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COVER PAGE

Title: Interpreter-mediated Dentistry

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Abstract

The global movements of healthcare professionals and patient populations have increased the complexities of medical interactions at the point of service. This study examines interpreter mediated talk in cross-cultural general dentistry in Hong Kong where assisting para-professionals, in this case bilingual or multilingual Dental Surgery Assistants (DSAs), perform the dual capabilities of clinical assistant and interpreter. An initial language use survey was conducted with Polyclinic DSAs using a logbook approach to provide self-report data on language use in clinics. Frequencies of mean scores using a 10-point visual analogue scale (VAS) indicated that the majority of DSAs spoke mainly Cantonese in clinics and interpreted for postgraduates and professors. Conversation Analysis (CA) examined recipient design across a corpus (n=23) of video-recorded review consultations between non-Cantonese speaking expatriate dentists and their Cantonese L1 patients. Three patterns indicated were: dentist designated expansions; dentist directed interpretations; and assistant initiated interpretations to both the dentist and patient. The third, rather than being perceived as negative, was found to be framed either in response to patient difficulties or within the specific task routines of general dentistry. The findings illustrate trends in dentistry towards personalized care and patient empowerment as a reaction to product delivery approaches to patient management. Implications are indicated for both treatment adherence and the education of dental professionals.

Keywords
Medical interpreting; Conversation analysis; Dentistry; Oral health; Communication; Spoken translation; Health communication; Multilingualism; Multiculturalism; Hong Kong.

Introduction

As diasporic movement patterns change across time and in response to global fortunes and misfortunes, so too do the linguistic demands placed upon interactants in contact – both those from the dominant and those from the minority linguacultures. The roles of professional and lay interpreters have gained increasing attention as a focus of discussion and empirical research, particularly in high stakes contexts such as medical, police and legal settings (Bot, 2005; Hale, 2007; Bolden, 2000) with recent calls for "further education and support for patient, clinicians and interpreters to ensure effective communication across language barriers" (Fernandez and Schenker 2010, p.140). While the dyadic interactional encounter in doctor-patient consultations was the initial focus of interactional analysis, other multi-party configurations in medicine, particularly those concerned with triadic encounters, are receiving

increasing attention (Angellini, 2004; Brua, 2008; Clemente, 2009; Hsieh, 2010; Valero Garcés, 2005). In dentistry, trios are the norm with dental supporting staff routinely present during clinical consultations and in multilingual environments, dental support staff may also be called upon to act as lay interpreters.

More recent communicative philosophies in clinical practice have taken a focus on how patient-centred care is enacted within the consultation. In working towards a definition of patient-centred care, Stewart (2001) identified the inherent tension in aiming to make "the implicit explicit" with the caveat that patient-centered care "is a holistic concept in which components interact and unite in a unique way in each patient-doctor encounter" and situated qualitative research as enabling us to "comes closer to conveying the qualities of such care" (p.444-445). Indeed, the application of Conversation Analysis (CA) helps to uncover the discursive patterns involved in the unfolding activity that constitutes a medical encounter (Heritage and Maynard, 2006). In the field of medical interpreting, new work is responding to calls for studies that "analyze interpreting as a situated, locally organized activity embedded in a particular setting" (Bolden, 2000, p.415). Research on medical interpreting has mainly focused on general medical consultations (Meeuwesen et al., 2010; Pasquandrea, 2011) with very limited attention to date in dental consultations (Author et al., 2011). Methodologically, medical interpreting has been examined through post hoc methods such as surveys or interviews to gain participant views on the perceived success or otherwise of interpreting in healthcare settings (Hsieh and Kramer, 2012). Discourse-based approaches (Pöchhacker and Shlesinger, 2005) have been employed as both corpus-based approaches for linguistic analysis to determine interpreter accuracy (Downing, 1991) and for conversation analysis to explore the unfolding patterns of interactional activity (Bolden, 2000). Some CA research in dental education has examined the interactional co-construction of empathy (Author et al., 2010) and corporeal dynamics (Hindmarsh, 2011). However, as a context for

investigation, while prior research has considered nurses performing the dual roles of medical support staff and medical interpreters, no micro-analytic discourse-based investigations into medical interpreting as a locally organized activity have as yet been undertaken in the field of dentistry.

In what follows, we explore clinical communication in dentistry as the point of contact between healthcare professionals as 'global academics' (Author and Bartlett, 2008) following their professional academic careers in overseas universities and their local communities. As previous studies have examined medical interpreting mainly in the context of interactions with immigrant communities in English-dominant countries, this study examines the opposite situation - when it is the medical provider, a dentist, who is working in a non-English dominant speech community, in this case, Cantonese. In particular, we focus on dental academics working in a clinical teaching hospital in one Asian context in order to understand how medical interpreting is routinely enacted and interactionally accomplished in cross-cultural professional practice. For our interest in mediated interpreting in dentistry (Author et al., 2011), we move to the specific and local examining the general dental consultation as a locally-enacted, institutionalised, triadic interaction in an Asian dental context.

This paper adopts a multivariate approach to first identify the larger phenomenon of interpreter mediated consultations in a clinical dental setting in Hong Kong and second to adopt CA to identify the specific qualities of patient-centred care in this multilingual context. The key aim of this study, therefore, is to identify the sequential patterns of activity enacted during interpreter mediated talk in clinical consultations in dentistry. In doing, so we shall address those aspects of mediation that compromise or facilitate patient understanding of oral health messages.

Background

Medical interpreting

In establishing traditions of how we communicate across languages and cultures, definitions of *translation* and *interpretation* vary. Hale (2007) defined 'translation' as focusing on written text and 'interpretation' as based on spoken discourse with c*ommunity interpreters* contrasted to *conference interpreters* due to contextual differences in purpose, physical proximity and the focus on team approaches in community interpreting (p.25). In exploring spoken discourse and the work of the medical interpreter, prior research has identified a binary between 'direct' interpretation which takes an accuracy focus in measuring how close the interpreter matches the original words and 'dialogue' interpreting (Wadensjö, 1998; Hale, 2007) which expands the interaction to include interpreter agency in supporting meaning making – both linguistically and culturally. Community interpreting has been found to lead to a blurring of the lines with tensions between 'direct' interpretation and something more socially engaged and 'mediated' (Bolden, 2000) whereby the interpreter is called upon to do both normative interpretation and coordinate communication.

Angelelli's (2004) concept of interpreter visibility in the context of community interpreting is also useful in considering the interpreter's role. Healthcare settings, she argued, are highly 'visible' in that interpreters are more likely to become co-constructors. In this role, they are less likely to maintain professional detachment as they work to negotiate communicative events that are filled with cultural gaps, linguistic barriers and unequal power relations. This then raises the inevitable tension between accuracy and advocacy. Research studies in medical interpretation that take a direct interpretation stance tend to focus on word-to-word translation accuracy and criticize both professional and lay interpreters if they deviate from the medical provider's script by engaging in, for example, extended, uninterpreted side conversations with patients.

Early corpus-based studies in medical interpreting found the role of the interpreter as problematic with issues surrounding linguistic proficiency and conflicting professional roles (Downing, 1991; Athorp and

Downing, 1996 cited in Bolden, 2000). These USA studies found that unskilled bilinguals as medical interpreters in hospitals and private clinics may impede doctor-patient communication by ignoring, mistranslating, or providing their own responses to questions. They also argued that if a nurse adopted a bilingual helper mode in a caregiver role, then there would be a decrease in direct doctor-patient interaction and patient initiated turns but that if a nurse adopted a professional interpreter mode, there would be a similar distribution of turns to a monolingual mode.

Interview-based studies of medical interpreting also conducted in the USA have challenged the ostensibly neutral role of the interpreter in multilingual healthcare settings arguing that the boundary between professional interpreter and advocate is a contested one (Rowland, 2008). Hsieh's (2010) ethnography of bilingual healthcare encounters exploring the issue of control in triads involving interpreter-mediated communication indicated the complexity of multiparty interactions and the need for nuanced understandings as to their formulations. She viewed "successful bilingual medical encounters as coordinated achievement between the interpreters, providers, and patients". However, these studies also acknowledge issues related to this blurring of boundaries and the tensions between the provider's medical expertise and the interpreter's cultural expertise. Jacobs et al. (2010) argued against the use of ad hoc interpreters such as family and friends and advocated education of clinicians in the use of trained medical interpreters. Valero Garcés' (2005) institutional discourse analysis conducted in Spain and the USA contrasted three types of exchange: doctor/ foreign-language patient; doctor/ foreign-language patient/ ad hoc interpreter (husband); doctor/ foreign-language patient/ trained interpreter and made similar recommendations *viz* the preferred use of trained hospital interpreters and education for clinicians in working effectively with interpreters.

Professional interpreting

Some advocate the use of professional interpreters (Bauer and Alegria, 2010) in preference to bilingual nurses (Jacobs, 2000) but indicate a lack of a standardized definition or training (Bischoff and Hudelson, 2010). A clear disadvantage of professional interpreters is their additional cost (Bischoff and Hudelson, 2010; Ramirez, Engel, & Tang, 2008). A recent study examining the efficacy of professional translators in medical settings found that professional interpreters were not significantly different to family interpreters, with the latter able to provide support for emotional stress and follow-up (Rosenberg et al., 2011). Leanza's (2010) study of family practice consultations using Habermas' Communicative Action Theory (CAT) found distinct differences and identifying specific risks when family interpreters impose their own agenda (vs. the patient's one) and control the consultation process.

A more recent review concluded that bilingual nurses when supported with a professional interpreter made fewer errors than other interpreters in emergency departments (Flores et al., 2012). In considering the quality of family interpretations in general medicine, Meeuwesen et al. (2010) raised concerns with regard to miscommunication from changes in translation to side-talk activities. Professional medical interpreters have been found to be highly successful in remote contexts using telephone-based interpreting (Price et al., 2012); however, viewing interpreters as 'smart technology' in face to face consultations was seen as open to possible interpersonal and ethical dilemmas (Hsieh and Kramer, 2012). Flores et al. (2012) indicated the critical training period for success with omission, addition, substitution, editorialization and false fluency reduced significantly for non-trained interpreters after 100 hours of training. Another recent study (Pasquandrea, 2011) of the physicality of medical interpretation in general consultations analysed a corpus of interactions involving Italian doctors, Chinese patients, and an interpreter noting that

"Multimodal resources, such as gaze, gesture, body posture, object manipulation, and spatial arrangement, allow the doctors to modulate their participation, achieve mutual alignment with the interpreter, display constant attention to the multiple lines of actions taking place simultaneously, and show their orientation towards their interactional value" (p. 476)

Bilingual nurses

Another study of telephone counselling (Kim et al., 2011) found that the use of bilingual nurses in phone-monitoring and counseling contributes significantly to hypertensive control among first generation Korean immigrants to US. In face-to-face nursing encounters, the notion of 'dialogue' interpreting arose from one of the CA studies of Russian-Swedish interactions (Wadensjö, 1998). Another CA study (Bolden, 2000) of Russian nurse interpreters critiqued the more proscriptive model of direct interpretation as the translating machine model finding that, when in the role of interpreter, the nurses are "full-fledged social actors" taking on social agency and weaving between 'direct' and 'mediated' interpretation in order to support the institutional agenda. Bolden (2000) coined the term 'mediated' interpretation as a manifestation of "the interpreter's systematic orientation to the particular activity" (p. 394).

In sum, the reviewed studies on medical interpreting have established a dichotomy between perspectives that illustrate a deficit model of imperfect direct interpretation and miscommunications and more dialogic models of co-constructed meaning which view interpreters as "cultural brokers, mediators and advocates" (Meyer, 2003, p.78).

Dental communication and interpreting

Significant to understandings of the enactment and sequential unfolding of a dental consultation is the standardised norm as assessed in clinical communication studies in dentistry using instruments such as the Dental Consultation Communication Checklist (DCCC) (Theaker et al., 2000) with phases identified (introduction, case history, examination and closing) while also promoting a patient focus with checklist items related to patient comfort. An Australian survey on informal interpretation in dentistry found informal interpreters of Italian, Chinese and Vietnamese were the most satisfactory means of communication, despite the issues raised regarding dentists' "language-related communication barriers" (Goldsmith et al. 2005). Discourse-based work in clinical dentistry is limited with some early sociolinguistic work (Candlin et al., 1983) setting the foundations for later ethnomethodological studies (Anderson, 1989; Hindmarsh et al., 2011) and mixed-method research (Author et al., 2011). The latter, pilot work for this study found DSAs to be key interactants negotiating meaning in clinical dental education across integrated Polyclinics. As members of the oral healthcare team, Dental Surgery Assistants (DSAs) in Hong Kong were found to be an essential resource in their role of intercultural mediators between between non-Cantonese speaking staff and students and their Cantonese-speaking patients. The study noted that their work often required them to perform the dual functions of supporting both the 'hands on' and the 'communicative' aspects of clinical work when para-professional staff act as medical interpreters in clinical settings. The CA study presented below further examines the formulation of mediated interpreting in dentistry in Hong Kong.

Methodology

A multivariate approach to data collection and analysis was adopted (Heritage and Maynard, 2006; Author *et al*., 2011). First, a language use survey was conducted with Polyclinic DSAs using a logbook approach to provide self-report data on language use in clinics. Frequencies of mean scores are reported using a 10-point visual analogue scale (VAS). Full consultations (n=23) of consenting expatriate dentists

(non-Cantonese speakers) (n=4), DSAs (trilingual) (n=5) and their patients (Cantonese L1) (n=19) were then video recorded during interpreter-mediated clinical interactions.

Conversation Analysis (CA)

The video recorded data were analysed according to the perspective and methods of CA. CA is a largely qualitative methodology (but on quantification see e.g. Heritage et al., 2010) which takes as its starting point investigating the patterns of interaction in which are to be found the practices underlying the construction and understanding of action. Such actions include enquiring about a patient's dental problem (verbal and physical examination), describing the procedure that is taking place, or explaining to the patient how best to take care of her teeth. We explore the techniques used in conducting such actions (the design of the turns-at-talk in which such actions are managed); the relationships between the talk between participants and their non-vocal conduct, gaze and bodily configurations; the contingent nature of the response by one participant to another's talk (and/or non-vocal conduct); and the emergent outcomes of interactions between participants. Interaction is thereby understood to be a collaborative enterprise in which each participant's turn displays an understanding of the other's prior turn; and by responding to that prior turn, simultaneously forms the context for some 'next' action in a sequence (Heritage, 1984, p. 242). Hence speakers perform actions through their turns-at-talk, actions that are connected through sequences in which what one speaker says/does is generated by and dependent upon what the other has said or done. CA is particularly well suited to capturing the contingent and collaborative nature of face-to-face interaction, including medical interactions (Drew et al., 2001); for this reason CA is now widely employed in investigating medical interactions, including identifying the practices that may be used during the physical examination for avoiding unnecessary antibiotic prescription (Heritage and Stivers, 1999, Heritage et al., 2010); for reducing the patients unmet concerns or unvoiced agenda (Heritage, 2007); identifying practitioner styles that may facilitate or inhibit patient

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participation I treatment decision making (Collins et al., 2005); and even in the differential diagnosis of epilepsy and PNES among seizure patients presenting at neurology clinics (Schwabe et al., 2007; Reuber at al., 2009).

The key to CA's methodology is not only what is said, but *how* that is said and, especially, *how that came to be said* - what preceding talk or conduct generated a given turn at talk. We include in how something is said, the matter of how it was designed for the addressee or particular recipient of that turn-at-talk, i.e. *recipient design* (Drew, 2012; Schegloff, 1979; Markaki et al, 2012). Accordingly, those interactions selected for inclusion in the study were reviewed, to identify all cases in which i) something that the dentist said was interpreted by the DSA to the patient, ii) something that the patient said was interpreted by the DSA to the dentist, and iii) the DSA initiated talk either to the patient or dentist, without having been 'prompted' by one or the other. These cases were then examined closely in order to determine the pattern of mediated interpretation involved, and particularly to identify what immediately preceded the mediated turn – including what was said, by whom and how (including accompanying bodily conduct, gaze, dentist's manipulation of the patient's mouth etc.).

**Results and Discussion**

Questionnaire data

The sociolinguistic survey of DSAs (n=41) in Hong Kong was based on frequencies of mean scores from a 10-point visual analogue scale (VAS). Results indicated in Figures 1 and 2 show that the majority had Cantonese as a first language and spoke mainly Cantonese in their primary schooling with more DSAs having moved into English-speaking secondary education.

Figure 1. Language background of dental support staff
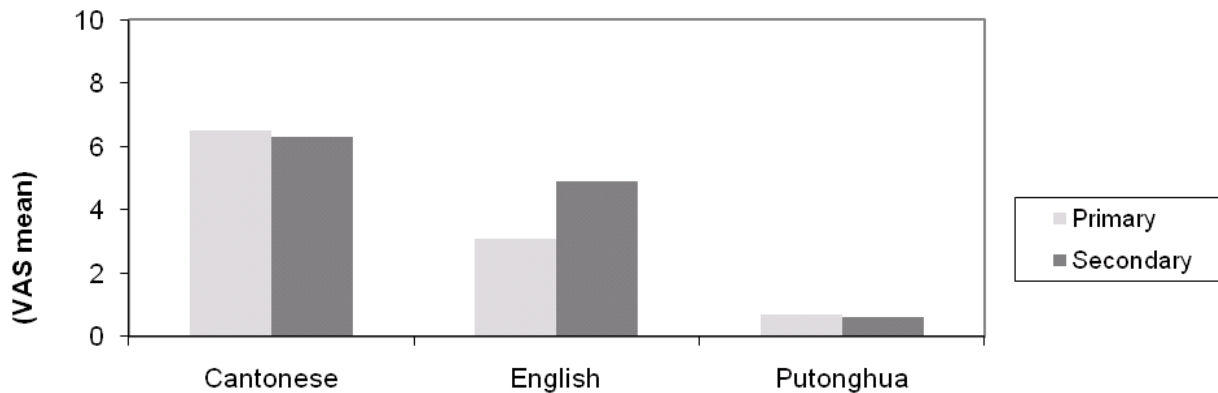
The majority of DSAs reported spoken interactions during the three reporting days to be in Cantonese (Figure 1) and spoken with fellow DSAs and patients (Figure 2). English was the next most frequently spoken language in clinics (Figure 1) and this was recorded as being predominantly with postgraduate and undergraduate students, patients and clinicians (see Figure 2). While the focus of this paper is on English-Cantonese medical interpretations, it is notable that the demand for spoken Putonghua is highest with patients (Figure 2), reflecting wider socio-political changes in Hong Kong since the 'one country two- systems' policy upon the return to Chinese governance in 1997.

Figure 2. Language survey: Spoken languages in clinics
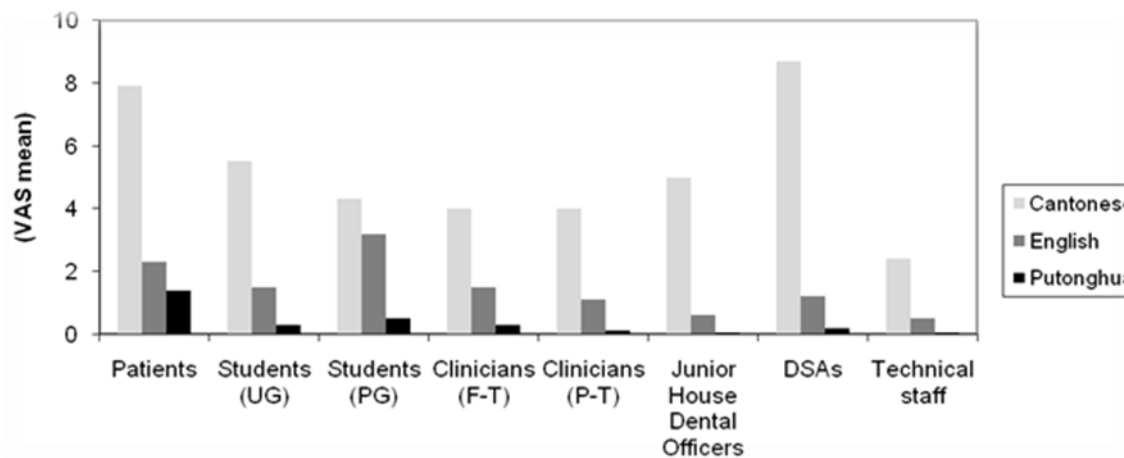
Survey data above, while from a small sample (n=41) and limited to 3 days of data collection, provide some indications as to: language backgrounds of DSAs; their clinical interactants; and the linguistic resources drawn upon in the larger clinical setting of a multilingual dental teaching hospital. In what follows, we explore in greater depth how multilingual clinical interactions are enacted in the context of medical interpreting. Specifically we examine the sequential patterns of activity enacted during interpreter mediated talk in clinical consultations in dentistry and the specific qualities of patient-centred care in this multilingual context. Interactional analysis will also support identification of those aspects of mediation that compromise or facilitate patient understanding of oral health messages.

Interactional data

Three distinct patterns of mediated interpreting emerged across the data set of review cases (return visits for ongoing care). Criteria for inclusion were that the dentist was an expatriate clinical staff member for whom English is the lingua franca of clinical conversations and for whom DSAs must regularly provide spoken interpretations during assisting with operative procedures.

<u>Direct interpreting</u>

Direct interpretations frequently occur as a summary provided after chunks of interpretable utterances have been provided by the dentist. The following excerpts (Case 61 and Case 60) illustrate this summary formulation.

Summary interpretation: Case 61 "We will have to wait"

(0:04:55.8)	139	D	((short pause; inhale)) Now↓(.)((inhale)) Very good↓(.)so::↑(.) as soon as he ((she))has the:se:: two::↑ extracted:↑
(0:05:00.4)	140	DSA	((short pause)) yeah::(.) yeah↓((leaning forward to have a good look))
(0:05:01.1)	141	D	((short pause)) yes::(.) then↓ we can discuss about the implant but >probably will have to wait for about four::↑ [weeks:↑(.) after the]<=

	142	DSA	[emm↓]=
(0:05:06.2)	143	D	=extraction::↑=
(0:05:06.7)	144	DSA	=yeah=
(0:05:07.2)	145	D	=then we'll make an x-ray (.) and then I can tell here::(.) more of less::(.) how::↓(.) the plan can be::↑=
(0:06:15.8)	181	DSA	((short pause; to patient))咁樣呢::↑(.)嗰度呢::↑(.)醫生話:↓(.)<種牙都應該冇乜問題嘅::↓(.)有機會>(0.4)不過呢:↑你一定要剝牙((doctor working on computer))(.)通常四個禮拜後我哋再影X光片:↑(.)睇睇佢>嗰個<::<牙骨嗰度有:↑>幾多啊↑?= (.) (to patient)) So here::↑(.)these here::↑(.)according to the doctor:↓(.)<the implant should be fine::↓. There's such a possibility>(0.4)but:↑you have to have teeth extraction((doctor working on computer))(.) Four weeks after the extraction we will look at your x-ray results:↑(.)((and)) see how much↑ <teeth bone> remnants:↑ >there is<::=

Summary interpretation: Case 60 "No need for Chlorexidine"

	236	D	((short pause)) o:kay↓(.) so::↓ no need the Chlorexidine(.) anymore::↑ ((patient sitting up))=
(0:17:53.5)			
(0:17:56.4)	237	DSA	=hmm↓=
(0:17:56.9)	238	D	=he can continue using the soft °tooth:°brush (.) only in this port ((part))::↑ ((pointing to his own left cheek))=
(0:18:00.1)	239	DSA	=[hmm↓]=
	240	D	[and]=
(0:18:00.3)	241	D	=>the rest of the mouth with a normal toothbrush::↑<=
(0:18:02.0)	242	DSA	=hmm↓=
(0:18:02.5)	243	D	=and< the red::↑(.) ehh::(.) interdental spare uhh:: brush:::↓(0.3) every time↓ al::so:↓>
(0:18:06.8)	244	DSA	((short pause)) >emm↓(.) emm↓ (.) [emm↓]<
	245	D	[uh-]
(0:18:07.5)	246	D	=-der the tooth and beside the tooth(.)> inter:dental< dental [space::↓]((DSA taking the napkin off from the patient))
	247	DSA	[>係啦聽<] [>okay can<]
(0:18:11.1)	248	DSA	>唔聽得明啊<？(0.7)嗰個牙::↓一定<用返個軟毛>(.)>整係嗰隻牙啫<↑吓::↑(.)其他用返正常牙擦::↑(.)得唔得？(.)咁而嗰個::(.)ehh::↓另外擦完晒牙之後啦(.)再用埋個牙縫擦:↑(.)應該紅色都o:kay嘅啦↓((short pause))好唔好啊？(.)>嗰兩支俾<(.)俾埋你(.)又買返兩支俾我:he he ((laughing; patient nod))((short pause))好唔好？hmm↓((laugh)) >you understand that<?(0.7) this tooth::↓must< be brushed by a soft bristle toothbrush> (.) > just this one<↑huh::↑(.)usual toothbrush::↑ for other teeth. Okay? Then as for the:: (.)ehh::↓in addition after toothbrushing, use this interdental toothbrush:↑. The red one should be o:kay↓. Alright? (.)>these two<(.) are for you(.)You can buy me two new ones: hehe((laughing; patient nods))(.) Alright? hmm↓((laugh))

Mediated interpreting

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In examining other, non-summary interpretations which followed a mediated pattern of talk (Bolden, 2000), the entry point for CA analysis was to examine recipient design (Drew, 2013) in order to understand how interpretations came into being during the complex, unfolding activity of the dental consultation. Three distinct patterns of interpreter-mediated talk were identified across the corpus.

1. Pattern 1 – is seen as expansions where the dentist has designated that something is to be interpreted. In such cases, much relies on the DSA's ability to infer the correct transition relevance place for interpretation. The assistant is recognised as having autonomous skills and experience, and her role as a co-constructor in the routine activity of the dental consultation and delivery of patient care is understood implicitly.

2. Pattern 2 – is dentist initiated, whereby the dentist explicitly directs the DSA to interpret. This may be done verbally through explicit lexical choices or non-verbally through the use of gaze.

3. Pattern 3 – is DSA initiated; the assistant acts autonomously and initiates unprompted expansions or actions. This, again, is seen in the data as a response to her professional status as DSA. She may respond to evident patient difficulties, initiate routine, task-oriented talk suited to her own repertoire of skills and institutional roles. While the majority of such talk may be in response to perceived patient needs, she may also address such spontaneous turn-taking to the dentist.

Pattern 1

The nuanced orchestration of co-constructed patient care is evident across the corpus. Particular to pattern 1 are instances where the DSA aligns with the dentist's talk to illustrate or elaborate the content of the dentist's turn (see Case 60 excerpt below). Additionally, such elaborations may be made at a transition in the dentist's activity in performing a procedure (see Case 20 excerpt below) or they may be in response to silence during a routine activity (see Case 56 below). These may be in anticipation of

preparing a patient's physical comfort or in anticipating patient anxiety and initiating talk to reassure or

express empathy (Author et al., 2011). The may also be instantiations of displays of professional

expertise, specifically in areas of oral hygiene instruction (see Case 20 below).

Case 20 "It's firmly glued"

(0:21:48.6)	236	D:	Great open again↑
(0:21:49.8)	237		((working in silence))
(0:22:01.7)	238	D:	Great! Close together↑ ((doctor keeps a distance from the patient, giving room for DSA to bring in hand mirror to patient))
(0:22:05.0)	239	DSA:	嗱= here=
(0:22:05.5)	240	D:	=Great!=
(0:22:06.1)	241	DSA:	=俾個鏡你↑((to the patient)) =a mirror for you↑((to the patient))
(0:22:06.8)	242	D:	I'll just let you sit up↑= ((moving dental chair))
(0:22:07.9)	243	DSA:	=黐黐實嘅(0.5) 宜家我哋試咗架啦 = It's firmly glued. (0.5) We tested to confirm that.
(0:22:10.0)	244	D:	yup↓=
(0:22:10.5)	245	DSA:	我哋會再商量工作(.)[情況] We will discuss our next (.)[step]

Taking turn 238 as a cue to bring a hand mirror to the patient, the DSA also uses this patient viewing

period as an opportunity at turn 243 to assure the patient of the stability of the prosthesis, *It's firmly*

glued and the professional rigor of the dental process undertaken with *We tested to confirm that*. At turn

245 the DSA initiates as new topic which is transition relevant as it aligns with the normal routine of a

dental consultation where they will move to Treatment Plan and Closure (Theaker et al., 2000, p. 41).

Case 56 "We found a little plaque"

Pattern 1 elaborations are done not as exact, voice-box translations. The examples above illustrate how expansions verge on having an autonomous role, especially where oral hygiene instruction is topically relevant, e.g. for improved tooth brushing.

(0:10:27.9)	517	D	I'll just use a perio ((periodontal)) probe on that (3.2)
(0:10:33.3)	518	DSA	我哋呢(.)都擦到一尐牙菌膜啊(.)嗰個位唔知係唔係因為痛呢::(.)自己都擦唔甩啊(.)唔得㗎啊↓ We found a little plaque(.)((there))not sure if it's due to the pain::(.) You can't brush that off (.) during teeth brushing
0:10:39.8)	519	P	係啊(.) [好窄啊↓] true(.) [it's narrow over there↓]
	520	DSA	[要擦啊↓] [gonna brush it as well↓]
(0:10:41.6)	521	DSA	係啊(.)要擦㗎嘛↑((short pause))就算唔舒服都要輕輕擦下佢㗎(.)如果唔係嗰尐細菌儲咗喺嗰道嚟呢::↑(.)你就會發炎㗎啦::↑ True(.) gonna brush it too huh↑(.) Even though it might be uncomfortable, still have to brush that spot lightly(.) if not when the bacteria stays there::↑(.)you may have an inflammation::↑

In case 56 above, the dentist provides an online commentary (Heritage and Stivers, 1999) of the operative action being undertaken. This can also be viewed as a request for an instrument, the periodontal probe. The ensuing 3 seconds of silence during the dentist's activity is heard by the DSA in the recipient design ("perio" being designed to be understood by a colleague, not a patient) as transition relevant; the DSA inserts new, but topically relevant talk directed at the patient about oral hygiene and the causal pathway of gum inflammation.

In such instances across the data set, it was noticeable that, in terms of recipient design, there were occasions where the dentist's talk is not designed to be interpreted and is understood as such by the DSA. One such example occurred in Case 26 below.

Case 26 "There may be a little bone or something"

00:02:55	85	Dr	=but she can be <u>assured</u> the whole tooth is [out]
00:02:57	86	P	[呀呀] [ya ya]

00:02:58	87	P	[係呀]
			[yes]
	88	Dr	[we] (.) we
00:02:58	89	DSA	((to patient)) 你知道嗰隻牙 (.) 拎走咗出嚟呀啦=
			((to patient)) You do know the tooth has been extracted already huh=
00:03:00	90	P	=我知啊 (.)我知啊=
			=I know (.) I know=
00:03:01	91	Dr	=but there may be a little <u>bone</u> [or something (.) We'll have] (.) we'll have a <u>look</u> and see=
	92	P	[宜家冇嘢啦(.)宜家冇啦]
			[now it's fine (.) it's nothing] ((everything's okay))
00:03:04	93	DSA	=幫你望一望先=
			=We will have a look first
00:03:05	94	P	=唔
			=Emm
00:03:06	95	DSA	吓(.)眼鏡戴住先
			Right (.) please wear this spectacles first

Turns 85-92 "she can be <u>assured</u> that the whole tooth is out" (turn 85) are directly taken as action requested and the performative is in the form of an interpreted utterance (turn 89). The physical configuration then shifts with the activity and Line 91 "but there may be a little <u>bone</u> or something" is physically parenthetical as an additional thought directed to DSA. This is not delivered as for interpretation. It is phrased as a collegial, parenthetical think-aloud during preparatory activity and delivered out of mutual eye gaze with DSA moving aside to instrument tray.

Pattern 2

Distinct to the notion of recipient design in mediated interpreting in dentistry is the turn-taking behavior of the dentist, through which he indicates when an interpreted turn is to occur. In this pattern, the dentist is seen as seeking interpretation through direct instruction or through more subtle formulations such as pronominal shifts. These may occur topically in the form of a directive such as "tell her…", through pronominal shifts from 'you' when directly speaking to a patient to 'she' when talking about the case at hand.

Case 56 "She's doing a very good job with the others"

(0:15:50.6)	709	DSA	((to doctor)) She need use the mouth wash::↑?
(0:15:52.3)	710	D	(.) No I think she'll be okay with just::↑ the brushing with it coz she's doing a very good job with the others:↓
(0:15:57.4)	711	DSA	唔::需要[用住::↓((short pause))]其他牙齒呢(.)都做得= No::need [to use that first::↓((short pause))]as for the other teeth(.) you've done quite a =
	712	D	[really good job↑ on the others:↓]
(0:16:00.8)	713	DSA	=[唔錯嘅啦] =[good job]
	714	D	[it's just::]
(0:16:01.4)	715	D	=<u>a little</u> unusual along the <u>back</u>::↑
(0:16:03.9)	716	DSA	Hmm↓((nod))
(0:16:04.6)	717	D	((short pause)) What's happening is the root↑
(0:16:06.3)	718	DSA	y:es::↑=
(0:16:07.0)	719	D	=has come down and she's seeing the little↓(.) she's going in to the a:rea: in between the [roots↓(.)so that's]=
	720	DSA	[emm↓ emm↓]
(0:16:11.7)	721	D	=what's causing her the pain::↑
(0:16:13.1)	722	DSA	ohh:↓(.) [yes::↑]=
	723	D	[as she↑]=
(0:16:13.9)	724	D	=jerks in with the ((short pause, DSA nodding)) with the wooden stick↑ or whatever↓=
¤(0:16:17.2)	725	DSA	=yes:↓
¤(0:16:17.9)	726	DSA	((short pause))嗱(.)因為呢↑(0.6)其實>°隻°<隻牙((short pause))其他位置都擦得唔錯啦(.)啊閂埋個嘴先↑(.)咁呢度呢(.)因為係個牙肉縮咗上去↑暴露咗尖牙腳出嚟(.)咁你係敏感(.)你用牙簽篤落去呢(.)就係啱啱嗰個(.)嗰個(.)ehh:↓嗰個牙腳暴露咗出嚟嗰個三角位嗰個窿°窿°嗰個嚟(.)咁就唔洗擔心唔明 ((misspoken "唔係" into "唔明"))(.)<唔係蛀牙> ((short pause))nah(.)as↑(0.6) in fact>°every°every other teeth ((short pause)) on other spots are cleaned well(.)ah close your mouth first↑(.)here(.)as your gum recedes↑exposing a bit of your teeth root(.) hence the sensitivity(.)when you use a tooth pick to reach here(.) it coincidentally reaches(.) the(.) ehh:↓the exposed triangle root of the teeth(.)so no worries not)(.) <((it's)) not a tooth decay> ((misspoken "not" into "not understand"))

The dentist signals that the talk at turns 709-710 is *about* the patient by use of the pronominal, 'she'. The

DSA hears this as talk to be interpreted and provides a summary with some expansion of what the

dentist had said at turn 726. In terms of recipient design, she has performed the action requested by the dentist and this is held as one of the standard patterns of mediated interpretation across the data set.

Case 60 "Can we close a little bit?"

(0:02:40.4)	77	D	(.)Can we close:: a little bit↑?=
(0:02:41.7)	78	DSA	=合埋小小↑ =close up a bit↑

Turn 77 above is formulated as a request using another pronominal formulation, 'we'. The dentist requests an action in the form of closing the patient's mouth but the inclusion of all present by 'we' is heard by the DSA at turn 78 as an invitation to interpret.

Such dentist-initiated requests for interpretation were often manifested in prosodic non-verbal behaviours, specifically in cases 26 and 56 below, through the use of gaze.

Case 26 "That's just the consequence"

00:02:38	72	Dr	=but that's just the consequence of ((gazing at the DSA)) having the tooth extracted↓ ((gazing at the DSA))
00:02:41	73	DSA	因為呢(.) 通常呢(.)剝完牙之後呢都會有陣時有一段日子= Cause (.) normally (.) after extracting a tooth (.) sometimes there're some days

In the excerpt above, the dentist explicitly directs the DSA to interpret through non-verbal instruction using gaze following the emphasized use of *consequence* (line 70). Para-linguistic meaning-making tools employed include the dentist's use of eye gaze, stressed intonation and nod to DSA. The combination of these provides powerful illocutionary force and the DSA responds with an interpretation at line 73. The patient's eye gaze also responds to the dentist's directions and she turns to the DSA for interpretation.

Case 56 "These are not holes"

(0:20:37.1)	822	D	<she can al::so feel: where I am working now::↑ but that she doesn't feel the pain::>
(0:20:41.8)	823	DSA	emm↓ hmm↑=
(0:20:42.4)	824	D	=that's the furcation of the root as well↑
(0:20:44.9)	825	DSA	yeah↓
(0:20:45.7)	826	D	((short pause)) so these are not hole::s↑(.) these are natural(0.6) ehh:↓(.)that(.) defects↓ where the root↑((short pause)) in between the two roots↓(.) That's what's happening.
(0:20:55.9)	827	DSA	((short pause)) 嘩宜家你(.)知道教授做>緊尐嘢嘅嗎(.)係唔係(.)落咗麻醉藥所以你啊唔會痛嘅喎 ((short pause))啊不過呢(.)我哋知道呢原嗰度因為個牙腳縮低咗啊所以引致呢你形容到好似有個窿:↑(.)就牙尖(.)掂到有個窿(.)其實嗰尐(.)我哋唔係叫做蛀牙((short pause))咁只不過係:::↓牙肉塞(.)縮低咗((short pause))引致到有尐牙腳暴露咗出嚟(.)啱啱個三角位暴露咗出嚟(.)咁樣囉↑ ((short pause)) now you (.) do know what the professor > is doing, right ? And you've been anaesthetized so you won't feel anything (.) Ah but (.) we know that in fact as the gums recede hence you describe it as if it's a hole:↑(.) what tooth pick (.) feels like a hole (.) In fact that (.) we don't see it as tooth decay (.) It's just::↓ gums (.) recede (.) causing the exposure of the teeth roots (.) and coincidentally the triangle spot is exposed (.) something like that↑

In the above case, the same dentist, through emphatic tone of voice at turn 826 , instructs the DSA to interpret the key message omitting the scientific term, 'furcation' which is the natural branching of the tooth roots. The core message is then delivered by the DSA with the scientific term replaced with a lay phrase 'the triangle spot'.

Case 53 "All arrived"

(0:16:44.1)	214	Inter-com	>三<點到埋(.)全部到晒
			> three o'clock is here<(.) all of the patients are here
(0:16:45.6)	215	DSA	好 ah ((short pause)) ((turning her attention back; saying to the doctor)) all arrived
			okay ((short pause)) ((turning her attention back; saying to the doctor)) all arrived
(0:16:48.1)	216	D	((short pause)) what is that↑?
(0:16:49.2)	217	DSA	°emm° (.) all arrived

In the above case, with a UK dentist, the DSA initiates a direct interpretation of the internal message delivered via intercom in Cantonese. There dentist does not hear this as an interpretation and seeks clarification at turn 216. The DSA hears this as troubling. This is signaled by the hesitation at turn 217 with a hesitation marker °emm° followed by a short pause. Her response is a repetition of her pronouncement *all arrived* at turn 215.

Pattern 3

In this pattern, we see the DSA acting autonomously but in a manner appropriate to her role as para-professional caregiver. This autonomy is, however, most often seen as part of the larger script of the routine activities of the dental consultation. In terms of mediated interpreting, it can also be seen as anticipatory to the dentist's review questions.

Case 60 "Are there any other abnormalities?"

(0:00:41.4)	17	DSA	(.)>今次返嚟覆診嘅啫↑<(.)吓::↓(.)冇乜嘢啊嗎？(.)近排:?((putting on the napkin for the patient))(.)>個傷口嗰忽(.)口腔入邊有冇唔舒服嗰忽啊<？=
			(.)> This visit today is just a follow up review↑<(.)huh::↓(.) Is there any other abnormalities? (.) lately:?((putting on the napkin for tha patient))(.)> the wound (.)the oral cavity any discomfortness<?=
(0:00:47.3)	18	P	=冇
			=no

(0:00:48.0)	19	DSA	((short pause))都冇吓::↑(.)冇就好啦::↓(.)哎:::↓((sigh))
			((short pause))everything's okay huh::↑(.)that's great::↓(.)ahh:::↓((sigh))
(0:00:51.3)	20		((silence; DSA moves on for tools preparation))
(0:00:59.7)	21	D	emm↓ hmm↑
(0:01:00.5)	22		((silence))
(0:01:01.9)	23	DSA	教低你嘅凳吓::↑
			let you back down here huh::↑

In the above excerpt at the opening phase of the consultation, the DSA begins patient history

questioning as she prepares the patient, chair and tools for the consultation. This sequence is

independent of the dentist and is conducted entirely in Cantonese.

Case 59 "I'm afraid that…I will hurt you"

(0:27:36.1)	409	DSA	嚀你一陣呢::↑(.)你入去::(.)個洗手間喐度(.)抹下個嘴((short pause))因為個嘴呢(.)有尖膠黐喺喐度(.)我驚太大力[啦]=
			Here hold it::↑(.) You can go to::(.) the washroom(.) to wipe your mouth clean((short pause))because there's (.) some impression material on it(.) I'm afraid that I will be use too much force that=
	410	P	[ohh↓]=

| (0:27:41.8) | 411 | DSA | =整到你好痛↓((short pause)) 吓:(.)((wiping away the impression material on the patient's face))嗰尐(.) 嗰尐其實(.)一(.)一搣就得架啦(.)但係你要用隻手去慢慢搣囉↑((short pause))　[知唔知啊↑？]

=I will hurt you↓((short pause))huh::(.)((wiping away the impression material on the patient's face))it's(.) it's actually(.)easy(.) easy to be peeled off(.)but you have to use your hand to peeled them slowly↑ ((short pause))　[okay↑？] |

In the excerpt above, the DSA takes interactional control as part of the routine activity of the consultation – here, caring for patients in the clean-up phase after clinical treatment. In turns 409-411, the dentist has moved away from the locus of patient proximity allowing the DSA both physical and interactional space. In this space, she takes control of the clinical activity of post-procedural cleaning-up and the interactional turn. At turn 409, she proffers tissues and rinse and offers advice to the patient about cleaning up, justifying this with her repeated concern of *I will hurt you* (turns 409, 411).

Case 60 "There's a bit of bacteria inside"

(0:16:01.3)	188	D	(.) still quite some inflammation on the::↓(.) inside↓
(0:16:04.1)	189	DSA	(0.4)入邊都仲有發炎吓::↑ (0.4)there's some inflammation inside huh::↑
(0:16:30.0)	204	DSA	((short pause))你話呢(.)呢↑邊::↓(.)都有::尐尐菌喺入邊(.)>直情好::污糟(.)即係喺(.)嚄(.)個你見唔見到啊↑？< ((short pause))he said(.)well:: ↓(.)there's ::a bit of bacteria inside(.)> it's not::clean(.) that means(.) here(.) this can you see that↑？<
(0:16:34.7)	205	DSA	[(.)堆咗尐<食物>出嚟啊↓] [(.)quite some <food remnants> accumulated here↓]
	206	D	[you can see it (.) yup↓]
(0:16:36.0)	207	D	[(.) can you see the(.) there's a lot of (.)blocking there:↓]
	208	DSA	[>(.)見唔見到:↑啊↑？((short pause))見唔見到:↑啊↑？<(.)係囉啊(.)<好::多:↑>] [>(.)can you see that:↑ahh↑? ((short pause))can you see that:↑ahh↑？<(.)yup(.)< quite:: a lot of: ↑>]
(0:16:38.7)	209	DSA	食物(.)插((short pause))縮咗落去個窿入邊啊(.)因為你清潔唔到啊= food(.)in between((short pause))in this hole (.) because you haven't cleaned them=

Again in case 60, the expansions at turn 204::*a bit of bacteria inside* and turn 208 *[(.)quite some <food remnants> accumulated here↓]* illustrate DSA autonomy. The DSA designs these turns as an elaboration of the direct interpretation at turn205 *there's some inflammation inside huh::↑* The design of turns 203, 208 and 209 moves into oral hygiene instruction educating the patient on the causal mechanism of the inflammation that the dentist has identified.

Case 56 "No need to use mouth wash"

(0:15:35.8)	699	D	((to DSA)) I'm just going to <clean out the area > [will be] a lot better:↓
	700	DSA	[o:kay↑]
(0:15:39.0)	701	DSA	((short pause))>喥幫你洗乾淨嗰度先啦< =((to patient)) ((short pause))>nah we will clean this up first< =((to patient))
(0:15:40.6)	702	DSA	= so you will:: tea:ch her::↑ [use↑] the id* brush?
	703	D	[yup]
(0:15:43.3)	704	D	=id brush(.) now(.) maybe it will be a good↑ [idea::↑]=
	705	P	[買嗰尖漱]= [is buying mouth]=
(0:15:45.8)	706	P	=口水好 [唔好]↑= =wash [okay]↑]=
	707	DSA	[ai ya]=
(0:15:46.9)	708	DSA	=唔好用漱口水住(.)唔係樣樣都用架(.)最緊要清潔乾淨先↑ =no need to use mouth wash(.) Not everything is a must have (.) What's most important is to brush the teeth well↑ ((to doctor)) She need use the mouth wash::↑?
(0:15:50.6)	709	DSA	((to doctor)) she need use the mouth wash::↑?
(0:15:52.3)	710	D	((short pause)) No, I think she'll be okay with just::↑ the brushing with it coz she's doing a very good job with the others:↓
(0:15:57.4)	711	DSA	唔::需要[用住::↓((short pause))]其他牙齒呢(.)都做得= No::need [to use that first::↓((short pause))]as for the other teeth(.) you've done quite a =
	712	D	[really good job↑ on the others:↓]
(0:16:00.8)	713	DSA	=[唔錯嘅啦] =[good job]

*interdental brush

In the excerpt from Case 56, the DSA's autonomy is displayed when she draws upon her knowledge and experience of oral hygiene to respond directly to the 50 year old male patient's new line of inquiry at

turn 705 *Is buying mouthwash okay*? with a topic relevant exclamation of *ai ya,* a Cantonese utterance denoting surprise. She then moves into an extended turn (turn 708) focusing on the preference for good tooth brushing habits over mouthwash. Of interest is her next confirmation seeking from the dentist at turn 709 after her oral hygiene advice.

Finally, the DSAs were also found to take initiative with non-verbal activity supporting verbal directives.

Case 56 "Close your mouth and rest a bit first"

| ¤(0:23:50.9) | | DSA: | 嗱(.)一°陣°間唔係打針(.)只係攞尐消炎盪口水同 ((using her hand to close the patient's lower jaw)) 你沖洗>下((use her hand to close the patient's mouth))個位(.)閂埋嘴唞下先<]((patient follow suit))here (.) °later° there's no injection (.) but just use anti-inflammatory mouth wash for ((using her hand to close the patient's lower jaw)) irrigation> that part (.) close your mouth and rest a bit first<] ((patient follows suit)) |

In the excerpt from Case 56 above, the DSA takes independent action through both spoken and physical directives to guide the patient in closing her mouth for the dentist.

Case 58 "Don't be scared"

0:03:33.8)	66	D:	good↓ (1.0)((breathing in))o:kay↓(.) everything is::he(.) healing nice::↓ly:↑=
0:03:37.8)	67	DSA:	=okay 吓↑(0.2)有小小::↑盪口水(.)可以合埋小小(.)吞咗唔驚吓↑= =okay huh↑(0.2)((there's))a little:: ↑mouth wash(.) Can close ((your mouth)) a bit(.) Don't be scared ((to)) swallow it huh↑=
(0:03:41.6)	66	D:	=it is still early though↑ (0.3) so::it will continue healing for quite some time↓(.) ((breathing in))now↓(.) we need to continue with the Chlorhexidine(.) ehh::: mouth rinse for another three weeks::↑=
(0:03:51.2)	73	DSA:	=(0.3) three weeks(.) so we have to prescribe [for::]↓

In case 58 above, the DSA's again takes on her autonomous role in switching codes at turn 67 to introduce a new topic in Cantonese. She hears turn 66 as the dentist's online commentary rather than a request for translation and her linguistic switch engages in not only routine talk but also empathetic talk (Author et al 2010), *Don't be scared*. The dentist continues discussion of healing and treatment planning at turn 66. In terms of mediated interpreting and recipient design, turn 66 is still heard by the DSA as online commentary rather than a request for interpretation. This is indicated in her language choice of a direct reply in English at turn 73. Turn 67 can, therefore, be seen as autonomous behavior in line with the normative actions of operative dentistry i.e. rinsing the mouth after oral investigations or procedures. Turn 67 also sees enactment of her duty as caregiver in a patient-centered view of dental care. Stewart (2001) denoted patient-centred care as occurring where the interaction: (a) explores the patient's main reason for the visit, concerns, and need for information; (b) seeks an integrated understanding of the patient's world—that is, their whole person, emotional needs, and life issues; (c) finds common ground on what the problem is and mutually agrees on management; (d) enhances prevention and health promotion; and (e) enhances the continuing relationship between the patient and the doctor (p. 445). The

work of Turn 67 can be seen as the fifth condition where the multilingual nurse draws upon her

linguistic and cultural resources to support the dentist in providing patient-centred care.

Conclusions

Contrary to the opinion that nurses may impair or indeed impede clinical communication between the

clinician and their patient when taking up the task of interpreting, evidence from the study in dentistry

above points to the centrality of the clinician in the communicative process that is mediated interpreting.

Two of the three patterns identified across the dataset were dentist-led (Pattern 1 – dentist designated;

and Pattern 2 - dentist initiated). Although Pattern 3 was dental surgery assistant (DSA) initiated,

communications and activities surrounding this were associated with routine activities tied to her

particular service-provider role within the normative triadic interactions of dentist, DSA and patient.

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Transcription Conventions

(.)		noticeable pause shorter than 0.5 second (including regular pauses between sentences)
(~n)		timed pause (in approximation) where "n" indicates the interval measured in seconds

Intonation marks:

.	falling intonation
,	level intonation
! ? ↑	rising intonation
[	the beginning of overlapping
]	the end of overlapping

A: XXX=   B's utterance is latched onto A's
B: =XXX

:	lengthened sound (more colons mean greater length)
<u>XXX</u>	stressed words
(( ))	non-verbal features or transcriber's comment
⟹	indicates a turn of analytic interest

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Address: Rm 901, Administration Block, QMH Tel 2255 3923 2255 4086 Fax 2255 4735

Dr. Susan Bridges
Faculty of Dentistry
The University of Hong Kong

20-Apr-12

Dear Dr. Bridges,

IRB Reference Number: **UW 12-068**

The HKU/HA HKW IRB is authorized by a joint agreement of the University of Hong Kong and Hospital Authority Hong Kong West Cluster to review and monitor clinical research. It serves to ensure that research complies with the Declaration of Helsinki and acts in accordance to ICH GCP guidelines, local regulations and Hospital Authority and the University policies.

I write to inform that your research application/submission has been approved by an expedited process with details shown below. You are also requested to adhere to the conditions listed.

IRB reviewer(s)	:	Professor Virginia Wong, Chairman and Professor Kathryn Tan, Deputy Chairman of the HKU/HA HKW IRB
Protocol title	:	Health literacy and clinical communication: Global intersections in Asia
Study site(s)	:	As stated in application form
Document(s) approved	:	01. Clinical research ethics review application form
	:	02. Study protocol (January 2012)
	:	03. Staff/Participant Information Sheet and Consent Form (January, 2012; revised March; April 2012) - English
	:	04. Patient/Subject Information Sheet and Consent Form (January, 2012; revised March 2012) - English and Chinese
Document(s) reviewed	:	05. Short CV of principal investigator

(Conditions : 1. Do not deviate from, or make changes to the study protocol without prior written IRB approval, except when it is necessary to eliminate immediate hazards to research subjects or when the change involves only logistical or administrative issues.

2. Report the following to HKU/HA HKW IRB: (i) study protocol or consent document change (use 'HKU/HA HKW IRB RE001F7'), (ii) serious adverse event (use 'HKU/HA HKW IRB RE001F8'). (iii) study progress (use 'HKU/HA HKW IRB RE001F9a')* (iv) new information that may be relevant to a subject's willingness to continue participation in the study.

3. Report study progress to HKU/HA HKW IRB at a 12-monthly interval until study closure.)

Yours sincerely.

[signature]

Mr. Chris Yip
Secretary, HKU/HA HKW IRB