fully included in the HBN series. This anomaly was discussed by a DH/NHS interviewee at length. Rather than providing specific primary care guidance, the DH appeared to have adapted the S&G for the acute setting level which is not necessarily suitable for either community or primary care accommodation (e.g. engineering services are much reduced).

7.3.5 Regulation

Findings from the interviewees and the survey demonstrate some unease with the processes and mechanisms used to regulate the estate. With the changes to provision for regulation, all healthcare providers are now required to register with the CQC. The CQC hold the ultimate power to close a healthcare organisation down if it does not provide a safe and efficient service, but this is only likely to be used in extreme circumstances. What is less clear is whether their regulation of the estate is sufficiently informed and what standards they are using as is discussed in Section 6.6.2. If the DH S&G are not used for regulation, it calls into question what is used, how do healthcare provider organisations know what is used, and why the DH do not operate a more co-ordinated and open system for monitoring healthcare accommodation?

A capital planner interviewed expressed considerable exasperation regarding the regulations applied where capital funding mechanisms for NHS organisations do not allow for any capital to be built up. It is thus impossible to undertake any major refurbishment or development, particularly of the older building types such as Best-Buy, Nucleus or Harness, to eliminate non-conformant accommodation. For large hospitals built in the 1960s/1970s, this is a major problem and the only possible solution is to attempt to attract capital investment from the private sector.

7.3.6 Dissemination and take-up of the S&G

Figure 5-16 demonstrates that almost 100% of those surveyed are aware of and use the DH S&G. This is in spite of their criticisms of the content and some of the characteristics of the S&G. Some of the criticism derives from users who download the ADB data into other formats, and continue to use it even though their subscription or licence has expired. This has resulted in use of out-of-date data which has caused many problems and damaged their reputation as was discussed at a specially convened DH/COI Conference in 2009 (DH Unpublished).

Section 5.2.2 explored the process of producing the content of the DH S&G which is linked to the discussion about the need for capital investment described in Section 7.3.1. The high production cost is largely attributable to the data generation and maintenance processes. Arguments have been made by OPSI (Section 5.2.2) that guidance should be provided free of charge for public services such as healthcare, and particularly when they are funded by public money. Policy regarding provision of the DH S&G has been changed a number of times over the past 15 years, ranging from free access for everyone, to a mix of private sector purchasing and public sector retaining free access. Whilst they were published only in hard copy this policy was more easily enforceable; since electronic versions became available accessibility was less easily controlled until electronic mechanisms restricting availability were established. The latest position is that the HBNs and HTMs are available freely to all, whilst ADB licences are sold, and discounted to the NHS.

7.3.7 DH and Inter-Government links

The interviewees and the survey respondents were unenthusiastic about the links that have been developed between the DH S&G and other sets of relevant guidance (Table 6.7). There are important links with other relevant standards such as HSE, NBS, CIBSE and IEE, usually provided in the DH S&G in the form of a hyperlink (electronic versions) or code quoted (hard copy versions). However, the integration of estates-related DH S&G with other DH S&G such as those developed by NICE, has not been achieved, let alone other Government departments or external organisations. For instance, there is a clear link between the DH and the Ministry of Defence's need for clinical and rehabilitation facilities, but despite several attempts at joint-initiatives, this has gone no further. Other important links are those with the Office of Government Commerce (OGC). The OGC has published guidance on project procurement, specification writing and other commercial aspects of the construction industry. Ease of access to relevant information from inside Government and professional/trade organisations such as NBS is important so that briefers and designers are able to keep in touch with latest requirements and revisions of relevant standards and guidance.

7.4 Current DH S&G

The third objective is to assess the current S&G. This assessment has highlighted that there is an ongoing onus on the DH to provide S&G for ever-developing clinical practices in new formats suitable for use with the latest software (e.g. BIM, COBie). To assist with this, consideration should be given to addressing some underlying questions, which include the following:

- What are the purposes of standards?
- How do users use standards?
- When are they applied and revised in the building lifecycle?
- What status do standards have?
- Who sets or generates associated standards and how?
- What do standards apply to?

If the DH wish to fulfil the objective of providing standards and guidance to assist in the briefing and design of healthcare buildings thereby improving patient outcomes, the answers to these questions are important, and require consideration alongside the processes for which the stakeholders use them (Section 6.4). Should this prompt the DH to review and perhaps revise their purpose? For instance, if they are to be used as a benchmark for regulation, this could significantly affect their scope and content, and their application by other stakeholder groups.

7.4.1 Aim of the DH S&G

The overarching objective of the DH is to improve patient outcomes, and the implementation of the S&G has a direct bearing on the standard of accommodation in which patients are treated. The stated aim of the estates-related S&G is to assist with the briefing and design of healthcare accommodation to ensure the safety and comfort of patients (Section 5.3.2), but they are used by a much wider audience and for many other purposes. The patients have not been included in the data collection for this research because they are not direct users of the DH S&G, although they could be regarded as the principal beneficiary.

7.4.2 Improving patient outcomes

Only one survey respondent made the connection between the S&G for accommodation and patient outcomes, and mentioned patient benefits as being a positive effect of the use of DH S&G. This respondent is an ex-nurse Service User and perhaps more aware of potential patient needs and benefits than many. This point is interesting in that it is the aim of DH for the S&G to assist with the briefing and design processes, which is in turn to provide fit-for-purpose accommodation for the delivery of healthcare services. That only one respondent identified the application of DH S&G as a potential benefit to the patient indicates a possible dislocation in thinking between many users of the DH S&G and the outputs and outcomes of their end products.

7.4.3 Users and uses

The S&G are used widely throughout the healthcare construction sector and could be described as “all things to all men”. The uses to which the DH S&G are put relate closely to the role of the user in the construction life-cycle and to the stage of the project to which the user is contributing. Table 7-1 aligns front-line users of the DH S&G with the factors of importance to them, enabling them to achieve their aims. Their views are often divergent, but nonetheless important if the DH wishes to achieve the “best fit” of its’ S&G to those who wish to implement them.

Table 7-1: Factors of importance to the main stakeholder categories

Government/DH/NHS	Policy implementation Value for Money (construction contracts) Value for Money (production of S&G) Standard setting Regulation Accountability Return on Investment Encouraging innovation
Designers	Value for Money (cost of S&G) Conformance to standards Up-to-date Consistency Completeness Good quality content Enabling innovation
Contractors	Value for Money (cost to contract value as supplier) Conformance to standards Up-to-date Consistency Completeness Good quality content
Estates/Facilities Managers	Value for Money (cost to contract value as client) Standard setting/regulation Conformity to standards Up-to-date Consistency Completeness Good quality content
Service Users	Value for Money (cost to contract value as client) Conformity to standards Up-to-date Consistency Completeness Good quality content
Patients and Staff	A safe environment Comfortable, clean Pleasant, non-threatening Easily navigated, accessible

7.5 Characteristics

There are many reasons why the characteristics of the S&G may be criticised. As they are the only S&G related to the provision of healthcare environments, they constitute a target which everyone likes to criticise. However, it is also clear that there is a perception by a number of interviewees and the survey group that the quality is deteriorating (Table 6-8 “Less useful than earlier documents”). Some disagreed with this, but not strongly.

7.5.1 Scope and content

The audience is demonstrably wider than that the DH originally targeted (briefers and designers) and therefore the S&G do not necessarily cover the breadth and depth of information some users require, e.g. equipping specialists who require exact dimensions such as weight, footprint, service requirements and costs. The earlier HBNs and HTMs included more detailed information than the later ones, which are sometimes criticised as being too “generic” as survey respondents point out:

“[They are] A bit generalist. No specific answers”

“Not enough detail in some”

“Recent documents woolly and vague”

However, the more detail included, the more revision and review is required, which leaves the DH with a dilemma. Should the S&G describe the accommodation in strategic terms or should it include more detail? This is illustrated by the decision to cease production in the late 2000s, of the Building Component HTMs (doors, windows, internal glazing etc.), only to require their update and reissue in 2013 in response to the need for definitive standards for safety in Mental Health healthcare accommodation.

One of the aims of the guidance is to encourage innovation, which encompasses consideration of and provision for new technologies and clinical practices. The survey responses highlighted this requirement, and mentioned that some of the S&G is inconsistent, out-of-date and not current (Table 6-8). If the S&G are too prescriptive there is less flexibility to enable innovative design, but Table 6-4 includes responses from the survey indicating that less prescriptive guidance is a dis-benefit and more detail would be welcomed.

7.5.2 Classification and Status

The invitation to identify benefits and dis-benefits of the S&G attracted a lot of comments relating to their characteristics. The comments varied slightly between the interviewees and the

survey respondents in that the interviewees were concerned with the classification and status of the S&G, whereas the survey group was more concerned that the S&G were of poor quality. This may reflect the management levels at which participants are working, ranging from Trust Directors to Technicians and across all the construction industry disciplines. However, the underlying message is one of heavy criticism which must be of concern to the DH. The lack of clarity regarding the classification and status of the S&G (Figures 5-6 and Table 5-5) also have a bearing on how the characteristics of the S&G are viewed, which adds to the sense of frustration and critical appraisal.

During the decade from 2004 the S&G has been variously referred to as “Best practice”, “Baseline standards”, “Minimum standards”, “Guidance” and “Guidelines”, all of which descriptors have slight but important differences. It is important for all the stakeholders to understand what a standard is and refers to as well as the effects of its application (Shaw 2004). The perceptions of users are often dependent on the roles and project stages they are engaged in and are affected by their understanding of these terms. As the current position is that there is no other alternative S&G for healthcare buildings in England, the S&G are often considered and applied as if mandatory (Section 5.3.6). In a study appraising policy instruments for effectiveness, Urge-Vorsatz et al (2007) conclude that regulatory instruments, as a general rule, are more efficient and cost-effective than any other type of instrument in the building sector. Over the years, the DH have avoided making this a more formal classification, which would have forced the DH as originator of the S&G towards a much more rigorous, and undoubtedly more costly, approach to their preparation, and ultimately require more stringent regulation.

The classification of DH S&G as Best Practice in Hansard is considered by many to be unhelpful. The survey results show most respondents would prefer mandatory S&G, very closely followed by Prioritised S&G (Table 5-5). Prioritised standards could also be aligned to all Government guidance which may be applied as “mandatory”, “advisory” or “voluntary”. This would ensure mandatory standards were adhered to, but that there would be some flexibility for briefers and designers to implement advisory and voluntary standards. This would increase the DH’s reliance on the Gateway Review process, but could also benefit older estates wishing to refurbish or convert accommodation. To assist with this it would be useful to users to understand the reasoning behind the content. For instance, if a room or space appears overgenerous, it would be helpful to know why additional space has been provided. An Estates Director interviewed explained his need to have access to the reasoning behind the S&G – what decides that “x”

should be set as a standard, and why is “y” included in the guidance? To understand the basis of the DH’s thinking would enhance the usefulness and therefore the application of the S&G.

The survey questionnaire raised issues relating to the actual and perceived classification of the DH S&G (Sections 5.3.6 and 6.6.5). Resolution in either direction – mandatory or non-mandatory – brings complications. Although not many respondents chose the option of “prioritised standards” in the survey, from the DH’s perspective this might prove a good compromise: it would enable legal requirements to be highlighted and “coded” as mandatory, whilst the remainder of the content could be graded as “best practice” or even further sub-divided and qualified. Classification using a simple framework could considerably ease the problems arising from conflicting priorities. This would provide users with clarity and reduce uncertainty (Maynard and Rejeski 2009) and require less interpretation, as set out in Table 7-2. Users of the S&G would appear to like the idea of a “hierarchy” or notion of prioritised standards, and it could also assist the DH with Gateway Reviews.

Table 7-2: Example of levels of standards that might be applied

Standard	New Build	Refurbishment
Mandatory	DDA, Fire Safety	DDA, Fire safety
Essential minimum	Infection control, Room dimensions	Infection control
Advisory but negotiable		Room dimensions
Minimum acceptable		Room dimensions

The need for standards to have authority is a fundamental requirement to ensure their effectiveness as described by one user:

“[You] would like to think [they are] from reliable source and [the DH] know what they are talking about.”

In part, the authority is derived from the nature and public standing or reputation of the publishing organisation, but is underwritten by the status and classification provided by law or regulatory authority. In the case of the DH S&G, this latter point is the subject of much discussion on the part of users:

“the “is it guidance or not?” question is never resolved”;

“they are viewed by some as mandatory”;

“Not clear what “standard and guidance” mean”,

leaving users unclear what the status and classification of the estates-related S&G are. As well as having authority, an Estates Director asserted that the S&G must be reasonable and applied by people with credibility:

“It is very difficult for a Board for example to give approval to go ahead with a project when you have got a Gateway Review with red all over it. It's easy to sit there and say you have got to comply with whatever – I know, but I can't. So how do we make that better? Firstly the reviews should be done by people who have credibility ...”.

7.5.3 Out-of-date/lack clarity of content

The most emphatically negative characteristics are those of incompleteness, inconsistency, being out-of-date and lacking clarity. Another reason for the critical views may be that the format and methods of dissemination of the S&G have been changing rapidly over the past few years, which may have had a de-stabilising effect. Although some survey responses indicate that the S&G are easily accessible, others disagree in almost equal proportion (Table 6-8).

However deep the condemnation of the characteristics of the S&G, it is more than offset by the fact that, whatever the quality, the DH endorsement is of highest significance. This leads to the conclusion that, whatever the inconsistency, incompleteness, lack of currency and lack of clarity, the S&G “rule okay”. The need to conform to the DH standards is paramount, despite their flaws.

7.5.4 Content

There is a link between the classification and status, perceived and actual, of the DH S&G and a particularly high level of concern that the S&G is not current, complete or consistent. The data collected show that DH endorsement in effect means that use of the S&G provides users with a degree of comfort that by following its content, they are complying with DH standards. The S&G are therefore used despite the users' views that they are out of date, incomplete and inconsistent. The end result may therefore be a healthcare environment that is not necessarily fit-for-purpose but whose standards are endorsed by the DH.

The positive and negative responses concerning the content of the DH S&G demonstrate some contradictory perceptions: there are differing opinions as to whether the amount of detail is appropriate, and also whether the S&G can be considered as complete or accurate, and are included as both benefits and dis-benefits (Table 6-7). Nearly all respondents consider that they

are out of date. It could well be that this result was influenced by the piecemeal progress on the publication of information over the past five years on the SpaceforHealth web site, but it is generally acknowledged throughout the industry sector and even by the DH itself. Although stakeholders acknowledge that content is out of date, they are keen to apply the S&G because it ensures conformity to DH Standards through the mechanism of DH endorsement.

The scope and content of the DH S&G have been variable over the years – some users identified problems such as “Incomplete” and “Schedules of Accommodation missing”. The content has occasionally been driven by the DH policy e.g. Schedules of Accommodation (SoA) were at one time included in printed format at the back of each HBN, they were then transferred to the KIP website and provided as Excel spread sheets, then removed altogether, and now are included in some but not all HBNs. The SoA in the ADB data have been reduced to simple lists of rooms, i.e. one example of each room type, rather than suggested quantities of rooms required being displayed and an indicative patient care pathway therefore being able to be included. From the viewpoint of users, this inconsistency is a nuisance at best, and at worst undermines the validity and status of the content. A clear indication of what is contained where would be helpful. The integrity of the ADB data has recently been questioned; the principle of linking the equipment to the activities taking place in the room has been neglected, compromising the links, a valued quality of the ADB data.

An exercise matching publications included on the DH publications list (downloaded in September 2012) to the “Information to be submitted by bidders at Final Invitation to Negotiate” reveals incomplete information (Appendix 10) for the clinical departments and some elements of the information required that appear completely unsupported by the DH S&G. These include elements supplied by architects, engineers or construction-related consultants. Keeping the S&G current is difficult. Technologies and clinical practices are changing rapidly and the current system where HBNs and HTMs are drafted by a committee of experts fails to recognise that users need new guidance quickly. The disaggregation of the HBNs and HTMs into elements of information (paragraphs) on the SpaceforHealth website with the purpose of eliminating duplicate and inconsistent information was taking a long time, and as a result the whole suite of S&G, remains incomplete. For users having to pay a substantial annual licence fee (for ADB), this is clearly unsatisfactory and will get worse unless the DH invest in updates. This exercise highlighted a number of factors:

- there is a significant amount of information that is five or more years old;

- the structure of the publications list does not relate to the procurement processes;
- many of the publications are not included in the HBN or HTM series, which are the recognised source of S&G; and
- there appear to be gaps in the guidance, some of which may be filled by guidance from other organisations, e.g. Information and Communications Technology (ICT) and Information Management & Technology (IM&T) strategies, and elements that would be provided by architects, engineers etc. such as construction phasing.

The models of procurement dictate specifically the information that is required at stages of the PFI process.

7.5.5 Evidence-based DH S&G

The introduction of the NHS Constitution has significantly raised the profile of the healthcare environment, and the DH has enshrined explicitly the need for the environment to be fit-for-purpose, based on national best practice:

“The NHS also commits:

to ensure that services are provided in a clean and safe environment that is fit-for-purpose, based on national best practice (pledge);” (Department of Health 2008b).

There is a dichotomy between the need for up-to-date S&G and S&G based on evidence. The process of capturing evidence and evidence-based learning takes time and is inhibited partly by the length of the timescale from project proposal to finally built facilities. To attempt to ensure guidance provides up-to-date and relevant guidance, for instance “safe” technologies, they have to be built and assessed in use before they can be deemed to be proven fit-for-inclusion.

The inclusion of Evidence and Experience in the S&G are seen as important by both the survey and interviewee groups, but this appears to be contradicted by the perception that the S&G are deemed to be unachievable (Table 6-17). This poses the question of what benefit the evidence provides – and does the benefit outweigh the length of time required to implement guidance based on evidence? In the construction industry the implementation time is likely to be lengthy because of the nature and extent of building works. However, it is important to base practice on evidenced good examples in order not to repeat mistakes, and to incorporate new and emerging technologies where possible. This conundrum is difficult to resolve, but it is marked that evidence is highly rated by the stakeholder categories included in this research. In summary the provision of specifications and room data and space requirements is the principal benefit to

the Design, Service User and DH/NHS groups, but the lack of completeness and integration with other standards and data are of concern. By providing experience- and evidence-based S&G the DH is achieving such a reduction in uncertainty, but not wholly. There is scepticism that the S&G are truly evidence-based, even though they are described as such in the title pages of the publications (Section 5.4.5). The fact there are no alternative healthcare estates-related S&G for England greatly assists in ensuring that the DG S&G are generally accepted and used.

Evidence and experience are both valuable qualities and are captured through the process of producing the HBNs and HTMs. However, there are many other opportunities to capture useful knowledge and if the DH wish to promote innovation it is important to capture as much knowledge as possible. The Gateway review process in particular evaluates designs, and greater emphasis could be placed on the need for post-project and post-occupancy evaluations, which are seldom carried out and if they are, reports are not made available (Department of Health 2011g). Eight of the interviewees said that they felt this was regrettable, but two went on to say that such evaluations can be a mixed blessing; if the results are negative they can be held against the Director/Manager responsible. They can generate bad publicity and may be misinterpreted. However, the most prevalent reason for the lack of such evaluation exercises appears to be that they carry a price tag, and at the end of a project there is often no funding available.

The Gateway review process acts as a check to ensure standards are achieved at various stages in a project but does not share learning across Trusts and do not therefore inform anyone other than the DH and the Trust that projects conform to standards, or other solutions to briefing and design which it might be beneficial to share or include in future S&G. Such sharing might incur difficulties in relation to intellectual property rights, but once built or implemented, an innovative solution is “open to view”, and in that healthcare environments are generally public spaces.

There are several self-assessment processes, such as ERIC, PAMs, HEFS, and together with processes such as Gateway Reviews, review of Business Cases etc. all of which generate evidence that could be used by the DH to inform the S&G. The HEFS and ERIC returns are a good example where information is used effectively by providing the means of accessing comparative data for 140 parameters measured for every estate and site. However, this information is not put to use centrally to provide evidence in the HBNs or HTMs themselves, although they are used to trigger CQC inspections.

The inclusion of R&D project reports on the SpaceforHealth web site provided evidence. Projects are funded by the DH having been rigorously tested in competition and approved by a panel. Project reports were produced annually to demonstrate progress, and therefore the resultant learning was progressively released to the healthcare construction community on a regular basis. The website showed that these were downloaded from the web site, but by a factor of approximately 10 less times than HBNS.

The interviewees mentioned that post-project evaluation (PPE) and post occupancy evaluation (POE) reports which would act as a check, whilst also providing a useful body of evidence on which to draw for future guidance and evidence-based design. This is linked to the provision of evidence-based content. Although PFI contracts required PPE reports, two interviewees with responsibility for Trust estates explicitly denied that these were produced in the normal course of a project, and named only two projects where PPE had been undertaken, both performed outside the remit of their projects/contracts. All the interviewees responsible for project management and Estates Directors agreed that producing a PPE or POE report was tantamount to inviting criticism rather than being welcomed as a learning exercise.

Of the 15 interviewees, only 2 mentioned that PPE had been carried out to their knowledge, one for private purposes, and the other many years ago in the very early days of PFI. The information collected from PPE and POE processes could form an extremely rich source of evidence and experience as is in The Pebble Project which aims to:

*“..... increase the body of knowledge that ripples through the healthcare community”
(Goodman and Marberry 2010)*

by collecting and sharing the evidence and experience from contributing organisations. Experience could be used in the preparation of new data suitable for inclusion in the DH S&G. The opportunity could also be taken to include examples where things had not gone well, as a learning-point and warning to others to avoid such solutions. It is often the example of an error that makes more of an impression than the bland statement of “here is how to do this”. Edwards (2013) contends that, because of the rapid rate of change in medicine, relying on experience alone can lead to hospitals being planned in ways that perpetuate inefficient or outdated practices. However, experience can be highly valuable, and such a view needs to be tempered by the perceived success of the Pebble Project, which was strongly advocated by the Designers interviewed.

There are many opportunities provided in the various stages of the construction project development for evaluation adding significantly to the body of knowledge relating specifically to the healthcare sector. Gathering evidence has been simplified with the establishment of web-sites where users are invited to contribute. A DH web-site was established in the mid-2000s giving examples of “best practice”, which went some way in this, but was criticised by an NHS Estates Director because it was seen as:

“.....sticking pretty pictures on the web site and saying “isn’t that nice?” You just think “yes but that is superficial”. It doesn’t give you an idea of why, or the process that you have gone through ...”

A Designer interviewee said that, to be of benefit, it is important that contributions are seen to have been reviewed, and preferably peer reviewed, by people or organisations that are known and respected such as the Commission for Architecture and the Built Environment (CABE).

One interviewee stated that there was never sufficient finance at the end of the project to undertake this work, and that although it is described as an essential part of the PFI process, it is not checked on and therefore is allowed to “slip off the agenda”. Another interviewee ascribed the lack of post-project evaluation to a:

“... lack of incentive. And it’s actually disincentive because part of it is, you would stand up and say “this has gone well, this has gone - less well” and it is that last bit.....You are putting your head above the parapet.”

In a report describing its strategy for 2014-15 to 2016-17, the National Audit Office has identified a need to improve ways in which the civil service uses information (National Audit Office 2013). Use of evaluation from projects could form an extensive resource to inform the development of future S&G, rather than being used as a stick to punish Trusts where derogation has taken place against standards which might be considered to be out-of-date or inflexible. Such information, although reactive, would provide evidence of actual working environments, and could be included in the DH S&G as case studies.

In the development of DH S&G, senior clinicians who may represent their respective Royal Colleges are included in the HBN “team”. It could be argued that, although they represent their College, these contributors are not always the best people to represent new thinking and clinical technologies. Several survey respondents cast doubt on whether the HBNs represented evidence, and several more pointed out that spaces or rooms may be “over-specified”, others pointed out that HBNs sometimes feel as though the strongest expression of opinion won out.

All these views point to a methodology for the development of S&G that could be criticised for not taking new technologies (clinical or construction) into account and lack of evidence,

The development of clinical- and construction-based technologies is a continuous process and therefore the DH S&G require regular review and update. The long lead-time for briefing and design of construction projects often means that projects need to include new technologies during that period. These may require significant changes to schemes, such as occurred at University College Hospital, London when the change in bed space resulted in a judicial review (Khan 2011). It is therefore important such changes are flagged up by the DH as quickly as possible, and incorporated with an appropriate status into the S&G.

7.6 Effects of the DH S&G

Objective 5 of this research is to review how the DH S&G affect procurement provision and maintenance of the healthcare infrastructure, which may be achieved by assessing the effects on the healthcare estate of the S&G that the stakeholder categories have identified.

Much estates-related healthcare policy over the past 10-15 years has been aimed at improving patient outcomes e.g. decontamination provisions to combat Variant Creutzfeldt-Jakob Disease (vCJD). The part healthcare environments and accommodation play in the provision of healthcare has only been formally recognised over the last decade or so. Given the age of many healthcare buildings (Table 3-6), it is not surprising that there are many that do not yet meet all the current standards (e.g. mixed-sex accommodation, Nightingale wards). The DH is seen as the central authority whose duty is to provide current, achievable and affordable standards for the healthcare sector. Although they are targeted at designers and briefers, the S&G are used by a wide variety of stakeholders, and their effectiveness varies according to who is using them, what for and is also influenced by Government and DH policy, the context in which they are applied and their characteristics.

7.6.1 Processes

The S&G are provided by the DH primarily to assist with the processes of briefing and design of healthcare buildings. They are used for many other purposes as identified in Section 5.5, and by nearly all who work on healthcare construction projects throughout the lifecycle of the project.

These include:

- strategic and capital planning (new build and refurbishment);
- project management (overall brief, design and construction);
- brief development, validation and audit;
- design, BIM;
- equipping, scheduling and audit;
- healthcare planning;
- estates management;
- construction process, taking-off drawings, project management;
- derogation and refurbishment design;
- benchmark for post contractual sign-off; and
- regulation.

The survey asked respondents whether they felt the S&G are useful for derogation and refurbishment: both responses were positive but limited principally to architects (Designers stakeholder group), and healthcare planners (Service Users stakeholder group) who undertake this work. This applied to interviewees too.

The RIBA stages of work (RIBA 2011) provide a useful framework against which to match tasks throughout a construction project. Table 7-3 shows the RIBA Stages of work aligned with PFI tasks, and has added the post-commissioning works, identifying stakeholder categories involved at each stage from experience. This provides a useful checklist against which provision of S&G could be developed, ensuring that each stage is covered for each of the stakeholder categories. A final stage has been added at the foot of the table for Facilities Management (FM) that forms a part of the lifecycle of a building, but is not necessarily considered part of a building project. This demonstrates that the S&G are used throughout the lifecycle of a healthcare building.

An attempt at identifying who needs what is shown in Table 7-3. This table did not attempt to identify timescales, or type of contract. These variables have a considerable effect on what the content of the S&G needs to provide at each project or life-cycle stage for each stakeholder group.

Table 7-3: RIBA Stages of work, PFI tasks, and post-commissioning, stakeholder categories involved

Work stages and tasks			Stakeholder groups													
RIBA Stage	RIBA Stage Process	PFI tasks	Designers	Estates/FM	Project managers	Service Users	Contractors	Estates/FM	Contractors	DH/NHS	contractors/Equipppers	Estates (Surveyor)	DH/NHS (Trust)	Clinical staff	Patients	Regulatory bodies
Stage A	Appraisal	Prepare option appraisals; OBC, advertise for OJEU	✓							✓			✓	✓	✓	
Stage B	Design brief	Shortlist bidders; prepare ITN; receive bids evaluate sample designs; select preferred bidder	✓	✓		✓	✓	✓		✓	✓			✓	✓	✓
Stage C	Concept	Negotiation with preferred bidder; non-sample designs prepared		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stage D	Design development	Negotiation with preferred bidder; non-sample designs prepared	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stage E	Technical design	Negotiation with preferred bidder; non-sample designs prepared	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stage F	Production information	Negotiation with preferred bidder; non-sample designs prepared	✓	✓			✓	✓								
Stage G	Tender document-ation	PFI contract signed; negotiations with contractor for future phases	✓	✓			✓	✓								
Stage H	Tender action	Pre-tender briefing; appoint contractor	✓	✓			✓	✓	✓		✓		✓			
Stage J	Mobilisation	Action plan of work; construction; FM services commence on completion	✓	✓			✓	✓	✓		✓		✓			
Stage K	Construction to practical completion	Action plan of work; site inspections					✓						✓			
Stage L	Post practical completion	Action plan of work;	✓	✓			✓	✓	✓		✓		✓			
Stage M	Feedback	Analyse job records and inspect completed project; POE	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FM	Maintenance				✓				✓				✓			✓
KEY	----- Denotes divide between pre- and post-contractual appointment															
		Not direct users of DH S&G														
		Includes Fire inspectors, Building Inspectors etc. as well as CQC														
		Role likely to vary according to contract and relationships with client and contractor														
		Facilities Management occurs post-project completion and is therefore not included in RIBA or PFI work stages but NHS Estates Managers are one of the stakeholder categories, therefore should be included														

Figure 7-2 sets out how application of the S&G could be expected to affect the output from a construction project. Through the provision of a baseline or minimum set of standards classified as “best practice”, the DH S&G obviates the need for sourcing relevant clinical information affecting the healthcare environment, which should in turn improve the efficiency of the development and the quality of the brief and design. As one interviewee said, time spent planning at the start of a project results in less change and deviation from the resulting brief, thereby saving costs and wasted time further down the process. The ultimate goal is to provide fit-for-purpose accommodation for staff and patients encouraging improved patient outcomes.

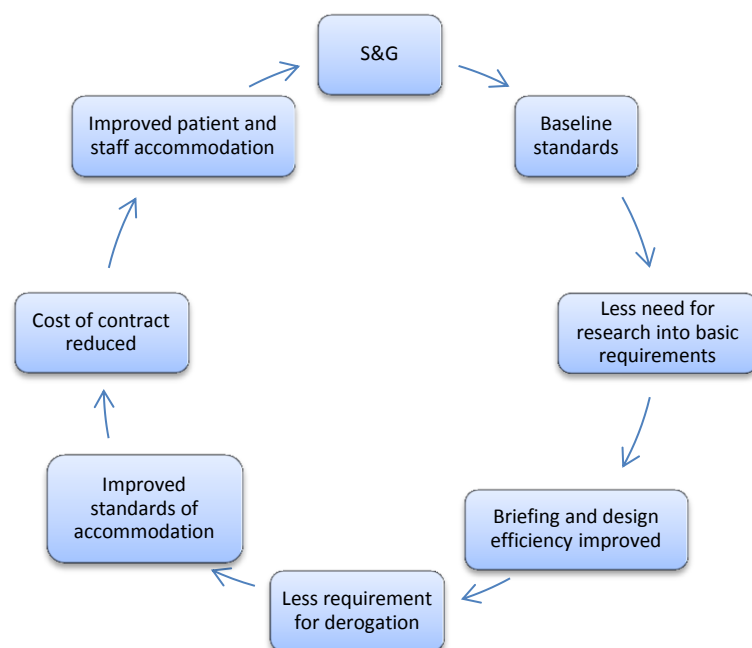


Figure 7-2: Cycle of effects of DH S&G

There is overall agreement that the DH S&G benefit the processes related to procurement and maintenance of the healthcare estate. The dis-benefits of using S&G were difficult to assess, because most comments referred to difficulty in use. The very extensive use of the S&G by all the stakeholder categories (Figure 5-16) indicates a heavy reliance on them as a reference source, and the basis of briefing and design, arguably because they will ensure compliance with DH policy. This supports the conclusion that S&G are seen by the stakeholder categories to be of general benefit despite the negative characteristics identified. The highest use is for referencing/benchmarking, and the lowest for derogation, however, benchmarking and

derogation may be considered to be similar processes, as the design of a project is matched against the S&G.

The recent major hospital building programme has been almost entirely funded through PFI. One interviewee expressed severe reservations concerning the lack of connection between this type of funding and the way in which hospital Trusts are paid for activity (Section 6.6.8). He explained that, if the idea of such a partnership between the public and private sectors is to work, there must be capital to contribute from both sides, and this appears to be a problem when budgeting to maintain the Trust's assets and allocating revenue.

"So - I am a fan, of the process of HBNs and HTMs. There is a "but"the problem with, not just HTMs and HBNs but CAFE, the whole process of the design, is that it is completely and utterly divorced from the process of setting the tariff."

He went on to explain that the tariff represents the payment to the Trust for clinical activity and unless there is an element of private healthcare provided there is no other payment made to Trusts. The tariff does not include an element for investment and therefore Trusts find it difficult to raise capital other than through external arrangements. The only other effective means of doing this is to sell surplus land. This may result in beneficial developments adjacent to hospitals, but eventually this finite resource will no longer be available.

7.6.2 Planning

The DH S&G are used extensively for planning (Section 6.5.3). The interviewees unanimously agreed that there is general acceptance of the S&G (Section 6.5.6). The acceptance of the survey respondents that the S&G provide baseline or minimum standards accords with this. In spite of the lack of acclaim for the characteristics of the S&G, they are still accepted as 'THE' standards to adhere to, largely because they are endorsed by the DH. This is in spite of many respondents and interviewees saying that the negative characteristics of the S&G include inconsistency and incompleteness, and being out-of-date. This indicates that the users are applying the S&G even though they know or suspect that they do not represent the most up-to-date technologies or standards. In turn, this may lead to the application of the S&G in several of the processes to which they contribute in the knowledge that they are outdated.

7.6.3 Design

The DH would encourage construction project teams to spend more time up front to "design in" flexibility and adaptability through standardisation of spaces and modular designs. The

Interviewees from North Bristol Trust (NBT), and capital planners for Royal Liverpool University Hospital both described a set of approximately 40 generic rooms or spaces (e.g. standard dimensions and layouts for single bedrooms, treatments rooms, operating theatres etc.) which will be used throughout the project. NBT has taken this a stage further by additionally applying a modular approach so that all major clinical spaces would as far as possible conform to a standard area, very much in line with the description from the DH interviewee. These generic rooms have been prepared at the start of the project in order to save time later in the detailed design process, as well as promoting flexibility and adaptability. These two projects represent the latest major PFI schemes and show lessons have been learnt.

7.6.4 Stimulus and stifling of innovation

The debate about stifling innovation is an on-going one. There is one suggestion that the S&G allowed or even drove users to innovate whilst others allege that they stifle innovation (Sections 6.5.2 and 6.6.1). It is also marked that the budgetary constraints under which healthcare construction projects are placed, makes the resource for research and innovation very limited. The most innovative thinking and designs tend to emanate from those with the time to research and experiment, and in the construction industry this tends to be a rare commodity, evidenced by the time it has taken the industry as a whole to move from 2-D to 4-D design and BIM, and even then under duress from central Government.

Regulation of early building project processes was cited as extremely restrictive by all interviewees responsible for Capital development. The rigid use of templates for rooms can lead to rejection of a design because the template does not fit the shell of the building. There was a feeling on the part of most interviewees that there was little willingness to seek alternative solutions, or allow innovation, e.g. the introduction of a cruciform arrangement to a four-bedded ward, rather than the usual 2/2 arrangement as shown in Figure 7-3.

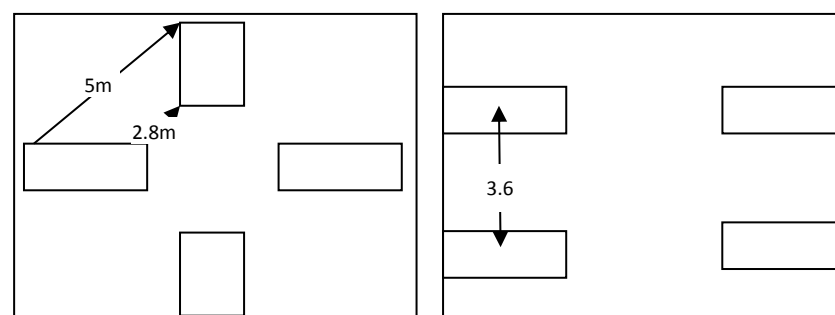


Figure 7-3: Contrasting configurations of 4-bed bay layouts, Cruciform and 2/2 layout of a 4-bed bay

Although the cruciform layout provided a more than adequate amount of space at the head of each bed, the DH had to be persuaded that the space at the foot of the bed did not constitute a risk of breaching infection control requirements. Whatever the advantages and disadvantages of such layouts, the principle of accepting new and innovative ways of working is seen as important if healthcare buildings are to become more forward-looking and embrace change. As Edwards (2013) points out,

“Perhaps the most important concern is that opportunities for new models of care are not being maximised and that [the] existing estate is an obstacle to innovation”.

(Edwards N 2013)

Members of the Designer and Estates/FM groups raised the need to encourage innovation by offering incentives and were keen to introduce new technology and clinical practices. They felt the DH would do well to consider how this might be achieved and cited Primary Care Trusts being rewarded for innovative design by Community Healthcare Partnerships, an independent part of the DH responsible for Primary Care. This concept is supported by Sorenson et al (2103) who describe the current hospital payment system of PbR as inhibiting the use of technological innovation in health care.

7.6.5 Sign-off and Risk mitigation

Of the 65 respondents to the survey, 25 use the S&G to assist with the sign-off process (Section 5.5.7), often allied to the process of derogation (Section 6.4.4). Signing-off on a construction project indicates acceptance of the brief, design or other consultancy work. Once a design has been signed-off by an organisation, it is deemed to have been accepted as fit-for-purpose and meet the needs of that organisation, transferring the risk to the signatory.

Signing-off has different connotations to each of the stakeholder categories, signing-off schemes at different stages of the project, with the consequent differing responsibilities and contractual obligations relating to the relevant stage of the contract. The survey results show the three groups acting as “client”, i.e. Estates/FM, Contractors and DH/NHS groups, use the DH S&G for the process of signing-off the majority of schemes (Section 5.5.7). This is quite a different use of the S&G than to assist with the briefing and design process, where the S&G are used as a reference source or a baseline from which to develop plans and designs.

The Designers and Health Planners, usually acting in the capacity of consultants, did not use the S&G for signing off very much, but this could be because they provide design and planning

services to the client. The Designers may have a quality assurance check within their own organisation requiring sign-off from a team leader such as a Project Architect or Engineer, but an external sign-off of the scheme will transfer the design to the client organisation. The Service Users often have a quasi-clinical role, acting as “informed client” within the Trust, which does not necessarily involve taking responsibility for the project, but instead is more involved in ensuring the outcome of a building project provides the services required in fit-for-purpose accommodation.

7.6.6 Comparative importance of Benefits and Dis-benefits

Table 7-4 summarises the importance of aspects of the S&G, and their benefits and dis-benefits to the interviewees and survey respondents. The data provided insights into the processes/uses to which the S&G are put, their characteristics, the scope of their content and their effects. The survey also identified some positive qualities of the S&G, and these have been included in the summary. There are some common findings between the interviewees and survey respondents, but also some conflicts of opinion. The results are shown in order of the survey questions. There are some clear differences in the qualitative and quantitative data which highlight different aspects of the S&G.

Table 7-4: Comparative importance of S&G characteristics

* The figures in brackets denote dis-benefits which directly contradict the suggested benefits in the survey question.

The survey responses to the questions regarding Status, Use and Classification were ranked out of a possible maximum of 5. The scores therefore cannot be compared directly to those of the Interviewees but can be used to indicate highest rated responses to the survey question options.

() Indicates a negative response to the sub-question

	Question detail	Inter-viewees	Survey	Comments
QA level	Minimum standards	1.0	0.3	Two obvious preferences were shown by both sets of data – Minimum standards and Best Practice. It is clear that Excellence is not a quality many users would apply to the S&G
	Best practice	0.3	0.6	
	Guidance	0.2	0.4	
	Excellence		0.2	
Right level of information	Yes		0.4	The survey results indicate that there is a positive view of the level of information provided, but with reservations. The supplementary comments to this question should be viewed alongside the results for Characteristics in questions 4 and 5.
	No		0.1	
	Out of date	1.0	0.2	
	Incomplete	0.9	0.1	
	Lacking detail		0.1	
	Content quality deteriorating		0.1	
Status of content	No particular standard	0.1	2.6	The result is similar to Q6. The negative figures in (brackets) bear out the results above.
	Minimum standards	1.0	3.0	
	Best practice	0.3	3.0	
	Excellence		2.3	
	Current thinking	(1.0)	2.3	
	Up-to-date technical information	(0.3)	2.3	
Practical use	Appropriate level of detail		3.1	Most survey respondents indicated they believe DH S&G provide an appropriate level of detail, and half that they are complete. The interviewees are again critical in this context.
	Delivered in timely manner		2.1	
	Complete	(0.9)	2.5	
	Well linked to external standards	(0.3)	2.1	
Classification	Mandatory		2.8	The preference for Mandatory is not surprising, and the concept of prioritised S&G appears to have been welcomed.
	Non-mandatory		1.8	
	Prioritised	0.1	2.7	
Identifying the relative importance of DH-related qualities of DH S&G	DH endorsement		0.8	The questions of DH endorsement and clinical endorsement were not raised with the interviewees, largely because endorsement is generally regarded as a given, a necessary quality of DH S&G. Three interviewees spoke of independence but more in terms of information rather than commercial pressures. It is questionable whether responses regarding evidence-based or experience-based S&G are provided. Other qualities were appreciated, but there is quite a high response from both groups saying that innovation is stifled by the S&G.
	Clinical endorsement		0.6	
	Commercial Independence		0.8	
	Stifles innovation	0.5	0.4	
	Evidence based?	0.7	0.6	
	Well integrated	0.3	0.3	
	Ensure legislative safety	(0.4)	0.5	
	Assist risk mitigation	0.2	0.6	

The type of quality assurance provided by the DH S&G appears to be viewed by the interviewees principally as Minimum Standards, whereas the Survey respondents generally regard it as Best Practice. The majority of the interviewees were in senior positions, and could be deemed to need to know what the lowest acceptable standard allows, whilst the survey group, of whom

nearly 1/3rd were designers and 1/6th health planners, who would wish to conform to Best Practice in order to satisfy clients' needs. The phrase "minimum standards" implies the lowest acceptable standards, whilst "best practice" signifies a high level of quality by comparison with other similar practices or policy (Bardach 2004). This difference is significant in that the designers and planners naturally wish to provide a high quality brief or design solution for their client, whilst the clients themselves will wish to achieve value for money and to conform with extant standards and

"In accordance with legislative controls and cost and time constraints" (Lawson et al 2003).

There is therefore a form of bargaining carried out as to which S&G are the most important, where designs are pared down to meet budgets. In relation to the level of information provided by the DH S&G, the Interviewees were particularly critical of the content as being out of date and incomplete. The Survey group was more positive, but not overwhelmingly so (Section 5.3.10). Discussing this with interviewees, there was a clear level of frustration which could be put down to their need for the most up-to-date S&G in order to achieve minimum standards, but where there was little or no DH S&G, this became very difficult. One interviewee cited this as the reason for use of other standards, and that they were often better.

The results regarding the Status of the S&G generally bear out those of the previous two questions. The results regarding practical use of the S&G shows that just over half the survey respondents agreed that the level of detail in the S&G was appropriate, but the interviewees remained critical of the completeness and links to external standards. All these results demonstrate that there is divergence of opinions regarding the content and scope of the DH S&G, but that in general they are considered to be out-of date, and incomplete.

The positive characteristics are headed by the provision of a Baseline or Minimum Standards, and this is borne out throughout the data. Common negative qualities identified by both groups were those of the incompleteness, being out of date and inconsistent, and also the lack of clarity about status. The status and classification of the S&G is something which has exercised users over many years, as discussed in Sections 5.3.5 and 5.3.6.

The planning of hospitals is a complex and specialised process (Goodman 1972). By providing practitioners with a ready reference source of S&G the DH aims to assist with this. Discussing the early stages in establishing the need for a project an Estates Director said:

“As an Estates Director, the guidance is invaluable. In practice what happens is that an assessment is made of the level of spend on the estate. It is then quick and easy to do a costing very early on (at proposal stage) using guidance, which can then be developed into a full brief.”

and further that:

“the value for money of the guidance is extremely high. A new-build project typically happens only once in a career, so all the expertise tends to be lost each time a project is completed”.

All the NHS project and capital planning interviewees also recognised the benefit of the HBNs and HTMs, and many architects in the survey echoed this. One major constructor went so far as to say that if ADB and its database were not produced by the DH, they would have had to “invent” it themselves.

7.7 Summary of benefits and dis-benefits

Several themes have emerged from the analysis of the primary data that affect all the stakeholder categories. The S&G are widely used by many stakeholder categories across the healthcare sector. Their application and eventual effects are therefore felt in many parts of the industry sector. Although their stated purpose is to assist the briefing and design processes and the principal stakeholder categories include those involved with these processes; they are also used by NHS project and estates-related management and other construction organisations. This wide variety of users means that the S&G are not necessarily designed to address all the purposes for which they are used. They are taken “as read” largely because of their DH endorsement, but cannot expect to fully satisfy all the needs of all their users.

The preceding sections have discussed the findings from the data collected and the literature review regarding the characteristics and qualities of the DH S&G, and the needs of the stakeholders to undertake the processes contributing to the procurement and maintenance of the healthcare environment (objective 4). Table 6-2 summarises the data rating of the benefits and dis-benefits accruing to the S&G. Table 7-5 sets out these results in a simple order where one represents the lowest and five the highest scores to see which stakeholder categories rate the benefits and dis-benefits they have identified highest and lowest. This table shows that the Designers score the S&G highest across interviewees and the survey respondents, and are less critical than the Service Users, who score highest for dis-benefits. The Service Users appear to find least benefits from the S&G, and highest dis-benefits. This is concerning, in that many

health planners work as consultants to designers and to Estates/FM colleagues in attempting to ensure clinical staff and patients views are represented in design projects. The S&G is aimed to provide assistance for briefing and design, and the designers are often commissioned to brief as well as design healthcare environments.

Table 7-5: Ranked scores from Survey and Interviews showing benefits and dis-benefits where 1 represents the lowest and 5 the highest scores

Interviewee results											
Benefits	Designers (4)	Service Users (3)	Estates/FM (2)	Contractors (4)	DH/NHS (2)	Dis-benefits	Designers (4)	Service Users (3)	Estates/FM (2)	Contractors (4)	DH/NHS (2)
Scope and content	4	3=	5	3=	3=	Scope and content	4	3	5	2	1
Characteristics	4	2	5	3	1	Characteristics	4	5	3=	3=	3=
Processes	4=	5	3	4=	2	Processes	-	-	-	-	-
Effects	4	2	5	3	1	Effects	4	5	1	3	2
Totals	16	12	18	13	7		12	13	9	8	6
Survey results											
Benefits	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)	Dis-benefits	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)
Scope and content	5	2	1	3	4	Scope and content	3	5=	4	5=	2
Characteristics	1	3	2	4	5	Characteristics	3=	2	4	5	3=
Processes	5	2	3	4=	4=	Processes	4=	3	2	5	4=
Effects	3	2	5	1	4	Effects	3	4	5	2	2
Totals	14	9	11	12	17		13	14	15	17	11
GRAND TOTALS	30	21	29	25	24		25	27	24	25	17

The results for the Estates/FM group reveal a high score overall for benefits from S&G and a fairly high score for dis-benefits. This could indicate a high degree of satisfaction with the S&G, but that they also are aware of their shortcomings. In contrast, the DH/NHS group show a slightly lower score for benefits than the Estates/FM group, and a substantially lower score for dis-benefits, perhaps indicating they are less concerned with detail, and use the S&G for higher level guidance.

The Contractor group is equally split between benefits and dis-benefits in the survey results, but the interviewee responses show a positive figure in favour of benefits. This result contradicts the earlier result shown in Figure 6-2 where the contractors appear more negative because the actual rating figures provide a more detailed result than the ranked results in Table 7-5, which compares only the ranking.

The DH/NHS group in the interview group ranked benefits and dis-benefits almost equally, balanced slightly in favour of benefits even though the “process” line was omitted from the results (as they were not discussed in such a way as to be able to include them in quantitative data). By contrast, the survey group showed a fairly high level of benefits over dis-benefits. A possible explanation for this is that the members of this group are responsible for construction projects at Board Level and need to rely on the S&G to justify difficult decision-making and the incompleteness and inconsistencies in the S&G make this problematic.

Table 7-6 shows the results from Q14 of the survey, and the interviewees’ responses regarding evidence-based S&G (the other questions not having been discussed during interviews).

Table 7-6: Overall DH-related characteristics where 1 represents the lowest and 5 the highest scores

Survey	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)	Interviewees	Designers (4)	Service Users (3)	Estates/FM (2)	Contractors (4)	DH/NHS (2)
Status	3	2	5	4	1						
Classification	4	1	3	2	5						
DH endorsement	5	4	2=	3	2=						
Commercial independence	5	4	2=	3	2=						
Evidence based S&G	5	3	2=	3	2=	Evidence based S&G	5	4=	3	4=	
Totals	24	14	14	15	12		5	4=	3	4=	

The question asked respondents to indicate their view of the importance of several of the DH-related characteristics of the S&G. The highest score from the Designers is fairly predictable: they have a high degree of interest in the classification of the S&G, which would make their status clearer. Many regarded DH endorsement as tacit. Commercial independence is important to organisations that are in competition with each other, and the groups appear to assume that the S&G is evidence-based, without differentiating between evidence and experience.

The Service Users group appears to view the S&G as their reference source and therefore, as they are representing the staff and patients who will occupy the environment, their acceptance of the S&G without need for classification or status. The Estates/FM group was keen to see the S&G status confirmed, but did not score highly for DH endorsement. This may be because they assume that, as NHS organisations, they consider themselves as a part of the DH.

The Designers were highest scorers for DH endorsement, needing to apply S&G in practical terms to the built environment and being held to account by the DH/NHS as client. The DH/NHS on the other hand scored the classification of S&G highest, needing the comfort of mandatory standards to work to and be held accountable for by central DH and Government policy.

Taking the interviewees' results regarding evidence-based S&G, the highest score from the Designers is predictable; they contributed to the S&G and based their contributions on evidence and experience. The lowest score from the DH/NHS is again predictable: this group will be more interested in conformance with the S&G than whether they are based in evidence (which might be backward-looking and out-of-date).

7.8 Proposals for future DH S&G

Completeness, consistency and currency of the content have been an issue for many years (Table 6-6). HBNs and HTMs have always "led" the development of ADB data. Discussions have been held within the DH to turn this process around, making ADB the tool and information source from which all the remainder of the content derives. The SoA would be re-established in ADB, giving users the advantage of a single source of data from which all descriptive, textual data could be derived. It would also have the advantage of facilitating management of the data by using a "work in progress" ADB project, enabling version control and backwards-compatibility, both important for reference and contractual purposes. A disadvantage of a content management system could be that, because of the need to use and re-use components in different contexts, detail which could make components too specific may be omitted, and thus the content overall would be dumbed down and become too generic – a criticism already levelled at the DH S&G by some users (Table 6-5).

The introduction of the NHS Constitution has significantly raised the profile of the healthcare environment, enshrining explicitly the fitness-for-purpose of the environment, which should be:

"based on national best practice (pledge);" (Department of Health 2008b).

Discussion with an interviewee who was particularly alive to the problem of basing S&G on national best practice resulted in the development of a proposed process for incorporating evidence and experience-based knowledge as set out in Figure 7-4.

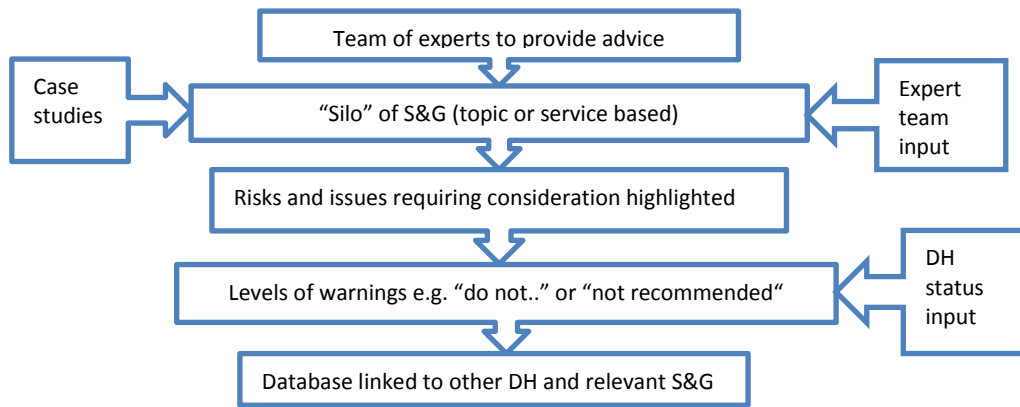


Figure 7-4: Model for Collaborative production of DH S&G

This proposal also attempts to address the need to reduce the cost of the production of S&G. The team of experts would serve as DH advisors for a defined period of two or three years, whilst retaining their clinical or professional roles. This would ensure they retain practical involvement in their specialist field of work. The expert team would be organised on a rotating basis, and members paid an honorarium. This would ensure they were not overburdened, and would not be disadvantaged by having to withdraw from their “day job” to serve on the team. It was considered that the kudos of service on such a team would be an attraction. The duties of the team would include review of existing S&G, gathering case studies, exemplar projects and innovations, and acting as arbiter as to what should be incorporated into the S&G. Once the content is agreed, the risks and issues requiring consideration would be identified. The DH could then apply a priority for each risk or issue. This would address the need for clarification of the status of the content. Each case study or exemplar would then be contained in a database. This method of working could be likened to knowledge networking where communities of interest share information. Advantages of working in this way would include reference to “real life” projects – good or bad, a means of gathering a library for reference without having to specifically create it from scratch. It could also fit easily with existing data sets, which should all be linked together forming a single source of S&G. On the negative side, this modus operandi would need careful management to ensure team membership was appropriate, and that rotation did not result in loss of corporate memory.

The ability for users to be able to select the level of detail that they see within ADB would enhance its usability (e.g. Capital Planners require high level Schedules of Accommodation, standard room areas and costs/sq.m. whereas Equippers need full descriptions of all rooms and equipping schedules for each room). A structure for data generation and management (Figure 7-5) would allow users to easily understand how this may work, and therefore enable them to

select the option they wish to use. The notion of layering of data has been discussed but never implemented.

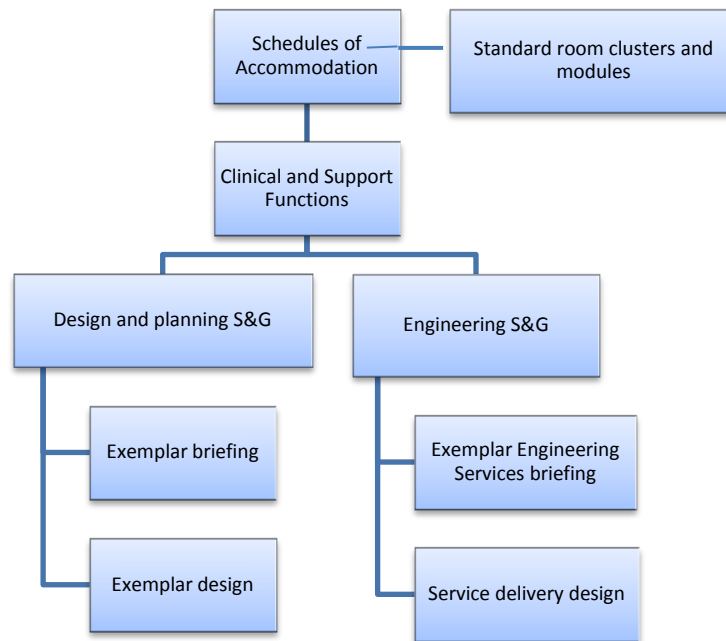


Figure 7-5: Suggested revised structure for DH S&G generation.

Some information elements may be considered irrelevant to the construction process such as site plan, orientation etc. These elements are project specific and therefore DH could not possibly provide them. However, some of the elements may benefit from some high-level guidance on what the element should contain such as principles applied to landscaping, or suggestions for consideration such as maximum use of daylight, or colours of interior walls, particularly in clinical areas where artificial lighting may be inadequate and ambient colours reflect on skin tone.

7.9 Summary

The findings from the interviews and the survey have confirmed that most users of the DH estates-related S&G view them positively and consider that they assist with the process of procurement of new buildings and form a comprehensive set of standards. The use of HBNs, HTMs and ADB is extensive throughout the process. The most significant benefit of the S&G is that they provide a benchmark or baseline standard, and the importance of the DH endorsement is rated very highly.

Despite the generally positive view, a number of criticisms concerning the S&G were raised, in particular the characteristics from the designers' point of view. As the designers constitute the main user group, this will be of concern to the DH. The application of the S&G throughout the

briefing and design processes in particular, even though they are considered to be incomplete, inconsistent and out-of-date could result in procurement of healthcare buildings that are out-of-date. The capture of experience and evidence is vital to improvement of the content of the S&G, particularly through re-purposing the content of review reports, PPE and POE, but this is a process rarely undertaken.

Attempting to match the roles of the users to the content of the standards and how they are viewed is complex, but the data collected can inform the generation of the DH estates-related S&G in the future.

CHAPTER 8: CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

Today's healthcare provision grew out of the pre-NHS structure that included a mix of publicly and privately provided organisations and institutions. Currently, the NHS organisations and their private equity partners own and maintain what is reputed to be the largest estate in Europe. The major policy changes in the 1980s towards Keynesian economic philosophy in establishing market forces in the healthcare sector and the subsequent introduction of private sector investment in the healthcare estate has had a major effect on the structure and provision of healthcare. Although this has resulted in a more modern estate than would have otherwise been afforded, the cost is high, and the interests of the private sector and NHS Boards are not necessarily common to each other.

Against this background, the importance of fit-for-purpose healthcare accommodation is gaining recognition. The built environment is now seen as an integral part of the patient experience, having a proven direct effect on patients and staff. Since 2009, the healthcare environment has been raised on the agenda, having been included in the NHS Constitution (Department of Health 2009a), therefore also raising the profile of the DH estates-related S&G.

The objectives of the research were to:

1. evaluate the **historical background** and how it may be seen to have affected the current political position relating to the DH (DH) S&G for infrastructure;
2. determine **political drivers** for past and present developments, and how these may have affected the healthcare infrastructure;
3. **assess the current DH S&G** used in the briefing, design and procurement of healthcare-related buildings;
4. identify what **characteristics and qualities are important** about the DH S&G to the **stakeholder categories**, and the benefits and dis-benefits they identify in relation to their **use and application** of the DH S&G; and
5. review how the DH S&G affect procurement and maintenance of the healthcare infrastructure; map the ways in which benefits for the stakeholder categories are inter-related and how the relationships may affect the healthcare environment.

This chapter presents the conclusions drawn from the research. During the course of the research some additional questions have arisen, and Section 8.2 draws the findings together to demonstrate the extent to which the objectives have been met. Two sets of recommendations

have been made for further research: industry-based, encompassing practical and pre-existing factors, and academic-based, to include the desired scope and content of future S&G from users' perspective, and how the S&G actually affect the healthcare environment. A set of recommendations for action has been drawn up specifically for the DH, addressing the issues raised during the research process.

8.2 Conclusions

The following conclusions have been drawn from the primary data and supported by literature. There is little directly relevant secondary data in the form of published material to draw on. These conclusions are set out in the order of the objectives. The conclusions relate to: HBNs; HTMs and the ADB data.

8.2.1 Historical background

Objective 1 is to evaluate the historical background and how it may have affected the current political position relative to the DH S&G.

It is reasonable to conclude that there is still a long way to go to achieve a consistent standard of healthcare infrastructure across England, evidenced in the qualitative and quantitative data and by the continuing and pressing need to address backlog maintenance in the majority of NHS Trusts.

The history of the healthcare estate is included principally in Section 2.7 of the Literature Review. An evaluation shows that history is closely linked to changes in policy, which can be seen to have had a major effect on the current state of healthcare infrastructure (Sections 2.5, 4.2 and 4.3) resulting in a portfolio encompassing a wide range of building ages and types and conditions, reflected in varying fitness-for-purpose. Fitness-for-purpose includes conformance with legislative safety, which is associated with mitigation of risk in that patient safety is a prime responsibility for all associated with the provision of healthcare. Users are not convinced the S&G are necessarily in line with relevant legislation (Section 5.4.7).

Recent literature includes little information about the overall general standard of the estate, with the exception of Francis (1999; 2001; 2007) and Edwards (2013), which makes it difficult to trace the more recent changes that have affected the healthcare environment. More work has been done on specific elements of design and planning of elements of healthcare buildings, such as single bed rooms. An exception to this is PFI where heated debate has been in progress since its introduction (Pollock 2006; Beck 2010; Evans 2008). However, the introduction of private

sector finance is generally acknowledged to have considerably improved the healthcare estate and its contribution to NHS funding through the use of “paybeds” and other facilities (Harrison and McDonald 2008; Hansard 2002). The disadvantage of PFI is the need to finance capital debt, which is causing financial difficulties to Trusts and Foundation Trusts in the longer term (Edwards 2013, Audit Commission 2006). It is also resulting in a potential division between capital asset holdings and provision of clinical services (Evans 2008).

A review of the literature described four major waves of development since 1948 (Section 2.7), of which the last major projects are currently drawing to a close. The waves of development were never fully completed resulting in the estate being comprised of a mix of healthcare accommodation of varying ages and conditions. Although the DH S&G have been fairly regularly updated since their first development, this has been patchy, particularly over the past eight years when the pace of change has been constantly increasing, resulting in inconsistencies, inaccuracies and some being considered of patchy quality, and out-of-date.

The S&G are seen to provide baseline or minimum standards although they are perceived to over-specify resulting in the need for derogation to achieve spatial and financial balance (Section 6.6.7).

8.2.2 Political drivers

Objective 2 is to determine the political drivers relating to the healthcare estate and how they may have affected the healthcare infrastructure. Policy may be divided into Government policy and the DH policy and the main conclusions for the two divisions are as follows.

Government policy

The principal Government policies affecting the healthcare estates relate to the capital funding for investment in the estate, including elimination of backlog maintenance, to ensure accountability for the estate through regulation and to honour the pledge in the NHS Constitution to provide healthcare services from safe, fit-for-purpose accommodation, and regulation of the estate.

DH policy

DH policy to achieve the Government’s requirements in relation to the estate includes a requirement to eliminate Nightingale wards and mixed-sex accommodation, to provide at least 50% single bedded accommodation in new projects, to encourage innovation in

design, to move care services closer to home, and to achieve flexible use of accommodation thus saving on expensive capital investment.

Section 2.7 of the Literature Review and Chapter 4 study the history of policy regarding the healthcare estate and the Government and DH policies respectively. Research findings indicate that policy has introduced the need for regulation, application of standards and control over the estate (Section 5.5.6). Despite this, it is only since 2009 that there has been any attempt to define and fully recognise the importance of the “point of delivery” as a physical place in the NHS Constitution (Darzi 2009). The estate is also rarely considered sufficiently important to be represented at NHS Trust or Foundation Trust Board level unless there is a specific major capital development project (Evans 2008).

The whole health service appears to be subject to political whim, although in such a large organisation policies may take a long time to come into effect, they can play havoc with planning, sometimes resulting in a major loss of efficiency and waste of money. Literature, media reviews and review of secondary data demonstrate the increasing pace of policy change in the healthcare sector and its disruptive nature leading to “redisorganisation” (Section 2.7.2). This short-termism was further demonstrated by the announcement made in December 2012 that the SpaceforHealth website was to close at the end of the 2012/13 financial year and the HBNs and HTMs in future made available from the Government’s centrally established web site – www.Gov.uk., throwing doubt on the future of the S&G, how they would be made available, in what format and what they would cost.

8.2.3 Assessment of current S&G

The content and nature of the current S&G (Objective 3) was assessed in Chapter 5.

The principal conclusions are that the scope of HBNs, HTMs and the ADB data are incomplete, and their content is inconsistent, and out-of-date, and although generally thought by users to be of benefit by providing a useful reference source, are applied in spite of their shortcomings because they are DH endorsed. This position could lead to application of the DH S&G leading to the procurement of new healthcare accommodation that is out-of-date and therefore not fit-for-purpose.

The survey and interviews show the DH S&G are used throughout the healthcare construction industry as a source of reference, a benchmark, a baseline standard, a tool to produce floor

plans and room layouts and as a management tool. Study of the S&G shows a valuable and valued body of knowledge that is in a state of flux in a number of ways:

- the scope, level of information and extent of detail to be included (Sections 5.3 and 5.4);
- the structure (Section 5.3.4);
- dissemination (Section 5.2.2); and
- status and classification (Sections 5.3.5 and 5.3.6).

The DH endorsement is of greater importance to the users than endorsement from the clinical Royal Colleges leading to the conclusion that as long as the estate conforms to the DH S&G, it is considered fit-for-purpose (Sections 5.4.1 and 5.4.2). However, assessment of the Content of the S&G shows that they are considered of variable benefit and in particular are out-of-date, which leads to the conclusion that the different users view the S&G differently according to their perspectives and roles, therefore they apply different values to the characteristics.

Although there are some results in the data showing differing views (e.g. completeness), the overwhelming weight of evidence shows that the S&G are incomplete, of variable quality and without consistent structure by topic or subject-matter (Sections 5.3 and 5.4).

The DH describes the S&G as Evidence-based, but some of the standards are considered to be unachievable or unreasonably high (Table 6-17). There appears to be confusion between evidence and experience (Section 5.4.5) both within DH, and by the S&G users. However, coupled with the fact of DH endorsement, the perception of the S&G including evidence significantly boosts the confidence with which S&G are applied.

The findings regarding the classification and status of S&G show that this has never been fully resolved to the satisfaction of users, who depend on the S&G to provide them with minimum standards, although they are badged as “best practice”. In the absence of any other healthcare specific standards, they tend to be regarded and applied by some stakeholders as mandatory (Section 5.3.6). This leads to difficulties for refurbishment projects where original buildings were not designed to current standards and in turn requiring the need for Derogation. The application of the S&G as mandatory is linked to the concept of DH endorsement. DH endorsement is used as a shield behind which users can cover themselves against risk, even though it is generally acknowledged that the S&G are incomplete, inconsistent and out-of-date.

8.2.4 Important qualities, Use and Application of S&G

Objective 4 is to identify the characteristics and qualities of the S&G that are considered to be important for each of the stakeholder categories and how they are applied.

The most important quality of the DH S&G for the users is that of DH endorsement, followed by commercial independence. The S&G are very widely used in the industry and considered to be of benefit particularly as a set of minimum standards, and as a reference source to ensure compliance with DH standards. Their status and classification are ill-defined, leading to a general assumption that they should be treated as mandatory, in view of their provenance and despite their variable quality, being incomplete, inconsistent and out-of-date and not necessarily evidence-based.

The research shows that the DH largely achieve their specified aim of supporting the briefing and design processes of healthcare building projects by providing S&G to the stakeholder categories engaged in the provision of healthcare environments (Section 5.5.2). The variety of responses in the survey show that each stakeholder group has a differing view of, and uses for, the DH S&G (Sections 6.5 and 6.6). Users have attributed a high degree of importance to the DH endorsement, and freedom from commercial influences, and the main benefits include the provision of a benchmark, or baseline/minimum standard leading to their use as a reference source. The dis-benefits identified relate mainly to the fact that they are considered incomplete, inconsistent and out-of-date. It appears from the data that some users are doubtful that the S&G are evidence-based, and perhaps confuse evidence with experience.

The status of “Best Practice” together with the classification of “not mandatory” causes confusion. In the absence of other S&G, the DH S&G are applied by many as though mandatory and are generally used as a “bible”, reference source or as minimum acceptable standards.

The DH S&G are considered important for Risk mitigation but some users consider the risks in their spheres of activity to encompass other elements than those covered by the S&G (Section 5.4.8). The common usage of S&G across the whole healthcare estate has been demonstrated, showing reliance by all stakeholder categories on acceptance and achievement of the standards contained in the S&G.

The commercial independence of the DH S&G is highly valued by most users, identifying the need for an independent relationship between the generators and the users of S&G. Absence of commercial pressure ensures an unbiased set of S&G.

The DH state that the S&G are provided to assist the briefing and design of healthcare accommodation, but research has shown that the S&G are used for many other processes. By looking at users' influence during the stages in the construction process (Section 5.5.7,) it is possible to conclude that the S&G have a high degree of penetration into the entire industry sector.

The DH S&G aim to provide a baseline from which innovation in design can spring, despite a prevalent view that, generally, S&G stifle innovation. However, innovation and flexibility of use in the healthcare environment are goals to which DH aspire and are rising in importance (Section 7.3.4).

8.2.5 Effects of S&G

The final objective is to review the effects of the S&G on procurement and maintenance of the healthcare estate and how they may benefit stakeholder categories involved in the industry.

The DH S&G are applied by most practitioners working on procurement and maintenance of healthcare accommodation and therefore have extensive influence, despite users knowing that some content is incomplete, inconsistent and out-of-date. This could lead to their application resulting in procurement of out-of-date healthcare accommodation.

The extensive use and application of the S&G supports the conclusion that nearly all healthcare accommodation in England is based on the DH S&G. The extent to which S&G affect the healthcare environment is difficult to measure, except through assessment of the extent of their use, and how widely they are seen to be of benefit. By identifying users' spheres of influence (Figure 5-17) and the extensive up-take of the S&G, it is evident they are used for and affect many aspects of healthcare construction and maintenance. The interviewees estimate that it is "invaluable" (Sections 6.5.9 and 7.6.6), and it has enabled a wide variety of construction industry organisations to participate in the planning, briefing and design of healthcare infrastructure thereby encouraging competition and innovative solutions for healthcare accommodation.

Use of the DH S&G for briefing and design may result in healthcare accommodation that is not fit-for-purpose. The S&G are considered to be of varying quality but continue to be used because they are endorsed by the DH. Although DH wishes to promote the S&G as a "starter for 10" and a driver for innovation, their generally agreed principal usage is to take advantage of the DH endorsement, thereby ensuring conformity with DH standards that are acknowledged to

be inconsistent, out-of-date and incomplete. Compounding this, the CQC are not always considered to be competent to perform effective assessment. Some form of regulation of healthcare accommodation is important, particularly in the healthcare sector, where safety of the patient is paramount. The DH S&G are generally accepted as the industry standard in England for healthcare construction and the mix of variable quality of S&G with the obfuscation of regulation of the estate adds to the possibility of use and enforcement of inappropriate standards.

The S&G are considered by some as over-specified and over-generous for certain areas and services in healthcare accommodation thereby adding to overall project costs. S&G must be achievable and reasonable. However, a tendency to ignore provisions regarded as too stringent or expensive to implement, results in accepting the need for derogation, a costly process that is perceived to be frowned upon by the DH.

Although not expressed explicitly by the DH, it is reasonable to conclude that their central provision of S&G saves money: the cost of generating the guidance centrally versus the cost of each organisation having to research and produce its own solutions without guidance is incontrovertible. The benefits of having centrally produced and recognized standards are hard to quantify with any degree of accuracy but the DH considers costs are saved for the Government by providing S&G.

8.3 Contribution to Knowledge

Many assumptions are made about the DH S&G. Although they have been discussed over many years in varying fora with many of the stakeholder categories collectively and individually, the benefits of the S&G and the importance of their characteristics and qualities have not previously been formally researched.

8.3.1 Fitness-for-Purpose

Their widespread use and acceptance by the stakeholders indicate that the DH S&G have qualities that are important and are regarded as beneficial. Hitherto, there was little research into or evidence of what the importance and those benefits actually are. The stated aim of the DH S&G is to assist in the briefing and design of healthcare accommodation. This research has shown that the use of the S&G may result in the construction of healthcare accommodation that is not fit-for-purpose. There is acknowledgement by many users that the S&G are out-of-date, incomplete and inconsistent which, and when coupled with the importance to users of the DH

endorsement forcing users to conform to the S&G, could result in unfit healthcare accommodation.

The research has also demonstrated the near 100% up-take of the DH S&G, and that the S&G are used by most people and organisations involved in the construction of healthcare accommodation. Thus, the effect of the use of the DH S&G is widespread and spreads across many of the processes that contribute to the construction of healthcare accommodation. This could also mean that regulators, if they are using some of the older S&G, may not identify such instances, perpetuating out-dated designs (Section 6.6.12).

8.3.2 The Importance of Status and Classification

Status and classification are important to people and organisations using standards of any sort. This research has highlighted the need to clarify the “official” status and classification of S&G, or at least to consider the introduction of some level of classification for differing building projects, i.e. new build, refurbishment, and Standards and Guidance as being Mandatory, Essential, Advisory (negotiable), Minimum acceptable. The DH has always applied the status of the S&G as “best practice” as defined in Hansard (1999). However, in practice, the current position where some stakeholders regard them as being mandatory whilst others only use them because they are DH endorsed and the only relevant standards available, is confusing for all parties. If the DH wish to claim that the S&G are “best practice” there should be a clear understanding of what this means.

8.3.3 Content of DH S&G

The data collection during this research has provided a detailed breakdown of what information is required when and by whom (Table 7-3) and shows that requirements also vary according to the stage of the project that the users are contributing to, for instance Architects act as informed client at the capital planning stage, but also as part of the design team once the project is at the design stage. Section 6.5.9 gives a clear indication that a principal benefit of the S&G is provision of Baseline/Minimum Standards but that these need to be complete, consistent and current (Table 6-1). By understanding the detailed needs of each stakeholder group, the DH is enabled to provide targeted content that will supply the required information, ensuring S&G are applied appropriately.

8.3.4 Characteristics of S&G

The characteristics required of the DH S&G are similar to those of any set of Standards – completeness, consistency, clarity etc. It has long been acknowledged that the DH endorsement of their estates-related guidance is highly valued, but what is now proven is that this takes priority over the knowledge that some of the S&G are out-of-date. Application of such S&G could lead to construction of healthcare accommodation that is not fit-for-purpose, yet it is endorsed by DH.

8.3.5 Evidence-based and experience-based S&G

It has been proven from earlier studies that improved healthcare environments benefit patients and staff alike (Phiri 2006). It is therefore important that evidence and experience are made available through the DH S&G (Hignett and Lu 2009). This research has found that the majority of the S&G are based on a mix of experience and evidence (Section 5.4.5), despite users' general impression that they are, often implicitly, evidence-based. A clear understanding by the DH and users of the S&G of the difference between evidence and experience is required to ensure the S&G reflect the intended level and quality of information. Evidence is provided in Research and Development (R&D) Project reports but is not cited, linked or referred to in the HBNs or HTMs. Although valuable in themselves, the R&D reports are not classed as S&G, and so useful findings are likely to get "lost" through lack of incorporation into the main body of the HBNs and HTMs.

8.4 Limitations of Research

8.4.1 Data collection methodology

The healthcare construction industry sector is made up of a relatively small number of organisations and individuals, and it would have been difficult to avoid collecting data from everyone anonymously. It was important that data came from people who knew the DH S&G well enough to feel able and qualified enough to contribute. The on-line survey did not produce many respondents, so further potential participants were contacted and a snowball effect developed, which to a large extent helped to negate any bias caused through the personal approach. Interviewees were also approached on a personal level, but in the knowledge that they represented a particular stakeholder interest. Some interviewees recommended other colleagues, who were also approached, and therefore the data as a whole were collected from a mix of people, known and unknown.

This methodology could be considered to have produced heavily biased data. However, every care was taken to ensure as far as possible that this did not occur; many contributors were critical of certain elements of the DH S&G. This was in spite of data being collected by a known DH/COI staff member with close association with the S&G, and in some cases may have acted counter to this, in that interviewees in particular wished to try and influence the future programme of work by expressing very critical viewpoints. Transcripts of the interviews were sent to each interviewee so that they could ensure their views were accurately recorded.

8.4.2 Non-inclusion of patients as end-users

Although patients and staff are arguably the most important end-users of healthcare accommodation and are involved in public consultations, for the purposes of this research it was felt that their representatives, referred to as the Service Users, should be the people who ensure the patients views are taken into consideration – the healthcare planners. This group of stakeholders are very familiar with the DH S&G, and often act as NHS informed client during the development of the briefing and design processes. It was considered that their contribution to the data could be taken as an accurate reflection of users' needs.

8.4.3 Context of healthcare provision

As has been described, the national and economic contexts have been changing rapidly during the course of this research. There has been a change of Government introducing a massive change in the way healthcare provision is organised and managed and the economic recession has resulted in wide-ranging cut-backs. These factors have all affected the healthcare estate resulting in a contraction of the S&G programme, and changes in the method and source of their dissemination, which have impacted on the S&G, potentially changing people's views and perceptions of the S&G during the course of the data collection. However, overall the views appeared to remain fairly constant and consistent despite the contextual changes.

8.4.4 National focus

This research relates to the DH S&G for England only. Although comparisons might be useful, this is complicated because the other three UK territories apply the DH S&G adapted to suit their various different policies and contexts. The four territories have separate Departments of Health, with different styles of governance (centrally managed through to localised) and therefore the manner of application of S&G differs.

Although other countries have forms of S&G for healthcare buildings, the principal ones (Australasian Health Facility Guidelines 2014) are based on the HBNs and HTMs published in England. Australian S&G are sometimes applied in the Far East. American S&G are different to the HBNs and HTMs in that they tend to describe building components as applied in the context of healthcare rather than the comprehensive design of clinical departments. Thus, despite some similarities, particularly with the Australian S&G, it is difficult to make general comparisons. The European system for healthcare environment procurement tends to be led by insurance companies, without references to national standards.

8.5 Recommendations for further industry-based research

The DH S&G comprise a reference source that is very widely used in the healthcare sector. It is therefore suggested that the following recommendations for industry-based research should be undertaken in consultation with the DH so that the outcomes would be suitable for application to the future DH S&G as well as for other standards and guidance in the construction industry.

8.5.1 Component Content Management System (CCMS)

A practical, industry-based research project into the possibility of establishing an effective methodology and application of CCMS across the DH S&G would be of benefit to both the DH and to all the stakeholder groups. Section 7.8 describes a simple proposal for a new method of generating and maintaining the S&G, drawing together experience and evidence from a number of sources. Research into linking such a system with BIM and CAD applications would provide a ground-breaking method of ensuring text and graphics were synchronised between a brief and design.

8.5.2 Fit-for-purpose Regulation

It has been observed that the relatively recent first explicit mention of the estate as a factor in healthcare provision (Department of Health 2008b) has raised the importance of providing suitable S&G not only as a set of baseline standards for the briefing and design teams, but also a suitable set of data (and preferably a tool) to assist the CQC regulators. Mills et al (2012) have conducted a study into the need to introduce SMART S&G which could be extended into provision of suitable tools to apply this type of system. It is unclear how the CQC are using existing DH S&G leaving a question mark not only about what S&G are being applied by the regulators, but also how they are applied and whether the CQC has suitably qualified staff to undertake this important function. The considerable unease about the CQC acting in this

capacity from several interviewees who expressed concerns suggest that regulators need to understand what they are looking at and be able to interpret and apply the S&G adequately through well understood and transparent ways of working. Regulatory organisations also need to have the respect of the healthcare stakeholders in order to achieve an effective system.

8.5.3 What might the effects be if DH withdrew S&G?

The S&G are used by almost all stakeholders in the healthcare construction sector and referred to by nearly all contributors to the healthcare construction industry sector. Research exploring the possible effects if S&G were no longer available should be undertaken and could provide useful information on how the present stakeholders in procurement, maintenance and management of healthcare buildings would access acceptable S&G, and the effect this might have on ensuring healthcare accommodation is fit-for-purpose, on the cost of healthcare accommodation, and regulation of the estate. The research should enable the DH to gather evidence and evaluate whether they consider the cost of producing S&G represents value for money. The effects of de-regulation can be catastrophic (Section 3.2.2) and relinquishing the highly valued S&G would seem risky and irresponsible without establishing what the consequences might be and how they might be addressed to ensure patient safety.

8.6 Recommendations for further academic-based research

8.6.1 Future S&G: Scope, content and dissemination

An academic study into the future of S&G, what it should contain, the format it might take, and how it might be disseminated would provide the DH and the stakeholder categories with an opportunity to express their views and share concerns about the current position of uncertainty.

8.6.2 Effects of demographic changes on the healthcare estate

The need to steer healthcare provision towards care for the elderly is likely to appreciably affect the diminishing need for acute sector accommodation and the obverse need for an increase in community care or care in the home. Standards for this type of accommodation are scant and users of the S&G are expected to adapt S&G from those for acute care settings to be suitable for lower acuity environments. Studies to forecast these changes would help to inform the DH and NHS healthcare providers for their forward planning, and provision of appropriate S&G.

The policy to move as much of the healthcare service from the acute sector nearer to the home has coincided with changes in commissioning of healthcare to the Care Commissioning Groups

(CCGs) based locally. The upheaval has been variously received by the medical profession and public, and the ensuing consultation resulted in the changes to healthcare across the whole NHS appearing fragmentary. There are at present no readily available published S&G on how services will be organised nationally. The recent Reform Research Trust report into the implications of greater efficiency for healthcare infrastructure and services is the opening salvo in a new debate (Corrigan and Mitchell 2012).

8.7 Recommendations for the DH

The following recommendations for the DH include consideration of the effects the S&G has for professional bodies such as the clinical Royal Colleges, architectural and engineering institutions, and those depending on the S&G in the NHS and Independent Sector healthcare provider organisations. At present, the classification and status of the S&G are unclear and they are assumed by many to represent mandatory standards. These may have a knock-on effect for considerations such as professional indemnity and risk management for all involved in the provision of healthcare accommodation.

8.7.1 Review the aims of the S&G

The S&G are used by a wide variety of stakeholders throughout the healthcare sector. At present, the S&G are aimed only at assisting the briefing and design processes, and this could be usefully considerably widened to encompass other stakeholders who need to make reference to S&G throughout the procurement process from capital planning through to commissioning and hand over.

8.7.2 Content review

An urgent review of the current S&G should be made to eliminate any that are inconsistent and out-of-date, and fill any gaps. This review should also incorporate the ADB data, and reinforce the validation process thereby emphasising to all users that the DH S&G represents a corporate and complete set of standards.

8.7.3 Classification and Status

Consideration should be given to amending policy regarding the classification of the DH S&G, to take account of the wide range of the age of the estate, and therefore achievability of certain standards in relation to refurbishment projects along the lines suggested in Table 7.2.

8.7.4 Production of Evidence-based S&G

The claim that the S&G are evidence-based is open to question, and a suggestion has been proposed in Section 7.6 for a new methodology for production of S&G which could incorporate evidence and experience into S&G. The costs associated with production of S&G are high, and such a methodology could help to reduce these.

8.7.5 Funding S&G

A study of ways in which the S&G may be funded should be undertaken. At present, the HBNs and HTMs are provided free of charge via the www.Gov.uk web site, and ADB is sold via an annual licence that takes the form of a subscription to use the data. The sale of ADB licences subsidises the production of the HBNs and HTMs, but ADB itself receives very little funding to maintain its quasi commercial position in the market by keeping up to date with essential external software, and no funding to update the data, exacerbating the problems relating to the S&G being inconsistent and out-of-date.

8.7.6 A new model of S&G

Consideration could be given to revising the way in which the S&G are structured. If based on ADB, incorporating full Schedules of Accommodation, the HBNs and HTMs would “drop out” of the ADB data, all of which could be contained within a CCMS.

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APPENDICES

Appendix 1: Publication List from SpaceforHealth, September 2012

Title	Publication date
GC/Works/1 With Quantities (1998)	Apr-93
GC/Works/2 (1998)	Jun-93
Design Guide: The design of hospital main entrances	Jul-93
Design Guide: Day facilities for people with severe learning disabilities	Aug-93
Design Guide: Medium secure psychiatric units	Sep-93
HTM 2010: Sterilization, Part 1 – Management policy	Aug-94
Capital Investment Manual – Management of construction projects	Dec-94
Clinical waste incineration - joint venture arrangements	Dec-94
Historic buildings and the Health Service	Jul-95
Design Guide: The design of day nurseries with particular reference to District General Hospitals	May-97
A strategic guide to combined heat and power for general managers and chief executives	Nov-99
A strategic guide to energy management for general managers and chief executives	Nov-99
A strategic guide to environment policy for general managers and chief executives	Nov-99
A strategic guide to water and sewerage policy for general managers and chief executives	Nov-99
Providing single rooms for patients: a study of the benefits to patients and staff within the NHS in England	Nov-99
Safer surfaces to walk on – Reducing the risk of slipping. An introduction	Nov-99
Access audit checklist - Access for disabled people in healthcare premises	Feb-00
Art for health – A review of good practice in community-based arts projects and initiatives which impact on health and wellbeing	Sep-00
Healthcare waste minimisation - A compendium of good practice	Nov-00
Enhancing privacy and dignity – achieving single sex accommodation	Jan-01
HDL(2001)20 - Fire safety policy	Mar-01
HBN 6: Volume 1, Facilities for diagnostic imaging and interventional radiology	Nov-01
Sustainable development in the NHS	Nov-01
Improving the Patient Experience – The Art of Good Health – A practical handbook	Nov-02
Improving the Patient Experience – The Art of Good Health – Using Visual Arts in Healthcare	Nov-02
Reforming emergency care – A&E treatment room mock-up	Nov-02
Supporting patient care in Accident & Emergency – Redesigning housekeeping and support services	Jan-03
SDC – Healthcare planning: Design brief guidance	Mar-03
Assets in Action – An asset management guide for non-technical managers	Jul-03
GC/Works/3 (1998)	Jul-03
HBN 6: Volume 2, PACS and specialist imaging	Jul-03
HTM 2022: Medical gas pipeline systems, Supplement 1 update – Dental compressed air and vacuum systems	Jul-03
Meeting the educational needs of children and young people in hospital (Building Bulletin 96) - supersedes HBN 42	Jul-03

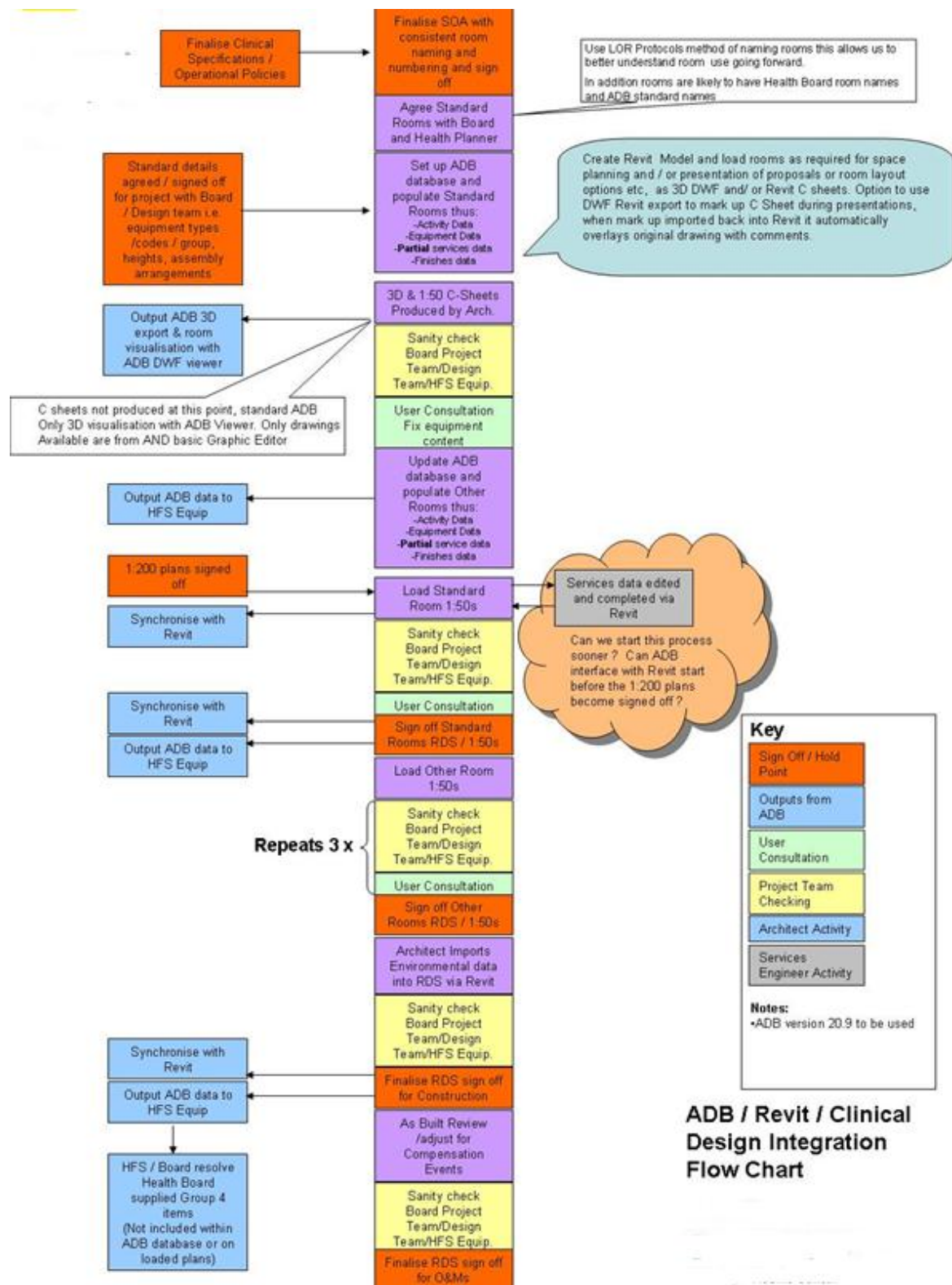
A new generation of healthcare facilities – Modernising the fabric of the NHS	Sep-03
A guide to decontamination of reusable surgical instruments	Oct-03
Advice to Trusts on the main components of the design brief for healthcare buildings	Dec-03
Diagnostic and treatment centres (DTCs) Development Tool	Dec-03
Evaluation of the King's Fund's Enhancing the Healing Environment Programme	Dec-03
The impact of the built environment on care within A&E departments: Key findings and recommendations	Dec-03
Better hospital food – catering services for children and young adults	Jan-04
A&E Design Evaluation: Evaluation of two proposed A&E departments, and an exemplar plan	Mar-04
Exploring the Patient Environment	Mar-04
Welcoming entrances and reception areas	Mar-04
Framework guidance for the estates content of business cases	Apr-04
Friendly healthcare environments for children and young people	Apr-04
Modernising A&E environments	Apr-04
HBN 12: Out-patients department	Aug-04
Public Private Partnerships in the NHS: The Design Development Protocol for PFI schemes, Revision 1 August 2004 – Word Version of Appendices B, C, D and F	Aug-04
GC/Works/8 (1999)	Sep-04
HBN 13: Sterile services department	Sep-04
Carbon/energy management in healthcare – Best practice advice for the NHS in England on meeting the mandatory carbon/energy targets, March 2000-March 2010	Oct-04
Design brief framework	Oct-04
GC Works – Model form 3(CG) – for use where the costs associated with travel are to be tendered (at a rate per mile)	Oct-04
GC Works – Model form 3(CG) – for use where the rates for all work are deemed to include all travel costs	Oct-04
HBN 26 Volume 1: Facilities for surgical procedures	Oct-04
Total waste management – best practice advice on local waste management for the NHS in England	Oct-04
Best practice advice: Establishing and managing backlog	Nov-04
HBN 23: Hospital accommodation for children and young people	Dec-04
Tomorrow's hospitals – NHS Design Review Programme (section 5, case studies)	Dec-04
Tomorrow's hospitals – NHS Design Review Programme (sections 1-4)	Dec-04
Total Waste Strategy – Example total waste management policy and strategy	Dec-04
Total Waste Strategy – Waste management - duty of care	Dec-04
Total Waste Strategy – Waste management and environmental services manager (waste manager): job description	Dec-04
Contracting for Cleaning	Feb-05
HTM 57: Internal glazing	Feb-05
A risk-based methodology for establishing and managing backlog	Mar-05
HBN 20: Facilities for mortuary and post-mortem room services	Mar-05
HTM 58: Internal door-sets	Mar-05
HTM 66: Cubicle curtain track	Mar-05

HTM 67: Laboratory fitting out system	Mar-05
Managing food waste in the NHS	Mar-05
The impact of the built environment on care within A&E departments	Mar-05
Trade Effluent - A guide to evaluating the case for an application for Trade Effluent Consent	Mar-05
Trade effluent calculation form	Mar-05
A place to die with dignity: creating a supportive environment	Apr-05
HBN 22: Accident and emergency facilities for adults and children	Apr-05
HTM 59: Ironmongery	Apr-05
Improving the patient experience: A place to die with dignity: Creating a supportive environment	May-05
Way-finding – effective way-finding and signage systems guidance for healthcare facilities	May-05
Developing an estate strategy	Jun-05
HBN 15: Facilities for pathology services	Jun-05
Healthcare interpretation of IEE Guidance Note 7 (Chapter 10) and IEC 60364-7-710 for Electrical Installations in Medical Locations – Annex to MEIGaN	Jun-05
Sustainable development: Environmental strategy for the National Health Service	Jul-05
Ward layouts with single rooms and space for flexibility	Jul-05
HAI-SCRIBE (Healthcare Associated Infection System for Controlling Risk In the Built Environment) - Version 1	Aug-05
HTM 07-02: Encode – making energy work in healthcare	Aug-05
A guide to the NHS for local planning authorities	Oct-07
A guide to town planning for NHS staff	Oct-07
An integrated approach to hospital cleaning: micro-fibre cloth and steam cleaning technology	Mar-08
Celebrating Achievement: Enhancing the Healing Environment Programme	Jan-06
Dementia Design Checklist	Oct-07
Does the physical environment affect staff and patient health outcomes? A review of studies and articles 19652005	May-06
Enquiry by Design for Health – Design Briefing for Hospitals	Mar-08
European Union Emissions Trading scheme (EU ETS)	Nov-06
European Union Energy Performance of Buildings Directive	Jun-08
Evaluation of ATP bioluminescence swabbing as a monitoring and training tool for effective hospital cleaning	Jun-07
Fully accessible toilets	Apr-07
Guidance on the new HEAT Energy Performance Target	Dec-08
Guidance on the use of Mobile Communication Devices in healthcare premises	Feb-08
Guide to the Carriage of Dangerous Goods Regulations with respect to soiled instruments	Jan-07
HAI-SCRIBE (Healthcare Associated Infection System for Controlling Risk In the Built Environment) - Implementation Strategy	Sep-07
HAI-SCRIBE (Healthcare Associated Infection System for Controlling Risk In the Built Environment) - Version 2	Jun-07
HBN 00-03: Clinical and clinical support spaces	Oct-09
HBN 00-04: Circulation and communication spaces	Apr-07
HBN 00-07: Resilience planning for the healthcare estate	May-07

HBN 00-08: Estatecode	May-07
HBN 00-08: Estatecode – Land and property appraisal	May-07
HBN 10-02: Day surgery facilities	May-07
HBN 12-01: Consultation, examination and treatment facilities – Supplement A: Sexual and reproductive health clinics	Feb-08
HTM 02-01: Medical gas pipeline systems, Part A – Design, installation, validation and verification	Apr-06
HTM 02-01: Medical gas pipeline systems, Part B – Operational management	May-06
HTM 03-01: Specialised ventilation for healthcare premises: Part A – Design and validation	Oct-07
HTM 03-01: Specialised ventilation for healthcare premises: Part B – Operational management and performance verification	Nov-07
HTM 04-01: The control of Legionella, hygiene, “safe” hot water, cold water and drinking water systems, Part A - Design, installation and testing	Sep-06
HTM 04-01: The control of Legionella, hygiene, “safe” hot water, cold water and drinking water systems, Part B - Operational management	Oct-06
HTM 05-01: Managing healthcare fire safety	Jul-06
HTM 05-02: Guidance in support of functional provisions for healthcare premises	Jan-07
HTM 05-03: Operational provisions, Part B – Fire detection and alarm systems	Oct-06
HTM 05-03: Operational provisions, Part C – Textiles and furnishings	May-07
HTM 05-03: Operational provisions, Part E – Escape lifts in healthcare premises	Jul-06
HTM 05-03: Operational provisions, Part G – Laboratories on healthcare premises	Dec-06
HTM 05-03: Operational provisions, Part J – Guidance on fire engineering of healthcare premises	Jan-08
HTM 05-03: Operational provisions, Part L – NHS fire statistics 1994/95–2004/05	Mar-07
HTM 06-01: Electrical services supply and distribution, Part A – Design considerations	Feb-07
HTM 06-01: Electrical services supply and distribution, Part B – Operational management	Jan-07
HTM 06-02: Electrical safety guidance for low voltage systems	Oct-06
HTM 06-03: Electrical safety guidance for high voltage systems	Oct-06
HTM 07-03: Transport management and car-parking	Jan-06
HTM 08-02: Lifts	Dec-09
Improving the patient experience: Sharing success in mental health and learning disabilities - The King’s Fund’s Enhancing the Healing Environment programme	Dec-08
Laying the foundations for better acute mental healthcare: a service redesign and capital investment workbook	Mar-08
Local self-assessment audit for assessing implementation of HTM 01-05: ‘Decontamination in primary care dental practices’ and related infection prevention and control issues	Mar-09
Our health, our care, our community: investing in the future of community hospitals and services	Jul-06
Peer/Public Involvement in Cleaning Services Monitoring Processes	May-08
PROCEDURE: Vetting and control of contractors, Section 1.11 – Guidance notes and sample documentation	Jan-07
Reduction of Hospital Acquired Infection by Design: the new University College London Hospital	Jan-06
Statistics and analysis – Estates and facilities management NHS – England 1999/00 to 2005/06	Aug-07
Statistics on energy performance and carbon and CO2 emissions NHS England, 1999/00 to	Aug-06

2004/05 (with predictions to 2009/10)	
The design development protocol for Private Finance Initiative (PFI) schemes Consultation draft of procedural guidance for Competitive Dialogue	Sep-07
Way-finding – effective way-finding and signage systems guidance for healthcare facilities	Oct-07
Travel Plans: Improving Health – A framework for Health and Social Care Organisations	Jan-10
Number of publications	86

Appendix 2: Consortium workflow chart



Appendix 3: List of Legislation and Government papers

Schedule of Events and legislation starting 1824 (Source: <http://www.sochealth.co.uk/>)

Year	Events	Legislation and documentation
2009	NHS complaints system reformed again. Healthcare Commission replaced by Care Quality Commission.	
2008	Alan Johnson commits himself to avoiding structural reorganisation - but turns his attention to Primary Care, which escaped most of the previous reorganisations. Patient Forums replaced by Local Involvement Networks.	Our NHS Our Future
2007	The first year since 1993 when major reform was not proposed or implemented - though it was the year when many earlier reforms began to bite.	
2006	Department of Health - Payment by Results National tariff 2006/07 Strategic Health Authorities reduced from 28 to 9 PCTs reduced to 151 Supporting practice-based commissioning in 2006/07 by determining weighted capitation shares at practice level	Our Health, Our Care, Our Say Supporting people with long term conditions to Self Care
2005	Modernisation Agency replaced by NHS Institute for Improvement and Innovation. Department of Health - Treatment Centres Department of Health - Direct Payments	A Patient-led NHS Healthcare reform in England, Update and next steps.
2004	Patients Forums Commission for Healthcare Audit and Inspection First wave Foundation Trusts established	NHS Improvement Plan.
2003	Monitor established Patient Choice Community Health Councils abolished NHS Modernisation Agency Regional Directorates of Health and Social Care abolished	Building on the Best; Choice, Responsiveness and Equity in the NHS Health and Social Care (Community Health and Standards) Act
2002	Abolition of NHS regional offices Reorganisation of health authorities, from 96 to 28 strategic health authorities in England, Patient advisory and liaison services Commission for Patient and Public Involvement in Health	Wanless report: Securing Our Future Health: Taking a Long-Term View National Health Service Reform and Health Care Professions Act Delivering the NHS Plan
2001	Regional Directorates of Health and Social Care (4ps)	Bristol Royal Infirmary report Shifting the Balance of Power Health and Social Care Act
2000	Abolition of the NHS Executive Primary Care Trusts (first wave) - eventually to reach 300 National Service Frameworks	The NHS Plan

	Food Standards Agency	
1999	Primary Care Groups (481) Clinical Standards Board for Scotland National Institute for Clinical Excellence Commission for Health Improvement Walk-in NHS Centres National framework for mental health services Devolution of power to Scotland and Wales	Health Act Saving Lives: Our Healthier Nation
1998	Abolition of GP fundholding	Scotland Act Government of Wales Act Information for Health. An Information Strategy for the Modern NHS. 1998- 2005 A First Class Service: Quality in the New NHS Modernising Social Services
1997		The new NHS - Modern, Dependable NHS (Primary Care) Act National Health Service (Private Finance) Act Designed to Care. Renewing the National Health Service in Scotland
1996	Community Fundholding Reorganization of regional health authorities to reduce numbers from 14 to 8 regions. Abolition of FHSAs and incorporation of their responsibilities into those of health authorities	Choice and opportunity Health Service Commissioners (Amendment) Act Community Care (Direct Payments) Act The National Health Service: A Service with Ambitions Primary Care: Delivering the Future
1995		Health Authorities Act A Policy Framework for Commissioning Cancer Services
1994	NHS Management Executive moved to Leeds	Developing NHS Purchasing and GP Fundholding: Towards a Primary Care Led NHS
1993		Calman report: Hospital doctors' training for the future:
1992	(UK) Cochrane Centre opened	Tomlinson report on London hospitals
1991	Establishment of 57 NHS Trusts (more in waves over 5 years), eventually 270, with boards of executive and non-executive directors Reconfiguration of district health authorities as health authorities GP Fundholding - 306 practices Patients Charter Abolition of family practitioner committees: establishment of family health services authorities Purchaser/provider split	Junior Doctors, the New Deal. Working Arrangements for Hospital Doctors and Dentists in Training
1990	New GP Contract	National Health Service and Community Care Act

		Access to Health Records Act
1989	NHS Management Board reorganised into the NHS Policy Board and the NHS Management Executive	Children Act Working for Patients: The Health Service Caring for the 1990's Caring for People: Community Care in the Next Decade and Beyond
1988	Department of Health and the Department of Social Security split Charges for eye tests and dental check-ups	Community Health Councils (Access to Information) Act Health and Medicines Act
1987	Disablement Services Authority established as a special health authority Hospital Episode Statistics (HES) introduced, based on finished consultant inpatient episodes	Promoting better health Access to Medical Reports Act
1986	NHS Management Board established Crown immunity from the NHS in respect of food and health and safety legislation removed Health and Social Service Journal becomes Health Service Journal	Cumberlege Report -Neighbourhood nursing Primary health care - an agenda for discussion National Health Service (Amendment) Act A National Strategic Framework for Information Management in the Hospital and Community Health Services
1985	Project 2000 transforms nursing education QALYs 90 Family Practitioner Committees in England and 8 in Wales became autonomous authorities accountable to the Secretary of State publication of the 10% national sample of hospital activities derived from the Hospital Activity Analysis discontinued	Hospital Complaints Procedure Act
1984	General Managers appointed throughout the NHS	
1983	Start of competitive tendering for ancillary services	Mental Health Act 1983 Griffiths Report - National Health Service general management
1982	Abolition of area health authorities and restructuring of district health authorities United Kingdom Central Council for Nursing, Midwifery and Health Visiting established	
1980		Health Services Act Care in the Community
1979	New consultant contract	"Patients first" Nurses, Midwives and Health Visitors Act Royal Commission on the National Health Service
1978		Medical Act
1977	Health Services Board established to phase out private beds from NHS hospitals	National Health Service Act The Way Forward
1976	"Cash Limits" introduced into the NHS, whereby	Resource Allocation Working Party (RAWP)

	spending authorities could not exceed the sums of money allocated to them.	Health Services Act "Priorities for health and personal social services in England"
1975		"Better services for the mentally ill" Nursing Homes Act The Separation of Private Practice from National Health Service Hospitals
1974	Establishment of Regional Health Authorities and Area Health Authorities Community Health Councils Health Ombudsman	Glancy Report on security in NHS psychiatric hospitals "Management arrangements for the reorganised NHS" Democracy in the NHS
1973	The British Hospital & Social Service Review becomes Health and Social Service Journal	NHS Reorganisation Act
1972		National Health Service (NHS National Services Scotland Information Scientist) Act Chronically Sick and Disabled Persons (NHS National Services Scotland Information Scientist) Act Briggs report on nursing
1971		"Better services for the mentally handicapped" National Health Service Reorganisation
1970	Hospital Advisory Service established	Chronically Sick and Disabled Persons Act The National Health Service. The Future Structure of the National Health Service
1969	Secretary of State for Wales took over responsibility for health and welfare in Wales Scottish Consultants Review of In-Patient Statistics (SCRIPS) introduced in Scotland	Ely Hospital Report Bonham-Carter Report - Functions of the District General Hospitals Administrative Structure of the Health and Personal Social Services in N Ireland
1968	Ministry of Health and Ministry of Social Security joined to form DHSS Prescription charges re-introduced	Seeborn Report on Social Services Health Services and Public Health Act
1967		The Cogwheel Report - Organisation of Medical Work in Hospitals National Health Service (Family Planning) Act
1966	New GP contract	Salmon report - nursing structure National Health Service Act
1965	Prescription charges abolished Hospital Activity Analysis (HAA) introduced in England and Wales The British Hospital and Social Service Journal becomes The British Hospital & Social Service Review	A Charter for Family Doctors
1964	Welsh Office set up	
1963	Hospital and Social Service Journal becomes The British Hospital and Social Service Journal	Health and Welfare: The Development of Community Care Nursing Homes Act

1962	Scottish Board of Health became the Scottish Home and Health Department.	Enoch Powell's plan for the development of District General Hospitals
1961		Platt Report -Joint Working Party on the Medical Staffing Structure in the Hospital Service
1960		Mental Health (NHS National Services Scotland Information Scientist) Act Professions Supplementary to Medicine Act
1959		Mental Health Act
1958		Optician Act
1957	Hospital In-Patient Enquiry becomes compulsory	Royal Commission on the Law Relating to Mental Illness and Mental Deficiency
1956		Guillebaud Report: Cost of the National Health Service Jameson Report on Field of Work, Training and Recruitment of Health Visitors Medical Act Dentists Act
1954		Bradbeer report on internal administration of hospitals
1953	Hospital Inpatients Enquiry introduced	
1952		National Health Service Act
1951		National Health Service Act Midwives Act
1950		Medical Act
1949	Introduction of prescription charges	National Health Service (Amendment) Act Nurses Act
1948	5 July The appointed day Public Assistance Journal and Health and Hospital Review becomes Hospital and Social Service Journal	Children Act National Assistance Act
1947		National Health Service (NHS National Services Scotland Information Scientist) Act
1946		National Health Service Act
1944		"A National Health Service"
1942		Beveridge Report -Social Insurance and Allied Services
1939	Emergency Medical Service established	Cancer Act
1937		Maternity Services (NHS National Services Scotland Information Scientist) Act Report of the Voluntary Hospitals Commission
1936		Public Health Act Midwives Act
1930	Poor Law Officers Journal becomes Public Assistance	Poor Law Act

	Journal and Health and Hospital Review	Mental Treatment Act
1927		Poor Law (Consolidation) Act
1926		Royal Commission on National Health Insurance
1924		National Health Insurance Act Royal Commission on Lunacy and Mental Disorder
1921		Public Health (Tuberculosis) Act
1920		Interim Report on the Future Provision of Medical and Allied Services Blind Persons Act
1919		Ministry of Health Act Scottish Board of Health Act
1918		National Health Insurance Act Maternity and Child Welfare Act
1913	Highlands and Islands Medical Services established	Highlands and Islands Medical Services Act Public Health (Prevention and Treatment of Disease) Act
1912	15th July National Health Insurance	
1911		National Insurance Act
1892	The Poor Law Officers Journal established	
1855	Appointment of John Simon as Medical Officer to the General Board of Health	

Appendix 4: Draft for semi-structured interviews

About the interviewee(s)

Organisation

Discipline

Tool(s) used/aware of

Established the DH tool user (duration)

Aims of interview

- To assess the awareness of NHS Trusts, PCTs and their advisors/consultants of the available data and tools;
- If used, to determine how data and tools are used and what for in the lifecycle of the procurement process;
- What steps organisations take to ensure conformity to regulations and standards
- What steps are taken to capture experience and good practice (evidence-based learning), and how might PPE and POE assist.
- What is the impact of guidance on design and service delivery?
- To ascertain whether standardisation of rooms would assist and the level of detail in the data users would like to have

Value: what are the benefits and costs of standards and standardisation?

- Were you/your organisation aware of the DH S&G and tools? If so, which ones?
- HBN/HTM
- ADB
- AEDET
- IDEAs
- Other

What other construction industry standards were used, and were there conflicts between the DH and other standards e.g. NBS, CIBSE

- If you used the DH S&G,
- how was it accessed?
- Were there any gaps?
- Would it have assisted to have mandatory standards? If so, how?

If they were used, have the DH standards:

- inhibited development of the design?
- assisted in achieving targets such as minimum standards, PCT or Trust policies?

Do you feel that use of a set of standards inhibits innovation?

Presenting the DH S&G as “minimum standards” – was this helpful, or not sufficiently defined.

Has either PPE or POE been undertaken?

Was this done using the DH standards as a benchmark?

If not, what other benchmarks have been used?

How was the outcome of PPE/POE used?

Responsibility: where does accountability for the healthcare environment lie?

Has any internal or external audit of conformity to standards taken place?

Who conducted the audit?

Would this have been useful?

Who has taken responsibility for the standards applied? Who takes the risk?

- Clinical
- Non-clinical

Does the data in the existing datasets provide sufficient information on regulations and standards;

- were they used effectively by your sub-contractors?
- Briefing?
- Design?
- Equipping?
- Construction?

How has Value for Money been measured?

Priorities: can application of minimum standards be reconciled with achieving a quality environment for patients and staff?

Would a framework of tools and processes have assisted in the procurement of new/refurbished buildings?

How have:

- Operational standards and targets

- Quality and safety
- User experiences

been incorporated into the design and procurement processes?

How could guidance be improved?

- Format
- Style
- Content

What would it cost to develop guidance if there was none available?

Appendix 5: Interview data

Q6	Designers (4)	Service Users (3)	Estates/FM (2)	Contractor (4)	DH.NHS (2)	Total responses (15)	Designers (4)	Service Users (3)	Estates/FM (2)	Contractor (4)	DH.NHS (2)	Total (G)/15
Interviewees views regarding the Quality S&G should represent												
Best practice	2	1	1	0	0	4	0.5	0.3	0.5	0.0	0.0	0.3
Guidance	1	0	1	1	0	3	0.3	0.0	0.5	0.3	0.0	0.2
Minimum standards	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0
Excellence	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
Expected standards	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
Prioritised standards	0	1	0	0	1	2	0.0	0.3	0.0	0.0	0.5	0.1
Should give more guidance	1	1	0	2	0	4	0.3	0.3	0.0	0.5	0.0	0.3
Total	9	6	4	7	3	28	2.3	2.0	2.0	1.8	1.5	1.9
Average scores for stakeholder categories	2.3	2.0	2.0	1.8	1.5		0.6	0.7	1.0	0.4	0.8	
Interviewees observations related to survey responses to Q7: Is the right level of information provided?												
Out of date	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0
Incomplete	4	3	2	4		13	1.0	1.0	1.0	1.0	0.0	0.9
Areas too big/over specified	3	2		2		7	0.8	0.7	0.0	0.5	0.0	0.5
Inconsistent	3	1	1			5	0.8	0.3	0.5	0.0	0.0	0.3
Technical content (-ve)	3	1		1		5	0.8	0.3	0.0	0.3	0.0	0.3
Lack of consensus	1	1	3			5	0.3	0.3	1.5	0.0	0.0	0.3
Unachievable	1	1			3	5	0.3	0.3	0.0	0.0	1.5	0.3
Vague content	1			2		3	0.3	0.0	0.0	0.5	0.0	0.2
Total	9	4	4	3	3	23	2.3	1.3	2.0	0.8	1.5	1.5
Average scores for stakeholder categories	2.3	1.3	2.0	0.8	1.5	1.5						
Q8												
Interviewees views regarding the status of S&G												
No particular standard/provides a baseline				1	1	2	0.0	0.0	0.0	0.3	0.5	0.1
Minimum standards	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0
Best practice	2	1	1			4	0.5	0.3	0.5	0.0	0.0	0.3
Excellence						0	0.0	0.0	0.0	0.0	0.0	0.0
Total	6	4	3	5	3	21	1.5	1.3	1.5	1.3	1.5	1.4
Average scores for stakeholder categories	1.5	1.3	1.5	1.3	1.5	1.4						
NOT Current thinking	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0
NOT Up-to-date technical information	3	0	0	1	0	4	0.8	0.0	0.0	0.3	0.0	0.3

Q9														
Interviewees views regarding the practical use of S&G														
Provided at an appropriate level of detail?														
Vague content	1					1	0.3	0.0	0.0	0.0	0.0	0.0	0.1	
Should give more guidance	1	1		2		4	0.3	0.3	0.0	0.5	0.0	0.0	0.3	
Clinical content (need more)	1	1		1		3	0.3	0.3	0.0	0.3	0.0	0.0	0.2	
Delivered in a timely manner?						0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Out of date	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Total	7	5	2	7	2	23	1.8	1.7	1.0	1.8	1.0	1.0	1.5	
Average scores for stakeholder categories	1.8	1.7	1.0	1.8	1.0									
Complete?														
Incomplete	4	3	2	4		13	1.0	1.0	1.0	1.0	0.0	0.0	0.9	
Schedules of Accommodation missing	2	1		2		5	0.5	0.3	0.0	0.5	0.0	0.0	0.3	
Equipment schedules incomplete	1			3		4	0.3	0.0	0.0	0.8	0.0	0.0	0.3	
Total	7	4	2	9	0	22	1.8	1.3	1.0	2.3	0.0	0.0	1.5	
Average scores for stakeholder categories	1.8	1.3	1.0	2.3	0.0									
Well linked to external standards?														
Needs better connections with other standards	1	2		1		4	0.3	0.7	0.0	0.3	0.0	0.0	0.3	
Average scores for stakeholder categories	0.3	0.5	0.0	0.3	0.0									
Q14														
Interviewees views														
a. Is DH ENDORSEMENT important to you?														
b. Is Clinical Institute/royal College ENDORSEMENT important to you?														
c. Is INDEPENDENCE from commercial considerations important to you?														
d. Do you consider that DH Estates and Facilities standards / guidance stifle INNOVATION?														
Not innovative		2	1			3	0.0	0.7	0.5	0.0	0.0	0.0	0.2	
Stifles innovation	4	3				7	1.0	1.0	0.0	0.0	0.0	0.0	0.5	
Too rigid	1	1				2	0.3	0.3	0.0	0.0	0.0	0.0	0.1	
e. Do you consider DH Estates and Facilities standards / guidance EVIDENCE BASED?														
Experience and evidence mixed but beneficial	4	3	1	3		11	1.0	1.0	0.5	0.8	0.0	0.0	0.7	
Lack of consensus	2	1	2			5	0.5	0.3	1.0	0.0	0.0	0.0	0.3	
Unachievable	1	1		1	2	5	0.3	0.3	0.0	0.3	1.0	0.0	0.3	
	7	5	3	4	2									
	1.8	1.7	1.5	1.0	1.0									
f. Are DH Estates and Facilities standards / guidance sufficiently INTEGRATED with other relevant Construction standards (e.g. CIBSE)?														
Connect with other standards	1	2		1		4	0.3	0.7	0.0	0.3	0.0	0.0	0.3	
Links to other guidance	2	3				5	0.5	1.0	0.0	0.0	0.0	0.0	0.3	
g. Do DH Estates and Facilities S&G ensure LEGISLATIVE safety requirements(e.g. DDA, Fire)?														
Concerns re regulation		3		3		6	0.0	1.0	0.0	0.8	0.0	0.0	0.4	
Safety			1	1		2	0.0	0.0	0.5	0.3	0.0	0.0	0.1	
h. Does DH Estates and Facilities S&G assist your RISK MITIGATION policy?														
Risk management assisted	1	1	1			3	0.3	0.3	0.5	0.0	0.0	0.0	0.2	

Additional characteristics not in survey													
Enables standardisation	2	2	2	1		7	0.5	0.7	1.0	0.3	0.0	0.5	
Must allow flexibility	1		2		1	4	0.3	0.0	1.0	0.0	0.5	0.3	
Must be respected			2		2	4	0.0	0.0	1.0	0.0	1.0	0.3	
Enables cost control			2			2	0.0	0.0	1.0	0.0	0.0	0.1	
Loss of DH expertise			2			2	0.0	0.0	1.0	0.0	0.0	0.1	
Room type unit preferred				1	1	2	0.0	0.0	0.0	0.3	0.5	0.1	
Format of S&G			1			1	0.0	0.0	0.5	0.0	0.0	0.1	
Future of standards uncertain			1			1	0.0	0.0	0.5	0.0	0.0	0.1	
Sharing information should be encouraged		1				1	0.0	0.3	0.0	0.0	0.0	0.1	
Total	0	1	6	1	1	9	0.0	0.3	3.0	0.3	0.5	0.6	
Average scores for stakeholder categories	0	0	3	0	1								
Benefits													
Positive Content Scope													
Experience and evidence	4	3	1	3		11	1.0	1.0	0.5	0.8	0.0	0.7	
Enables standardisation	1	2	2	2		7	0.3	0.7	1.0	0.5	0.0	0.5	
Risk management assisted	1	1		2	1	5	0.3	0.3	0.0	0.5	0.5	0.3	
Connects with other standards	1	1	2			4	0.3	0.3	1.0	0.0	0.0	0.3	
Equipment schedules	1	1	1	1		4	0.3	0.3	0.5	0.3	0.0	0.3	
Enables cost control			2		1	3	0.0	0.0	1.0	0.0	0.5	0.2	
Schedules of Accommodation		1	1			2	0.0	0.3	0.5	0.0	0.0	0.1	
Guidance on Safety			1	1		2	0.0	0.0	0.5	0.3	0.0	0.1	
Room type unit preferred				1		1	0.0	0.0	0.0	0.3	0.0	0.1	
Sufficient detail		1	1			2	0.0	0.3	0.5	0.0	0.0	0.1	
Technical content	1					1	0.3	0.0	0.0	0.0	0.0	0.1	
Value For Money (VFM)					1	1	0.0	0.0	0.0	0.0	0.5	0.1	
Total	9	10	11	10	2	42	2.3	3.3	5.5	2.5	1.0	2.8	
Average scores for stakeholder categories	2.3	3.3	5.5	2.5	1.0								
Level of interest	0.8	0.8	0.9	0.8	0.2								
Positive characteristics													
Easily accessible				2		2	0.0	0.0	0.0	0.5	0.0	0.1	
Format			1			1	0.0	0.0	0.5	0.0	0.0	0.1	
Used by all			1			1	0.0	0.0	0.5	0.0	0.0	0.1	
Baseline/minimum standards	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0	
Good reference source		3	1	2	1	7	0.0	1.0	0.5	0.5	0.5	0.5	
Total	4	6	5	8	3	26	1.0	2.0	2.5	2.0	1.5	1.7	
Average scores for stakeholder categories	1.0	2.0	2.5	2.0	1.5								

Positive Processes / Uses													
Reference/benchmark	3	1	1	3	1	9	0.8	0.3	0.5	0.8	0.5	0.6	
Space planning	2	1		2		5	0.5	0.3	0.0	0.5	0.0	0.3	
Briefing		2	1	2		5	0.0	0.7	0.5	0.5	0.0	0.3	
Data management	2	1	1	1		5	0.5	0.3	0.5	0.3	0.0	0.3	
Care pathway planning	1	1		2		4	0.3	0.3	0.0	0.5	0.0	0.3	
Produce standard rooms	2	1		1		4	0.5	0.3	0.0	0.3	0.0	0.3	
Project management	1	2		1		4	0.3	0.7	0.0	0.3	0.0	0.3	
Risk management assisted	1	1	1			3	0.3	0.3	0.5	0.0	0.0	0.2	
Design	3					3	0.8	0.0	0.0	0.0	0.0	0.2	
Project "control" (for equipment)		1	1	1		3	0.0	0.3	0.5	0.3	0.0	0.2	
Costing		1			1	2	0.0	0.3	0.0	0.0	0.5	0.1	
Derogation/Independent Assessor				1		1	0.0	0.0	0.0	0.3	0.0	0.1	
Total	10	10	4	9	1	34	2.5	3.3	2.0	2.3	0.5	2.3	
Average scores for stakeholder categories	2.5	3.3	2.0	2.3	0.5								
Positive Effects													
Generally accepted	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0	
Effective project management	1		1	2		4	0.3	0.0	0.5	0.5	0.0	0.3	
Drives innovation	4					4	1.0	0.0	0.0	0.0	0.0	0.3	
Standardisation	3	2	2	3		10	0.8	0.7	1.0	0.8	0.0	0.7	
Risk management			1	1	1	3	0.0	0.0	0.5	0.3	0.5	0.2	
Encourages data sharing		2				2	0.0	0.7	0.0	0.0	0.0	0.1	
Maintains standards			1	1		2	0.0	0.0	0.5	0.3	0.0	0.1	
Management of equipping		1	1			2	0.0	0.3	0.5	0.0	0.0	0.1	
Total	8	5	6	7	1	27	2.0	1.7	3.0	1.8	0.5	1.8	
Average scores for stakeholder categories	2.0	1.7	3.0	1.8	0.5								
Dis-benefits													
Negative Scope/content													
Incomplete	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0	
Inconsistent	3	1	1			5	0.8	0.3	0.5	0.0	0.0	0.3	
Incorrect content	2					2	0.5	0.0	0.0	0.0	0.0	0.1	
Lack of consensus	1	1	2	1		5	0.3	0.3	1.0	0.3	0.0	0.3	
Need more detail	4	1	1	2		8	1.0	0.3	0.5	0.5	0.0	0.5	
Clinical content (need more)	1	1		1		3	0.3	0.3	0.0	0.3	0.0	0.2	
Need output spec.	4					4	1.0	0.0	0.0	0.0	0.0	0.3	
Out of date	4	3	2	4	2	15	1.0	1.0	1.0	1.0	1.0	1.0	
Not innovative		2	1			3	0.0	0.7	0.5	0.0	0.0	0.2	
Should give more guidance	1	1		2		4	0.3	0.3	0.0	0.5	0.0	0.3	
Must allow flexibility	1		2	1		4	0.3	0.0	1.0	0.3	0.0	0.3	
Technical content (-ve)	3	1		1		5	0.8	0.3	0.0	0.3	0.0	0.3	
Too rigid	1		1		2	4	0.3	0.0	0.5	0.0	1.0	0.3	
Vague content	1		2			3	0.3	0.0	1.0	0.0	0.0	0.2	
Total	30	14	14	16	6	80	7.5	4.7	7.0	4.0	3.0	5.3	
Average scores for stakeholder categories	7.5	4.7	7.0	4.0	3.0								
	2.1	1.0	1.0	1.1	0.4								

Negative Characteristics												
Requires investment	2	1	2	3	2	10	0.5	0.3	1.0	0.8	1.0	0.7
Areas too big/over specified	3	2		2		7	0.8	0.7	0.0	0.5	0.0	0.5
Links to other guidance	1	3	1	1		6	0.3	1.0	0.5	0.3	0.0	0.4
Status unclear	1	1	1	1	1	5	0.3	0.3	0.5	0.3	0.5	0.3
Other standards are better	2	3				5	0.5	1.0	0.0	0.0	0.0	0.3
Unachievable	1			1	2	4	0.3	0.0	0.0	0.3	1.0	0.3
Loss of DH expertise			2			2	0.0	0.0	1.0	0.0	0.0	0.1
Prioritised standards					2	2	0.0	0.0	0.0	0.0	1.0	0.1
Future of standards uncertain			1			1	0.0	0.0	0.5	0.0	0.0	0.1
Accessibility	1					1	0.3	0.0	0.0	0.0	0.0	0.1
Changed over years				1		1	0.0	0.0	0.0	0.3	0.0	0.1
Total	11	10	7	9	7	44						2.9
Average scores for stakeholder categories	2.8	3.3	3.5	2.3	3.5							
Negative Processes/Uses												
Concerns re regulation		3		3		6	0.0	1.0	0.0	0.8	0.0	0.4
Stifles innovation	4	3				7	1.0	1.0	0.0	0.0	0.0	0.5
Must apply with care (spirit of status)	3	2		4	1	10	0.8	0.7	0.0	1.0	0.5	0.7
Cost of design/application		1	2	1	1	5	0.0	0.3	1.0	0.3	0.5	0.3
Total	7	9	2	8	2							
Average scores for stakeholder categories	1.8	3.0	1.0	2.0	1.0							
Negative effects (Interviewees)												
Areas too big/over specified	3	2		2		7	0.8	0.7	0.0	0.5	0.0	0.5
Clinical content lacking	1	1		1		3	0.3	0.3	0.0	0.3	0.0	0.2
Concerns re regulation		3		3		6	0.0	1.0	0.0	0.8	0.0	0.4
Cost of design/application		1	2	1	1	5	0.0	0.3	1.0	0.3	0.5	0.3
Must apply with care (spirit of status)	3	2		4	1	10	0.8	0.7	0.0	1.0	0.5	0.7
Other standards are better	2	3				5	0.5	1.0	0.0	0.0	0.0	0.3
Stifles innovation	4	3				7	1.0	1.0	0.0	0.0	0.0	0.5
Status unclear	1	1	1	1	1	5	0.3	0.3	0.5	0.3	0.5	0.3
Unachievable	1			1	2	4	0.3	0.0	0.0	0.3	1.0	0.3
Total	15	16	3	13	5	52	3.8	5.3	1.5	3.3	2.5	3.5
Average scores for stakeholder categories	3.8	5.3	1.5	3.3	2.5							

Summary tables of benefits and dis-benefits										
Benefits	Designers (4)	Service Users (3)	Estates/FM (2)	Contractor (4)	DH.NHS (2)					
Content/Scope	2.3	3.3	5.5	2.5	1.0					
Characteristics	1.0	2.0	2.5	2.0	1.5					
Processes	2.3	3.0	1.5	2.3	1					
Effects	1.8	1.0	2.0	1.3	0.5					
Dis-benefits	Designers (4)	Service Users (3)	Estates/FM (2)	Contractor (4)	DH.NHS (2)					
Scope/content	7.5	4.7	7.0	4.0	3.0					
Characteristics	2.8	3.3	3.5	2.3	3.5					
Processes/use	1.8	3.0	1.0	2.0	1.0					
Effects	0.4	1.0	0.5	0.5	0.5					

Appendix 6: List of interviewees

Paul Farmer, Director, Directions Consultancy, Healthcare Planning specialists

Jonathan Millman/Rob Smith, Head of Guidance and Research and Head of Gateway Review, Estates and Facilities Directorate, Department of Health

Jacqui McDonald, Papworth Hospital NHS Foundation Trust, Capital Projects Planning Department, Project Manager

Andrew Frost, Senior Project Manager, Managed Technology Services, equipment procurement and planning specialists

Ed Jardine, Devereux Architects, London

Freni Shroff, Senior Health Architect, HOK Architects, London

George Iliopoulos, Health Planner, Tribal Group

Dieter Soerensen, EC Harris/Vamed, Austria

Angela Broekhuizen, Peterborough NHS Trust/Cambridge University NHS Trust

StClair Armitage, Cambridge University NHS Trust

David English, Independent Assessor/Engineer

Richard Mazuch, Nightingale Architects, London

Duane Passman, Brighton and Sussex University Hospitals

Bob Heavisides, Milton Keynes NHS Foundation Trust

North Bristol NHS Trust Planning Team

Appendix 7: Survey Questionnaire



HaCIRIC Review of Health Infrastructure S&G

A. Health Estates and Facilities S&G Awareness and Use

1. What DH Estates and Facilities S&G are you **AWARE** of for healthcare specific projects? *(Optional)*
(select all that apply)

Health Building Notes / Health Technical Memoranda	Yes/No
Other DH S&G e.g. MESS	Yes/No
Other Non-DH S&G e.g. BREEAM, CIBSE	Yes/No
Activity Data-base Data	Yes/No

2. What DH Estates and Facilities S&G do you regularly **USE** on healthcare specific projects? *(Optional)*
(select all that apply)

Health Building Notes / Health Technical Memoranda	Yes/No
Other DH S&G e.g. MESS	Yes/No
Other non-DH S&G e.g. BREEAM, CIBSE	Yes/No
Activity Data-base Data	Yes/No

3. Please list 3 **NON-SECTOR** specific S&G documents that YOU use?

	Please Insert Standard / Guidance
a. Standard / Guidance 1	
b. Standard / Guidance 2	
c. Standard / Guidance 3	

4. What are the 3 main **BENEFITS** of DH Estates and Facilities S&G to YOU?

	Please Insert Benefit
a. Benefit 1	
b. Benefit 2	
c. Benefit 3	

5. What are the 3 main **DIS-BENEFITS** of DH Estates and Facilities S&G to YOU?

	Please Insert Dis-benefit
a. Dis-benefit 1	
b. Dis-benefit 2	
c. Dis-benefit 3	

6. What level of quality assurance do you think DH Estates and Facilities S&G **SHOULD** represent?
Yes/No

Best practice	
Guidance	
Minimum standards	
Excellence	
Expected standards	

7. Is the right LEVEL OF INFORMATION provided in the DH Estates and Facilities S&G

Yes

No

Other (*please specify*):

8. In general, to what extent do you consider the **CURRENT STATUS** of DH Estates and Facilities S&G to be like the following statements? (where 5 is most like the status of DH S&G today)

	Least Like < ----- > Most Like				
	1	2	3	4	5
a. No Particular Standard / Provides a Baseline					
b. Minimum Standards					
c. Best Practice					
d. Excellence					
e. Current thinking					
f. Up-to-date technical information					

9. With regards to the practical use of DH Estates and Facilities S&G, to what extent do you consider DH Estates and Facilities S&G to be ...

	Least Like < ----- > Most Like				
	1	2	3	4	5
a. Provided at an appropriate level of detail?					
b. Delivered in a timely manner?					
c. Complete?					
d. Well linked to external standards (e.g. National Building Standards)					

10. To what extent should DH standards be **CLASSIFIED** as Mandatory, Non-mandatory or Prioritised?

	Least Like < ----- > Most Like				
	1	2	3	4	5
a. Mandatory					
b. Non-mandatory					
c. Prioritised					

11. Do you consider DH Estates and Facilities S&G suitable for **REFURBISHMENT** projects? *(Optional)*

Yes

No

Other *(please specify)*:

12. Do you use DH Estates and Facilities S&G as a basis for **DEROGATION**? *(Optional)*

Yes

No

Sometimes

13. Please provide a few **TYPICAL DEROGATIONS** (indicating which DH Estates and Facilities S&G these derogations move away from) *(Optional)*

14. Please provide **COMMENT** on the following remarks about DH Estates and Facilities S&G?

	Yes/No		Please Insert Comment
	Yes	No	
a. Is DH ENDORSEMENT of DH Estates and Facilities standards / guidance important to you?			
b. Is Clinical Institute/Royal College ENDORSEMENT of DH Estates and Facilities standards / guidance important to you?			
c. Is INDEPENDENCE from commercial considerations of DH Estates and Facilities standards / guidance important to you?			
d. Do you consider that DH Estates and Facilities standards / guidance stifle INNOVATION ?			
e. Do you consider DH Estates and Facilities standards / guidance EVIDENCE-BASED ?			
f. Are DH Estates and Facilities standards / guidance sufficiently INTEGRATED with other relevant Construction standards (e.g. CIBSE)?			
g. Do DH Estates and Facilities S&G ensure LEGISLATIVE SAFETY requirements(e.g. DDA, Fire)?			
h. Does DH Estates and Facilities S&G assist			

your **RISK MITIGATION** policy?

B. Use of DH Standards to Inform Stakeholder Consultation

15. Please describe how (if at all) **YOU** use DH Estates and Facilities S&G to provide information to uninformed stakeholders? *(Optional)*

16. Please describe how (if at all) **YOU** use DH Estates and Facilities S&G to consult with other wider stakeholders on various design options? *(Optional)*

17. Please describe how (if at all) **YOU** use DH Estates and Facilities S&G to make clear, evidence-based design decisions? *(Optional)*

18. Please describe how (if at all) **YOU** use DH Estates And Facilities S&G to approve, sign-off or veto schemes? *(Optional)*

19. In order to understand what building elements YOU have an influence over, please indicate the extent to which you have an EXISTING INFLUENCE over the following? (where 1 is low and 5 is high)

	Low Influence < ----- > High Influence				
	1 (No Influence)	2 (Little Influence, Little Information)	3 (Influence, Are Consulted on Options)	4 (Make All Decisions, Aware of All Evidence)	5 (Power to Turn Around / Over Decisions)
a. Urban Infrastructure and Site (Regional / Local Development and Accessibility)					
b. Site Plan (Building Location, Streets and External Environments)					
c. Building Structure and Skin (Frame, Substructure Cladding, Windows and Roof)					
d. Operational Strategy (Service Life, Building Capacity, Acuity and Flow of Clinical Processes, Clinical Outcomes, Staffing, Building Organisation, Energy, Sustainability, Resilience, Safety, Security, ICT, Noise, Infection, Maintenance and Cleaning)					
e. Base Building Structure and Skin (Frame, Substructure Cladding, Windows and Roof)					
f. Space Plan and Flow (Space Type and Adjacency, Room Occupancy, Circulation Room Utilisation and Ergonomics)					
g. Room Data (Equipment, Furniture, Fixtures, Fittings and Materials)					
h. Delivery (Design and Construction Programme, Building Procurement and Phasing)					

C. Personal Details

20. Please provide your NAME? *(Optional)* *(Optional)*

21. Please provide your ORGANISATION? *(Optional)*

22. Job ROLE <i>(Optional)</i>
23. What TYPE of organisation do you work in? <i>(Optional)</i>
Public Private
24. Would you be happy for a researcher to make a FOLLOW-UP a 5-10 minute telephone call? <i>(Optional)</i>
Yes (please provide details below) No
25. Please provide relevant CONTACT DETAILS and specific requirements: <i>(Optional)</i>

Appendix 8: Survey data

	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)	Total	Designers (19)	Service Users (14)	Estates/FM (6)	Contractors (9)	DH/NHS (5)
Number in each stakeholder group	19	14	6	9	5	53					
1. What "DH Estates" and Facilities standards and guidance are you "AWARE" of for healthcare specific projects?							Scores divided by number in stakeholder categories				
Health Building Notes/ Health Technical Memoranda	19	14	6	9	5	53	1.0	1.0	1.0	1.0	1.0
Other DH guidance e.g. MESSs	15	14	6	8	4	47	0.8	1.0	1.0	0.9	0.8
Other non-DH guidance e.g. BREEAM, CIBSE	12	10	5	8	5	40	0.6	0.7	0.8	0.9	1.0
Activity Data-base data	19	12	6	9	5	51	1.0	0.9	1.0	1.0	1.0
2. What DH Estates and Facilities standards and guidance do you regularly USE on healthcare specific projects?											
Health Building Notes/ Health Technical Memoranda	19	13	6	9	5	52	1.0	0.9	1.0	1.0	1.0
Other DH guidance e.g. MESSs	8	4	4	4	1	21	0.4	0.3	0.7	0.4	0.2
Other non-DH guidance e.g. BREEAM, CIBSE	14	5	6	5	4	34	0.7	0.4	1.0	0.6	0.8
Activity Data-base data	18	11	6	9	4	48	0.9	0.8	1.0	1.0	0.8
3. Please list 3 NON-SECTOR specific standards and guidance documents that you use?											
HBNs	2					2					
Building Regulations	14	6	3	6	2	31					
British Standards	13	3	3	3	1	23					
Capita Consulting clinical guidance	1	1				2					
DDA/legionella/asbestos		1	1		2	4					
HSE	1	1	2	2		6					
National Building Standards	4	3			1	8					
Clinical Output Specifications	1	1				2					
JCT Contracts	1	2				3					
Building Property-related statutes				1		1					
Fire regulations			1			1					
OCG programme management best practice				1		1					
Colour research	1					1					
Wiring/Electricity		1	2			3					
Construction Design and Management regulations			1		1	2					
ISO			1	1		2					
Town planning				2		2					
Manufacturers guidance				1		1					
Overseas guidance (Australia, USA etc.)				2		2					
New public sector approaches		3				3					
BREEAM	1	1				2					
Autocad					1	1					

SNIP norms (Russian building regulations)			1			1						
Drug Identification Numbers and Available European guidance		1				1						
LPC design guides		1	1			2						
Architects design guidance	1					1						
CIBSE/IEE regulations	4	1	1	2	1	9						
Guidance from royal Colleges	1					1						
BSRIA		2	1		1	4						
IMechE	1					1						
RICS					1	1						
Heating/ventilation	1		1			2						
Infection control					1	1						
Evidence basis		2		1		3						
Materials guidance	1	1				2						
Facility Guideline Institute		1		1		2						
4. What are the main BENEFITS to you?												
Processes												
Design	3.0	1.0	2.0	1.0	1.0	8.0	0.2	0.1	0.3	0.1	0.2	
Brief writing	4.0				1.0	5.0	0.2				0.2	
Derogation	1.0	1.0				2.0	0.1	0.1				
Equipment scheduling	1.0			1.0		2.0	0.1			0.1		
Planning	1.0			1.0		2.0	0.1			0.1		
Project management	1.0			1.0		2.0	0.1			0.1		
Total score	8.0	1.0	2.0	4.0	1.0	13.0	0.4	0.1	0.3	0.4	0.2	
Average score for Processes per stakeholder group (level of interest)	1.3	0.2	0.3	0.7	0.2	2.2						
Characteristics of Standards and Guidance												
Reference/legislation	4.0	2.0	1.0	2.0	3.0	12.0	0.2	0.1	0.2	0.2	0.6	
Policy compliant / endorsed	1.0	3.0	1.0		1.0	6.0	0.1	0.2	0.2		0.2	
Relevant	2.0	2.0	1.0	1.0	1.0	7.0	0.1	0.1	0.2	0.1	0.2	
Generally accepted	1.0	1.0	1.0	1.0		4.0	0.1	0.1	0.2	0.1		
Accurate		1.0		2.0		3.0		0.1		0.2		
Easily accessible		1.0		1.0	1.0	3.0		0.1		0.1	0.2	
Best practice/quality		2.0		1.0		3.0		0.1		0.1		
Consistent		1.0	1.0	1.0		3.0		0.1	0.2	0.1		
Authoritative	1.0				1.0	2.0	0.1				0.2	
Continual update		1.0		1.0		2.0		0.1		0.1		
Detailed			1.0			1.0			0.2			
Completeness		1.0				1.0		0.1				
High quality content and presentation				1.0		1.0				0.1		
Plain English					1.0	1.0					0.2	
Total score	9.0	15.0	6.0	11.0	8.0	49.0	0.5	1.1	1.0	1.2	1.6	
Average score for Characteristics per stakeholder group (level of interest)	0.6	1.1	0.4	0.8	0.6	3.5						

Scope/content												
Benchmark	2.0	1.0		1.0		4.0	0.1	0.1		0.1		
Clinical content	3.0		1.0	1.0	1.0	6.0	0.2		0.2	0.1	0.2	
Confidence for and with client	4.0	2.0			1.0	7.0	0.2	0.1			0.2	
Equipping			1.0			1.0			0.2			
Evidence	1.0	1.0		1.0		3.0	0.1	0.1		0.1		
Exemplars	1.0			1.0		2.0	0.1			0.1		
Expert	1.0					1.0	0.1					
Fire safety				1.0		1.0			0.0	0.1		
Interrelated with other standards			1.0	1.0	1.0	3.0			0.2	0.1	0.2	
Link to Schedules of accommodation	2.0					2.0	0.1					
Specifications/room data/space requirements	6.0	4.0			1.0	11.0	0.3	0.3			0.2	
Total score	20.0	8.0	3.0	6.0	4.0	41.0	1.1	0.6	0.5	0.7	0.8	
Average score for Scope/content per stakeholder group (level of interest)	1.8	0.7	0.3	0.5	0.4	3.7	0.1		0.1	0.1	0.2	
Effects												
Baseline / Minimum standards	6.0	3.0	2.0	3.0	1.0	15.0	0.3	0.2	0.3	0.3	0.2	
Confidence for and with client	4.0	2.0			1.0	7.0	0.2	0.1			0.2	
Maintain standards	2.0	1.0	2.0			5.0	0.1	0.1	0.3		0.0	
Standardisation		1.0	1.0		2.0	4.0	0.0		0.2		0.4	
Reduces risk	1.0				1.0	2.0	0.1				0.2	
Equipment codes and descriptions	2.0					2.0	0.1					
Drives innovation			1.0			1.0			0.2			
Ensures legislative safety requirements met			1.0			1.0			0.2			
Supports asset and maintenance records			1.0			1.0			0.2			
Total score	15.0	7.0	8.0	3.0	5.0	38.0	0.8	0.5	1.3	0.3	1.0	
Average score for Effects per stakeholder group (level of interest)	1.7	0.8	0.9	0.3	0.6	4.2						
5. What are the main DIS-BENEFITS to you?												
Process												
Complicated to use				1.0	1.0	2.0				0.1	0.2	
Difficult to match against brief	1.0			1.0		2.0	0.1			0.1		
Used as blanket spec in NHS brief		1.0		1.0		2.0		0.1		0.1		
User understanding can be lacking	2.0			1.0		3.0	0.1			0.1		
Total score	3.0	1.0	0.0	4.0	1.0	9.0	0.2	0.1		0.4	0.2	
Average score for Processes per stakeholder group (level of interest)	0.8	0.3	0.0	1.0	0.3	2.3						

Characteristics of Standards and Guidance												
Not current	7.0		1.0	4.0	1.0	13.0	0.4		0.2	0.4	0.2	
Unclear/woolly and vague	2.0	5.0	1.0	1.0	2.0	11.0	0.1	0.4	0.2	0.1	0.4	
Incomplete	3.0	1.0	2.0	2.0		8.0	0.2	0.1	0.3	0.2		
Content inconsistent	1.0		2.0	2.0		5.0	0.1		0.3	0.2		
Too prescriptive	4.0	1.0				5.0	0.2	0.1				
Keeping up to date with associated software	1.0	2.0			1.0	4.0	0.1	0.1			0.2	
Accessibility/searchability	1.0		1.0	1.0	1.0	4.0	0.1		0.2	0.1	0.2	
Not always relevant/possible to implement (refurb)	2.0			1.0		3.0	0.1			0.1		
Require specialists to use (costly)	1.0	1.0		1.0		3.0	0.1	0.1		0.1		
ADB link not available	1.0		1.0			2.0	0.1		0.2			
Less useful than earlier documents	2.0					2.0	0.1					
Status unclear				2.0		2.0				0.2		
Inconsistent across UK (format)					1.0	1.0					0.2	
Insufficient DH investment			1.0			1.0			0.2			
Irrelevant/too descriptive/detailed	1.0					1.0	0.1					
Uneven application					1.0	1.0					0.2	
Total score	26.0	10.0	9.0	14.0	7.0	66.0	1.4	0.7	1.5	1.6	1.4	
Average score for Characteristics per stakeholder group (level of interest)	1.6	0.6	0.6	0.9	0.4	4.1						
Content/Scope												
Acute sector focus	1.0	1.0				2.0	0.1	0.1				
Component information not detailed enough			2.0			2.0			0.3			
Lack of evidence cited	1.0					1.0	0.1					
Less prescriptive than earlier documents		1.0		2.0		3.0		0.1		0.2		
New subject split/numbering system confusing	2.0					2.0	0.1					
No joining up of departments (space and cost saving)		1.0		2.0		3.0		0.1		0.2		
Not specific to architects	1.0					1.0	0.1					
Oversized (spaces)		2.0				2.0		0.1				
SoA often missing or separate from HBN		3.0	1.0	1.0		5.0		0.2	0.2	0.1		
Too generic/not enough detail		1.0				1.0		0.1				
Total score	5.0	9.0	3.0	5.0	0.0	22.0	0.3	0.6	0.5	0.6		
Average score for Content/Scope per stakeholder group (level of interest)	0.5	0.9	0.3	0.5	0.0	2.2						

Effects												
Adds costs	1.0					1.0	0.1					
Blunt competitive edge	1.0	1.0				2.0	0.1	0.1				
Can perpetuate outdated design	1.0					1.0	0.1					
Hard to track changes	1.0					1.0	0.1					
May impede new ways of working		1.0	1.0			2.0		0.1	0.2			
Stifles innovation/flexibility	1.0	2.0	1.0	1.0		5.0	0.1	0.1	0.2	0.1		
Too costly to implement		1.0	1.0	1.0	1.0	4.0		0.1	0.2	0.1	0.2	
Total score	5.0	5.0	3.0	2.0	1.0	16.0	0.3	0.4	0.5	0.2	0.2	
Average score for Effects per stakeholder group (level of interest)	0.7	0.7	0.4	0.3	0.1	2.3						
6. What level of quality assurance do you think DH Estates and Facilities S&G SHOULD represent?												
Best practice	9	9	4	8	4		0.5	0.6	0.7	0.9	0.8	
Guidance	4	5	2	6	3		0.2	0.4	0.3	0.7	0.6	
Minimum standards	6	6		4	2		0.3	0.4		0.4	0.4	
Excellence	1	4	3	4	1		0.1	0.3	0.5	0.4	0.2	
Expected standards	7	5	2	4	2		0.4	0.4	0.3	0.4	0.4	
7. Is the right "LEVEL OF INFORMATION" provided in the DH Estates and Facilities Guidance and Standards												
yes	6	4	2	5	3		0.3	0.3	0.3	0.6	0.6	
Partially	3	1			1		0.2	0.1			0.2	
Generally	1	3					0.1	0.2				
Too much												
No	6	1	3	1	1		0.3	0.1	0.5	0.1	0.2	
Lacking detail	3	1					0.2	0.1				
Improving from too little	2						0.1					
Comprehensive	1						0.1					
Accurate	1						0.1					
Incomplete and SoA missing	1	2					0.1	0.1				
Room sizes too generous	1						0.1					
Inconsistent			1		1				0.2		0.2	
Out of date		1	1					0.1	0.2			
Content quality deteriorating	3	2	1				0.2	0.1	0.2			
Conflicting	1						0.1					
Differing uses/disciplines	1						0.1					

8. In general, to what extent do you consider the "CURRENT STATUS" of DH Estates and Facilities standards and guidance to be like the following statements? (where 5 is most like the status of DH guidance today)											
a. No Particular Standard / Provides a Baseline	45	44	14	27	6		2.4	3.1	2.3	3.0	1.2
b. Minimum Standards	66	44	10	29	10		3.5	3.1	1.7	3.2	2.0
c. Best Practice	52	32	26	30	19		2.7	2.3	4.3	3.3	3.8
d. Excellence	39	28	21	22	12		2.1	2.0	3.5	2.4	2.4
e. Current thinking	44	24	19	24	11		2.3	1.7	3.2	2.7	2.2
f. Up-to-date technical information	41	32	17	19	11		2.2	2.3	2.8	2.1	2.2
Total	287	204	107	151	69		15.1	14.6	17.8	16.8	13.8
Stakeholder group average of total score	15.1	14.6	17.8	16.8	13.8		0.8	1.0	3.0	1.9	2.8
Stakeholder group average for Q8	2.5	2.4	3.0	2.8	2.3		0.1	0.2	0.5	0.3	0.5
9. With regards to the practical "USE" of DH Estates and Facilities Standards and Guidance, to what extent do you consider DH Estates and Facilities Standards and Guidance to be ...											
a. Provided at an appropriate level of detail?	57	38	23	31	15		3.0	2.7	3.8	3.4	3.0
b. Delivered in a timely manner?	43	19	15	19	13		2.3	1.4	2.5	2.1	2.6
c. Complete?	46	32	18	23	15		2.4	2.3	3.0	2.6	3.0
d. Well linked to external standards (e.g. National Building Standards)	36	28	16	21	11		1.9	2.0	2.7	2.3	2.2
Total	182	117	72	94	54		9.6	8.4	12.0	10.4	10.8
Stakeholder group average of total score	9.6	8.4	12.0	10.4	10.8		0.5	0.6	2.0	1.2	2.2
Stakeholder group average for Q9	2.4	2.1	3.0	2.6	2.7		0.1	0.1	0.5	0.3	0.5
10. To what extent should DH standards be "CLASSIFIED" as Mandatory, Non-Mandatory or Prioritised?											
a. Mandatory	55	37	21	20	15		2.9	2.6	3.5	2.2	3.0
b. Non-Mandatory	48	18	8	10	10		2.5	1.3	1.3	1.1	2.0
c. Prioritised	56	27	12	30	18		2.9	1.9	2.0	3.3	3.6
Total	159	82	41	60	43		8.4	5.9	6.8	6.7	8.6
Stakeholder group average of total score	8.4	5.9	6.8	6.7	8.6		0.4	0.4	1.1	0.7	1.7
Stakeholder group average for Q10	2.8	2.0	2.3	2.2	2.9		0.1	0.1	0.4	0.2	0.6
11. Do you consider S&G suitable for "REFURBISHMENT" projects?											
Yes	11				2	13	0.6				0.4
No	4	6	5	6		21	0.2	0.4	0.8	0.7	
Sometimes		2		2		4	0.0	0.1		0.2	

12. Do you use S&G as a basis for "DEROGATION"?											
yes	13					13	0.7				
No		5	1	3	1	10		1.0	0.2	1.0	0.2
Sometimes	1	1	1	2	4	9	0.1	2.0	0.2	2.0	0.8
Typical derogations											
Room sizes/heights	4	2	3			9	0.2	0.1	0.5		
sanitary accommodation/Assisted toilets	1					1	0.1				
HBN23	1					1	0.1				
layouts	1	3	1	1	3	9	0.1	0.2	0.2	0.1	0.6
functionality	1					1	0.1				
Part M	1					1	0.1				
Audit trail	1				1	2	0.1				0.2
HVAC		1				1		0.1			
Bed space area	1					1	0.1				
Detection in roof voids/fire safety						0					
Schedules of accommodation			1			1			0.2		
M&E		1			1	2		0.1			0.2
HTM63			1			1			0.2		
HTM06	1	1			2	4	0.1	0.1			0.4
medical gases		1				1		0.1			
cooling towers	1	1	1	1		4	0.1	0.1	0.2	0.1	
acoustics	1										
14. Please provide COMMENT on the following characteristics about DH Estates and Facilities standards and guidance?											
a. Is DH ENDORSEMENT of DH Estates and Facilities standards / guidance important to you?											
yes	15	11	4	8	4	42	0.8	0.8	0.7	0.9	0.8
No	0	3	1	0	1	5	0.0	0.2	0.2	0.0	0.2
b. Is Clinical Institute/royal College ENDORSEMENT of DH Estates and Facilities standards / guidance important to you?											
yes	10	11	3	6	3	33	0.5	0.8	0.5	0.7	0.6
c. Is INDEPENDENCE from commercial considerations of DH Estates and Facilities standards / guidance important to you?											
yes	18	13	4	6	4	45	0.9	0.9	0.7	0.7	0.8
d. Do you consider that DH Estates and Facilities standards / guidance stifle INNOVATION?											
yes	7	8	2	3	2	22	0.4	0.6	0.3	0.3	0.4
e. Do you consider DH Estates and Facilities standards / guidance EVIDENCE BASED?											
yes	12	8	4	5	4	33	0.6	0.6	0.7	0.6	0.8
f. Are DH Estates and Facilities standards / guidance sufficiently INTEGRATED with other relevant Construction standards (e.g. CIBSE)?											
yes	5	3	1	4	1	14	0.3	0.2	0.2	0.4	0.2

g. Do DH Estates and Facilities standards and guidance ensure LEGISLATIVE safety requirements(e.g. DDA, Fire)?											
yes	6	9	3	4	4	26	0.3	0.6	0.5	0.4	0.8
h. Does DH Estates and Facilities standards and guidance assist your RISK MITIGATION policy?											
yes	10	9	4	6	5	34	0.5	0.6	0.7	0.7	1.0
15. Please describe how (if at all) you use DH Estates and Facilities guidance and standards to provide information to uninformed stakeholders?											
yes	9					9					
no	4					4					
16. Please describe how (if at all) you use DH Estates and Facilities Guidance and Standards to consult with other wider stakeholders on various design options?											
yes		5	3	7	2	17					
no		1				1					
17. Please describe how (if at all) you use DH Estates and Facilities Guidance and Standards to make clear, evidence based design decisions?											
yes	8	7	2	1	3	21					
no	3	5	2	1	1	12					
18. Please describe how (if at all) "you" use DH Estates And Facilities Guidance and Standards to approve, sign-off or veto schemes											
yes	7	2	2	5	3	19	0.4	0.1	0.3	0.6	0.6
no	3	4		1		8	0.2	0.3		0.1	
derogation/comparison with HBNs	2	1	2	4		9	0.1	0.1	0.3	0.4	
drawings and ADB	1	3	1		2	7	0.1	0.2	0.2		0.4
compliance	1	1				2	0.1	0.1			
evidence based validation			1			1			0.2		
not whole scheme	1	3		1		5	0.1	0.2		0.1	
stakeholder sign off procedure		1		2	1	4		0.1		0.2	0.2
confirm costs		2			1	3		0.1			0.2

19. In order to understand what building elements you have an influence over, please indicate the extent to which you have an EXISTING INFLUENCE over the following? (where 1 is low and 5 is high)											
<i>a. Urban Infrastructure and Site (Regional / Local Development and accessibility)</i>	25	19	7	19	12	82	1.3	1.4	1.2	2.1	2.4
b. Site Plan (Building Location, Streets and External Environments)	47	26	10	21	12	116	2.5	1.9	1.7	2.3	2.4
c. Building Structure and Skin (Frame, Substructure Cladding, Windows and Roof)	53	23	9	24	13	122	2.8	1.6	1.5	2.7	2.6
d. Operational strategy (Service Life, Building Capacity, Acuity and Flow of Clinical Processes, Clinical Outcomes, Staffing, Building Organisation, Energy, Sustainability, Resilience, safety, Security, ICT, Noise, Infection, Maintenance and Cleaning)	52	46	13	25	17	153	2.7	3.3	2.2	2.8	3.4
e. Base Building Structure and Skin (Frame, Substructure Cladding, Windows and Roof)	50	26	12	27	17	132	2.6	1.9	2.0	3.0	3.4
f. Space Plan and Flow (Space Type and Adjacency, Room Occupancy, Circulation Room Utilisation and Ergonomics)	68	54	12	36	21	191	3.6	3.9	2.0	4.0	4.2
g. Room Data (Equipment, Furniture, Fixtures, Fittings and Materials)	69	53	11	35	17	185	3.6	3.8	1.8	3.9	3.4
h. delivery (Design and Construction Programme, Building Procurement and Phasing)	55	33	14	34	21	157	2.9	2.4	2.3	3.8	4.2
Total	419	280	88	221	130	1138	22.1	20.0	14.7	24.6	26.0
Stakeholder group average of total score	22.1	20.0	14.7	24.6	26.0	21	1.2	1.4	2.4	2.7	5.2
Stakeholder group average for Q19	2.8	2.5	1.8	3.1	3.3	3	0.1	0.2	0.3	0.3	0.7

Appendix 9: The Content Analysis Coding Structure used in NVIVO

Policy	(POL)		
	Government	Govt.	POL-G
	Department of Health	DH	POL-DH
	Policy development		POL-Dev
	Status		POL-Status
	Enforcement		POL-Enf
	Regulation		POL-Reg
	Compliance		POLComp
	Purpose		POL-Pur
	Existing		POL-Exist
	New		POL-New
	Proposed		POL-Prop
	History		POL-His
Standards	(STD)		
(guidance)	DH		STD-DH
		HBN	STD-HBN
		HTM	STD-HTM
		ADB	STD-ADB
		PAM	STD-PAM
	Building regs		STD-Bregs
	Statutory		STD-Stat
	Triggers		STD-Trig
Tool types	TT		
	Guidance		TT-G
	Check lists		TT-Chk
	Data Management		TT-DM
	Assessment		TT-Asmt
	Review		TT-Rev
	Project management		TT-PM
	Costing		TT-Cost
	Measurement		TT-meas
Practice	PRAC		
	Contract form		PRAC-Cont
	Design		PRAC-Des
	Planning		PRAC-Plan
	Management/admin		PRAC-Mgmt
	Innovation		PRAC-Innov
	Change - tech		PRAC-chtech

	change - clinical		PRAC-chclin
	flexibility		PRAC-flex
Funding Process	FP		
	PFI		FP-PFI
	PPP		FP-PPP
	LIFT		FP-Lift
	Central funding		FP-Cen
Personnel	PERS		
	Patient		PERS-Pat
	Staff		PERS-Staff
	Architects		PERS-Arch
	Engineers		PERS-Eng
	Equippers		PERS-Equ
	Briefers		PERS-Brie
	Planners		PERS-Plan
	Contractors		PERS-Con
Values	VAL		
	Financial		VAL-Fin
	Savings		VAL-SAV
	Resources		VAL-Res
	Time		VAL-Tim
	Processes		VAL-proc
	Safety		VAL-Saf
Tools	TOOL		
	ADB		TOOL-ADB
	CodeBook		TOOL-CB
	ActivePlan		TOOL-AP
	AEDET		TOOL-AED
	CAD		TOOL-CAD
	BIM		TOOL-BIM
	IT		TOOL-IT
Outcomes	OUT		
	Patient Safety		OUT-PSaf
	Staff safety		OUT-Ssaf
	Patient environment		OUT-PE
	Staff environment		OUT-SE
	Innovation		OUT-Inn
	Suppression		OUT-Sup
	Serendipity		OUT-Ser
	Investment		OUT-Inv

	ROI		OUT-ROI
Non-English standards	NES		
	Europe		NES-Eur
	Scotland		NES-Scot
	N Ireland		NES-NI
	Wales		NES-W
	Americas		NES-Am
	Asia		NES-Asia
	Far East		NES-FE
	Middle East		NES-ME

Appendix 10: Table indicating incompleteness of S&G

Information to be submitted by bidders at Final Invitation to Negotiate (FITN) matched to existing DH publications listed Source: SpaceforHealth

Generic Provided in ADB	Information to be submitted by bidders at Final Invitation to Negotiate	Information Elements	Available from the DH publications list
			Available
			Incomplete
			Unavailable
ADB	Generic room data sheets should be provided for typical rooms	Clinical Output Specification (Service design, activity indicators, functional design, operational policy, support services and environmental and engineering requirements)	Incomplete
ADB /BIM	1:500 scale outline design indicating functional relationships and area schedules;	Schedules of Accommodation	incomplete
	Defined plant areas and zones;	Building Zoning, Room Clusters and Departmental and Clinical Dependencies	incomplete
ADB /BIM	1:200 scale architectural drawings should be provided, in plan and section, indicating room adjacencies, circulation layouts, corridor widths and floor to ceiling heights.	Architectural Output Specification and Quality Requirements	incomplete
		Floors, Ceilings, Heights, Doors and Partitions (Walls, Curtains and Blinds)	HTM 66: incomplete
ADB	Details of functional content, summarised by department,	Staffing, Personnel and Operating Practices (Nurse Stations, Management and Hand Hygiene)	incomplete
ADB		Adjacencies, Relationships, Vertical / Horizontal Circulation, Travel Distances and Flow of People, Goods, Information and Waste	incomplete
		Infection Control Strategy	HAI-SCRIBE
ADB /BIM	1:50 scale equipment layout drawings and wall elevations for key rooms	Equipment and Plant Drawings, Output Specification and Room Data Sheets, Including proposed procurement path	incomplete
ADB /BIM	Engineering 1:200 scale line drawings that provide sufficient detail of the service risers, ducts and service routes	M&E Services, Medical Gases, Lighting, Air Treatment, Air Pressure, Air Flow, Ventilation and Heating/Temperature	HTM 02, HTM 03
ADB /BIM	Strategic 1:200 plans and compartmentalisation plans, highlighting evacuation strategies and staff implications in the event of fire;	Fire, Safety and Security Strategies and Systems	HTM 05
	Evidence that the services support the Trust's business and life critical services under supply failure scenarios; energy strategy; external services.		HTMs, but unclear whether failure scenarios covered

	Statement of the strategies with respect to ecologically responsible design and building management should be provided; a draft environmental impact statement;	Sustainable Systems and Resilience Strategy	Sustainable Development in the NHS
	Statement of the strategies with respect to ecologically responsible design and building management should be provided; schematic and written proposals for major plant provision;	Energy Management, Power Supply and Resilience	Strategic guides; Carbon/ energy management
ADB /BIM	1:200 scale elevation drawings which are sufficient to demonstrate what the building would look like and the materials which would be used;	Finishes and Materials Specifications (Infection Control, antibacterial specification, floor Covering, wall finishes, ceiling finishes and internal fabrics)	HAI-SCRIBE
		ICT and IM&T Strategy	
		Fixtures and fittings	incomplete
	Interior design concepts for public and patient areas. Bidders should also indicate external landscaping proposals;	Furniture and Seating	Internal only
	1:1000 Development Control Plan communications routes into and out of the hospital	Town Planning, Site Development, Accessibility and Constraints (Road works, walkways, car parking, vehicular and pedestrian movement, urban and social integration and environmental issues)	A guide to Town Planning for NHS staff; HTM 07-03
		Site Plan, Building Orientation, Aesthetic, Building links to On Site Facilities, Social and Recreation Spaces	
	Aesthetic statement detailing the lighting to be provided both internally and externally;		
	Design programme to Financial Close and completion showing programme for development of the 1:200 and 1:50 scale drawings. Proposals for achieving clinical sign-off.	Design Programme	Advice to Trusts on main components of design brief; Framework guidance for business cases; Design brief framework; Enquiry by Design for Health; The design development protocol for PFI
		Building Form, Proportion and Scale and Urban Design Principles	
		Structural Envelope and Frame (Frame, walls, floors)	
	Design flexibility concepts	Adaptability, Flexibility and Standardisation (Known changes to locations, departments, wards, rooms and components over time)	Ward only
ADB	1:50 scale equipment layout drawings and wall elevations for key rooms in the development should be provided.	Multi/Single Bed Room Occupancy, Spacing, Proximity to Bathrooms and Patient Dignity	HBN 00-03
		Roof	

		Planning	
	Structural grid at 1:200 scale	Substructure	
		Product Procurement	
	Engineering philosophy including outline system selections;	Component Interfaces	
		Interior Design, Storage, Bays, Patient Kitchens and Tidiness	
		Maintenance, Waste, Laundry, Cleaning, and Interface with Clinical and Clinical Support Facilities	Total Waste Strategy, Total Waste Management
	Proposals for supplies, storage, distribution (including Laundry and Linen), waste management, decontamination and control of infection, with explanations of expansion capabilities and standby facilities;	Schedule of Design-life Expectations	
	Construction phasing – outline proposals for the construction decanting, including diagrammatic description;	Construction Phasing, CDM and Considerate Construction	
	Landscape concept, supported by high level concept drawings as required for planning consent;	Landscaping	
	Full way finding strategy;	Way finding, Signage and Information	Way finding
		Colours	
	Site traffic analysis for vehicular and pedestrian movement. This may take the form of a desktop study and include concept drawings;		
		Key Entrances and Public Spaces	HBN 00-04
		Envelope, External Glazing, Internal Windows and Mirrors	Internal glazing only
	Outline method statements for commissioning and decommissioning of the engineering services; lift usage and materials traffic assessment; the number and location of IT Communications rooms and any other ICT equipment that has space implications;	Noise Control	

Glossary

A&E	Accident and Emergency
ADB	Activity DataBase
AEDET	Achieving Excellence in Design Evaluation Tool
AfH	Architects for Health
ALB	Arms' Length body
ASPECT	A Staff and Patient Environment Calibration Tool
AWP	Any Willing Provider
BBC	British Broadcasting Corporation
BIM	Building Information Modelling or Management
BMA	British Medical Association
BRE	Building Research Establishment
BREEAM	BRE Environmental Assessment Model
BSI	British Standards Institution
BSRIA	A consultancy, test, instruments and research organisation
CHAI	Commission for Healthcare Audit and Inspection
CHI	Commission for Healthcare Improvement
CHP	Community Healthcare Partnerships
CIBSE	Chartered Institute of Building Services Engineers
CIM	Capital Investment Manual
CIRIA	Construction industry research and information association
CMS	Content Management System
Cobie	Construction operation building information exchange
COI	Central Office of Information
CPD	Continuing Professional Development
CQC	Care Quality Commission
CSCI	Commission for Social Care Inspection
CSF	Critical Success Factor
DBS	Design Briefing System
DCAG	Department Cost Allowance Guide
DDA	Disability Discrimination Act
DE	Defence Estates
DeFRA	Department of the Environment, Farming and Rural Affairs
DH	Department of Health
DH CREFD	Department of Health Gateway Review Estates and Facilities Division
DHSS	Department of Health and Social Security
EBLE	Evidence Based Learning Environment
EPR	Electronic Patient Records
ERIC	Estates Related Information Collection
EU	European Union
EUHPN	European Union Health Property Network
FBC	Full Business Case
FITN	Final Invitation to Negotiate
FM	Facilities Management

FPN	Fire Protection Notes
FT	Foundation Trust
GP	General Practitioner
Ha	Hectare
HaCIRIC	The Health and Care Infrastructure Research and Innovation Centre
HBN	Health Building Note
HfS	Healthcare Facilities Scotland
HEFS	Hospital and Estates Facilities Statistics
HSE	Health and Safety Executive
HTM	Health Technical Memorandum
ICT	Information and Communication Technology
IEEE	Institution of Electrical and Electronics Engineers
IFC	Industry Foundation Class(es)
IHEEM	Institution of Healthcare Engineering and Estate Management
ISO	International Standards Organisation
ISTC	Independent Sector Treatment Centre
IT	Information Technology
JCT	Joint Contracts Tribunal
KIP	Knowledge and Information Portal
KM	Knowledge Management
KPI	Key Performance Indicator
LA	Local Authority
LIFT	Local Initiative Finance Trust
LIFTCo	Local Initiative Finance Trust Company
M&E	Mechanical and Electrical
MES	Mechanical Engineering Services
MH	Mental Health
MOD	Ministry of Defence
MOU	Memorandum of Understanding
NAO	National Audit Office
NBS	National Building Standard
NBT	North Bristol (Foundation) Trust
NGO	Non-Government Organisation
NHS	National Health Service
NICE	National Institution for Health and Clinical Excellence
NPSA	National Patient Safety Agency
NSF	National Service Framework
OBC	Outline Business Case
OECD	Organisation of Economics, Commerce and Development
OGC	Office of Government Commerce
OJEC	Official Journal of the European Commission
OJEU	Official Journal of the European Union
ONS	Office of National Statistics
OPSI	Office of Public Sector Information
PAM	Premises Assurance Model

PLACE	Patient-Led Assessment of the Care Environment
PbR	Payment by Results
PCT	Primary Care Trust
PEAT	Patient Environment Assessment Team
PFI	Private Finance Initiative
PPG3	Planning Policy Guidance 3
PPP	Public Private Partnership
ProCure21/21+	Procurement 21 National Framework/ProCure 21+ National Framework
PS	Private Sector
PSCP	Principal Supply Chain Partner
QB	Quarterly Briefing
QIPP	Quality, Innovation, Productivity and Prevention
R&D	Research and Development
RCN	Royal College of Nursing
RHA	Regional Health Authority
RIBA	Royal Institute of British Architects
RLUH	Royal Liverpool University Hospital
ROI	Return on Investment
SHA	Strategic Health Authority
SHAPE	Strategic Health Asset Planning and Evaluation
SHBN	Scottish Health Building Note
SHTM	Scottish Health Technical Memorandum
SoA	Schedule of Accommodation
SOC	Strategic Outline (Business) Case
SQL	Structured Query Language
TI	Technical Indexes
TSO	The Stationery Office
UKHOs	United Kingdom Health Organisations
USA	United States of America
VFM	Value for money
vCJD	Variant Creutzfeldt-Jakob Disease
WHO	World Health Organisation