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Communication processes between caregivers and audiologists in paediatric cochlear implant appointments in Johannesburg South Africa

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COMMUNICATION PROCESSES BETWEEN CAREGIVERS AND AUDIOLOGISTS IN PAEDIATRIC COCHLEAR IMPLANT APPOINTMENTS IN JOHANNESBURG SOUTH AFRICA

DEPARTMENT OF SPEECH PATHOLOGY AND AUDIOLOGY



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A DISSERTATION SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN AUDIOLOGY IN THE FACULTY OF HUMANITIES at THE UNIVERSITY OF THE WITWATERSRAND

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DECLARATION

I, Kelly Claire Hugill, declare that this dissertation is my own work. It is being submitted for the degree of Master of Audiology in the Department of Speech Pathology and Audiology in the School of Community Development, in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.



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Date: 10/08/2021

ABSTRACT

Background: Counselling and information sharing form part of the audiologist's role in the early stages of diagnosis and management of hearing impairment. A limited number of health communication studies in the field of audiology have been conducted to date, none of these studies have analysed interactions in paediatric cochlear implant settings. The lack of research within the field indicates that audiologists have a limited evidence based in terms of information regarding communication processes in the paediatric cochlear implant setting.

Aims: The main aim of the current study was to examine the interaction between audiologists and caregivers in the paediatric cochlear implant clinic setting. The main objective of the study was to observe the communication processes and practices of audiologists as well as the manner in which information sharing and counselling were conducted.

Method: This study adopted a qualitative exploratory, cross-sectional design involving interactional analysis of recorded consultations, participant observations as well as thematic analysis of semi structured interviews with participants. The research was conducted at a single Cochlear Implant Centre in the private healthcare sector of Johannesburg, South Africa. The data comprised of eight recorded interactions between three participating audiologists and 10 caregivers, supplemented by interviews with participants after the consultations as well as 12 hours of observations by the researcher in the clinic environment. The interactions included both, implant programming and Auditory Verbal Therapy (AVT) follow-up appointments. The video recorded

appointments were analysed via means of genre analysis and sociolinguistic principles. Inductive thematic analysis was used to analyse the interview transcripts. The video recorded data, participant observations and semi structured interviews were then triangulated to strengthen the analysis and overall confirmability of the study.

Results: Similar interactional phases were found to occur in each interaction regardless of the content emphasised in the appointment. A cyclical approach to recommendation giving, progress updates and summary of concepts was observed. The main aspects which emerged from the data set included the complexity of communication within the cochlear implant context, the role of the audiologist as a guide in the patient management process, as well as collaboration between caregivers and audiologists. Themes including; adaption, trust, co-ordination of care, communication and partnership were key themes which emerged from the interview data. These aspects highlighted the experience required by audiologists to identify and manage levels of complexity within consultations.

Conclusion: The results of the current study provide further implications for training and practice within the field of audiology, adding to the growing body of research in this area. By providing opportunities for observational training and mentorship in the areas of counselling and interaction, audiologists may be able to gain the experience needed to juggle the complexity of the paediatric cochlear implant setting.

Keywords: Information sharing, counselling, interaction, communication, audiology, cochlear implant, collaboration, complexity, experience, observational training, mentorship, South Africa.

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List of Abbreviations

PCC- Patient-Centred Care

FCC - Family-Centred Care

AVT- Auditory Verbal Therapy

HCRU- Health Communications Research Unit (University of the Witwatersrand)

NHS- National Health Service

UK- United Kingdom

ABR- Auditory Brainstem Response

HIV- Human Immune Deficiency Virus

ENT-Ear Nose and Throat

Definition of Terms (Glossary)

Cochlear Implant- An electronic device consisting of an electrode (internal) and processor (external), used to stimulate the auditory nerve by bypassing the sensory inner hair cells of the cochlea, by means of an implantable electrode (Møller, 2006).

Cochlear Implant 'Switch-on'- When the external part of the cochlear implant is connected to the internal implant to introduce sound stimulation. Occurs typically 3 weeks post implantation surgery (Chute & Nevins, 2002).

Mapping- Personalised programming of the cochlear implant device based on the individual's auditory nerve response to stimulation (Young & Kirk, 2016).

T-levels- The minimum level of electrical stimulation required for the auditory pathway to perceive sound (Wolfe & Schafer, 2014).

C-levels- The level of electrical current determined as comfortably loud when the implant is active, also referred to as 'comfort level' (Chute & Nevins, 2002).

Speech Banana- A visual representation of all speech sounds (phonemes) plotted on an audiogram in the region they are produced in terms of their pitch. (Bowen, 2014).

Caregiver- A person responsible for looking after the needs of another person as that person is ill, has a disability or is too young to care for themselves (Collins English Dictionary, 1994).

COVID-19- Coronavirus Disease.

Chapter 1 Background and Rationale

This study documents interactions between audiologists and caregivers of paediatric patients in a cochlear implant clinic setting. The study aimed to identify the manner in which audiologists interact in this setting as well as how audiologists navigate the complexities of this clinical setting. In order to address the research aims of the study, this dissertation documents the phases of the interactions and identifies common themes and aspects of communication and interaction which occurred across the data set.

1.1 Motivation

The motivation for this study originated from my daily practice and role as an audiologist working in an early intervention setting. Over the last five years, I have worked in paediatric audiology practice in the area of diagnosis and hearing aid fitting within the National Healthcare Service (NHS) in the United Kingdom (UK). Working alongside Cochlear Implant Centres, I was interested in how the challenges of early intervention in this setting are navigated, with the added complexity of the unique clinical context. The paediatric cochlear implant setting provides a unique challenge in that there is a large volume of technical information that needs to be shared alongside caregiver counselling. This would appear to require the use of several skills by the audiologist which was of interest.

Prior to my experience of working as a paediatric audiologist in the NHS, I completed my undergraduate qualification in South Africa. Following graduation I had experience working within the South African healthcare setting in an incredibly rural context which provided exposure to many of the complexities and challenges associated with cultural and linguistic differences as well as socio-economic disparities.

Having worked in these contrasting contexts I hypothesised that working within the South African context as a cochlear implant audiologist may bring unique challenges in interactions and the manner in which audiologists navigate these challenges was of interest. As there are various models of clinical counselling which have been suggested as effective and best practice in audiology, I was interested in observing how interactions in this setting occurred. Cochlear implantation has increasingly become a more viable device option globally (Svrakic & Vambutas, 2019) and as such, research into this type of appointment will hopefully aim to inform communication practices in audiology. As very little investigation into interactions in paediatric cochlear implant settings has been documented to date, information within this field may add to the emerging body of research into communication processes in the field of audiology and may assist in informing future training programs regarding patient counselling and communication.

1.2 Background

Audiology appointments aim to inform and reassure patients and caregivers regarding diagnosis and future management of hearing impairment (Galster, 2018). During paediatric audiology appointments, behavioural assessment in the form of visual response audiometry or objective assessment in the form of auditory brainstem response testing may be conducted, in combination with other diagnostic measures, in order to identify the presence of hearing impairment and the likely aetiology thereof (Bess & Gravel, 2006). Thereafter, a management plan is introduced for the patient and caregivers, which may involve device fitting or further referral in the event of medical co-morbidities. Counselling and information sharing form part of the audiologist's role in the early stages of diagnosis and management. Providing parents and caregivers with

accurate information, necessary for speech and neurological development following device fitting is imperative (Madell & Flexer, 2013).

Audiologists working in the field of paediatric audiology often experience challenging communicative interactions with caregivers, as discussion of treatment options and goal setting can be difficult for caregivers (Zaidman-Zait, 2007). Caregivers can at times define progress based on expected developmental milestones which may or not be possible, due to the hearing and developmental needs of the child. Likewise, the vast amount of information aimed at targeting improved communication development and the technical device information, which the caregiver is required to recall and implement at home can be overwhelming. As part of on-going research being conducted by the Health Communication Research Unit (HCRU) at the University of the Witwatersrand, research has shown that input with regard to the communicative approach to information counselling is necessary in audiology practice (Watermeyer et al., 2017). In order to expand on this growing body of research, this study aimed to conduct research in a field of audiology which may be viewed as more complex in terms of the depth of counselling and information shared (Li et al., 2004).

The cochlear implant context encompasses a long-term clinical relationship between the audiologist and the caregiver due to the long-term commitment to device fitting and use. The decision to implant may therefore be difficult for caregivers due to the commitment to the cochlear implant process. Along with the permanence of this intervention option, comes the risks associated with surgery as well as the lengthy communication therapy that occurs thereafter which requires significant caregiver

investment and collaboration with the cochlear implant team. Caregivers may also be faced with the options of schooling if additional support for education is required, or the need for specialised hearing impairment provision is needed in the classroom. These considerations are coupled with the financial implications of the initial implantation as well as the ongoing cost of routine maintenance and repair of implant components. As a result, discussions in cochlear implant appointments may be viewed as more complex as several areas of assessment and management need to be explored in order to plan for the patient's communication progress and outcome. There are various team members involved in the process of cochlear implantation and therefore information giving occurs from different individuals at different times. Several discussions regarding treatment options, the surgery itself and follow-up treatment need to be discussed. Information counselling in these appointment settings needs to address matters relating to the viability of surgery, as well as the risks and unfavourable outcomes that may exist as a result of surgery (Chute & Nevins, 2002). Caregivers may enter the process of cochlear implantation with unrealistic expectations of restoring normal hearing, as well as the complex nature of the rehabilitation process which follows surgery. It is therefore necessary for the audiologist to safe guard against unfavourable outcomes that may result from these unrealistic goals (Nikolopoulos et al., 2001; Peñaranda et al., 2011).

Implications of inadequate information counselling can cause unrealistic or at times unmet expectations as well as a lack of adherence to follow-up appointments and treatment. In the South African context, communication and information counselling are particularly challenging due to the language mismatch which often exists between the

clinician and caregiver, as well as the possibility of cultural biases within the healthcare context (Penn & Watermeyer, 2018). Differences in access to services in public and private settings may also have an impact on the experience caregivers may receive in this setting. When information counselling regarding the cochlear implantation processes happens in a way that provides reassurance to parents or caregivers regarding the support that can be offered throughout the process, successful outcomes may arise (Zaidman-Zait, 2007).

1.3 Rationale

Evidence surrounding early intervention strategies for children with cochlear implants has shown the best results in terms of developmental progress and achievement throughout the child's life. Research has shown that early intervention can provide better outcomes in the areas of speech production, cognition and language development (Ching et al., 2018). Furthermore, research provides evidence that early intervention in both pre and post lingual hearing impairment can result in equivalent verbal reasoning skills and language development as that of the child's peers (Smith et al., 2016). As such, effective information counselling for caregivers via a patient-centred approach, especially in the early stages, is seen as important to facilitate their journey as the caregiver takes responsibility for treatment adherence during this process.

When looking at current models of health communication practices, a patient-centred model of healthcare has been noted to be a successful model for consideration of the patients' needs and projected outcomes (Coleman et al., 2018). Without effective communication practices in the field of audiology and cochlear implantation, caregivers may not show complete understanding of what the treatment process entails, the

importance of attending follow-ups and rehabilitation and as such the necessity for their child to make use of their listening device as required for optimum outcomes. Patient-centred models have shown how better understanding and reciprocal communication occurs between the patient and the audiologist (Laplante-Levesque et al., 2014). This is in contrast to practitioner-based models which have been shown in the past to have unsuccessful outcomes in terms of patient engagement and successful treatment (Quill & Brody, 1996).

Research examining the communication profiles of audiologists in clinical settings has revealed that audiologists considering the needs of the patient as well as their perspectives towards treatment are ultimately more successful in the final outcomes of treatment and participation. Research in the area of health communication and patient centeredness has shown that this approach ultimately leads to better outcomes for participation in treatment planning as well as outcomes for chronic difficulties (Rutten, 2015).

Several studies have been conducted in the field of audiology, highlighting the need for patient-centred communication in daily practice. Researchers have suggested that patient-centred care in audiology places value on individualised care for patients and examination of the patient's readiness and motivation towards treatment (Clark et al., 2012). In a study conducted by Knudsen et al. (2012), the importance of the interpersonal relationship between patient and audiologist was revealed, and interest in the patient by the audiologist was valuable in establishing trust in the clinical relationship.

Although research has shown success in terms of treatment adherence and understanding of information when a patient-centred approach is adopted, Grenness et al. (2014) have noted that the approach has received less attention in the field of audiology than in other healthcare fields, in turn necessitating further research in the area. This was emphasized by Munõz et al. (2017) in their study which indicated the need for further attention in the area of patient-centred care being integrated into the training programs of future audiologists. As such my study, examining the communicative approaches utilised in cochlear implantation appointments aims to add to this growing body of research.

In the review of literature which follows in this dissertation, the psychological and emotional nature of early detection of severe to profound hearing impairment, as well as the use of patient-centred and family-centred care will be focused on. This is of importance as this study highlights how the complexity of the clinical context is managed by the audiologist in order to successfully communicate accurate information and counselling in this setting. The results of this study as well as others of its kind yield results that may help to inform the training of clinicians working in the field of audiology. Studies in this area aim to improve communication strategies between audiologists and their patients, and ultimately equip patients and caregivers with the communicative 'tools' required to negotiate complex interactions with greater confidence, and in a family-centred manner.

A limited number of health communication studies in the field of audiology have been conducted (Reuben, 2016), none of which have specifically explored the field of cochlear implantation. The lack of research within the field indicates that audiologists

have a limited evidence base in terms of information which may be imperative in a multilingual and multicultural context such as South Africa (Swanepoel, 2006). In order to gain an understanding of how audiologists convey information and conduct counselling with patients, the need for detailed investigation into interactions between individuals is required. Detailed descriptions of interactions allow for investigation into how audiologists navigate complex clinical encounters.

1.4 Organisation and Structure of the Dissertation

This dissertation consists of eight chapters as outlined below:

Chapter 1 – Background and Rationale

This chapter introduces the dissertation. The chapter provides background into the area of study. It highlights the motivations for the study based on my background and area of interest.

Chapter 2 -Review of Literature

In chapter two, I will discuss research in this area and identify similar studies of this nature, as well as describe models of health care in relation to health communication practices. The challenges that affect healthcare practice are therefore also described. I explain communication processes in audiology as well as the types of interactions occurring in audiology. Early intervention and the decision-making process in cochlear implant is explored and the complexity of the cochlear implant context is highlighted. Lastly this chapter explores specific considerations in the South African context.

Chapter 3 -Method

In this chapter, the aims and objectives of the study are outlined. The chapter goes on to describe the research design chosen for the study. The participant information and

sampling strategy are explained with reference to the inclusion and exclusion criteria of the study. Thereafter the data collection strategy is discussed in relation to the two phases of data collection. The data analysis method is explained and the chapter is concluded with sections exploring rigour and ethical considerations.

Chapter 4 – Results (Part I)

In chapter four I discuss the first part of the results. The background into the cochlear implant clinic setting as well as the concept of the 'cochlear implant journey' and 'continuum of talk' are explained. I then provide further description of the participants and the types of follow-up appointments which were observed is discussed. I explain the structure of the interactions with reference to the video recorded observations. The thematic analysis of the participant interviews is introduced as well as the main aspects which emerged from the data.

Chapter 5 – Results (Part II)

In this chapter I examine the role of the audiologist with reference to the complex nature of the paediatric cochlear implant setting. I discuss the role of the audiologist as a guide as well as the layers of complexity that exist in the interactional space. Transcription from the data set is used to aid the discussion of these areas.

Chapter 6 – Results (Part III)

In chapter 6 I examine the aspect of collaboration in the interactional space. In this chapter I also detail the variation in the audiologists' communication style which was observed during the research period. The chapter concludes with my summary of the results chapters.

Chapter 7 – Discussion

In this chapter I provide a discussion of the results. I discuss the findings suggested by the structure of the interactions outlined in Part I of the results. I then individually share the aspects of the interactions provided in Part II and Part III of the results and to conclude this chapter, the aims of the implications for training and practice are explained with reference to a potential model for cochlear implant interactions.

Chapter 8 – Conclusion

I share the strengths and limitations of the study in this chapter, before providing some conclusions to the dissertation.

Chapter 2 Literature Review

2.1 Models of Healthcare

The field of health communication has grown vastly since the middle of the twentieth century. New advances in medical technology and treatment options have resulted in professionals continually having to learn new techniques to communicate often complex diagnostic information more effectively with their patients. As the patient is no longer viewed as a passive participant in their healthcare provision, they become more involved in the choices regarding their medical treatment (Reuben, 2016). Patients are provided with several sources from which they can gather their own opinions and information regarding their treatment, such as support groups, online forums, academic writing and a variety of professional opinions, which would not have been available decades ago. Therefore, effective communication from health care providers becomes an important part of adherence to treatment programs and patients' general health.

A patient-centred approach has been described as the most successful approach to achieving positive outcomes in treatment settings. A patient-centred approach refers to a healthcare model which incorporates psychosocial aspects, the patient experience as well as shared decision making (Epstein, 2000). This therefore allows the patient to become an active participant in their own healthcare (Grenness et al., 2014). Epstein et al. (2005) have highlighted four communication domains which exist in a patient-centred approach. These include, acknowledging the patient's perspective, the psychosocial context of the interaction, a shared understanding and shared responsibility. Aspects such as flexibility of the clinician's approach as well as reciprocal communication between the patient and clinician have been noted as contributing factors to a patient-centred approach when

aiming to achieve the outlined domains (Mead & Bower, 2000). This flexibility in approach differentiates patient-centred care from a practitioner-based model which was the most common approach to health care prior to the second half of the twentieth century (Mead & Bower, 2000), and continues to dominate some fields of healthcare. Studies have shown that improvements in communication and patient-centred care have led to better treatment outcomes (Russel, 2016) thus becoming an important strategy for future healthcare planning.

As a patient-centred approach to healthcare has been viewed as a positive approach to information counselling and treatment planning, it becomes evident that this form of healthcare communication has led to better outcomes and patient satisfaction. Few studies have documented the successful use of a patient-centred approach in the field of audiology, A study by Ekberg et al. (2014) revealed that when utilizing a patient-centred approach in hearing aid appointments with older adults, greater patient participation and trust was gained. Positive outcomes of patient-centred care have also been documented in the fields of nursing and allied health. Cooper et al. (2008) explored the success of patient-centred care in a physiotherapy context, with patients suffering from lower back pain. They concluded that a patient-centred approach showed better outcomes as a result of improved communication strategies. Whilst these studies have highlighted the positive influence of effective communication on treatment outcomes particularly when a patient- centred approach has been used, communication in a healthcare context has also been met with growing challenges.

2.2 Challenges to effective health communication practice

As information becomes more freely available to patients, it can provide significant support and additional knowledge; however, it can also act to provide individuals with factually inaccurate information. Likewise patients can be overwhelmed with the volume and variance in information which can lead to misunderstanding. The growth of technology and the ability for patients to access various medically based opinions and reviews, has led to patients accessing their own information regarding their treatment, which can complicate the information counselling for the clinician (Wright et al., 2012). The use of freely available online information (via "Doctor Google") may also lead to delayed initiation of diagnosis and subsequent treatment as well as poor adherence to follow-up appointments (Erdem et al., 2006). This can lead to confusion for caregivers who have to compare and contrast information gleaned from the internet with what their health care provider is sharing in appointments.

An additional challenge to health communication in our current context is the rise in migration patterns and globalization. Research suggests that approximately 1 billion people had moved or were moving in 2018 (Abubakar et al., 2018). As this has become a more prominent part of today's society, so the process of communicating in a similar language to that of the patient as well as considering the individual's cultural background becomes challenging. One of the most distinct differences between cultures is the language of the individual.

Research has shown that breakdown in understanding caused by linguistic differences between the practitioner and the patient can contribute to inadequate provision of diagnosis and treatment (Mold et al., 2006). For example, in the field of

pharmacy, communication breakdown in counselling regarding treatment has been documented (Schwappach et al., 2012). Similarly, it has been found in General Practitioner consultations that patients are less satisfied with the level of treatment received when spoken languages differ between patient and practitioner (Harmsen et al., 2008). In fields such as audiology and speech pathology, certain assessment protocols relying on language for content may not be able to be conducted in order to fully assess patients if their spoken language differs (Langdon & Saenz, 2016). Many assessment tools are therefore not linguistically or culturally appropriate for all populations. As a result, messages may not be communicated as effectively to patients as what would generally be desired.

Similarly, differing cultures can impact upon the way messages are received and acknowledged by patients (Mao & Ahmed, 2018). Penn and Watermeyer (2018) have examined the role of a 'cultural broker,' in community contexts, in order for the patient to communicate effectively in a context in which they are comfortable and there is cultural similarity. Drawing on the resources of the existing community with a unified cultural background has been suggested as an effective approach towards intervention, aligning with the World Health Organization's goals of utilizing pre-existing resources to expand healthcare practice (Al-Gasser & Vonderheid, 2002).

2.3 Roles of the Audiologist in Interactions

In the field of audiology, the audiologist fulfils multiple roles in the investigation and management of the patient. The audiologist acts as an information counsellor in the diagnosis and management of patients with hearing loss (Pryce & Hall, 2014). This information counselling includes providing diagnoses and explanation of test results.

Management plans as well as counselling regarding listening devices forms part of the information sharing which occurs post diagnosis (ASHA, 2018). Factors considered in information sharing interactions, include the ability for the patient or caregiver to understand and retain information which relates to their diagnosis or future management. In studies conducted by Watermeyer and Kanji (2012, 2015, 2017) communication and information counselling may not be effective as audiologists have been found to 'information dump' in interactions rather than tailor their information giving to the informational needs of the patient.

Audiologists also interact with patients and caregivers in the capacity of investigators in the process of diagnosis and testing of patients. During these interactions, audiologists are required to ask their patients necessary questions in the process of selecting and interpreting test information. During these interactions the audiologist is required to ask questions relevant to the individual case, considering individual differences and the concerns of the patient (Grenness et al., 2015).

A lack of uniformity in the role of the audiologist as a counsellor in interactions has been reported in previous research. In studies conducted by Coleman et al. (2018), audiologists have been found to be required as counsellors in the audiological management of their patients, however this role is not always fulfilled in a patient centred manner. Liberman (2018) suggests that although counselling is outlined as an area in many graduate programs, it is not always fulfilled in audiology settings. Counselling in audiology settings may involve the management of patient or caregiver expectations,

explanation of diagnostic outcomes as well as planning of goals for future intervention (Coleman et al., 2018).

In studies conducted by the Health Communications Research Unit at the University of the Witwatersrand, analysis of interactions including information counselling following testing and hearing aid management, illustrated how audiologists communicated in these instances. For example, in a study examining sharing of hearing test results, the audiologists observed were noted to interact with their patients in a largely scripted manner (Watermeyer et al., 2015). This has been previously documented by Saunders and Forsline (2012) as the clinical training process and even some textbooks emphasise a scripted feedback approach. Facilitators and barriers in interactions such as differing linguistic backgrounds were also noted to impact on patient recall and understanding during interactions (Watermeyer et al., 2015) as the context of the linguistic backgrounds and educational context of participants was noted to impact on interactions.

2.4 Communication processes in Audiology

Although challenges in the field of health communication have been mentioned, it is important to acknowledge the small but valuable cohort of research conducted in the field of health communication and audiology. The majority of documented data regarding the communicative practices and profiles of audiologists in a clinical setting, over the last 5 years, has been in the area of hearing aid management and diagnosis of hearing impairment. These studies have investigated both verbal and non-verbal communication techniques. In a study conducted by Watermeyer et al. (2012) looking at diagnostic information and recall of information in audiology appointments, the researchers found

that the communicative strategies employed by the audiologists focused on providing communication including a focus on anatomy, simplification of information and repetition of terms. This technique showed patients' ability to recall diagnoses, but difficulty in understanding the information. As a result, the researchers concluded that the information was not adjusted to the needs of the individual patient, but rather the same information was given by the audiologists for most of the patients. This was found in another study conducted by Watermeyer et al. (2017) that explored hearing aid orientation appointments in an early intervention setting. The authors found that caregivers were able to recall the 'do's,' and 'don'ts,' of hearing aid maintenance and care, however, could not consistently explain the benefits of hearing aids for their child.

The findings of the aforementioned studies highlight how an informational approach was taken by the consulting audiologists in order to convey the necessary aspects of the diagnosis or device they were fitting. These findings have been supported by a study conducted in an Australian hearing centre looking at audiologist-patient communication profiles. The study conducted by Meyer et al. (2017) found that the majority of appointments that were observed adopted a 'clinician-centred' approach and a biomedical stance to information sharing. Based on these studies alone, the evidence in the field of audiology appears to be congruent with studies conducted in other medical fields of practice which have demonstrated that although advances in diagnostic and treatment technologies have occurred, communication practices have not shown a correlation with these advances (Rueben, 2016).

Implementation of communication training for qualified audiologists aimed to create changes in communication behaviours used during information counselling, which was noted in a study by Munõz, et al. (2017). Although this study highlighted improvements in the audiologist's ability to address their patients' needs during the appointment, they reported that further development in the area of audiologist training was required. The outcomes experienced by the patients were scarcely commented on as part of the study results. These study findings appear to echo those of many other studies (Watermeyer et al., 2012, 2015, 2017, 2020; Grenness et al., 2015) identifying the need for further training and intervention for audiologists' information counselling abilities in order to move away from a clinician- centred approach, and highlight aspects which audiologists can draw on in order to foster patient and family centred approaches (Ekberg, Scarinci, Hickson & Meyer, 2018). These studies highlight an emphasis on theoretical knowledge rather than communication training in audiology graduate programs. Explicit learning of communication skills may be required to overcome this clinician-centred approach (Penn & Watermeyer, 2018).

As research has shown that audiologists appear to approach communicative practice from a biomedical and clinician centred approach (Meyer et al. 2017) it is important to consider the implications of this in a cochlear implant treatment setting. Research has suggested that ineffective communication or information counselling in the early stages of implantation can leave the patient or caregiver with unrealistic expectations of the outcomes of implantation as well as the lengthy rehabilitation process which follows (Zaidman-Zait, 2007). Studies have also suggested that earlier intervention

following diagnosis of hearing impairment leads to better outcomes for the patient (Ching et al., 2018). In the field of paediatrics, early intervention following diagnosis of hearing impairment has been shown to increase cognitive as well as speech and language outcomes (Moeller, 2000). It must however be acknowledged that the pressure to support a child's rehabilitation in cases of pre and post lingual hearing impairment, is inevitably placed on the parent or caregiver (Kurtzer-White & Luterman, 2003). Following diagnosis of hearing impairment, caregivers may become overwhelmed and feel inadequate in supporting their child's needs as a result of the hearing impairment. This may cause feelings of anger which can impact on the parent-child relationship, an imperative part of the child's development and progress (Kutzer-White & Luterman, 2003). This therefore requires the audiologist to navigate these complexities with accurate, clear information tailored to suit the stage in the process at which the caregiver finds themselves. If the audiologist fails to do this, it may lead to a sense of bombardment, confusion and distress for the caregiver in the early stages, which may inversely impact the rehabilitation process.

2.5 Emotional Impact of Hearing Impairment Diagnosis

With the emergence of earlier diagnosis of hearing loss, caregivers are informed of their child's hearing impairment at a much earlier stage. Following the birth of a child, many families are dealing with the relationships and bonds being formed with their new child or sibling. The predominant emotions following prelingual hearing impairment in the early stages have been reported by Yoshinaga-Itona and DeUzcategui (2001) as shock, anger, confusion, fear, sadness, frustration, depression, loneliness and blame. This 'grieving process' following new diagnosis is described in the literature as being grief

closely associated with that of a ‘death’ for parents (Luterman, 2001). Emotions such as those previously mentioned can occur or reoccur at different stages of the child’s development and are an important part of a normal and necessary process of acceptance. Triggering events can occur during the grieving process, which are often closely linked to developmental milestones. For hearing impaired children, delays in speech and social interaction as well as assessment of scholastic development can all trigger the grief process for the parent. During the grieving process, it is anticipated that the parent may direct their attention toward data and intervention that promotes their hopes for their child’s rehabilitation, and thus the parent may focus more attention on these areas whilst ignoring other paths towards rehabilitation. This may lead to feelings of resignation and despair (Kurtzer-White, 2003) which see the parent enter a process of denial and guilt. The decision-making process for implantation is fraught with decisions regarding the caregivers and patient’s wellbeing as well as co-occurring emotions experienced by caregivers during this process. Supportive communication strategies are therefore needed at the outset, as research has shown how caregivers’ coping strategies and quality of life need to be prioritized by the health care professional (Hintermair, 2006).

2.6 Decision Making and Cochlear Implants

As noted, co-occurring emotions and complex decision making requires supportive input from the audiologist in paediatric cochlear implant settings. The decision to implant a child has been described in research as one of the most emotionally distressing and stressful experiences for caregivers during the cochlear implant process (Li et al., 2004). Aspects described in the literature which contribute to the initial stress experienced by the caregiver include medical and educational decision making,

modification of communication strategies, working with a multidisciplinary team, accessing intervention programs and new technology as well as restructuring daily routines to accommodate rehabilitation appointments (Zaidman-Zait, 2007). Since in excess of ninety percent of children born with hearing impairment are born to hearing parents, there is very little frame of reference for dealing with hearing impairment (Brunger et al., 2000). This in turn can add to the aforementioned challenges. For children diagnosed with hearing impairment in hearing impaired families, the decision to implant involves complex decisions with regard to communication modality of the child. Caregivers may identify with the Deaf Community (Padden & Humphries, 2009) and approach communication from a Sign Language background, which may result in cochlear implantation being a non-viable option for intervention (Maudlin, 2016). In these instances, there may be an added complexity to the interaction, as the audiologist may provide information counselling related to all available intervention options, but would need to be supportive of the choice of the respective caregivers and not impose on the caregiver's beliefs in relation to their Deaf culture background (Maudlin, 2016).

2.7 Complexity of the Cochlear Implant Context

As described, the cochlear implant decision making process includes various factors which the caregiver and audiologist need to take into consideration. The paediatric cochlear implant setting therefore provides unique complexities and challenges in the areas of information sharing and counselling. Unique to the cochlear implant context is the permanence of the intervention strategy and therefore the potential for a long-term caregiver-clinician relationship. In this audiology context, the role of the audiologist covers multiple functions in order to fulfil the needs of the patient and

caregiver (Entwisle et.al. 2018). As the cochlear implant context requires information counselling both pre and post cochlear implantation, the audiologist shares information that needs to be retained and applied effectively when required (Alpiner & McCarthy, 2000). As each family presents with their own challenges in the counselling process, the audiologist needs to demonstrate awareness of how to organise information and how to share it at the best time and in the most appropriate way (Kutzer-White & Luterman, 2003).

Alongside information counselling is counselling to assist the emotional wellbeing of the family as well as management and counselling of expectations during the cochlear implant rehabilitation process (Whicker, 2020). The audiologist is the main facilitator in the management of the goals for the child's auditory development and as such, maintaining realistic expectations during the rehabilitation process is of importance. The audiologist is therefore the facilitator in the explanation of goals specific to the child and will have to counsel the caregiver in the event that the goals are not achieved as expected (Munõz et al., 2017). Information regarding the roles and importance of members who comprise the multidisciplinary team in the management of the child's auditory and speech development is therefore an important part of the counselling process. Although counselling abilities are suggested to be required by the consulting audiologist as outlined by best practice guidelines (ASHA, 2018), training within the area of counselling and audiology is seldom found in graduate audiology programs (Liberman, 2018).

2.8 Uniqueness of Cochlear Implant appointments

As described in the aforementioned review of literature, the cochlear implant appointment context provides a complex clinical setting which the audiologist has to navigate. As a result, audiologists working within the field have to be well equipped to counsel and mediate the clinical challenges which may arise throughout the clinician-patient relationship. In contrast to other audiology contexts such as routine hearing testing and hearing aid management, the cochlear implant context requires resources which differ from those noted in conventional audiology contexts (Punch & Hyde, 2010).

Interactions in cochlear implant appointments between audiologists and caregivers generally occurs following a period of investigation and management, via means of a hearing aid trial. This prior investigation and management is not typically provided by the same audiologist responsible as that responsible for cochlear implant management due to involvement from other teams; this is also the case in Newborn Screening programs and audiologists working alongside ENT surgeons (Dettman et.al, 2007). As a result, patients and caregivers will have undergone some counselling and explanation of results prior to attending their first appointment with their audiologist in the paediatric cochlear implant setting. This can in some instances provide challenges, as if a patient or caregiver does not feel adequately supported at this stage, they may struggle to engage with the recommendations provided by the cochlear implant audiologist (Datta et al., 2020). This is particularly true for caregivers of newly diagnosed infants and children (Datta et al., 2020).

The management of the device and goals for onward communication occur over the course of several appointments in the cochlear implant context. This differs from

conventional hearing aid intervention where patients may have one or two appointments following initial fitting before moving to annual reviews. In an audiology context follow-up appointments for hearing aid management are largely dependent on how the patient or caregiver copes with the device technology, and not based on incremental increases or changes in amplification, and as such the pattern of follow-up appointments can vary (Bennett et al., 2018). In contrast, due to the nature of cochlear implant mapping and device programming, the patient attends multiple appointments which are arranged with time in between in order to monitor progress and allow for the auditory system to adapt to changes between appointments (Archbold et al., 2006). In the paediatric cochlear implant setting, the audiologist is responsible for the initial mapping of the implant, referring to the programming of the t-levels and c-levels of the implant as well as later program adjustments based on the child's listening needs. A newly implanted child will be seen approximately four times within the first month following initial activation, and thereafter will be seen in intervals of three months within the first year of implantation and annually thereafter (Wolfe & Schafer, 2014).

There is indeed emphasis on the management of expectations in a hearing aid context and this reflects heavily on the patient's ability to use and engage with their hearing device, however the permanent nature of the cochlear implant emphasises the need for careful management of caregiver expectations following device fitting (Archbold et al., 2006).

The role of the audiologist as a member of a multidisciplinary team may differ from that in other audiology contexts due to the key role the audiologist provides in

management of amplification for communication and speech development. Particularly true in the case of early intervention of hearing loss, the audiologist in the paediatric cochlear implant setting works closely alongside speech and language therapists in order to manage communication goals (Nicholas & Geers, 2007). Likewise, the relationship between the audiologist and the consulting ENT surgeon is unique to the context of cochlear implantation due to the focus on the medical needs of the patient being recognized (Cooper & Craddock 2006). The cochlear implant audiologist also acts in an advisory role throughout the child's early development when it comes to school placement as well as possible adjustments and considerations that may be necessary for the classroom (Peñaranda et al., 2011). This would be conducted as part of a multidisciplinary team.

The cochlear implant audiologist may also conduct communication orientated appointments. This may or may not utilise the Auditory Verbal Therapy approach which aims to provide early intervention in the area of communication (Estabrooks et al., 2016). This therapy is targeted at providing parents with the skills to carryover therapy techniques at home. Auditory Verbal Therapy is additional to the training of cochlear implant audiologists however communication techniques and advice are touched on in all appointments for prelingually hearing impaired children (Wolfe, 2018).

During the child's life there may be changes to the processor technology which may require exchanging or upgrading a device (Wolfe, 2018). This requires technical follow-up with the audiologist and emphasises the longevity of the clinical relationship. With these functions in mind, the role of the cochlear implant audiologist is observed as

requiring several skills and competencies in the areas of both theoretical knowledge and clinical skill.

2.9 Considerations for the South African Context

Diversity and unique challenges to healthcare provision are not unusual to the South African healthcare context. The landscape of healthcare provision in a South African context is faced with several challenges (Coovadia et al., 2009). South Africa's public healthcare service provides care for approximately 80% of the country, ranging from primary acute care, to outpatient therapies and allied health services (Kerr et al., 2012). The financial contributions to the healthcare system are accounted for by individual tax money, which is paid by the minority of the employed population. Due to rising rates of unemployment and poverty this has resulted in a reoccurring struggle for resources at primary and tertiary healthcare levels (Mayosi & Benatar, 2014). In addition to the financial difficulties experienced in healthcare comes the challenge of chronic and fatal diseases such as the Human Immunodeficiency Virus (HIV) crisis, which has directed a large portion of healthcare resources towards the prevention of and provision for disease (Maillacheruvu & McDuff, 2014).

Linguistic and cultural diversity poses another challenge to the South African healthcare context, as due to the multi-cultural and multi-lingual diversity it is often difficult to interact with patients in a truly patient-centred way (Penn & Watermeyer, 2018). As many healthcare professionals may have a different linguistic or cultural background to their patients, the ability for healthcare professionals and their patients to relate similar concerns and opinions regarding treatment may be challenging (Jain & Krieger, 2011). It has been suggested that one of the largest challenges to healthcare

provision is linguistic difference between the patient and healthcare provider. In a South African context, the language of the health care provider is most often different to that of the patient and as such, interpreters are often involved in a healthcare context to translate the counselling and treatment options for patients. The use of interpreters brings its own set of challenges due to the possible misinterpretations which may occur as a result of involving an additional communicator to the appointment setting (Penn & Watermeyer, 2018). Individuals' perceptions regarding disability and impairment have also been found to differ in a South African context as a result of cultural beliefs (Wegner & Rhoda, 2015). This has the potential to delay initial diagnosis and hinder the path of treatment at times (Pronyk et al., 2001) if not embraced and explored by the healthcare professional.

Bearing these challenges in mind, it is important to consider how the process of cochlear implantation may be all the more complex in a South African context. In a South African context, economic challenges form one of the biggest boundaries to successful implantation. The number of patients implanted remains relatively small due to the cost of maintaining the implant, attending rehabilitation appointments, and undergoing the initial surgery being paid for in most cases by the individual's medical aid scheme or private donations. Because the majority of South Africa's population relies on public healthcare, with the majority of the healthcare service being focused on primary care as a result of chronic illness, the burden on system resources cannot sustain the ever-increasing number of viable cochlear implant candidates (Kerr et al., 2012). For example, the number of implanted candidates at the Tygerberg Hospital Cochlear Implant Unit (CIU) is currently 670, since the first implant was conducted in 1986. This is a relatively

small number of implanted recipients when compared with developed countries such as the United States where approximately 66000 candidates (NIH, 2010) have been implanted between the mid 1980's and mid 2000's. Along with reduced financial considerations come cultural and linguistic diversity, which makes appointments more complex, as linguistic barriers, working through translators and a lack of understanding regarding culture and medical decision making becomes difficulty (Penn & Watermeyer, 2018).

Perceptions of disability across cultures are also found to differ which often makes engagement with rehabilitative procedures more complex than in other contexts (Louw & Avenant, 2002). Acceptance of hearing impairment for example has been found to be an area which different cultural groups appear to approach differently and as such intervention strategies for hearing impairment may differ between cultures (de Andrade & Ross, 2005). As a large proportion of the South African population make use of a hybrid between Western and traditional medicine, the need for collaboration between healthcare providers and their patients has been highlighted (Campbell-Hall et al. 2010).

Access to specialist care, such as from those involved in the cochlear implant team, may also be problematic for patients in our context. Healthcare professionals generally congregate in cities, resulting in a fewer number of professionals working in the rural areas of the country, thus causing difficulty in developing information counselling techniques appropriate to individuals cultural background (Tjale & De Villiers, 2004). The South African healthcare context therefore provides several considerations for the clinician. Within an audiology context, careful consideration of the barriers which may

exist to management and understanding of clinical information is needed. With this in mind, the complexity of the cochlear implant context combined with the additional challenges of working within a diverse clinical context provide a unique interactive landscape.

2.10 Foundations of Patient -Centred Care

Patient-centred care (PCC) is defined as a model of healthcare which considers the needs, wants and values of the patient and includes shared decision making between the healthcare provider and the patient (Constand et al., 2014). Although it is suggested that there is no clear definition for PCC, there are core features of the approach which have been well documented in literature thus far (Levesque et al., 2013). These include; understanding and respect for the patient's desires, coordinating care, emotional support, involvement of family members, information sharing that is transparent and shared decision making and goal setting (Catalyst, 2017).

The PCC model was developed as a result of the growing awareness for human rights and likewise equitable treatment in the healthcare setting during the 1970's (Siouta & Olsson, 2020). This awareness of the role of the patient in healthcare, coupled with the development of evidence-based practice (EBP) in the healthcare field, encouraged movement towards patient centred practice (Levesque et al., 2013). As information regarding diagnostic and treatment options has become more readily available to the general population, so the opportunity for patients to become active participants in their healthcare has grown (Hou & Shim, 2010). Active participation and shared decision making between patients and their clinicians, as part of a patient-centred communication approach, form the basis of patient-centred care at an individual level (Doekhie et al.,

2018). It is this move towards tailoring of healthcare practice to individual patients that has shown success in many healthcare settings in present day healthcare, having moving from a medical, clinician centred manner of working (Morgan & Yoder, 2011).

The outcomes of PCC have been reported as not only benefiting the patient directly, but clinician satisfaction as a product of using this model has also been widely documented. This model has been shown to be cost-effective when implemented correctly, and likewise patients reflect greater patient satisfaction as a result of the individualised care that they receive. Adherence to treatment has also been noted as an outcome resulting from involvement of the patient in the treatment decision making process (Hudon et al., 2011). Research studies in the area of treatment planning for end of life care (Sampson et al., 2020) as well as in acute settings involving drug treatment (Marchand, 2019) have shown the positive impact of PCC on the overall level of satisfaction for the patient and perceived outcomes of their treatment. These findings suggest the positive impact of individualised care and shared ideas regarding treatment goals and outcomes (Sampson et al., 2020).

Although the positive outcomes of PCC have been documented in research thus far, there has been little documented research as to the direct impact of PCC on interactions between clinicians and patients (Akseer, 2020), particularly in the field of audiology. Several studies in the area of audiology have touched on interactions utilising a PCC model of care. Boisvert et al. (2017) identified that audiologists were highly aware of patient-centred methods of working, indicated in the results of a survey-based study. Implementation of PCC in audiology settings is however poorly represented in many

current studies, suggesting that although audiologists show awareness for patient-centred methods of working, the implementation of this approach and studies of patient-centred communication are still lacking and/or poorly understood. Examples of such studies include those conducted in Australian health clinics (Ekberg et al., 2016; Grenness et al., 2014), where during both history taking and rehabilitation appointments, attention in the area of individualised care wasn't highly evident. Likewise research conducted in South African audiology settings (Watermeyer et al., 2012, 2015, 2017 and 2020) revealed reduced tailoring of information, which are in contrast to the fundamentals of patient-centred communication.

Although challenges in the implementation of PCC in audiology settings has been found to exist, the vast evidence in support of individualised care highlights the benefits for implementation across a variety of audiology settings. Further development in the area of effective training resources for audiologists has been strongly substantiated in the research (Coleman et al., 2018).

2.11 Foundations of Family -Centred Care

As the benefits of Patient-Centred Care have been discussed in literature, so the importance of Family-Centred Care in paediatric settings has been identified. The model of family-centred care (FCC) as it is known today, originated in the first portion of the twentieth century, characterised by a change in approach to the hospitalisation of children. The separation between the medical setting and the family unit was characteristic of patient care practices prior to the second world war (Jolley & Shields, 2009). During the second world war, children were often separated from their parents and the resulting psychological impact of this began to be recognised by psychologists at the

time. This prompted investigation into the influence of the parent in the hospital setting (Bradley, 2001). The concept of greater parent involvement in clinical settings was not initially received positively by the medical community. It was suggested that many nurses in the paediatric setting rejected greater parental involvement as they believed this 'undermined' their role with the child (Jolley & Shields, 2009, p. 168).

As the medical community remained divided over the role of the parent in the healthcare setting, several models began to emerge such as; 'care-by-parent,' 'partnership in care' and 'parent participation' (Jolley & Shields, 2009). These models were characterised by the parent being responsible for the care of the child whilst the healthcare practitioner fulfilled the role of information sharing and educating parents. These practices ultimately led to the development of the core features of what is known as family-centred care, today. The foundational elements of this approach as described by the Institute for Patient and Family-Centred Care include; respect for the family's knowledge, beliefs and cultural background, sharing of accurate and unbiased information, participation of the family in decision making and collaboration between parents and healthcare providers in care as well as policy making (Rouse, 2012). The adoption of the family-cantered approach is now seen as a 'gold standard' in many perinatal intensive care units (Richards, 2017) and is likewise favoured in many paediatric healthcare settings today.

A systematic review of studies in the area of family-centred care, conducted by Kuhlthau et al. (2011) indicated positive outcomes in patient treatment following the use of a family-centred care program, with no negative outcomes being identified. This was

reiterated by Kaslow et al. (2020) who emphasised the positive impact of family centred care practices on treatment satisfaction, adherence and treatment outcomes. Although these positive outcomes of family centred care have been observed in research thus far, there is evidence to suggest that adequately measuring the outcomes of this approach is difficult and as such a conclusive measurement of effectiveness has not largely been documented in research thus far (Kuo et al., 2012). Challenges to the implementation of a family-centred approach are suggested to occur as a result of the shifting role of the healthcare provider moving away from being the primary source of care in the clinical setting. The need for the healthcare practitioner to remain in a position of control is reported to be a large contributor to a breakdown in communication and ultimately difficulty in the implementation of this approach (Maatman et al., 2020). Primary healthcare providers in a paediatric nursing setting highlighted the challenge of being overwhelmed by the need to share accurate information and answer parents' questions whilst contenting with parents pre-existing knowledge which may have come from unreliable sources (Coats et al., 2018). The challenges to the implementation of family centred care principles reflects the complexities of the paediatric healthcare setting.

2.12 Challenges to the implementation of Family-Centred Care in Paediatric Practice

The complexities of working in a healthcare setting with paediatric patients have been documented in research over several decades (Shields et al., 2014). Providing care for children with multiple and often complex needs requires experience and increased levels of care (Altman et al., 2018). Through the use of family-centred care, the needs of the child are expected to be met in a holistic manner with inclusion of parents as primary

care providers (Arcuri, 2015). The challenges that exist within the paediatric healthcare setting exist not only in medical challenges for paediatric patients, but likewise the healthcare provider has to consider the environmental and social circumstances of the family and child (Corno, 2013). The implementation of this approach in the paediatric setting therefore requires care in application.

One of the largest challenges in the implementation of family centred care in a paediatric setting is that of a change in mindset from a clinician-led model. Maatman et al. (2020) concluded that in neonatal units, nurses reported that their biggest challenge to the implementation of family centred care was the ability to view the parent as the primary caregiver and therefore to assume the role as a mentor. Further challenges to the delivery of family-centred-care in the paediatric setting include ineffective communication between healthcare providers and parents which can lead to confusion and disagreement in terms of roles and responsibilities in the care of the child (Coyne, 2013). It has also been suggested that although recommended as fundamental model of practice, for many healthcare personnel, the concept remains unclear and healthcare practitioners do not have sufficient models for effective implementation (Smith, 2018). Similarly it has been suggested that further research in the area of participation by healthcare providers in the promotion of family centred care is required, (Almasri et al., 2017). These findings suggest that although research has shown the benefit of implementation of a family centred care approach in paediatric settings, the implementation of this approach isn’t always consistent, and healthcare providers understanding of what is required is unclear at times.

The implementation of family centred care in the audiology setting has been documented by English et al. (2016), who identified that some of the most complex clinical conversations occur in the presence of family members. The researchers concluded that this occurs because family members will have their own view points and matters of opinion pertaining to their loved one's care, which need to be managed by the clinician. The benefit however exists in the ability to engage in shared decision making and as a result satisfaction with treatment outcomes. English et al. (2016) reported that audiologists were aware of these benefits in spite of the complexities. Furthermore (Singh et al. (2016) suggest that due to the scarcity of research in the area of FCC in the audiology setting, the challenges and benefits of implementing this approach are yet to be absorbed into everyday training and practice. Hence, the argument for more detailed research in the implementation of the FCC model in audiology settings is justified.

2.13 Counselling Approaches in Audiology

There is ongoing research on counselling approaches and skills in Audiology, in an attempt to identify possible mechanisms for improving counselling. English (2010) raised the difficulties of implementing counselling in the cochlear implant setting due to the pressures experienced by caregivers whose children require intensive input. However, research conducted by English and Archbold (2013) found that by conducting periods of regular training for audiologists in a practical setting, counselling skills were transferable and generally felt to be positive by audiologists. Via means of workshop style training and hands on experience for audiologists, English and Archbold (2013) suggest that explicit learning of counselling skills may positively impact everyday practice.

2.14 Studying Interactions using Genre Analysis

It is suggested that healthcare providers are familiar with a goal orientated processes of conducting interactions in a healthcare setting (Tai et al., 2019). As a means to identify trends in these processes of goal orientated interactions, discourse analysis has been used successfully in numerous audiology studies. Genre analysis is a form of discourse analysis which has been used successfully in the identification of these goal orientated processes as a means to understand and analyse trends in healthcare interactions (Woodward-Kron, 2020). Genre analysis occurs as a product of 'genre's' which are described as reoccurring processes within written or spoken data (Woodward-Kron, 2020). As healthcare professionals are used to conducting interactions in a goal orientated manner, genre analysis has been found to be highly suited in the identification and analysis of interactions in healthcare settings (Philip et al., 2019).

Genre analysis has been used in a variety of settings as documented in research, having been discussed in the work of Eggins and Slade (2005). The approach considers the interpersonal communication between conversational partners and macro-structural events of the appointment (Martin & Rose, 2003). Unlike conversational analysis approaches, genre analysis does not focus on the details of turn by turn conversation. The focus is rather on the contextual elements in the interaction and how these occur through the use of language (Tai et al., 2019). An example of how genre analysis is practically applied in a study design would be the identification of the stages of an interaction and how the participants involved in the interaction contribute to the goals of each stage (Woodward-Kron, 2020). By analysing the macrostructure of the interaction via genre's, the researcher can gain valuable information as to how the interaction may be planned or

conducted by the participant in order to achieve the goals of the communicative exchange. Genre analysis has been suggested as a method to identify patterns in participants communication and language choices in healthcare interactions which is of use not only in research but also for training purposes (Tai et al., 2019).

Tai et al. (2019) have successfully used this approach in an audiology context. They designed a study to identify how students co-construct interactions with patients when under clinical supervision. With the use of genre analysis they were able to identify the macro structure of the interactions and further analyse how the participants addressed the goals of each stage of the interaction through language. Similarly this form of analysis has been used in studies conducted in other healthcare settings such as the fields of nursing (Pryor & Woodward-Kron, 2014) and medicine (Woodward-Kron & Elder, 2016). These studies again identified common goal orientated stages in the communication of the healthcare professionals and provided insight into how their language choices achieved the goals of the interaction.

Although other interactional sociolinguistic approaches such as conversation analysis have been widely used to analyse health interactions thus far, the nature of genre analysis provides fresh insights into how these interactions are structured and driven by language. Conversational analysis relies heavily on detailed analysis of the linguistic components and nuances of discourse (Hutchby, 2017). Although potentially useful, the contextual elements of the interactions may not always be accounted for in relation to the goals of the interaction itself. When analysing interactions in a healthcare setting, the contextual factors surrounding interactions, including facilitators and barriers to

communication are integral to understanding communication processes (Woodward-Kron, 2020).

2.15 Interactional Studies in Audiology

Interactional research in the field of healthcare has found a basis in qualitative research methods, largely contributed to by the field of interactive sociolinguistics (Canagarajah, 2020). Qualitative research allows the flexibility of multiple methods of data collection, in order to study interactions and the phenomena that occur as a result (Braun & Clarke, 2013). Through the use of qualitative methods, common themes and phenomena can be extrapolated from raw data allowing for analysis within a chosen framework (Braun & Clark, 2013).

Research in the field of health communication has highlighted the value of interactional research (Boisvert et al., 2017). In the field of audiology, interactional studies have begun to emerge, however remain scarce when compared to similar research conducted in other health fields (Ekberg et al., 2014). Although not as abundant as in other fields, the interactional studies that have been conducted to date, have highlighted important aspects in audiologists counselling and information sharing approaches. This body of research has also led way to suggestions for future improvements to training and practice guidance in the field of audiology.

Many of the interactional studies conducted in an audiology setting have evaluated communication and interaction within a framework of patient-centred care. This has in turn highlighted challenges in the implementation of this model as mentioned earlier in the review of literature. Studies highlighting the implementation of patient-centred care in an audiology setting have predominantly been initiated by Australian

audiology teams (Grenness et al., 2015; Eckberg, et al., 2014, 2016). These studies utilised interactional designs in order to interpret how audiologists engaged in audiology settings. The study designs including the use of video recorded interactions allowed the researchers to obtain detailed information, including contextual nuances which may have otherwise been missed. Through the use of interactional analysis, the researchers were able to identify factors which may cause resistance to hearing aid use (Eckberg et al., 2016), the absence of relationship building in rehabilitation appointments (Grenness et al., 2015) and addressing psychosocial concerns in the audiology consultation (Eckberg et al., 2014). These interactional studies highlighted important outcomes in terms of the use of PCC in audiology contexts. Collectively these studies identified weaknesses in the area of the implementation of PCC in the audiology clinic setting, hence highlighting the need for improved training and input for audiologists.

Similarly to the aforementioned studies, Watermeyer et al. (2015, 2017, 2020) have identified areas in audiology interactions in South Africa, across studies conducted at the HCRU at the University of the Witwatersrand utilising interactional analysis methods. Outcomes of these studies included information sharing practices of audiologists in paediatric diagnostic and hearing aid orientation appointments (Watermeyer et al., 2012, 2017) as well as how audiologists address challenging clinical encounters (Watermeyer et al., 2020). The outcomes of these studies indicated important insights into the practices of the audiologists observed including ‘information dumping’ practices (Watermeyer et al., 2015) clinician directed commentary (Watermeyer et al., 2012) and the use of vague terminology (Watermeyer et al., 2020). Collectively these

studies highlighted areas that would provide benefit in implementation and training for audiologists working within the field of audiology. Tai et al. (2019) identified similar results as an outcome of their research and the need for increased emphasis on counselling and individualised care at a supervisor-student level of training.

The use of qualitative research has been successfully used across a variety of healthcare settings, and as already mentioned has gained momentum in the field of audiology. The benefits of conducting interactional research with qualitative methods allows for both psychosocial and interpersonal interactive behaviours to be documented (Knudsen et al., 2012). The benefits of this form of research in the field of audiology have yielded valuable insights in the cohort of studies conducted thus far.

2.16 Clinical applications of Interactional analysis

Interactional research in the area of health communication has occurred for several decades (Sheingold & Hahn, 2014). In the early 1960's, several researchers began investigating physician-patient communication, from a sociolinguistic perspective (Thompson, 2014). This led way to a growing movement of research in the area of communication in medical settings. Interactional studies aim to assist the researcher in understanding phenomenon (Green & Thorogood, 2018) which is integral to provision of services which meet the needs of patients and families in a healthcare setting. Although applications of interactional studies have occurred over a number of years in several acute health settings, success with this approach in audiology research has begun to emerge over the last decade (Knudsen et al., 2012).

The audiology clinic setting can be a multifaceted environment and includes the potential for interaction which are both psychosocial and informational in nature

(Peñaranda et al., 2011). The audiology setting can present with individuals of different linguistic, cultural and educational backgrounds and cannot be viewed as two dimensional in this regard (Manchaiah et al., 2019). As such, the potential for complex conversations and interactions to occur between professionals, patients and family members strongly exists in this setting (Grenness et al., 2015). Audiologists are responsible for multiple aspects of interactions including, information sharing, counselling and goal setting for patients and family members (Grenness et al., 2015). As discussed in the preceding sections, clinician-centred approaches to healthcare have been shown to exist in the field of audiology and as a result the importance of interactional research into the counselling and information sharing skills of individuals in this setting is all the more necessary (Coleman et al., 2018).

Interactional studies utilising qualitative techniques allow for data to be obtained which has the potential to be incredibly detailed, providing insight into several areas as opposed to narrowing the research focus (Ritchie et al., 2014). As little research exists in the area of audiology interactions, obtaining rich, detailed data is important and necessary (Braun & Clarke, 2013). Along with the detail obtained as a result of interactional analysis methods, Watermeyer et al., (2012, 2015, 2017, 2020) have illustrated the variety in interaction types that can occur in the audiology setting. Differences in interaction length, content and language use have been identified in these studies. Without the use of analysis into the interactions themselves, important aspects such as the goals of the interaction, language choices, nonverbal cues and facilitators and barriers to communication may be missed (Chan, 2013).

As interactional analysis considers both verbal and nonverbal contributions to the interaction between participants, there have been valuable contributions to everyday challenges and scenarios in which clinicians find themselves (Knudsen et al., 2012). Over several decades the use of interactional research in the field of health communication has shed light on the weaknesses of physician-led interactions, creating awareness about more patient-centred methods of interaction (Johnson & Smalley, 2019). As a result, a shift in training at graduate level has occurred, moving towards relationship-building and consideration of the patient's needs (Bokhour et al., 2018). This is illustrated directly in the physician-patient communication competencies that form part of medical board examinations and medical curricula (King & Hoppe, 2013). In addition to encouraging positive changes in healthcare, interactional studies continue to act as a tool to identify areas of potential weakness in the healthcare interactions. Although interactional studies have highlighted positive aspects of patient and family centred care, interactional analysis methods have also highlighted weaknesses in the implementation of these models (Maatman, 2020; Coleman et al., 2018).

In the field of audiology, contributions via the interactional approach have identified weaknesses in the area of patient counselling and information sharing (Watermeyer et al., 2012, 2013, 2015, 2020; Eckberg et al., 2018; Grenness et al., 2014, 2015). Likewise the role of supervision which facilitates patient centred practices was found to be lacking in interactions in the audiology setting (Tai et al., 2019). A further finding reiterated in interactional studies in audiology highlighted the lack of counselling capabilities held by participating audiologists when interacting with their patients (Munõz

et al., 2017). These findings have indicated motivations for more robust training and supervision programs for audiologists (Munõz et al., 2017). The interactional analysis of interactions is not only however implemented as a tool for research, but has also been suggested as a mechanism for future teaching and training purposes. As interactional analysis provides a full account of both the macro and micro structural elements of the interactions, it lends itself to in depth analysis of successful and unsuccessful methods of information sharing and counselling (Woodward-Kron, 2020). Penn and Watermeyer (2018) suggest observation of interactions as a tool to explicitly learn skills that may otherwise only be gained via experience. At a graduate level many health practitioners including audiologists will have experienced a narrow perspective of the healthcare setting, with a strong focus on theoretical components, as seen in the research conducted by (Munõz et al., 2017). Though a focus on interactions involving clinician- patient interactions, audiology graduates may identify aspects of counselling which contribute to their newly gained theoretical knowledge (Munõz et al., 2017).

In the field of healthcare and specifically audiology, the contributions of interactional analysis as a method of research and a tool for learning have provided insights and further avenues of research to the present literature. It is hoped that with further development the areas of interactional analysis in the audiology setting, further insights will be gained into the current practices of audiologists and future training programs can be developed upon.

This chapter has identified the current contributions to research in the area of health communications in audiology. Models of healthcare have been discussed with

particular attention to clinician-directed and patient-centred models. The types of audiology interactions as well as the challenges to effective communication processes in the healthcare setting were explored, before in-depth analysis of the implementation of patient-centred and family-centred care were discussed. The paediatric cochlear implant setting has been described and the complexities of this setting and the role of the audiologist has been highlighted. Lastly the theoretical underpinnings of interactional research and the use of genre analysis have been described in preparation for the methodology outlined in chapter three of my dissertation. The review of literature has identified similar findings in previous studies aiming to identify the use of patient and family-centred care models. Upon completion of the literature review I have identified that similar studies in the field of cochlear implantation do not exist and as such the findings of the current study are ground-breaking in their contribution to the current knowledge base.

Chapter 3 Method

This chapter provides a description of the primary aims and research design undertaken for the current study. The sampling strategy, participant demographics and analytical framework are discussed and the approach to data analysis is described. This chapter concludes with the ethical considerations as well as the rigour and trustworthiness measures used for the current study.

3.1 Research question

- What are the communicative processes between audiologists and caregivers within cochlear implant follow-up appointments at a Cochlear Implant Centre in Johannesburg, South Africa?

3.2 Primary Aim

- To describe the communication processes between audiologists and caregivers of paediatric patients in cochlear implantation appointments at a Cochlear Implant Centre in Johannesburg, South Africa.

3.3 Sub-Aims

- To describe how audiologists in a paediatric cochlear implant setting interact with the caregivers of their paediatric patients, through analysis of video recorded interactions.
- To describe how audiologists and primary caregivers negotiate complexities in interactions such as caregiver expectations, emotions, decision making and goal setting.

- To understand, via the use of interviews, the perspectives of audiologists as well as caregivers perspectives on communication processes in a paediatric cochlear implant setting.
- To identify shared perspectives between participants, obtained in the interview data.

3.4 Research Design

This study adopted a qualitative, exploratory, cross-sectional study involving interactional analysis of recorded consultations, participant observations as well as thematic analysis of semi-structured interviews, with participants.

This study adopted a qualitative research design utilizing a two-phase data collection process including recorded interactions and interviews. Qualitative research aims to provide an in-depth analysis of social phenomena, doing so in the individual's natural environment (Creswell, 2009). Health communication research has largely been conducted within a framework of detailed observation and description of communicative behaviours, predominantly in a primary healthcare context, between physicians and patients (Reuben, 2016). These observations are typically analysed using a combination of linguistic and social science techniques in order to extrapolate necessary data. As part of this approach, interactional analysis was chosen as a method to describe and extrapolate meaning from the interactions in the study. This method is widely used in healthcare research and has seen success in understanding encounters between health professionals and patients (Pilnick et al., 2009).

The nature of this study is exploratory since interactional research in the paediatric cochlear implant setting is yet to be explored in great detail. As noted in the

preceding chapters, research in the area of interactions in audiology has been limited to date, particularly interactions in paediatric cochlear implant settings. As such I chose not to narrow the focus of the research study in order to obtain potentially valuable data within this specific context. When designing the parameters of the study I did not strictly exclude or limit the types of potential interactions between the participants. This was true for longitudinal aspects of appointments. The current study had for example, the potential to, but was not limited by participants having more than one appointment with the audiologist during the research period, broadening the possibility of obtaining varied data. Exploratory research is defined as identifying new phenomena, by working through the topic of research, which has the potential to provide answers to research questions via the research process (Swedberg, 2020). It is true in the case of exploratory research that an answer to research questions may not be answered upon culmination of the research, however the potential to uncover new information is likely.

Ethnomethodological principles were applied in this exploratory research design. Ethnomethodology refers to methods which analyse individuals interacting in daily social situations, analysing how these activities are constructed and organised (Pillay, 2019). By applying these ethnomethodological principles to the exploratory design, the ability to uncover potentially new phenomenon is possible.

Although exploratory, some ethical considerations guided the design of the study. For example the potential for distress caused by including appointments shortly after diagnosis of hearing loss and the initial implantation of the cochlear implants were important when ensuring the emotional wellbeing of the participants. Thus, I focused on

consultations that took place sometime after implantation to reduce the impact of causing undue distress for the caregivers. Appointments occurring less than one month post initial diagnosis of hearing loss were therefore not included in the current study in order to avoid this.

3.5 Participants

The sample consisted of 13 participants, 10 of which were caregivers and 3 of which were audiologists. Table 3.1 illustrates the audiologist demographics and Table 3.2 illustrates the participant demographics and appointment information.

Table 3-1
Audiologist Qualifications and Experience Level (N=3)

Audiologist	Qualification	Experience (years)
1	BA SP & H Therapy (Wits)	22
2	BLog Speech Therapy and Audiology (Stellenbosch)	20
3	B Communication Speech Therapy and Audiology (UP)	20

The audiologists participating in the study were qualified clinical audiologists who have extensive prior experience with cochlear implant patients.

The paediatric patients, who were not active participants in the research process, ranged in age between 12 months and 6 years of age and were all pre lingually hearing impaired. The age range for this study was determined based on the focus of the communication in the interactional space as well as the operational capacity of the Cochlear Implant Centre. The age range of the patients was an important inclusion

criteria as this helped to reduce patient participation as it was felt older patients interact more verbally in appointments making maintaining anonymity challenging.

The appointment rooms were arranged in order to maintain the anonymity of the child while video recording. The communication between the audiologist and caregiver was therefore the focus of the video recording, although all recorded interactions did involve some audiologist-child interaction.

Table 3-2 *Participant Demographics*

Caregiver (n=10)	**Audiologist Interacted with**	**Parent present in the appointment**	**Home Language**	**Language spoken in appointment**	**Age of the child (years; months)**	**Time between CI fitting and data collection (months)**	**Device fitted**	**Appointment Type**	**Appointment Duration (minutes)**
A	1	Father and mother	English	English	2:4	2 months	Cochlear implant (unilateral)	Mapping and programme update	26
B	3	Mother	Afrikaans	Afrikaans	5:3	Implant 1: 35 months Implant 2: 6 months	Cochlear implant (bilateral)	Program update	18
C	2	Mother	Arabic	English	1:6	1 month	Cochlear Implant (unilateral)	Auditory Verbal Therapy and mapping	42
D	2	Mother	isiZulu	English	5:10	22 months	Cochlear Implant (unilateral)	Auditory Verbal Therapy and mapping	29
E	1	Mother and Father	English	English	2:0	1 months	Cochlear Implant (bilateral)	Mapping/Program update	63
F	1	Mother	isiZulu	English	4:8	17 months	Cochlear Implant (unilateral)	Device trouble shooting	20
G	1	Mother and Father	English	English	1:4	4 months	Cochlear Implant (unilateral)	Mapping/Program update	a.) 25 b.) 23

Exclusion Criteria

- Caregivers whose children were older than 6 years old were excluded, as the aim of the study was to examine the interaction between the caregiver and the audiologist and as such interactions between the child and the audiologists was excluded where possible in order to limits participation by the child. In addition interactions occurring less than one month post implantation were not included in order to minimise unnecessary distress for the caregivers. As described in the review of literature the period following diagnosis of permanent hearing impairment can be extremely distressing for caregivers.

Inclusion Criteria

- The study was open to the caregivers of both pre and post-lingually hearing impaired children between birth and 6 years of age who were cochlear implant users.

All of the participants understood English and all but one of the appointments were conducted in English. In the event that interpreters were required by the audiologist, an onsite resource for interpretation would have been made available by the Cochlear Implant Centre or caregivers. Interpreters were not required as part of the data collection process however one of the appointments was conducted in Afrikaans as both the audiologist and caregiver were fluent in this language and were more comfortable conducting the appointment using this language.

3.5.2 *Sampling Strategy*

A purposeful sampling method was used. Purposeful sampling is defined as a form of non-probability sampling in which participants are selected in order to obtain information rich data for the specific phenomenon being researched (Palinkas et al., 2015). In addition, purposeful sampling looks at predetermined criteria for participants in order to fulfil the purpose

of the research task (Quinn Patton, 2002). As the participants included in the study fulfilled specific criteria necessary to answer the research questions outlined, purposeful sampling was used.

3.5.3 *Sample*

Due to the length of the appointment appointments it was hypothesized that the amount of interactional data contained in each appointment would be substantial and 'rich' in content. Following discussion with the Cochlear Implant Centre it was learned that follow-up appointments ranged between 30 and 45 minutes in duration, excluding test time (if a hearing test was conducted). As such it was hypothesized that saturation of data would be obtained with a sample of between 8-10 interactions due to the length and detail of each appointment session (Emmel, 2013). Several sets of caregivers were included in the study to encourage a greater variety of interactions to occur over the course of the research period. As described by Braun and Clarke (2013) sample size and data analysis are directionally proportional to the constraints identified by the methodology of the research. Unfortunately, due to the COVID-19 pandemic which posed significant challenges to data collection, the sample size was restricted to a total of 8 appointments. As the study was exploratory in nature this was concluded to be sufficient to provide enough useable data to address the research aims.

3.6 Data Collection

The data collection process consisted of a two-phased process (Figure 3.1) including; (1) video recording of appointment sessions, as well as participant observations and (2) semi-structured interviews. The video recordings focused on discussion between the audiologist and primary caregiver and any test procedures included in the recordings were excluded from the

collection process. Semi-structured interviews were conducted with caregivers as well as with the audiologists following the appointment sessions.

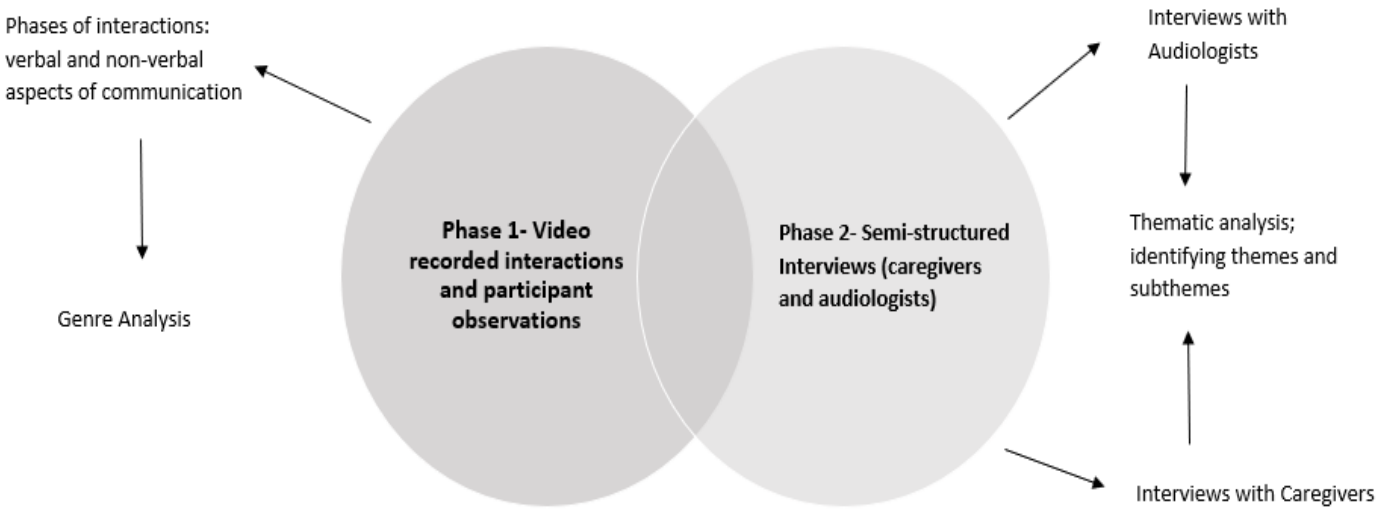


Figure 3-1 Phases of Data Collection

3.6.1 *Phases of Data Collection*

- *Phase 1*

Appointments with the audiologist and caregiver were video recorded. The recorded appointments were prearranged between the researcher and the respective Cochlear Implant Centre. Five of the appointments were recorded in March 2020, prior to the 'lockdown[1] ,' restrictions imposed by the South African government during the COVID-19 pandemic. The remaining three appointments were recorded in June and July of 2020. The delay in data collection between March and June occurred as a result of changes to the clinical setting in terms of appointment numbers and the need for reduced face-to-face interactions. The Cochlear Implant Centre was closed for a period of two weeks during this period due to shielding

following a positive case of COVID-19, and as a result recording could not take place. Upon discussion with the Centre it was reported that over this period, caregivers had displayed reluctance towards face-to-face interactions and as such, the number of viable opportunities to record appointments reduced over this period.

The consultations took place in the respective Cochlear Implant Centre environment and were prearranged as per the patients' scheduled appointments. During the pre-COVID portion of data collection, the researcher was able to observe live interactions in the clinic space and as such, gain insights into how this space was used. It was noted that interactions between the audiologist and caregivers began to occur prior to moving into the consultation room. Interactions typically began in the waiting area where the audiologist would meet the caregiver before taking them into the appointment room. Prior to the appointment commencement, the researcher or research assistant placed a video recorder in the room in order to record the appointment session. The researcher and/or research assistant were not present in the audiology room during the appointments, in order to minimize intrusion.

- *Phase 2*

The researcher conducted a series of semi-structured interviews, which included, self-developed, open-ended questions allowing for the participants to share as much information as they felt comfortable with. The focus of the interviews was on content categories including successes and challenges with regard to communication during the appointment, as well as how information counselling regarding the cochlear implant device and rehabilitation process was provided. The interviews aimed to gain perspective from the primary caregivers as to how they

received technically complex information and from the audiologists in terms of how they believe such information should be conveyed successfully.

The interview questions (Appendix E) were devised with the core research question of the study in mind and incorporated areas of questioning, similar to those in studies conducted by Watermeyer et al. (2012), Grenness et al. (2014) and Meyer et al. (2017). A pilot study to test out the interviews was conducted with two audiologists in the clinic in which the researcher works in the UK, prior to the data collection period. This was done in order to estimate the length of time required for the interviews, on average, as well as gaining insight into the areas of questioning and to determine whether any questions needed revision. The pilot interviews also assisted in providing the researcher with a guideline as to how long the interviews would take to transcribe in preparation for analysis. Changes to the interview schedule (Appendix E) were not made following the pilot study as the pilot interviews covered all of the outlined questions in a time frame that could be accommodated by the participants and no questions required revision.

Interviews with each audiologist and each set of primary caregivers were conducted once during the research period, within 7 days of the appointment. One of the participating caregivers declined an interview and another caregiver was not available during the time frame required. As such in total, 5 caregiver interviews were obtained. As seen in research conducted by English and Archbold (2014), questions aimed at evaluating what the audiologist felt was successful and unsuccessful during the appointments would be useful when correlated with the video recorded data. As noted in a study conducted by Watermeyer et al. (2017) it was useful to identify aspects from a caregiver perspective, in terms of what was successful during the interactions. As such questions included in the caregiver interviews examined the success of information counselling

as well as addressed the individual needs of the patient. Questions regarding how emotionally sensitive information such as expectations, concerns regarding progress or procedures were also included in order to examine how the audiologists and primary caregivers dealt with more complex communicative interactions.

Due to the semi-structured nature of the interviews, further probing, including the use of open-ended questions was conducted. The majority of the interviews were captured face-to face via audio recording. However, 'Zoom' was also used for interview purposes during the COVID-19 pandemic in instances where face to face interviews were not possible. A video interview was used as this is suggested to be the most similar form of interview to face to face interviews (Krouwel et al, 2019), and as a result ensured continuity of interview data collection. Audio recordings provided an accurate and unobtrusive method of data collection allowing for freedom of conversation between the researcher and the participants (Simmons, 2009). The audio recordings were obtained through the use of a password secured Apple iPhone using the 'voice memo' function. These voice memos were transferred to a password protected hard drive for secure storage following data collection.

3.6.2 Data Collection Procedures

- *Video recorded interactions*: Video recording was used as part of this study as a method of data collection as video allows for accurate details occurring in interactions to be captured, as well as nuances that may have been missed in a direct observation technique. It captures a version of an event in real-time which can be reviewed and reanalysed (Heath et al., 2010). As the data can be reviewed several times, it is advantageous for the analysis period (Egbert & Matthews, 2012). Video recording also allowed for the entire interactional space to be captured which is of importance when analysing the interaction (Asan & Montague, 2015). This

method of data collection has increasingly been shown to be an effective method to capture interactions (Pino & Parry, 2015).

Video recording as a method of data collection did however have to be closely considered as the nature of this form of data required planning in order to maintain a level of anonymity for the paediatric patients in the appointment setting who were too young to provide informed consent during the data collection process (Flewitt, 2005). A level of anonymity was achieved by positioning the camera in order to capture as little identifiable view of the child in the setting. Due to the longevity of video recorded data, data management procedures particularly destruction of video data had to be considered as part of the study design in the event that a participant chose to withdraw from the research procedure. Another consideration for the use of video recording in the interactional space was the potential for the participants behaviour to change due to the presence of the recording device. This is otherwise known as the Hawthorne Effect and is defined as a potential threat to the research process due to observer effects (Paradis & Sutkin, 2017). As the recording device was positioned in the appointment room, the participants would have been aware of the action of recording and as such their behaviour may have been impacted as a result. The precise extent to which participant behaviour is influenced as a result of the Hawthorne Effect has not been quantified in recent research (McCambridge et al., 2014). The Hawthorne Effect could not be completely eliminated in the study as the camera was visible in the appointment room, although it was positioned to be as unobtrusive as possible.

Data collection via video recording took place over eight consultations of approximately 18- 60 minutes per appointment. The average length per appointment was 31 minutes. The number of appointments and time allowed per appointment, for video recording, was determined

by the operational capacity and appointment arrangements at the research site (Cochlear Implant Centre). The number of appointment sessions lent itself to the possibility of capturing more than one appointment with each set of participants, allowing for the potential for a longitudinal perspective on the data to be obtained.

Capturing a longitudinal perspective was not outlined as a fundamental part of the research design however if a longitudinal perspective was obtained it would be useful in the analysis of the communicative relationship between audiologist and caregiver. This occurred for one set of participating caregivers, who were observed in two mapping appointments spaced approximately two weeks apart from one another. The opportunity to observe more than one appointment with a family did not present itself at other points in the data collection process and as a result it was hypothesised that this may provide variation and further insights into the interactions.

- *Participant observations*: Some naturalistic observations of the clinic setting and the interactions between the participants in the waiting area of the Cochlear Implant Centre was obtained for the majority of the appointment sessions (Appendix H). Due to the limited patient numbers at the centre as a result of the COVID-19 pandemic, only the caregivers and patients due to be seen, were in the waiting area prior to their appointment. Unfortunately, ethnographic data could not be obtained for three of the appointments as the researcher could not be on site at the time due to COVID-19 restrictions. Ethnography is described as a method of social research which occurs in settings to obtain explanation for the behaviours and attitudes of individuals (Goodson & Vassar, 2011). Watermeyer (2012) discusses the phenomenon of

'corridor conversations' as a potential facilitator in medical interactions, as it can make patients and family members feel more at ease to share information or participate in the interaction. The observations that formed part of the study began as 'corridor conversations' before moving into the interactions captured in the clinic room. The 'corridor conversations' were not video recorded, however detailed notes were made by the researcher. Including these observations as part of the results was useful for contextualizing the recorded interactions. Due to COVID restrictions the waiting area was restricted to patients entering the centre at their appointment time. This allowed the researcher to conduct the observations without capturing non-participants.

- *Semi-structured interviews*: In phase two of the data collection process, interviews with the audiologists and caregivers were conducted following their cochlear implant appointments. These interviews were audio recorded and transcribed. The use of the interviewing technique may be justified by looking at the purposes of an interview. These purposes include gaining the individual's perspective on the topic through the use of theoretical and open-ended questions as well as prompts to gain insight into the experience of the participant which cannot be observed (Galletta, 2013). Thematic analysis was used to identify common themes in the interview data and this was triangulated with the video recorded interactions in order to identify recurring themes within the larger data set. The semi-structured interview component of the data forms an important part of the 'talk- extrinsic' information, (Waring et al, 2012), utilized as a means to strengthen the interactional findings and assist in the overall confirmability of the current research study.

3.6.3 *Research Assistants*

I collected video recorded data for five out of eight video recorded interactions as well as the ethnographic descriptions of the clinic setting and live interactions for five of the appointment sessions. A total of 12 hours of observations in the clinic setting occurred over the data collection period. As I am based in the United Kingdom, the remaining 3 video recorded interactions were collected by a research assistant. The research assistant who had been working as a teacher prior to assisting with the research was responsible for setting up the video camera prior to the appointments and collecting the equipment after the appointment sessions. To maintain participant anonymity for the caregivers and their children, the research assistant was not on site at the time of the appointments nor was any confidential information pertaining to the participants or their appointments shared. A second research assistant translated one of the appointment sessions which occurred in Afrikaans. As the researcher speaks Afrikaans as a second language, a research assistant who was bilingual, speaking both English and Afrikaans at an equivalent level was used to provide an accurate transcription of the appointment session. The research assistant, holding postgraduate qualifications in language studies and working in the capacity as a content editor, was provided with audio information of the appointment only in order to maintain anonymity of the participants.

3.7 Setting

The cochlear implant clinic setting consisted of three consultation rooms, a testing room as well as a reception area. The recorded appointments occurred in the appointment rooms of the respective Cochlear Implant Centre. The appointment settings included the audiologist, primary caregivers and paediatric patients with the focus being directed towards the interaction between the audiologist and the primary caregivers in the interactional space. A video recording device

was placed in the room prior to commencement of the appointment. The video recorder was placed in the room in a position which allowed for the audiologist and primary caregiver to be seen throughout the duration of the appointment in order to note non-verbal as well as verbal aspects of communication. Three of the recorded interactions occurred during the COVID-19 pandemic and as such face shields and face masks were worn by the participants during these interactions.

3.8 Data Analysis

For the purposes of this study a hybrid sociolinguistic approach to analysis was used. The interaction and communication used between the audiologists and caregivers was described based on verbal and non-verbal data (Waring et al., 2012) and contextual nuances (Street, 2003) noted in the appointment settings and interactions, using the principles of genre analysis. This hybrid sociolinguistic approach was conducted in order to better understand the contextual nuances and interactions occurring within the interactional space. This approach has been successfully used by the Health Communication Research Unit of the University of the Witwatersrand (Watermeyer et al., 2012, 2017) in previous studies of audiology consultations and included the use of Heath et al. (2010) principles of analysis of video recorded interactions to extrapolate the necessary data.

3.8.1 *Genre Analysis*

Both content and communication techniques were analysed in the video recorded appointments. Genre analysis was used to analyse the macro and micro elements of the interactions. This included the main phases of the appointments and the communication tasks comprising each phase. Genre analysis was used to create this analytical framework, as a ‘genre’ is described as a social process which has a goal associated with it (Tardy & Swales, 2014). This

is therefore true for interactions such as follow-up appointments in the paediatric cochlear implant setting as these appointments are generally planned with a clinical task or goal in mind. Likewise, genre analysis shows 'sensitivity' to the context in which the interaction occurs, this includes the setting, participants as well as content used to achieve the goal of the interaction (Philip et al., 2019). This method of analysis was noted as appropriate for complex nature of the cochlear implant appointments and has been used to analyse video recorded data in health care interactions previously (Tai et al., 2019). The strength of the analysis was assisted by reviewing current literature, discussing findings with research supervisors and re watching the recorded video appointments.

With the use of an analytical framework, developed as a part of the genre analysis method, patterns in the communication and interaction of the audiologists could be analysed and features as well as variation in interactions styles of both groups of participants could be observed. A similar form of analysis has been successfully used in research examining patient-centered care in audiology appointments as seen in a study conducted by Tai et al. (2019). These authors referred to 'genre analysis' to describe the interaction of participants in their study according to particular tasks within the clinical encounter, as illustrated in the analytical framework. In the current study the analytical framework was derived from both caregiver and audiologist-initiated tasks which are described in greater detail in part one of the results.

3.8.2 *Thematic Analysis*

It is suggested that semi-structured interviews form an integral part of the qualitative research process providing the researcher and participant with insights into the areas of questioning within the appropriate social context (Holland & Edwards, 2013). Results of the semi-structured interviews yielded detailed descriptions and perspectives from both the

caregivers and audiologists interviewed. As such, the semi-structured interviews were analysed using inductive thematic analysis (Braun & Clarke, 2019). Inductive thematic analysis refers to the data, determining the themes obtained. This differs from deductive thematic analysis which is described as approaching data with preconceived themes (Braun & Clarke, 2019). Due to the exploratory nature of the study, inductive thematic analysis suited the nature of my research method and allowed for the potential for new information to be gained from the data. Thematic analysis as a whole, was chosen due to the detailed nature of the interview data obtained. From the transcribed data themes were rendered and refined in order to address the specific research questions (Rapley, 2011). The thematic analysis process used by the researcher is detailed in

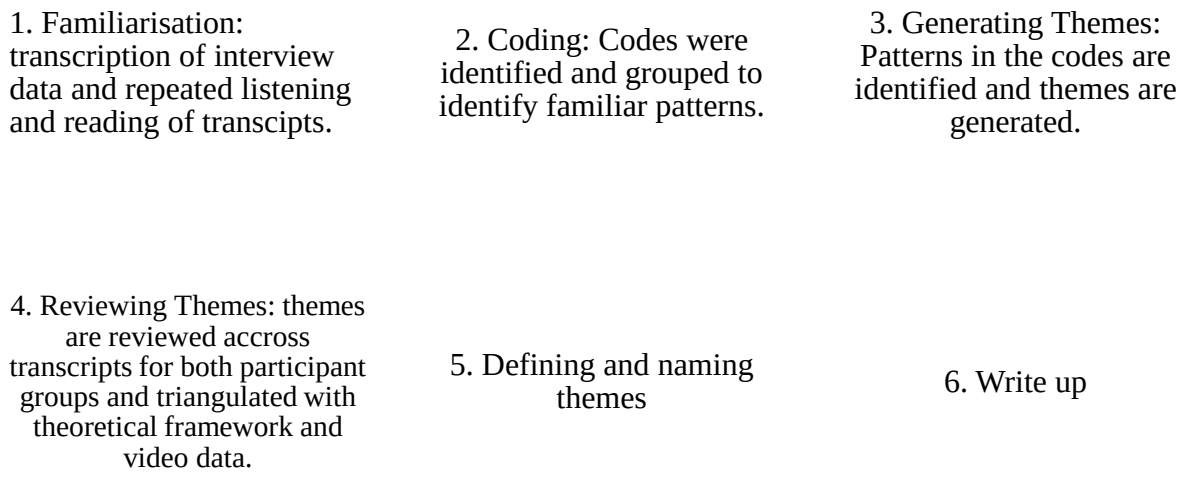


Figure 3-2 Braun and Clarke's 6 Phases of Thematic Analysis (2013)

The main themes discussed as part of the results of the study were a product of cross matching codes across the interviews conducted with both the audiologists and the caregivers. The themes were rendered inductively from the data due to the exploratory nature of the study

design. Although I have a background in the field being researched, it was of importance to refrain from being influenced by preconceptions and preconceived codes when identifying themes (Nowell et al., 2017). Care was thus taken to ensure that the thematic analysis remained 'data driven' as outlined by Braun and Clarke (2006) adding to the overall trustworthiness of the analysis.

3.8.3 *Transcription*

In qualitative research, transcription of spoken data is conducted in order to analyse spoken words in detail and if necessary to code data for extrapolation of themes and similarities (Wright, 2014). As part of my research method, transcription of data formed an important part of gathering information including the nuances of both verbal and non-verbal utterances.

The semi-structured interviews were transcribed by the researcher in preparation for analysis. The audio files of the interviews were transcribed for content using 'Transcribe Pro,' software, (https://apps.apple.com/us/app/transcribe-speech-to-text/id1241342461) which was compatible with the recordings on the Apple device. This program adheres to the General Data Protection Regulation (GDPR) (EU) 2016/679 and adheres to the requirements of handling sensitive information. Furthermore the audio data is not removed from the password protected device during the transcription process, further safeguarding the information.

The researcher then checked the transcripts for correctness and completeness. The researcher chose to transcribe the interviews in order for the nuances of the interaction between the researcher and participants to be recorded. This included non-verbal aspects such as pauses, emphasis and intonation. By relistening to the recorded interviews several times, it is suggested that the researcher becomes aware of aspects of the data which may otherwise be missed (Ten Have, 2007).

Video recorded data was not transcribed verbatim in the form of text. Rather excerpts of verbal data, which assisted in supporting findings for the analysis, were transcribed with the use of a self-devised transcription key (Appendix F), adapted from Eggins and Slade (2005). Eggins and Slade (2005) have conducted a breadth of research in the area of analysis of everyday conversation in a variety of contexts and their method of transcription has been successfully adapted by researchers conducting interaction-based research in healthcare settings (Philip et al., 2019). The transcription key was used as in order to organise the spoken data so that meanings could be extrapolated, including nonverbal aspects of the communication between participants. This form of transcription has been argued to be integral to the 'management of data' as a whole (Oluwafemi et al., 2021). An example of an entire transcribed recorded session can be viewed in Appendix G of this dissertation.

3.8.4 *Triangulation of the Data*

Triangulation of data refers to the use of more than one method of research, in order to provide a more detailed picture of the results (Heale & Forbes, 2013). By using several robust methods of obtaining data, confidence and confirmability of results is easier to attain. The use of more than one method to attain triangulation is referred to as 'methodological triangulation,' (Wilson, 2014). In the current study, triangulation of the data was obtained via the use of the multiple methods of data collection, including the video recorded interactions, the participant observations and the semi-structured interviews.

3.9 Rigour and Trustworthiness

In order to ensure trustworthiness of findings, the following procedures were adhered to, based on Lincoln and Guba's (1985) pillars of trustworthiness:

- Credibility: Methodological triangulation of data occurred, by comparing the observations noted, the video recordings and semi-structured interviews. This was done in order to add strength to the design of the study.
- Dependability: Dependability was achieved as my research process and data was cross checked.
- Transferability: Detailed research notes were kept throughout the research period as well as the write up of reflective pieces in order to document my experience during the data collection experience.
- Confirmability: As part of documenting the process of data collection I kept detailed research journals in order to practice reflexivity. Acting as a researcher in an audiology setting as an audiologist myself, this process helped me to stay aware of what influence my own professional experience had on my analysis.

3.10 Ethical considerations

- Ethical clearance for this study was obtained through Wits HREC (Medical) M190928 (Appendix A).
- The participants provided written consent for participation in the study as well as written consent for video recording prior to commencement of the data collection process (Appendix B). A permission letter was also signed by the cochlear implant centre prior to the start of the data collection period (Appendix C).
- Ethical considerations that formed part of the data collection process were the participants' right to withdraw from the research procedure at any point. If the participants were to become distressed or uncomfortable with the video recording of their appointment session, they were given the opportunity to stop the recorded appointment as

detailed in the distress protocol (Appendix D). During the duration of the data collection process, none of the participants required assistance due to distress.

- The cochlear implant appointment rooms were arranged in such a way as to maximise the view of the caregiver and audiologist, and as such direct view of the child was avoided where possible during the appointment duration. As the analysis focused on communication between the audiologist and the caregiver, the child's presence in the video recordings was limited in order to maintain the anonymity of the child. Robson (2011) has suggested that the use of video recording in paediatric settings should be conducted in collaboration with all participants present in the research space. However given the ethical concerns, caregivers were made aware prior to the recording procedure that the focus of the recording was not directed on the child. Due to the age of the children present in the data collection process, assent could not be fully obtained from the children at the start of the research process. In this instance it was suggested that provisional consent be negotiated and revisited during the research process (Flewitt, 2005), and therefore the recording process may have been stopped at any point during the appointment where the child may not feel comfortable.

- Care was taken to ensure that the participants were comfortable with the use of video recording in the appointments conducted. According to Heath et al. (2018), ensuring that the participant is comfortable with the data sample obtained is imperative as they reserve the right to withdraw the material at any point. In order to ensure that the participants remained at ease, the reason for video recording, what was to be examined

from the videos as well as the method used to store the recordings was made clear as part of the information and consent process.

- Participants were informed that in the event that they did not wish to share aspects or have the appointment video recorded, recording would be stopped immediately. None of the research participants withdrew from the research study.
- The confidentiality of the appointment content remained one of the highest priorities due to the sensitivity of the information that was discussed between the clinicians, patients and their respective caregiver.
- None of the participating caregivers expressed concerns regarding the video recording of appointments. One caregiver declined the invitation to participate in the research study and another caregiver cancelled their scheduled appointment due to the COVID-19 pandemic, hence withdrawing participation as a result.

Chapter 4 Results Part-I

In training and in practice as clinical audiologists, several models of clinical counselling and care have been suggested and, in many instances, followed with the objective of providing a good level of patient care or intervention as noted in the review of literature. Although these models provide guidance for clinical practitioners, the practical application of these models can be influenced by both extrinsic and intrinsic patient factors and variables influencing the clinical relationship. Following observation of the cochlear implant appointment sessions the emergence of common themes in information sharing and counselling approaches used by the audiologist were noted. The results yield insight into a unique clinic setting which sees audiologists being required to show flexibility and adaptation of approach, in order to meet the needs of the caregiver and paediatric patient.

In Part I of the results, the phases of the interactions will be described, in line with the exploratory goals of this study. The communication processes of between the audiologists and caregivers will be described with the use of excerpts from the video data, derived from a self-devised transcription key (Appendix F). The main audiologist activities related to the appointment context will also be discussed as similarities and differences in appointment type were noted. Lastly an overview of the findings of the thematic analysis of participant interviews will be discussed. Thereafter a triangulated discussion of the interview data in relation to the interactional data will be explored in Part II and III of the results.

4.1 Description of the phases of the appointments

Before discussing the phases of the appointments, it is important to note that the audiologists and caregivers had engaged in prior appointments to those observed and thus had established rapport with one another prior to the data collection period. Throughout the

observation process, the phenomenon of the ‘continuum of talk’ was therefore noted as the audiologist and caregiver relationship was found to be a product of consistent and regular communication both in, and out of, the interactional space. This continuum of talk and the importance of the appointment setting provide insight into the phases of the individual interactions.

4.1.1 *Appointment Setting*

The consultation rooms at the Cochlear Implant Centre varied in size and configuration as noted in Figure 4.1. In each of the consultation rooms there was a table and set of chairs. One chair was reserved for the audiologist and two additional chairs were reserved for caregivers and paediatric patients. Seating of the caregivers and audiologist as well as their physical proximity appeared to differ between each of the audiologists. Audiologist two was noted to sit side by side with the child positioned between herself and the caregiver. This seating appeared to be facilitated by the use of a round table and promoted the aims of the Auditory Verbal Therapy approach which was being used in the observed appointments with this audiologist. Audiologists 1 and 3 were noted to sit facing one or both caregivers without a table between them. They were noted to turn away from the caregivers to access the equipment which was positioned on a table adjacent to the audiologist.

The consultation rooms remained uncluttered with pictures of the anatomy of the ear, and a generic audiogram stuck on the walls. Toys for the children to play with during the appointments were minimal. This minimal use of toys and pictures appeared to facilitate focus and minimize distraction for the paediatric patients during the appointment and kept focus for the caregivers on the communication between themselves and the audiologist.



Figure 4-1 Cochlear Implant Centre Layout

4.1.2 *Description of Participants*

As indicated in Table 3.1., the audiologists observed in the cochlear implant environment all hold several years of experience in the field of cochlear implantation, having specialised in cochlear implantation early in their careers. The audiologists working in the Centre are involved in the initial implantation via means of cochlear implant 'switch on [2]' as well as the preparation for this. Thereafter, they conduct cochlear implant follow-up appointments involving hearing testing, as well as mapping of the cochlear implant programs. One of the audiologists at the Centre also conducts Auditory Verbal Therapy appointments with patients.

The caregivers who participated in the study had attended several appointments with their audiologist prior to the observation period. This audiologist is assigned to the family when the family is referred to the practice, thus allowing for continuity of care. A combination of one parent and two parents was observed in the communication interactions. There were more caregivers who attended the appointments alone than in pairs. In all instances of the caregiver attending alone, the mother was the parent who attended the appointment. As mothers often are the main facilitators of the therapeutic management for their children in health care settings,(Yogman, Garfield and Craig, 2016), this may have been why this trend was observed.

The paediatric patients involved in the interactions ranged in implantation age and as such communicative needs were noted to differ between appointments. This was also found to affect the aims outlined for the appointments or the type of appointment booked for the family. As discussed in the review of literature, the frequency at which the child is seen shortly after implantation is much higher than after the first-year post implantation. There is therefore an

advisable amount of appointments which the family should attend in the months following implantation however these are not necessarily restricted. It was apparent that should the family require more frequent appointments this would be made available. This indicated an element of support on the part of the centre however the potential for parental agency to be exhibited in this appointment-request-scenario was apparent.

A phenomenon noted in the interactions which was found to be significant to the interaction between the caregivers and audiologists was the role of the child in the appointment setting. In contrast with medical appointments in many contexts, a prominent feature of the paediatric cochlear implant appointments was the role of the child. Cahill and Papageorgiou, (2007), theorised that interactions between primary care physicians and children reverted to 'adult-doctor' conversations with little consistency in approach between appointments. In contrast the audiologists in the current study were noted to respond to the verbal and non-verbal communication aspects presented by the children in all appointments, even at times when communication on the part of the child may have appeared redundant to the appointment content and context. The audiologists were noted to draw on recommendations and gain information based on the child's progress via interacting directly with the child. In some instances, this interaction was noted to redirect aspects of the appointment and allowed the audiologist to model communication techniques and interject recommendations for communication at home.

As described by each caregiver and audiologist, the journey to implantation and auditory rehabilitation is different for each family dependent on both extrinsic and intrinsic factors as discussed in the review of current literature. The audiologists at the Cochlear Implant Centre were not the professionals who provided the initial diagnosis, in the case of all caregivers who

were interviewed. It was noted that the initial diagnosis was often made by a diagnostic audiologist following Auditory Brainstem Response testing (ABR) or by an ENT Consultant. The families would thereafter be referred to the Cochlear Implant Centre team in preparation for implantation. As such there is a chain of communication that occurs for each family between multiple professionals. This chain of communication can be beneficial in providing information from the experts working with the family at each stage of the implant process, however this may lead to confusion if communication is not consistent and the overall message is unclear (Pratt, 2018).

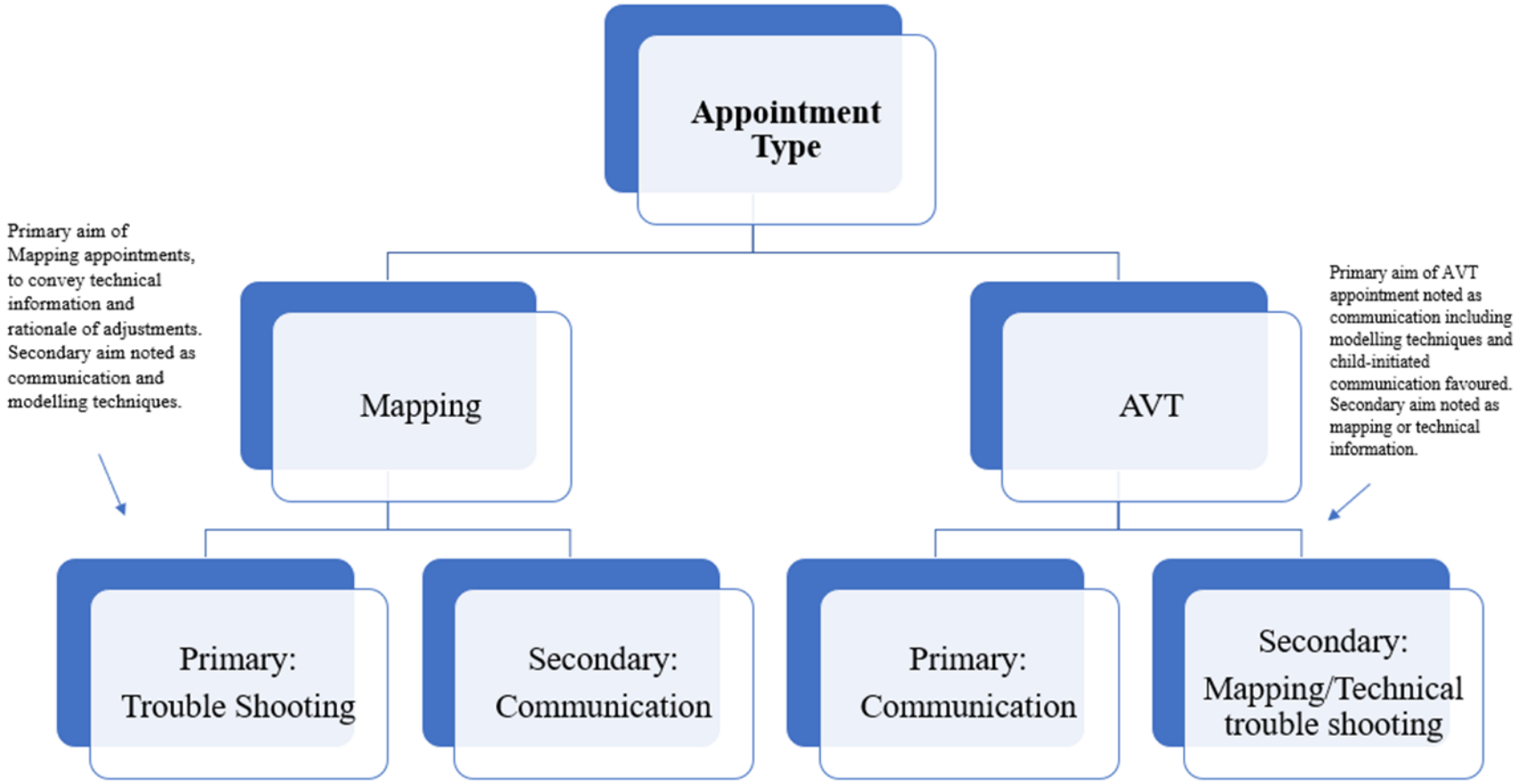
At the time of conducting the observations this initial phase of diagnosis and implantation had been discussed over a series of interactions with the observed audiologists and other professionals and as such the caregivers' ability to form therapeutic relationships with the audiologists had developed.

4.1.3 *Appointment Types*

There were two distinct appointment types that were seen in the data set of recorded follow-up appointments. These included cochlear implant mapping and program adjustment appointments and Auditory Verbal Therapy (AVT) appointments that included a mapping component. In total two AVT appointments were observed and six mapping and programming appointments were observed. I identified that although the appointments presented with prominent structural phases, the emphasis of these phases differed depending on the appointment type. During the AVT appointments the emphasis was on communication intervention and modelling of this by the caregiver and the audiologist.

The mapping appointments, in contrast, provided less detailed suggestions and rather included the use of general strategies for caregivers to implement at home.

Although the primary aims of the appointments differed, the structure and content of the appointments remained similar throughout. The communication focused content was however noted to be larger in the AVT appointments versus the mapping appointments. Detail regarding the content of the appointment types can be found in Appendix I. The primary aim of the mapping appointments saw a focus on the technical aspects of the implant with communication and modelling secondary. This is illustrated in *Figure **4-2***.



Concepts related to Auditory Verbal Therapy (AVT): (Estabrooks et al., 2016). Cochlear Implant mapping concepts: (Wolfe & Schaffer, 2014)

Figure 4-2 Appointment Types and Aims

4.2 Appointment Structure

All of the cochlear implant appointments were found to contain similar structural phases. The emphasis of the appointments did however differ depending on the type of the appointment as illustrated in

Figure 4-2. The main phases and sub phases observed in the interactions are listed below in Table 4.1 and are expanded upon in Table 4.2.

In the Analytical Framework, Table 4.1., 'Interactional Planning' refers to the goal orientated task or 'genre' detected in the interaction (Tai et al., 2019). Initiation of these genre's was predominantly, but not in all cases, initiated by the audiologists. Initiation of the genre was at times initiated by the caregiver particularly in the area of progress updates. This shared initiation of genres speaks to the familiarity and collaboration the audiologists and caregivers in the current study and will be touched on in greater detailed as part of the triangulated discussion in Part II and III of the results. The 'Communication Task' refers to the communication method used as part of the genre.

Table 4.1 *Analytic Framework Appointment Phases*

Interactional Planning	**Communication Task**
1. Opening the appointment	• Greeting • Reason for appointment
2. Progress Update	• Child-orientated communication • Modelling of communication techniques • Prompting (progress related)
3. Recommendations	• Recommendation Giving • Trouble Shooting
4. Summary	• Reiteration of concepts

5. Closing	• Greeting

Figure 4-3 shows the main structural phases of the appointments as listed above. Phases in the centre of the figure were found to be cyclical during the duration of the appointments. This means that they did not occur in a consecutive pattern, however were interspersed and revisited during the appointment depending on the needs of the patient. This was observed across all of the appointments with all three audiologists.

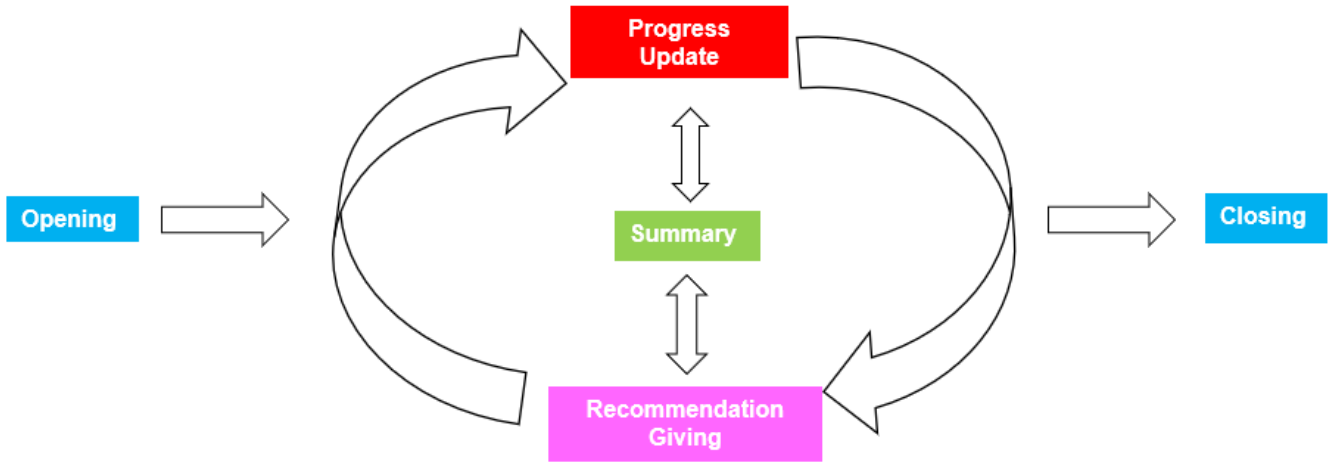


Figure 4-3 Appointment Structure

Although the time and depth of discussion of each phase changed between appointment types, the common phases in the appointments remained consistent. In the sections to follow, each phase of the appointment is described in greater detail as outlined in Table 4.1. A transcription key (Appendix F), was used to identify aspects of the verbal data recorded in Table 4.1., as well as excerpts noted in Part II of the results.

Table 4-2 *Interactional Phases of the Cochlear Implant Follow-up Appointments*

Interactional Planning	**Communication Task**	**Sample Text**
Opening the appointment		
Greeting	Audiologist identifies caregivers and children individually. Purpose of rapport building before the start of the appointment noted. Children allowed to play freely with the toys in the waiting area.	Excerpt 6.00 Appointment A mapping appointment 1 A1: *Hello (child's name) are you playing with the toys already?* NV: Audiologist gestures to the toy box in the waiting area.
Reason for the appointment	Audiologist explains the purpose of the appointment booking before entering the appointment room. Statements and rhetorical questions used here. Audiologist introduces the idea that a test may need to be conducted before entering the appointment room. (This occurred for 3 of the 8 appointments.) *Caregivers did not show surprise or dispute statements in these instances.	Excerpt 6.01 Appointment A mapping appointment 3 A1: *Okay so we are going to do some mapping today*. Excerpt 6.02 Appointment D Auditory Verbal Therapy appointment. 5 A2: *Okay mom we will go to the booth first.*
Progress update		

Child-orientated communication	Progress approached with caregiver by interacting with the child.	Excerpt Appointment 6.03 G(1) Progress follow-up 12 A1: *Now tell me, are you talking? Are you listening nicely?* NV: Raised eyebrows to indicate question.
	Progress discussed with caregiver based on action of the child.	Excerpt 6.04 Appointment A mapping appointment NV: Exclamation by the child 35 A1: *Oh goodness me! Yes, I have switched it off so you can't hear me.* *Is this what she does when she is frustrated?*
Modelling of communication techniques	Communication techniques modelled between audiologist and child and at times reiterated to the caregiver.	Excerpt 6.05 Appointment D Auditory Verbal Therapy Appointment NV: Audiologist approaches caregiver and patient with hand sanitiser and gestures to the caregiver to model for her daughter. 6 A2: *Soap please*. 7 C: *Soap Please*.
		Excerpt 6.06 Appointment G (2) Mapping appointment 45 A1: *And sounds that she is producing?*

Probing (progress related)	Where progress was not shared by the caregiver initially, encouragement is offered by the audiologist.	46 C: *Still a lot of um, mmm and bah* 47 A1: *Okay the sounds that are visible on the lips?* *NV: Child sneezes* 48 A1: *==Oh bless you* 49 C: *== Yes, it's kinda like that but it's also even when she is trying to say, what she might be hearing. Like for instance, we repeat a lot of 'up, up, up' you know and her 'up' is still like b-b-b-* 50 A1: *==like b-b-b, okay, and that's fine, that's fine.*
Recommendations		
Recommendation Giving	Provision of recommendations regarding communication practice and what can be done to carryover at home.	Excerpt 6.07 Appointment C Auditory Verbal Therapy and Mapping Appointment 206 A2: *So, when he takes your hand I want you to say 'help mommy,' because you are giving him the words you want him to say.* Excerpt 6.08 Appointment C Auditory Verbal Therapy and Mapping Appointment 196 A2: *Now when you're doing your exercises at home this week, you can make your voice lower. You do not have to speak as loudly*.
	Positive affirmations given by audiologists regarding caregiver engagement with their child in the appointment or based on reports from the home environment.	Excerpt 6.09 Appointment C Auditory Verbal Therapy Appointment NV: Child is looking at a baby doll in the corner of the room and is reaching to play with it.

		197	A2:	*Oh look, look at the baby. Mum you can just say ==*
		198	C:	*==Chichichichooo!*
		199	A2:	*==Ja.*
		200	C:	*Love him.*
		201	A2:	*Well done mum, well done*

Excerpt 6.10 Appointment G(1) Progress follow-up

		5	C:	*We are finding that after a while it slides so you have to find the exact place to put it.*
Troubleshooting	Addressing technical difficulties experienced by caregiver at home.			
		6	A1:	*You are one hundred percent right and this is the challenge we are finding with the new magnet.*

Excerpt 6.11 Appointment F Progress follow-up

		10	A1:	*A sound like /s/ may be more difficult to produce as this is a sound she may not have had access to before-*
	Addressing expectations.	11	C:	*== But A1, I beg to differ. We haven't changed the sound since last year.*
		12	A1:	*Yes but you see once we got to a stable map, it's not a matter of us pushing, pushing, pushing. Once we've got a stable map this is when we need*

		*the child to understand and make use of the sou*nd.
Summary		
Reiteration	Audiologists summarise and reiterate recommendations and important points noted in the appointment.	Excerpt 6.12 Appointment D Auditory Verbal Therapy Appointment 113 A2: *At home this week I want you to just have that in mind to do with (daughter's name). '(daughter's name), I want' and she must tell you what she wants.*
Closing		
	Brief closure. Reiteration of follow-up date.	*Conducted in waiting area*.
	Communication activity revisited.	Excerpt 6.13 Appointment C Auditory Verbal Therapy and Mapping Appointment 121 A2: *Knock, knock, we are going to open, open. Mom that was better than a 'come, come, come,' he was realising and smiling*.

Opening the appointment (greeting)-

Appointments in the cochlear implant clinic setting all began in the waiting room of the Centre. The progression of the appointment was thereafter dependent on what was required based on the child's management. Three out of eight appointments began in the testing booth before moving into the individual consultation room. A distinct characteristic of each appointment was the greeting conducted by the audiologist at the start of the interaction. In the interactions recorded before the COVID-19 pandemic, the researcher was able to observe the natural greeting between the caregivers and patients due to the ability to be on site at the time of recording. In all observed cases greeting involved direct interaction with the child and modelling of speech and communication techniques. In all of the interactions, the greeting was quickly followed by a concern mentioned by the caregiver. At times this concern was the reason the appointment was booked and in some instances the audiologist was already aware of this concern. All caregivers showed familiarity with their audiologist and none of the caregivers required clarification as to where they should sit or how the appointment should begin.

Greeting:

Engagement was noted between the audiologist and the caregiver. All audiologists made time to engage with the child individually. At times the greeting sequence moved into a communication activity with the child as the audiologists engaged with toys in the waiting area.

Reason for the appointment:

In all instances the audiologist was noted to either enquire, for the purpose of confirming the reason for the booking, or state the type of appointment that would be taking place that day.

For example, in three instances the audiologists announced to the caregivers that a hearing test in the audiology booth would be done before the consultation.

Progress update –

Two of the three audiologists began their appointments with progress updates from the families after addressing the initial concern in the cases where there was one. Progress updates were initiated by both caregivers and audiologists in these instances. In the case of the more newly implanted children (Case A, C, E and G), the caregivers were observed to initiate this area, presumably due to the more rapid progress observed shortly after initial implantation. Likewise it was apparent that in this earlier stage following implantation, that caregivers were excited and hopeful regarding their child's developing communication, as updates for all of these cases were positive. The audiologists then revisited progress made throughout the appointments. The audiologist who did not raise the progress of the child at the start of the appointment interspersed this during activities used to elicit communication in the appointment. This was likely due to the nature of the appointment type which was AVT based. One of the audiologists initiated the topic of progress by communicating initially with the child and on one occasion, addressed the child directly by asking if she was 'talking' yet. In the majority of cases, caregivers were happy to share the progress their child had been making however the detail used by the caregivers when discussing this progress was found to differ between cases and necessitated probing from the audiologist in instances where little detail was provided.

In two of the cases, the progress updates provided by the caregiver elicited emotions that differed from those in the majority of cases. In one instance discussion about progress caused a caregiver to become emotional as the child had been recently fitted and as such, the caregiver

appeared overwhelmed about the positive progress made so far. In another instance a caregiver expressed frustration as a result of the lack of progress made by her child.

Child-Orientated Communication:

In six out of eight of the interactions, the topic of communication progress was initiated in the appointment by interacting with the child or commenting on spontaneous communication that the child was engaging in during the consultation. The topic of communication progress was found to be dependent on the age and ability of the child in the appointment, and was initiated by both the caregivers and the audiologist. The spontaneous communication provided by the children appeared to assist the audiologists particularly in the case of the younger children as their communication levels may not have been as robust as what would be expected for an older child. In turn this also provided the audiologist with modelling opportunities.

Modelling of communication techniques:

A focus in all of the appointments was how caregivers could foster greater communication with their child. It was noted that although the explicit aim of an appointment may have been noted as ‘mapping,’ or ‘programme change,’ a central aim for the audiologists appeared to be eliciting communication and response (verbal and non-verbal) from the child. Modelling of communication techniques with the child was often interspersed during appointments and at times occurred spontaneously without allowing for pauses in the conversation with the caregivers. The motivation for this in all instances appeared to be maximising the communication opportunities with the child in the presence of the caregiver. One of the audiologists raised the issue of communication and reactions of the child, as a result highlighting what the caregiver should be watching out for and in turn initiating at home. One of

the audiologists who utilised techniques of auditory verbal therapy in her appointments was noted to use modelling and requested the caregiver model thereafter; this is reported to form part of the auditory verbal therapy technique (Estabrooks et al., 2016).

Probing:

There were instances when the caregivers were observed to give less information regarding progress at home. In these instances, the audiologist was found to use direct questioning and at times, open ended questions in an attempt to elicit further information from the caregiver. This was successful in instances where the caregivers spoke English as their first language.

Recommendations-

Each of the observed follow-up appointments included a period of the appointment where recommendations were discussed between the audiologist and the caregiver. The proportion of the appointment for which the recommendations were discussed differed between families and was found to depend on the progress that was discussed in the appointment, as well as the nature or type of appointment. Recommendations were noted to be interspersed in the appointment settings and at times were led by the interaction and how the interaction between the audiologist and caregiver progressed. In the appointments which were more AVT focused, it was noted that recommendations for communication at home were linked directly to the progress of the child. However, in mapping and programming appointments, recommendations were made based not only on progress but also on technical aspects that may have been influenced by trouble shooting topics covered in the appointments.

Recommendation giving:

Recommendation giving was observed to be the result of the caregivers' concerns which were raised during the body of each appointment. Recommendation giving did not however appear as an explicit or direct process in any of the appointments. Recommendations were found to be interspersed in the communication between the caregivers and the audiologist during the appointment duration. It was noted that in all instances recommendations were prefaced with positive affirmation towards the work the caregiver was providing in the appointment setting or via the communication noted from the child which was a result of home-based work.

Troubleshooting:

During six of the appointments it was observed that caregivers raised difficulties that they were having with the technical aspects of the cochlear implants themselves or with aspects relating to their child's rehabilitation work. This was found to be discussed either at the beginning of the appointments or after the majority of the appointment was almost complete.

Summary –

Each appointment was noted to include a period of summary of the management plans and recommendations discussed by the audiologist. In all instances this occurred near the end of the appointment and appeared to be dependent on the content of what was discussed in each appointment. The aim of the summary portion of the appointments appeared to be reiteration of concepts. This summary of recommendations and concepts was noted to reiterate points in the appointment that the audiologist may have deemed as important for the caregivers to carry over to their children before the next appointment.

Reiteration:

Reiteration and summary of the appointment was not noted in all of the appointments observed. Both of the appointments which utilised AVT techniques used reiteration of concepts. The reason for this may have been due to the nature of the AVT appointments. As only two appointments with AVT were observed it is unclear if this phenomenon would be true for all AVT based appointments. Likewise factors such as the age of the child post implantation and frequency of follow-up appointments may have influenced the level of reiteration used in the appointments themselves.

Closing –

As with the greeting portion of the appointments, some of the appointments appeared to end in the waiting area. In the instance where communicative greeting by the child was a goal to be worked on, this was noted to be carried through into the waiting area. The audiologists were noted to provide brief recommendations as to when the next appointment could be expected. However, this discourse was dependent on the needs of the individual family.

Although a large focus in the analysis of the video data was the structural elements of the interactions, some prominent aspects began to emerge. In the sections to follow the thematic analysis of the interviews will be explored in the triangulated discussion with reference to the main aspects that emerged from the interactional analysis.

4.3 Thematic Analysis of Interviews

The common themes identified as a product of the thematic analysis of both the caregiver and audiologist interviews is denoted in Table 4.2 below. The themes which are marked with an ‘x’ in both the caregiver and audiologist columns were found to occur in both the audiologist and caregiver data. These common themes were then triangulated with the findings of the video

recorded data and are displayed in Table 4.3. A triangulated discussion of these findings is presented in-depth in part II and III of the results.

Table 4-2 *Common Themes Identified in Caregiver and Audiologist Interviews*

Theme	Caregiver	Audiologist
Adaptation	X	x
Support	X	
Communication	X	
Case management /Clinic	X	x
Managing expectations	x	
Negative emotions	X	x
Help	X	
MDT Input /Teamwork	X	x
Use of Jargon	X	
Trouble Shooting	X	
Collaboration		x
Consistency		x
Trust	X	x
Partnership (Teamwork)		x

Key:
Green – Role of the audiologist's approach
Yellow- Cochlear Implant Journey of the families
Purple - Role of larger support network

Table 4-3 *Common Aspects derived from Interview and Video data*

Common Theme	*Interview phenomenon*	*Video phenomenon*
Layers of Complexity	Co-ordinating care and clinic management	Juggling multiple clinical tasks
	Trouble shooting technical problems	Problem solving technical aspects of implant
		Switching between interactants

	Communication (including information sharing, counselling and modelling)	
	Managing expectations	Juggling epistemic authority and parental familiarity
Audiologist is a guide	Trust and managing emotions	Audiologist helps parents navigate complex journey
	Adaptation and flexibility	Adapts for caregivers
	Caregiver audiologist collaboration	Mediates complexities
Collaboration	Trust	Familiarity with caregivers
	Partnership (caregiver as the ‘co-therapist’)	Open communication channels

Following repeated viewing of the interactional data, prominent aspects including layers of complexity and the role of the audiologist as a guide in appointments began to emerge, as displayed in Table 4.3. These aspects strongly correlate with the themes obtained from the

interview data and are suggestive of the role and function of the cochlear implant audiologist for caregivers in this setting.

In part two of the results, the layers of complexity observed in the interactions as well as the role of the audiologist as a guide will be explored in greater detail. Part three of the results will focus on the collaboration that was observed between the audiologists and caregivers. These aspects will be discussed with reference to the correlating interview themes, obtained from the participant interviews.

Chapter 5 Results -Part II

Part two of the results begins with a triangulated review of the themes mentioned in part one of the results as well as the main aspects observed in the video data. This chapter analysed the layers of complexity identified in the cochlear implant appointments as well as the role of the audiologist as a guide in this setting. The manner in which the audiologists communicate with the caregivers, as well as the way in which complexities are negotiated in the interactions is explored in this chapter.

5.1 Layers of Complexity

One of the predominant aspects that was noted during the analysis period was the layers of complexity observed in the interactions. As documented in the review of literature, the paediatric cochlear implant setting is complex. The setting involves sharing of large volumes of information as well as addressing the emotional aspects of implantation and grieving as a product of hearing impairment diagnosis. During the interactions that were analysed the audiologists were found to fulfil multiple functions including managing clinical tasks, switching between various communication partners in the interactions as well as managing caregiver expectations. The clinical tasks of each interaction were interwoven with aspects of counselling and management of communication. The subthemes identified as part of this phenomenon will be discussed as follows.

Coordinating care:

Coordination of care was a theme found in the interview data recorded with both the audiologists and the caregivers. The audiologists explained that they frequently have to work with multiple professionals following the initial diagnosis and decision to proceed with a

cochlear implant. Likewise, caregivers reflected that their experience of working with multiple professionals in this setting made navigation of treatment choices complex.

In excerpt 6.14, Caregiver A shared a point raised by one of the audiologists which was the role of coordinating care. Several of the caregivers reported that in the initial stages, they were very confused about the path that lay ahead, and this was daunting for them as families. At times, caregivers felt that they were being directed in different ways and being given different answers by professionals. A sense of relief was expressed by this caregiver who expressed how the audiologist began managing the case and planned the pathway that was required at the time.

Excerpt 6.14 Case A Caregiver Interview.

15 C: *I'm not sure how much knowledge you have on Child A, but uh initially when we found out [about the diagnosis] it was very frustrating because they sent us from one ENT to another ENT to different audiologists and no one could give us a definitive answer in terms of a way forward until we actually came to Audiologist one and she actually mapped out that pathway for us.*

The theme of co-ordinating care was also observed in excerpt 6.15, where the audiologist and caregiver had a discussion regarding the progress made by the child and it was suggested that a joint appointment between the Speech and Language Therapist and audiologist be conducted in order to provide the support necessary for the child. In this example the audiologist was observed in the role of 'case manager' bringing together the plan for the next steps in the intervention strategy.

Excerpt 6.15 Appointment F programming and troubleshooting appointment.

27 C: *I hear you, now how do we get that clarity. What is it that we are not doing correctly at home or at school?*

28 A1: *It's not a matter of what you are not doing correctly, I think it is a matter of at this stage that therapy is so important in terms of the guidance and I think that, that is what we are needing is a little bit of assessment there. And what I am seeing here with her as I'm looking at her, and I'm not doing a full speech assessment now with her, I'm just saying from my observation, it looks to me like she is possibly having difficulty getting her mouth to do exactly what she wants to do.*

During the audiologist interview, Audiologist three explained some of the logistical aspects around the appointments, including how the use of multiple appointment appointments, use of consent forms, table placements and room setting, may add or detract from the appointment. This showed awareness of having to juggle multiple aspects during the appointment appointments.

Excerpt 6.16 Audiologist three Case Interview

12 A3: *Okay again its more than one appointment its, okay maybe you bombard them in the first session, but then you have a follow-up.*

13 R: *Then the role of other professionals in the communication process. Obviously, you work with other professionals along the journey. How do you communicate that to parents?*

14	A3:	*Well then again in the very first initial interview we explained to them the team approach and the core team might be other people around, OTs, physios, or whoever but it's not necessarily everyone's journey. So, from the beginning they know then before so they walk this path with us and then before surgery on our consent form we have quite a few very, like abrupt, in your face, this is going to be involved, that is going to be involved, and sort of, again I don't know how much in one session takes it in.*
20	A3:	*So, the non-verbal [communication]not always on a level that we always think about it but I think it is. Even this table in between isn't always a good thing.*

The aspect of juggling multiple tasks in the interactional space was seen practically when observing the mapping appointments conducted by Audiologist one and three. The nature of these appointments necessitated the use of computer-based programs and equipment which forced the audiologists to spend time facing the laptop computer and not engaging in direct eye contact with the caregivers. During these moments it was observed that the caregivers in the interactions disengaged with eye contact and in some instances stopped verbal conversation with the audiologist until eye contact was gained again. Juggling both clinical aspects of the appointment as well as communicating with the caregivers, whilst acknowledging the presence of the child in the interactional space presented a challenge at times for the audiologists, hence highlighting the complexity of the interactional space.

Trouble shooting:

During the observed interactions and interviews I found that the audiologists involved the caregivers with regard to some of the technical aspects of the cochlear implants. At times trouble shooting concerns were raised by caregivers, however in some instances the audiologist would raise a 'trouble shooting' topic as a means to explain the function or purpose of a setting or change to programming. The audiologists were found to tailor their explanations of the functioning of the implants in order for this information to be applicable to the caregiver and child. This is seen in excerpt 6.17 where the audiologist explains a function of the implant to assist listening to loud sounds.

Excerpt 6.17 Case B Mapping appointment.

31	A:	*And there's nothing that's too loud-*
32	C:	*==Not at all.*
33	A:	*==that he ever wants to take it off?*
34	C:	*Not at all. On the contrary, I have noticed, uhm, we were in the… a few weeks back there was a concert at the church bazaar. And we sat close to one of the speakers, and I thought, 'yoh' and I thought, if it's too loud, he'll take them off, but not at all. He didn't take them off. Nothing.*
35	A:	*The previous apparatus, if a sound… we adjust boundaries, right, so if a sound is too loud, then it actually compresses it…*
36	C:	*Is it? … So he doesn't hear it as loudly as we hear it?*
37	A:	*and that's why it's sometimes longer…*
38	C:	*Yes, so that we're right…*

39	A:	*Yes, [inaudible] play, so that there's no discomfort. Because it must be loud, but not too loud.*
40	C:	*Yes. Yes.*
41	A:	*Because, if (it's strong enough), and I wondered about that, sometimes, if his brother, if mommy and his brother are fighting, then (child's name) will start crying and then it's that naughty, screaming cry. Then I'll say "(child's name), owwie", you know? And then he takes it off. So that is too loud. But, music, that's not… alright. That is very positive, I mean I can hear much more speech.*
42	C:	*Yes. Definitely. Yes.*

During the audiologist interviews Audiologist three shared her approach to explaining the technical aspects of the devices and how this information giving approached in order to make it easier for the caregiver.

Excerpt 6.18 Interview Audiologist three

31	A3:	*Okay again its more than one appointment its. Okay maybe you bombard them in the first session, but then you have a follow-up. I like to make it very practical, I like to show them the different parts the different things and then we try to figure out what will work in their life, what's easy, what comes natural, and then because I know the product I can say well in that case maybe we should look more at this. And then I tell them about everything but I try to take away stuff that is not going to be part of their process. But that's more of a lifestyle and how they function in their family.*

Communication:

During all of the observed interactions, the communication in the appointment setting was observed to switch between caregivers, the audiologist and in all instances the child. This shared communication practice highlighted the familiarity between the participants and identified a symmetry to the interactions which contrasts with the asymmetrical, dominant communication styles observed in primary healthcare contexts (Kwame & Petruka, 2020). Although the communication between the audiologist and the child was not a focus of the observed interactions, the audiologist was noted to manage switching between interactants in each of the interactions. As depicted in excerpt 6.19 the audiologist is observed to juggle her communication with the caregiver whilst acknowledging the interjections made by the child.

Excerpt 6.19 Case A, Mapping appointment

	NV:	Audiologist addresses child directly showing her a piece of equipment that she wants to attach.
9	A1:	*Can I take it off I want to put this one on?*
	NV:	*Child makes vocalisation.*
10	A1:	*Yes lets put this one on.==*
11	C(mother):	*==Look, look, look.*

	NV:	*Child becomes restless and is resisting both the caregiver and audiologist. Audiologist notices that part of the implant is securely attached.*
12	A1:	*Ok so you have it locked?*
13	C(mother):	*Yes because she pulls it off==*
14	A1:	*==Okay, okay.*
15	C(mother):	*==Just for fun.*
16	A1:	*Just for fun okay.*

An aspect of the communication between the audiologist and caregivers was raised during the caregiver interviews as two of the caregivers reported the importance of open communication with their audiologist. They reported that the use of WhatsApp as a method of contact allowed them the ability to communicate openly with their audiologist removing the formality of the interaction.

Excerpt 6.20 Interview Caregiver A

5 C: *And in terms of any issues we may have, I mean we have her on WhatsApp or we phone, we email, so we are constantly in contact with one another so if we have any issues she assists us.*

Managing expectations:

An aspect of early intervention, not specific to cochlear implantation, is the ability to manage the expectations of the caregiver in the rehabilitation and care of their child. During the interview process the audiologists shared their experiences of managing caregivers' expectations

and likewise examples of this were noted in the interactions observed. Excerpt 6.21 illustrates the audiologist's approach to managing the expectations of the caregivers.

Excerpt 6. 21 Audiologist one, Interview

22 A1: *You have to adjust to every single family. So everyone has different expectations they are each in different places you've got to be sensitive not just to what you are trying to get the hearing to be at but towards the whole family and how they are working with the rest of the team…Although we have protocols there is no set recipe. That's going to work for you. You have to adapt for each family.*

Alongside managing expectation, this excerpt highlights an awareness for tailoring information when discussing expectations which emphasises a family-centred approach to the interaction. This excerpt highlights that the audiologist's agenda is focused on the family and working with the larger team, once again aligning with family-centred methods of working.

In the interactions, the caregivers exhibited a sense of authority, particularly relating to their expectations regarding device functioning. The audiologist was found to manage the ideas of the caregiver without being dismissive as noted in excerpt 6.22

Excerpt 6.22 Appointment E, mapping appointment.

99 C: *(Audiologist one name) so we don't know… Corona virus is here now, the struggle is real now right==*

100 A1: *Ja..*

101 C: *Um is it possible for us, I know we have four programs, is it possible for us to get more programs ==*

102	A1:	*No.*
103	C	*Is it possible to give us four that's a bit – um one and two==*
104	A1:	*So what you want to do is not to come in as regularly?*
105	C:	*Ja==*
106	A1:	*Ja, okay. Let's, let's see how this map compares to this last map and if I'm comfortable with how I'm setting one we can probably leave it, you know, just the format, I might as well do one or two and see how it compares with the one before. But certainly, we can, yes.*

These areas of complexity within the interactions highlighted the experience of the audiologists in their roles. The role of the audiologist in addressing the needs of the caregiver as well as providing expertise in managing the outcomes of the interaction will be explained via the data which follows.

5.2 Role of the Audiologist

Juggling multiple tasks

Following observation of the cochlear implant appointments, the role of the audiologist in each case began to emerge as fulfilling multiple functions. Although appointments differed in terms of predominant aspects of the appointment such as 'mapping,' versus 'AVT,' in all instances the audiologists appeared to manage multiple aspects of the child's communication development during the appointments. For example, in a mapping appointment the main goal of the appointment may have been targeted towards device management, however the audiologist

typically discussed aspects relating to the communication development of the child even if it wasn't intended as part of the appointment.

An example of a trouble shooting appointment which included communication intervention strategies was observed between an audiologist and caregiver when discussing how speech development was not necessarily directly linked to the device management and as such collaborative working between the caregiver, speech and language therapist and audiologist was recommended. The below extract is repeated (previously 6.15 in section 5.1).

Excerpt 6.23 Appointment F Progress update and troubleshooting appointment.

27 C: *I hear you, now how do we get that clarity. What is it that we are not doing correctly at home or at school?*

28 A1: *It's not a matter of what you are not doing correctly, I think it is a matter of, at this stage that therapy is so important in terms of the guidance and I think that that is what we are needing is a little bit of assessment there. And what I am seeing here with her as I'm looking at her, and I'm not doing a full speech assessment now with her, I'm just saying from my observation, it looks to me like she is possibly having difficulty getting her mouth to do exactly what she wants to do.*

The audiologists were also observed to manage several aspects at one time in the interactional space. In some instances, this involved discussing technical aspects of the implant, whilst demonstrating to the caregiver how to use the device as well as being mindful of communication and interaction with the child in the clinic space.

Excerpt 6.24 Appointment A Mapping appointment.

23	A1:	*Okay great.*
	NV:	Audiologist finishes work with implant and then addresses the child directly.
	A1:	*It's coming I promise*
	NV:	*Addresses child*
24	C:	*==wait, wait.*
25	A1:	*Wait wait its coming now, it's coming. She's frustrated that it's not on.*
	NV:	*Addresses caregivers*
	A1:	*Look at that its beautiful. Can you see? Now that is down it shows me that that is working nicely.*
	NV:	*Gestures to the caregivers to look at the screen.*

The ability to manage several aspects within the interaction showed the audiologists theoretical knowledge and skill being utilised alongside the awareness for the caregiver's ability to receive and use information effectively. This speaks to the clinical skills and flexibility of the audiologists working in this interactional setting, as well as showing an awareness of the child's communicative needs during the appointment**.**

Audiologist as a Guide

The second predominant aspect observed during the interactions and participant interviews was the role of the audiologist as a guide in the process of patient management. During the interactions the audiologists were noted to depict a level of mutual trust with the caregivers which acted to manage the complexity of the cochlear implant journey. Likewise, the

use of adaptation by the audiologists reflected their ability to approach the interactions from a collaborative perspective which was reflected in the interaction of the caregivers as well as during the participant interviews.

Adaptation:

The caregivers expressed how they felt the audiologist continuously adapted their approach to the family whilst working with them. This included chunking of information during the early phase following diagnosis, as well as adapting clinic times to assist with family commitments. The use of email, text messages and phone calls were also raised by the caregivers as an area which made them feel more secure in the early phases of implantation.

Excerpt 6.25 Caregiver Interview Case A

19	C:	*She would actually adapt and try to find a different way to communicate it to (child's name) or ourselves and try to find that solution. And they adapted in terms of usually they don't do speech therapy or audiology on a Saturday. They opened up especially for us just to try and actually assist us.*

This phenomenon was echoed further in an interview conducted with another caregiver who described the role of the audiologist in the early phase following implantation as imperative for sharing information that was understandable at a time that was overwhelming for the family. The audiologist appears to acknowledge the caregivers feeling of being overwhelmed with information, and consequently shows an understanding of the need to access multiple sources of information.

Excerpt 6.26 Caregiver Interview Case G

16	C:	*For myself I did a lot of YouTube and Google um research and she had also reassured us that you know I know you probably did your own research and it might be conflicting that's why I am going to clear it up.*
17	R:	*Mhmm*
18	C:	*When she gives us the information about what is happening, it is good information, but it just feels like a lot because you are going through the process which seems like a lot.*

Adaptation as discussed by the audiologists was described as changing their approach to sharing information or communication strategies and at times their style of communication, in order to meet the needs of the specific caregiver. This was discussed by Audiologist two when describing work with a caregiver whose home language was not English.

Excerpt 6.27 Audiologist Interview 2

5	A2:	*What did you understand, for example the chance to explain what they are thinking about what they are thinking about this whole explanation I gave. And I do try to be a bit more practical for example in this particular interaction when I spoke about a low frequency sound, I dropped my voice and when I spoke of a high frequency sound I made my voice slightly louder.*

Adaptation was also observed in the video recorded observation where Audiologist two was noted to use rephrasing and changes in intonation to discuss the child's hearing test results with the caregiver. These techniques were also noted to assist in reinforcing the necessity for wearing the implant.

Excerpt 6.28 Appointment D, AVT appointment

8	A2:	*So this we call a sound audiogram because we have familiar sounds on you can see, it tells us there how you can here the ocean and if wind blows through the trees that's how loud that is and then an aeroplane is very loud. Okay so this is the sound audiogram and I am going to show you what she is hearing on here because that is going to make more sense to you. Alright so if we look here it us very nicely, um, that this area here, if you can hear in this area, so between 0 and 20 decibels that's how loud it is its quite soft (shifts intonation to a whisper). So that's normal hearing in this area and then when we go here, it says mild hearing loss so that's between 20 and 40. And then we go down to a moderate hearing loss which is 50-60 and then we have to be like this because (raises voice volume), before the child can hear. Then we go to a severe hearing loss between 70 and 90 then we have to talk like this before the child can hear (voice volume raised higher).*
9	C:	*Okay.*
10	A2:	*So without her hearing aids (cochlear implant) we know she is somewhere here, we have to be very loud or she can hear very little.*

Likewise, during the interview, Audiologist one, expressed her approach to being flexible based on the needs of the family and the place the family finds themselves in following diagnosis as noted in excerpt 6.29.

Excerpt 6.29 Audiologist one Interview.

22 A1: *That there is no one answer. You have to adjust to every single family. So everyone has different expectations they are each in different places. You've got to be sensitive not just to what you are trying to get the hearing to be at but towards the whole family and how they are working with the rest of the team. And I think if you so you can come in and think, although we have protocols there is no set recipe. That's going to work for you. You have to adapt for each family.*

The data shared in these extracts identifies the audiologist's ability to be flexible and adapt to the needs of the family. This highlights the ability of the audiologists to tailor information and their communication style to address the concerns of each family.

Mutual Trust and Support

Support and trust were conveyed throughout the interview in descriptions of how the audiologist coordinated the treatment process and had open channels of communication throughout. This is conveyed in the excerpts 6.30 and 6.31 from caregiver interviews.

Excerpt 6.30 Case A Interview.

16 C: *For me this place alone and it's not only, [Audiologist one], and I have seen many caregivers and families walk in and out of those doors while we are waiting and I*

think we all share the same sentiment that this place itself has brought that hope again and that light in terms of our pathway that it is that we need to go and people here that work here are wonderful they provide you with support 24/7.

Excerpt 6.31 Case G Interview.

29 C: *She [the audiologist] would do this thing where she would ask me or she would look at me, or we speak more on WhatsApp than what she would speak to my husband. Then there's times when she would ask my husband just to see how we are both feeling.*

Audiologist one explained how she had to gain the trust from the family she was working with. She explained how an individual approach is applied to gain the trust of the family based on their approach to the appointments.

Excerpt 6.32 Audiologist one Interview

2 A1: *I was very specific about what was happening on the screen, whereas with another family I might not be as specific, it just depends on what they need to get them to trust me and to trust the information.*

The guiding role of the audiologist in the interactional context was emphasised in the themes and data obtained. It was apparent that the role of the audiologist in the cochlear implant context was pivotal in providing the caregivers with a sense of security and trust as well as providing an aspect of familiarity, allowing for rapport and trust to be built. Across the data set,

the role of the audiologist was observed as a case manager and guide for caregivers in the interactional space depicted in the aforementioned examples. The role of the audiologist was found to be multifaceted and required juggling several aspects including; counselling, information sharing and collaborative working. By providing families with guidance in the appointment setting, the audiologists were noted to achieve a level of collaboration with the caregivers which may have contributed to promoting a more family-centred approach to the appointments. This aspect of collaboration will be explored in Part III of the results.

Chapter 6 Results -Part III

In part three of the results, the aspect of collaboration between the caregiver and audiologists is discussed, with reference to the interview and video data. This chapter further emphasises the manner in which the audiologists communicate with caregivers in complex interactions. The aspect of variation in the audiologists communication style is touched on before the triangulated discussion and aspects related to the structure of the appointment is summarised.

6.1 Collaboration

An aspect of the interactions which appeared to be unique to the paediatric cochlear implant setting was the aspect of collaborative working between the caregivers and the audiologists. Collaborative working, or working within a partnership, is reported as a fundamental aspect of a patient and family centred approach to healthcare provision (Grenness et al., 2015). The audiologists and caregivers displayed various mechanisms to convey collaboration such as word choice, the way communication was constructed and via the use of joint working. In this section, the results displaying the aspect of collaboration will be discussed in further detail.

Collaboration between the audiologists and the caregivers was raised during the interview process. The importance of involving the caregivers in aspects such as goal setting and communication therapies was raised as an important aspect in relation not only to progress, but also to the understanding of expectations and working towards a common goal. As reported in Part II of the results the audiologists were aware of the role of the caregiver and individual progress markers as part of the goal setting process. In excerpt 6.33, below the audiologist explains the role of the caregiver as a collaborator in the interaction.

Excerpt 6.33 Audiologist two Interview

30	A2:	*Home is not the therapy room so you have to have a bit of a discussion about what you are going to do at home to do this, and I have tried that a little bit, you will see ja. So that collaboration, is take this and apply this to your home environment and then also not because I've got many goals in my therapy session. But for some families you can give one goal and this family today is one of those families. I asked mum to do one thing for me at home this week. Another family you can give two or three, so ja to be aware of the family's context and to have a very good relationship. You almost have to be almost equal in this therapy room, it's not the therapist and the parent.*

This excerpt depicts an awareness of the importance of working towards goals in partnership in order to achieve the shared aims for the child's communication. This awareness of the importance of collaboration with the caregiver, acknowledges that the caregiver is an expert, an equal partner in the rehabilitation process. This emphasises a pattern of family-centred working within this context. In another observed interaction, in an AVT appointment, the caregiver was observed to interact with the child in the role of 'co-therapist' with limited cues from the audiologist.

Excerpt 6. 34 Case C, AVT appointment

180	A2:	*And you're okay with the locking here? You're fine==*
181	C:	*==Yes*
182	A2:	*Okay. Okay mum you can put it on.*
	NV:	*Audiologist hands caregiver the implant, which she puts on her child. Caregiver proceeds to play with a 'pop-up' toy with her child, providing modelling techniques.*

183	C:	*Du, du, du.* ***Hello! Help mummy, help mummy****. Help help help dudududu. Argh.*
184	A2:	*Okay, now you can actually tell him, 'bye-bye'.*
185	C:	*(Child's name) (Arabic ?bye bye)*

In excerpt 6. 35 the audiologist is seen to encourage participation by other family members in order to involve them in facilitating goals from the appointment.

Excerpt 6.35 Case D AVT appointment

113	A2:	*At home you are going to put your mind to saying 'want' and then saying what she wants.*
114	C:	*Now that (uncle) is going to come maybe he can help with the teach.*
115	A2:	*Okay maybe he can help. Is (uncle) already at home?*
116	C:	*He's coming on Saturday.*
117	A2:	*Okay but you can bring (uncle) here.*
118	C:	*For next week?*
119	C:	*Ja, ja*

This concept is reiterated in excerpt 6.36 where the caregiver is observed to act as a co-therapist in the interactional context, with the audiologist praising her for her participation in this role.

Excerpt 6.36 Case D AVT appointment

	NV:	About to choose a toy with which to do a therapy activity.
55	A2:	*Right, (child's name), so you have a choice.*
	NV:	Child leans on the table and loses eye contact with the audiologist appearing not to listen.
56	C:	*Okay, listen.*
	NV:	Models with hand gesture for prompt to listen.

57 A2: *Good mom.*

Excerpt 6.36 illustrates how during the interaction the caregiver acts in the role of a therapist, sharing part of the instruction and modelling process. This collaborative method appears to demonstrate how the caregiver can continue strategies to assist with management directly into the home environment.

The use of word choice was also found to encourage collaboration in the interactions. The collective term ‘we’ was used frequently in the interactions as well as in the interviews with participants. The use of this collective term fosters a sense of collaboration between the audiologist and caregivers in the interaction, reinforcing the idea of partnership and working towards common goals.

Excerpt 6.37 depicts how the audiologist uses the word ‘we,’ including the caregiver in the management plan for the remainder of the appointment. By doing this she re-enforces the idea of the parent being a partner in the therapy and intervention process.

Excerpt 6.37 Case B, Programming appointment

59 A3: *Right. [inaudible] two points. Right. We’ll begin and do that and then we’re going to quickly test and test him just to see if it’s enough.*

In excerpt 6. 38 the caregiver describes how the audiologist included them in sharing the technical information shared in the appointment. The use of ‘we’ in this example appears to show how the breakdown of information between the audiologist and caregivers in partnership may have been less overwhelming when it comes to sharing complex information.

Excerpt 6.38 Caregiver Interview A

7	C:	*She broke it down into what is required and how certain things work. And we had different sessions so it wasn't just to her coming and saying here's a kit everything is there. She broke it down to say today we are going to look at how the external parts work then we will look at the internal and all of the accessories.*

In Excerpt 6.39, Audiologist one is observed to adapt her interaction style using directive communication when discussing 'screen time'. As reported in excerpt 6.38 the audiologist shares information regarding the implant that is accessible and understandable for the parent. This information can however at times be used in a manner which serves the goals of the caregiver, which is observed in the following extract. In excerpt 6.39 the audiologist continues to work collaboratively with the caregiver, however uses both direct and indirect communication methods to address her concerns. At the start of the interaction the caregiver begins by sharing that they have started to stream music through the implant which they have been doing at home. The audiologist would have shared information regarding the streaming capability of the implant, and in so doing the caregiver perceives this as a mechanism to achieve a desired outcome.

Excerpt 6.39 Case E Mapping appointment

1	A1:	*Right so tell me what has been happening since I last saw you?*
2	C(father):	*(?) She's making a whole lot more sounds you know, uh, what we did do yesterday though is um we paired the uh devices to through the nucleus smart. We played classical music for her==*
3	A1:	*==Through the phone?*
4	C: (father)	*Through the phone, and we noticed a whole difference.*
5	A1:	*In terms of*

6	NV:	Child sneezes.
7	A1:	*Oh bless you!*
8	C: (father)	*She kept looking at the screen although there was nothing on the screen.*
9	A1:	*So she knew there was something coming from the phone.*

The audiologist remained relatively unreactive during this interaction and proceeded to move on with the tasks of the appointment, however raised the issue of streaming and screen time in a less directive manner later in the interaction as seen in excerpt 6.40. This indicated attempts at moving away from what may have been easier to address from a clinician-directed point of view.

Excerpt 6.40 Case E Mapping appointment

NV: The child is watching a video on the caregiver's mobile phone whilst the audiologist and caregivers are looking at the programming laptop. The audiologist looks at the child and then addresses the caregivers.

356	A1:	*You can see how fixated she becomes with that screen. That's why we have to be very careful that you don't overdo it.*
357	C:	*No, no, no, we won't.*

The use of 'we' in this interaction, a word choice which conveys a sense of collaboration, reinforces the concept of teamwork and inclusion of the caregivers as facilitators in their child's management in this example. When the mobile phone video continues to be used during the appointment as a means to distract the child by the caregivers, the audiologist changes her approach to be more directive in order to share her concern. Audiologist one is observed to use

the term ‘you’ at this point, delineating the responsibility to the caregivers as opposed to continuing to reinforce a collective responsibility.

Excerpt 6.41 Case E Mapping appointment

478	C:	*Hello, hello.*
	NV:	Caregiver speaking to daughter, attempting to get her attention once her cochlear implants are put on following a program update. The child is visually engaged with a cartoon on the caregiver’s mobile phone screen. Audiologist observes.
479	A1:	*Okay with this little lady I would be very careful about screen time.*
480	C:	*No, no this is a TV addict. (refers to child)*
481	A1:	*I can see.*
	NV:	Shared laughter.

In excerpt 6.41 however the use of the word ‘we’ is omitted, and the audiologist directly addresses through the use of ‘I’ how the caregivers need to think about adapting their behaviour based on her observation as a professional. The caregiver’s response shows acknowledgement of this responsibility in this instance.

Collaboration was also fostered through the structure of the communication shared between the audiologists and the caregivers and contributed to by aspects of flexibility and adaptability. In Part II of the results, the aspects of audiologist flexibility and adaptability was shared as noted in the extract below.

Excerpt 6. 42 Appointment E, mapping appointment.

99	C:	*(Audiologist one name) so we don’t know… Corona virus is here now, the struggle is real now right==*
100	A1:	*Ja..*

101	C:	*Um is it possible for us, I know we have four programs, is it possible for us to get more programs ==*
102	A1:	*No.*
103	C	*Is it possible to give us four that's a bit – um one and two==*
104	A1:	*So what you want to do is not to come in as regularly?*
105	C:	*Ja==*
106	A1:	*Ja, okay. Let's, let's see how this map compares to this last map and if I'm comfortable with how I'm setting one we can probably leave it, you know, just the format, I might as well do one or two and see how it compares with the one before. But certainly, we can, yes.*

Initially the audiologist dismisses the caregivers request, but then is seen to adapt to the suggestions of the caregiver, thereby acknowledging their concerns, and encouraging collaboration.

In excerpt 6.43, Audiologist one explains her approach when working with families whose expectations and concerns may not align with the expected target for rehabilitation.

Excerpt 6. 43 Audiologist one Interview.

20	A1:	*So with (this family) I've used a much bigger step, but smaller increments of volume in between, so he feels that he is in control and moving it up. So ja it will depend and things like… I take very much what they have said and use that to work with. So with (Case E) you will see at one stage she focused completely on her screen and dad has already just taken it upon himself to connect the phone and stream it, and I could use that information to say 'yes,' 'but hold on we are using that information to teach her to listen and if she's only hearing what's coming through streaming then it's not going to work'. So I try to work with whatever they are saying in terms of um expectations.*

Through the use of collective terms, structuring collaborative dialogue and the role of the caregiver as a co-therapist in the interactions, the audiologists achieved a sense of collaboration with caregivers. This collaboration moved the interactions from the potential of a 'clinician-centred' approach and as such centred around working towards a common goal or outcome for the child.

Although the aspect of collaboration was noted across the data set, the audiologists did present with variations in their interaction style which appeared to form part of how each of the aspects of the interaction was achieved. This variation relates to the tailoring of approach shown in the results reported in Part II.

6.2. Variation in interaction style

Although the aforementioned analysis and identification of themes identified a common interaction pattern during the cochlear implant follow-up appointments, there were individual variations in interaction styles used by the audiologists. One of the audiologists observed in the interactions was found to use a more colloquial register which was noted to create an inviting opportunity for the caregiver to share, possibly more openly with the audiologist than what may have been otherwise expected. In excerpt 6.44 the audiologist uses the slang word 'whatever,' to denote a non-specific example she has used for the caregiver. This choice of word creates a familiar casual tone with the caregiver which may be used to encourage further sharing of communication examples.

Excerpt 6.44 Case G (2) Mapping appointment

73	A1:	*You're saying 'mmm yum yum that's food or whatever,' and you're giving her that bit more information.'. Are you giving her a lot of repetition or just repeating a lot of words to her?*

74	C (father):	*So the repetition comes in with us doing tasks, so when we wake up in the morning, her routine she has to switch on the lights, so 'on,' 'switch on'. The door is open you open, she opens the door.*
75	A1:	*So you're using that routine and that's wonderful.*

Variation in this register was noted when coming into conflict with a caregiver, however the register of the audiologist in this case remained conversational in this instance. During the interaction in excerpt 6.45, the caregiver is noted to present with an abrupt tone and expresses dissatisfaction with what is perceived as the audiologist having neglected an aspect of programming. Throughout this interaction, the audiologist does not change her tone with the caregiver, however maintains a conversational register encouraging the aspect of collaborating in order to address the caregivers concern. The use of the word 'we' repeated throughout the interaction reinforces the collaborative relationship that the audiologist is encouraging. Similarly the caregiver appears to feel comfortable with asserting her expertise in disagreement with the audiologist. By asserting her expertise the caregiver reinforces the concept of a collaborative partnership where both the caregiver and the audiologist are partners in the appointment setting.

Excerpt 6.45 Case F Mapping appointment

		NV: Conversation begins as the caregiver and the audiologist enter the appointment room after being in the testing booth.
1	C:	*Jan.*
2	A1:	*Jan? Okay so it's about due for a change of microphone protectors…we need to change those about every four months.*
2	C:	*Okay.*
3	A1:	*So I think…a==*

		NV: Mother gestures to child to sit on chair whilst audiologist is paging through a paper file on her lap.
4	C:	*==Go sit there*
5	A1:	*I'm not seeing any clear indication that just boosting up sound is going to do anything. What I am saying is I do think we need to change those microphone protectors so that she's got the best possible sound being picked up. You do remember how to do that, just to change that.*
		NV: Audiologist gestures with hand movement how to change cover.
	A1:	*And then I think I'd like to see what happens with your teletherapy session with (speech therapist) and get (speech therapists) input on that as well. My feeling is that some of the sounds are more difficult than the others and it is always very difficult to say is it that she's not hearing the sound or is it that she can't produce it. Ok, and so a sound like an /s/ may be more difficult to produce, its also a sound she probably had no access to before -*
6	C:	*But A1, I beg to differ, when was the last time she had her mapping and we increased the sound?*
7	A1:	*Ja but you see once we got to a stable map it's not a case of we must keep pushing, pushing, pushing, once you've got a stable map it's a matter of saying this child now needs to understand and make use of the sound*

During the appointments this conversational approach appeared to elicit more verbal utterances on the part of the caregivers with near equivalent amounts of speech from both conversational partners. This conversational approach links with the audiologist-caregiver familiarity and rapport that exists as part of the clinical relationship. In contrast, a more formal register was used by another audiologist. The interactions observed with Audiologist two centred around cochlear implant follow-up and Auditory Verbal Therapy techniques. The content of the Auditory Verbal Therapy appointments was noted to be more structured in approach however the

audiologist in these instances was found to deliver information in a manner which acted to actively reiterate and share information in a format that was clinician directed. Examples of this can be seen in extract 6.46:

Excerpt 6.46 Case F Mapping appointment

255	A2:	*Okay mum, so how is he doing after the new programme?*
256	C:	*Okay.*
257	A2:	*Okay alright, so I am going to see what is happening today and I might just make it a little bit louder. I have the computer open over here and I might just make it a little bit louder because the reason is that when I knocked over there.*

In this interaction, the communication between the caregiver and the audiologist was found to be heavily directed by the audiologist with little information being provided by the caregiver despite an invitation for the caregiver to contribute. In the aforementioned example the audiologist does not probe the caregiver for further information even though her response to the question was limited.

During both of the appointments utilising the AVT approach in the follow-up, the audiologist was found to be the main communicator in the appointment with limited verbal feedback on the part of the caregivers. In these appointments the audiologist was noted to make fewer attempts to gather verbal information from the caregivers. It was however noted that factors such as inclusion of the goal based AVT approach and the home languages of the caregivers not being English may have contributed to this observed asymmetry in the interaction. Upon reflection of her approach to appointments and communication with caregivers during the semi-structured interviews, the audiologist reported that she is aware that she can be ‘goal focused,’ and as a result does not always take time to reflect on the small victories experienced

by caregivers in appointments and at home. This self-reflection shared in the semi structured interview correlated directly with observations made on the video material.

The variation in the interaction style between audiologists and caregivers therefore highlights that interactions generally appeared to be mostly conversational and familiar, however formality in the way certain aspects were handled interactively could occur. Formality was at times interjected by word choice, such as the use of audiological jargon used in mapping appointments. When reviewing the interactions and interview data as a whole it is evident that the interactions are generally collaborative, however at times a clinician-directed approach was used. These aspects of variation in interaction appear to be linked to the experienced nature of the audiologists involved in the interactions, as they were found to adapt their approach to suit the needs of the caregiver.

6.3 Results Summary

In both phases of the data collection process it became apparent that there were overlapping themes in terms of the data obtained via the interview process and what was noted in practice. All audiologists were forthcoming regarding their need to adapt communication in order to facilitate caregiver- audiologist relationships as noted in the themes shared in Part II and Part III. Likewise, similar opinions held by the caregiver's support this. In practice the observations provided insight into how the audiologists acted to facilitate multiple objectives whilst managing emotions and caregiver expectations based on each individual case.

The audiologists appeared to be aware of the facilitators and barriers of the communicative context and showed awareness of the importance of the relationship with caregivers in the clinical setting. The audiologists all emphasised the need to adapt to the needs of the family in this complex clinical context and elements of collaboration and partnership were noted in

practice. These observations and noted themes may have been influenced by the experience held by the individual audiologists and the complexity of this clinical setting necessitated such experience in approach.

In these phases of analysis, collaborative working between the audiologist and caregivers was observed with particular focus on the audiologists' role in guiding the appointments. The unique complexities of the appointments were facilitated by the audiologists' ability to adapt and familiarise themselves with the caregiver in order to provide appropriate guidance in the appointment settings. Key findings from the results will be discussed in Chapter 7 with reference to relevant literature and how this may inform practice and future training of audiologists.

Chapter 7 Discussion

The cochlear implant context is complex in terms of the information that is shared as well as the communication processes between audiologists and caregivers in this setting. Audiologists working in this field require extensive experience within this complex clinical context in order to juggle the multiple tasks that are required, whilst developing a collaborative and trusting relationship with the caregivers involved through the communication strategies they employ. An outcome of the research study that appears unique compared to previous studies conducted in the audiology context was the layers of interactional complexity observed in the interactions. Likewise, the role of the audiologist as a guide and collaborator in the interactional space were important factors in understanding the function of the audiologist in a paediatric cochlear implant setting. These aspects will be explored in more detail in the discussion that follows.

7.1 Rapport and Familiarity between Caregivers and Audiologists

Research conducted by Grenness et al. (2015) found that there was little emphasis on rapport building or forming of emotional connections in initial audiology appointments focusing on case history taking between audiologists, patients and their companions. This was reinforced in research findings by Manchaiah et al. (2019) which described audiologists as ‘dominating’ the interactional space, and underutilising shared decision making. In contrast, the audiologists participating this study of cochlear implant consultations demonstrated familiar relationships with all of the participating caregivers, indicating an awareness of the family’s needs and situation, whilst fostering a collaborative partnership with the caregivers. It was evident that in the research setting the audiologists were not in a dominating role, allowing caregiver input to guide their feedback at times.

The contrast that exists between the cochlear implant context and other audiology contexts is due to the complex nature of this environment. The cochlear implant context is described as having a large volume of information that is needed to be shared with caregivers regarding the mechanics of the cochlear implant as well as the process surrounding it (Zaidman-Zait, 2007). The cochlear implant context also encompasses a complex emotional landscape for audiologists and caregivers alike. As many caregivers are still processing the diagnosis of hearing impairment, the audiologist has to bear in mind the preconceived expectations that the caregiver may have regarding their child's development (Mauldin, 2012). This combination of both theoretical knowledge and counselling ability is integral to addressing the needs of the caregiver in this context. These characteristics specific to this environment set it apart from other audiology contexts which have been studied (Watermeyer et al., 2012; 2015; 2017; 2020), which typically present with a focus on the technical aspects of devices or on providing patients with assessment results. In addition, audiology contexts typically encompass a shorter relationship between caregiver and audiologist, with assessment and treatment appointments occurring on an infrequent basis (Coleman et al., 2018). The cochlear implant context is more complex in that it encompasses several regular interactions with caregivers (Kutzer-White & Luterman, 2003). For many families the cochlear implant journey is a clinical relationship with the audiologist that can span several years (Archbold et al., 2006). As described in the literature review, the permanence of the intervention strategy makes this context unique as a potentially long-term clinician-caregiver relationship needs to be established fairly early in the intervention process. As such, the rapport that is held between the caregivers and the audiologist is necessary for this relationship building to occur. Good rapport and familiarity between caregivers and audiologists

were observed in all cases in this study. As the relationship between the audiologist and the caregivers is one that occurs over an extended period, this is important in the cochlear implant context, which differs from other audiology contexts which may encompass a short-term clinical relationship with the caregiver and patient.

The stage at which each family found themselves in their journey following diagnosis of hearing loss was an important factor for the audiologists in my study, observed directly in the manner in which they approached the topic of progress as well as what was reflected by all audiologists in their interview responses. This awareness of the caregiver's readiness for information or treatment strategies may be directly linked to the importance of the long-term clinical relationship which exists between the audiologists and caregivers. Peñaranda et al. (2011) explored this relationship, considering the symbolic power behind the cochlear implant device as a mechanism to overcome audiological challenges in the early stages of a child's life. They determined that in order to facilitate the rehabilitative process it is imperative that there is emotional support for caregivers as the paediatric cochlear implant setting is a biopsychosocial reality encompassing both medical decisions making and the psychological needs of the family. In the process of rapport building the caregiver has to feel that they trust the audiologist in the treatment process. As both medical and psychological needs form part of this context, it is necessary for audiologists in this context to be able to address the emotions shared by caregivers, hence creating a supportive and trusting environment. Previous studies by Muñoz et al. (2017) and Ekberg et al. (2014) have found that in the majority of cases audiologists did not address the emotions of patients from a counselling perspective within their appointments. This is in contrast to my research study which saw audiologists acknowledging the emotions of the caregivers.

Emotional support forms part of a patient-centred approach to clinical interactions and formed part of the rapport building process of my research.

7.2 Information sharing in cochlear implant sessions and contextual considerations

Along with an awareness of the readiness of the caregiver to receive or engage in treatment, was the audiologist's ability to share information regarding technical aspects of the implants as well as trouble shooting any difficulties that the caregiver may have raised during the appointment. The audiologists' ability to deal with these concerns indicated experience in the technical requirements of their role (Young & Kirk, 2015). Likewise, the audiologists reflected upon the importance of sharing this 'technical information' in a way that would facilitate the caregivers' understanding of what was being recommended. Information regarding the implant and the cochlear implant process is a key component of the cochlear implant context (Archbold et al., 2006). This information needs to be shared in a manner which is clear and understandable for the caregiver, and not overwhelming in terms of quantity or complexity (Kurtzer-White & Luterman, 2003). Due to the nature of the communication and interaction practices observed in the appointments, sharing of technical information for the benefit of the child, and working in partnership with the caregiver were not approached as separate approaches to treatment. In the research setting, models of patient-centred care and clinician-led approaches were not used in isolation, which highlights potential impracticalities to a 'one-size fits all' approach to information sharing in clinical contexts (Elwyn et al., 2014). The information shared regarding the implant and its technicalities remains an important part of this clinical context, and directive, clinician driven communication regarding these aspects was a clear feature of the results. Collaboration in the way in which information was shared was however observed. The choice of language used by the audiologists, when concepts related to the implants were explained,

encouraged partnership with the caregivers. This correlates with suggested core principles of family-centred care including shared decision making and partnership (Maatman, 2020).

During my research study, the audiologists were required to share information regarding expected progress as well as features of the devices in line with the caregiver's expectations, even when these expectations were at times outside of what the audiologist would have anticipated. Peñaranda et al. (2011) described at times a mismatch between parents' cognitive understanding of the technical capabilities of the device and the emotional expectation placed on the device. The audiologist's ability to manage these expectations speaks to the experience of working with multiple caregivers who present with a variety of perceived outcomes. Similarly, the audiologist requires understanding about how the caregiver receives and understands information. The ability to share information in this manner also emphasised the flexibility of the audiologists as attempts were made to share the concerns of the caregiver but consequently their focus remained on the information that was necessary to be conveyed at that time. This approach to information sharing highlights how medical models, as discussed in the review of literature, are often difficult to integrate fully into clinical practice based on the realistic challenges that are posed by diverse patient groups (Meyer et al., 2017).

As discussed in the literature review, previous studies in the audiology setting conducted by Watermeyer et al. (2012; 2015; 2017) found that audiologists tended to 'information dump' in interactions. The findings of my study show a different approach to information giving, perhaps due to the awareness of the caregiver and the patient-centred manner in which the information was shared. Similarly, the information had the potential to be tailored to meet the needs of the caregiver in the interaction based on caregiver feedback, which was consequently assisted by the

cyclical, non-rigid phases of the interactions. Because multiple appointments occurred between the audiologists and the caregivers, it is likely that the information shared in appointments could be broken into concepts that were easier to retain and understand than may have been the case with single clinic visits or visits spaced several months apart- although this study did not look at interactions across time apart from in one instance. This ability of audiologists to tailor information to meet the needs of the family has been addressed by Ekberg et al. (2018) as an area requiring attention in audiology settings. The longevity of the clinical relationship in the cochlear implant context may therefore be beneficial in facilitating, the tailoring of information for caregivers, hence addressing this concern in this context.

More specifically, the audiologists in the research study expressed awareness of how factors such as linguistic and cultural diversity amongst families may have influenced the rehabilitative process within the South African cochlear implant context. Reiterating and rephrasing concepts, as well as the use of visual aids (audiogram and speech banana) in appointments was observed. This appeared to be used as a mechanism to explain 'audiological jargon,' and emphasised the concept of tailoring of information to suit the needs of the family, when English may have been an additional language for the caregiver. As discussed in the review of literature, Penn and Watermeyer (2018) reported the complexities of working in culturally diverse settings when a 'cultural broker' or third party may not be present to assist interactions, from a cultural and linguistic perspective. The nonverbal aspects of the interactions including the use of 'props,' and language devices such as humour are emphasised as contributory to these interactions. It must be noted however that an in-depth analysis of

intercultural and mediated interactions was not conducted as part of the scope for this research and as such these areas were not emphasised as part of the current study.

7.3 Managing multiple aspects in the Paediatric cochlear implant setting

During the recorded interactions, the audiologists juggled several aspects within the interactions, speaking to their flexibility in approach. These aspects included communication with the caregiver, working with the device, and/ or addressing the goal of the appointment, whilst interacting with the child simultaneously. For inexperienced clinicians, managing several clinical tasks in one interaction may be incredibly complex.

Whilst managing various factors in the interaction, the audiologists were also required to juggle the practical aspects of the appointment which included the goals of the appointment, for example, implant programming or AVT objectives, whilst interacting with both the caregiver and child. The complexity of juggling more than one task in the clinic environment highlights the flexibility required by audiologists. The early intervention setting for children with hearing impairment has been shown to highlight many potential challenges for professionals and caregivers alike (Kurtzer-White & Luterman, 2003) as discussed in the literature review. Specifically, the cochlear implant context has been reported to incur distress for the caregiver (Li et al., 2004), which in turn highlights the role of the audiologist as a guide for parents in helping them to juggle multiple aspects in the early intervention process. This distress is linked to the caregivers dealing with the new diagnosis of hearing impairment as well as the range of choices that are available to them in terms of treatment options post diagnosis (Archbold et al., 2006). As aforementioned the audiologists working within this setting require the ability to share information in a manner that is appropriate in terms of the quantity and content of the information being shared at various stages in the caregiver's journey. Research conducted by

Muñoz et al. (2017) revealed how aspects related to emotional counselling in appointments is often missed in the audiology context. This ability to provide caregivers with reassurance and guidance in the cochlear implant context is crucial in managing the distress and concern experienced by caregivers in the early stages.

The audiologist's role as a guide in the appointment was reflected by the caregivers in their statements regarding the audiologist's ability to adapt and be flexible in their approach. The caregivers shared appreciation for the audiologist's ability to adapt to their needs, likewise the audiologists shared their awareness of the need to be flexible, as the caregivers themselves may have required differing levels of support depending on how they were dealing with the challenges their child presented with. Both the audiologists and caregivers shared the importance of the ability to develop trust and emotional awareness during their interactions, highlighting how the caregivers experience emotional vulnerability during this time following early diagnosis. The audiologist's ability to adapt and support families where necessary whilst planning the course for successful intervention at the right time, shows an expert awareness of the requirements of this clinical setting. This is in contrast to studies that have been conducted in the audiology context previously, which indicated a scripted approach to interactions within the boundaries of a pre-planned clinical structure. Studies indicating this were conducted by Watermeyer et al. (2017) as well as Ekberg et al. (2018). These studies showed relatively poor uptake and understanding of interventions by caregivers and little adaptability or flexibility was shown by the audiologists in these settings.

7.4 Audiologist- Caregiver Collaboration

The importance of this interaction, with all members in the setting, was not only used as a rapport building mechanism but also reinforced the collaborative approach used by the

audiologist with the caregivers, thus showing awareness for how the audiologists viewed their appointments as a means to display how interactional and communicative goals could be achieved in the home environment. Research conducted in an Australian audiology setting, by Ching et al. (2018) and highlighted in previous studies by Holzinger et al. (2009; 2011; 2013) indicates the necessity for early intervention and a family-oriented approach to language intervention in order to facilitate the best outcomes for children with hearing loss. These factors appeared to be motivating for each audiologist when reflecting during the interview process as well as in the interactions as the child's communicative development was of high priority.

The aspect of collaboration was detected across the data set, and reflected in the interview process. It was apparent that the caregivers viewed the audiologists as a trusted member of a team assisting in their child's intervention and they were working together towards a common goal. Likewise, during the interactions, the audiologist fostered an attitude of working together to achieve outcomes and even when directive communication was used, this was reinforced by a reminder of working towards the communicative or audiological goal for the child. Collaboration or partnership in the clinical relationship has been described as an important factor in achieving a patient-centred approach. Grenness et al. (2014) examined the presence of patient-centredness in the audiology field and concluded that patient-centred care was crucial for positive outcomes in the audiology context however at the time there was no 'gold standard' to measure it in the field. Analysis of the data in this research study indicated language choices which fostered the use of collaboration as well as joint working techniques where the caregiver took on the role as a 'co-therapist'. This was successfully used in several interactions described from the data and emphasises the audiologists' experience in working with caregivers to achieve

clinical goals. This awareness of the role of the caregiver as an equal partner in the rehabilitation process speaks to an awareness of the inclusion of patient-centred care practices, and has been described as one of the foundational elements of the approach (Epstein et al., 2005).

7.5 Managing Caregiver Expectations

Managing caregiver expectations was described by the audiologists as an important aspect of the cochlear implant process. This was reflected in the interactions which were observed. The audiologists shared awareness that expectations would be managed at different stages as a caregiver would not fully take on board the challenges of the cochlear implant process at the point of initial diagnosis or treatment discussion. The audiologists discussed how goals would be selected for the family they were working with based on the abilities of the child and the stage at which the caregiver was at, in terms of acceptance for the diagnosis of hearing loss. This movement away from a 'one size fits all' approach was unique and contrasted with communication patterns observed in a study examining hearing aid orientation appointments for paediatric patients (Watermeyer et al., 2017). Peñaranda et al. (2011) conducted a narrative study of caregiver's experience in the cochlear implant process. They found that the caregiver's perception or understanding of the cochlear implant was directly linked to the expectations they had for their child's rehabilitation or achieving normal development. Bearing this in mind, the sensitive management of caregiver expectations is therefore a vital role for the cochlear implant audiologist and correlates with what I have observed in my research study.

7.6 Implications for Future Training and Practice

This exploratory study has exposed the complex nature of the paediatric cochlear implant setting, highlighting the role of the audiologist as a guide for caregivers as they deal with the challenges following diagnosis of hearing loss and treatment planning. As an audiologist

working within the field of paediatric audiology, the theoretical competencies required of an audiologist were emphasised in my training period, however explicit counselling training and exposure to more complex cases was not heavily touched on. When learning about the field of cochlear implants there is a strong focus on the function and mechanics of the implant itself as well as the procedures for programming the device, however the complex communicative tasks highlighted in this research study are seldom touched on in detail. This correlates with the findings of the studies mentioned previously in the discussion as well as a study conducted by Tai, Barr and Woodward-Kron (2019), who identified similar concerns regarding a lack of response to patients' emotions and decision making at an audiology student and supervision level. Due to the volume of technical information that is involved from the point of implantation to the point of follow-up appointments, the audiologist requires an understanding of being able to balance their clinical approach across a series of interactions.

An implication for training within this field is the need for greater attention towards caregiver counselling and awareness of the needs and expectations of the caregivers following diagnosis. Similarly, exposure to this setting via means of observable practice as well as practical navigation of 'difficult topics,' such as discussing progress, expectations and initial diagnosis, would be useful. In order to achieve counselling and information sharing skills at a graduate audiology level there needs to be explicit learning of the communication skills displayed by the cochlear implant audiologists. As previously mentioned, these skills may only develop with extensive experience in the field. In previous studies such as that conducted by Watermeyer et al. (2017) there were positive aspects noted in the communication of audiologists in a paediatric setting including, inviting questions from caregivers and checking for understanding. In order to

develop these skills, observation of cochlear implant appointments via means of recorded appointment extracts may be beneficial. This would allow students to observe communicative practices and consider what worked well and what could be done differently in a 'real life' clinical context. This approach is suggested by Penn and Watermeyer (2018) as an advantageous approach to communication training. They suggest that skills gained from observing and then practising interactional strategies can be used across a host of contexts and would provide benefit in a multitude of clinical areas. Likewise, the use of mentoring schemes for newly qualified audiologists wishing to work in the area of cochlear implantation may be advantageous in supporting them as they begin to navigate caregiver concerns in this setting and learn to juggle the communicative complexities inherent in this field. As the audiologists participating in the current study held several years of experience, it would be advantageous for newly qualified audiologists to benefit from mentorship with audiologists who have worked in the field of cochlear implant audiology for some time. Newly qualified audiologists may benefit from a mentoring relationship where they will be able to raise concerns, ask questions and gain confidence via regular discussion with a more experienced cochlear implant audiologist.

An implication for the practice of information sharing in this context would be a transition towards a patient-centred manner of sharing information and communicating. Information sharing in the research study was found to be conducted with patient-centred principles in mind. These principles allowed for tailoring of information specific to the needs of the caregiver. The awareness of sharing of information in a patient-centred way allowed for information to be provided as and when the caregiver could receive the information best. As such, the idea that large amounts of information do not need to be shared at the onset of the

treatment period, but rather spread across several appointments may be an approach to share at training level. The use of visuals in the interactional setting also needs to remain a focal point for the audiologist, as during the research period it was noted that the use of certain visuals may have had more of an impact than others depending on the stage in the cochlear implant journey, hence a focus on the appropriate use of visual aids would be a beneficial outcome following appointment observation (Bennet et al., 2020).

An outcome of this research study and indeed what I have experienced in my own clinical practice is at times the inability to plan information sharing and counselling approaches to meet the needs of the majority of caregivers in a patient group. The reality of working in an early intervention setting is that uncertainties are bound to arise due to variation in caregiver acceptance, participation and general management of their child's needs. New graduates and trainee audiologists may therefore be encouraged to expect uncertainty and variation in how caregivers respond to treatment suggestions as opposed to planning for a single scenario, particularly in this variable clinical context, which was observed in my study. A 'one size fits all approach' to assessment and treatment is not appropriate, however this kind of approach is widely disseminated at a graduate audiology level and in textbooks as a mechanism to approach clinic appointments instead of teaching students how to tailor information giving. Indeed, this approach is utilised to address patient concerns via means of assessment and basic treatment, however the nuances of these interactions is often missed with this approach (Boisvert et al., 2017).

Emphasis on overcoming communication barriers within a South African context continues to be of importance for audiologists working within this field, as discussed by

audiologists during the interview process. As such exposure to the types of interactions occurring in this context is vital in developing an awareness for the requirements of this role and ultimately developing the skills required to succeed in the desired outcome for the families involved.

7.7 An Interactional Model for Cochlear Implant Audiologists

Having considered the implications for training and practice of audiologists in the paediatric cochlear implant setting, the following theoretical model (Fig 7.1) is suggested as a potential model to be implemented in the early stages of training and training program planning for new graduates.

Previous research has shown how certain models of practice are unsuccessfully implemented in either training or practice in the audiology field. Therefore, the manner in which the audiologists in my research study were found to manage multiple clinical aspects simultaneously, collaborate with caregivers and build a trusting relationship, is likely due to several years of experience in this field, having implicitly gained such skills working in this environment. This contrasts with research published by Gobet and Chassy (2008), which examined various models of intuitive practice in the nursing setting. They determined via a review of two theoretical models that intuitive practice is achieved by a combination of applied knowledge and direct interaction with patients, and therefore not just through experience alone. This builds on the idea of explicit skills training which could potentially provide a robust approach to prepare audiology graduates for more complex clinical communication environments such as cochlear implant appointments.

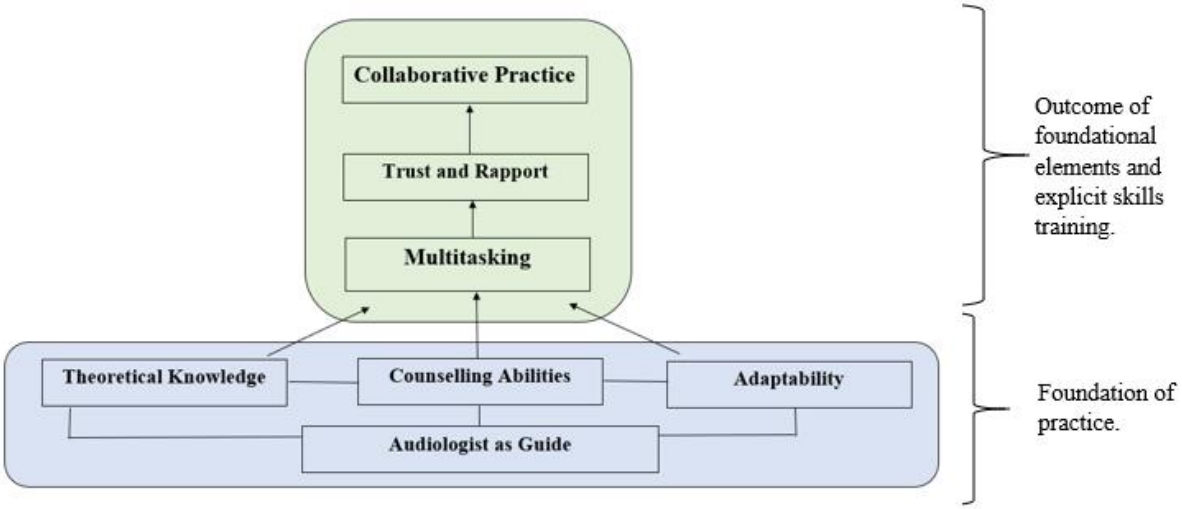


Figure 7-1 Interactional model for Paediatric Cochlear Implant Audiologists

Figure 7.1, represents a suggested model for practice in a paediatric cochlear implant setting based on the findings from my exploratory study. The bottom tier of this model represents the role of the audiologist in this setting as identified in the interactional analysis and thematic analysis of participant interviews. As previously mentioned, the cochlear implant audiologist acts as a guide in the interactional setting. In fulfilling this role the audiologists exhibited theoretical knowledge of the technical components and functions of the implants as well as the counselling skills required to manage caregiver expectations. As part of the foundational level of this model is the audiologist's ability to adapt and be flexible. With these foundational elements in mind, being able to multitask in the interactional setting as well as build trust and rapport with caregivers appeared to be directly linked to audiologist experience. In order to achieve this, observational practice, is recommended based on the suggestions of one of the audiologists interviewed. This suggestion echoes previous work conducted by Watermeyer

and Penn (2018) who recommend explicit learning of interactional practices. An ideal outcome of interactions in this context is the ability to collaborate or work in partnership with the caregiver, hence working towards a patient-centred manner of working. This aspect is depicted at the top of the model as encompassing the foundational practice elements as well as building a trusting relationship with the caregiver which can result in a collaborative partnership between audiologist and caregiver. Although these higher tier skills may be obtained via observable practice of trained clinicians, some of this learning may be implicit, being gained as the audiologists gain exposure to clinical situations working within this context.

As mentioned throughout this discussion, a single, defined model of interaction was not used by the audiologists when approaching the interactions in this setting. Likewise, a defined model to interaction in this setting has not been suggested in previous research, and as such contributions towards assisting caregivers in this complex context are required. It is suggested that by conducting further research in this area, more audiologists can be equipped for working towards a patient-centred manner of working, combining theoretical knowledge with crucial counselling skills from an early stage of their training. Suggestions for further research and the conclusions drawn from my study are explained in the following chapter.

Chapter 8 Conclusion

At the outset of this research project, I aimed to answer the main research question of how audiologists communicate with caregivers in the paediatric cochlear implant setting. By conducting this exploratory study, definite insights have been gained in terms of understanding how audiologists communicate and interact with caregiver's in this setting. My research study identified layers of complexity in the interactional space which for inexperienced clinicians may make interaction challenging. As seen in studies conducted previously by the HCRU at the University of the Witwatersrand, audiologists' ability to provide patient-centred communication practices was limited and communication even of basic test information was seen to be formulaic and lacking in tailoring towards patients' needs and agendas. The complex nature of the interactional space in cochlear implant practice highlights the need for tailored communication practices and collaborative working between caregivers and audiologists.

The manner in which audiologists interacted in the paediatric cochlear implant setting was one of the objectives of my research. The results of my research indicated the flexibility and adaptability of the participating audiologists, highlighting the need for tailoring of information sharing practices (Tai et al., 2019). The audiologists' ability to negotiate complexities in the cochlear implant environment was of interest at the outset of the research study. Through the exploratory study, the aspect of collaboration with caregivers was observed. As one of the fundamental components of a patient-centred approach (Levinson et al., 2010), the audiologists in this setting highlighted the need for partnership as a mechanism to negotiate the complexities of the clinical setting.

This research has therefore shed light on the interactional practices of audiologists and caregivers in the paediatric cochlear implant setting, highlighting the use of collaborative

practice in a complex interactional environment. This exploratory study provides insight into an area of health communication which has been unexplored thus far. The results of this study identified the need for experienced audiologists with both technical competency and counselling abilities in order to provide services for this complex patient group. Furthermore, this study identified some key areas such as an emphasis on counselling and collaborative working which should be considered as strategies to implement at an early stage in audiology clinical training stage. The findings of this study are relevant for all sectors of the audiology field for encouraging flexibility and collaboration when working with caregivers.

Although this study explored the interaction amongst a single sample of participants, there is scope to extend this research into larger participant groups in both private and public sector clinics. Likewise, further research into the manner in which collaboration, the layers of complexity and the adaptability of the audiologists in the paediatric cochlear implant setting, will be advantageous to examine in greater detail, in order to further inform clinical practice. The strengths and limitations of this study as well as recommendations for further research highlight these areas in greater detail.

8.1 Strengths, Limitations and Recommendations for Future Research

8.1.1 *Study Design*

The exploratory design of this study allowed for a large volume of data to be obtained for the purpose of analysis. Likewise, the criteria for the study sample was such that it allowed for caregivers and audiologists to be observed during and shortly after initial diagnosis of hearing loss and as such during a period when the interactional skills of the audiologist would have been fully required. Since there is no research in the area of interactions in the cochlear implant

context that currently exists, the exploratory design aimed to yield as much useful data as possible and I would use this method again in similar research circumstances.

Although there was good sample saturation derived from this study, the limitations posed by the COVID-19 pandemic on data collection procedures limited the sample size and potential variation within the sample itself. A limitation of the study was therefore the constraints on the clinic setting because the data collection took place in a private clinic setting only (although initially plans were made to conduct the study at a public clinic too, this was not possible due to COVID-19). As only one clinic setting was used for this study, the number of, and variance in audiologists participating was also limited. As a result, the experience of the audiologists involved in the study was equivalent and did not allow for variation in experience levels to be observed. It would have been advantageous to the exploratory nature of the study to observe audiologists of varied experience levels in a variety of cochlear implant clinics. A recommendation for future studies in this area would be to look towards obtaining a more varied sample perhaps between public and private sector clinics to explore trends in the results. Likewise a more in-depth analysis of how linguistic and cultural diversity are dealt with in the paediatric cochlear implant setting could be advantageous particularly from a South African healthcare perspective.

8.1.2 *Data Collection and Analysis*

The data collection for this study was partially disrupted by the COVID-19 pandemic and consequently a research assistant had to be used to collect part of the interactional data. Were I to conduct a study of a similar nature in future, collecting all of the data as the researcher via means of onsite recording would be advantageous in gaining further understanding regarding the setting

and clinic context for each interaction. For the purpose of this project, observations were made at the Centre and some valuable interactional data was obtained in this setting. However for the portion of the data collection which involved the research assistant this could not be achieved to its full potential.

The data analysis methods used for this study were similar to those that have been successfully used by the HCRU at the University of the Witwatersrand in other interactional studies. The use of genre analysis was advantageous when analysing the large volume of information that was obtained from the video recorded data. In order to identify the complex aspects of these interactions, the video recorded observations had to be studied in detail, and the use of genre and thematic analysis allowed for this. It was useful to design the genre-based analytical framework with which the data was described as this facilitated the analysis of the interactions despite differences in appointment content. Using the analytical framework the interactions could be analysed based on their constituent tasks and as a result the layers of complexity and how these were managed in the cochlear implant context could be identified. Thematic analysis of the interview data allowed for themes to be rendered and then compared with aspects noted in the video recorded data which ultimately assisted in the final analysis of the results. These methods of analysis ultimately assisted in highlighting the experience held by the participating audiologists, in an in-depth manner. It was imperative to the outcome of the current study that this interactional approach to data collection was used as this is how communication practices in audiology can be identified and methods of supporting these practices can be developed.

As the researcher, I was aware that my role as a paediatric audiologist may provide preconceived ideas about the setting being researched and this was indeed a concern and a difficulty at points during the research study. As the researcher I had to be constantly aware of preconceived biases towards clinical approach which made analysis complex in some instances. That said, working within the field of paediatric audiology provided me with some insights into the challenges that exist within the field which have been noted in the discussion. My experience in this area therefore provided a valuable outline for my initial study design. My current clinical setting in the UK drew many similarities with what was noted in the data from the South African cochlear implant context. It highlighted the universality of the profession and further reinforced necessity for the research in this area. Although South Africa brings with it many considerations in terms of language and cultural biases, due to globalisation, the UK faces similar challenges in the clinical setting. As such conducting my research study in this context was valuable in terms of observing audiologists working with similar potential barriers to interaction as a result.

8.1.3 *Recommendations for Future Research*

As no interactional data exists for this clinical context a recommendation for future research would be broadening the sample group to include a varied clinic context as well as greater diversity in the participant sample. A more varied sample aims to yield a broader range of data to better inform the existing body of research into the interactional practices in the audiology setting. Similarities and contrasting characteristics within the interactions between different cultural and linguistic groups may be of interest particularly in a South African setting. It would be useful to examine interactions between participants with different language backgrounds and identify how these barriers are overcome or affect interactions in this context.

Likewise exploring mediated interactions and how the layers of complexity in this setting are managed between the audiologist, interpreter and caregiver would be valuable. Although my data included intercultural interactions, in-depth analysis into the intercultural aspects was beyond the scope of the current study, however there may be benefit in analysing this aspect in future research projects.

A further recommendation for future research would be greater emphasis on how audiologists manage complexities in appointments such as the locus of epistemic authority, aspects of denial and difficulty managing expectations of patient progress. These areas were touched on in this exploratory study, however in order to benefit future training and research, further exploration of these areas in detail may be beneficial.

Likewise, research into graduate audiologists' perceptions about the cochlear implant context and their readiness to deliver the information sharing and counselling required in this setting would be advantageous to identify specific gaps in knowledge or skills outside of the researchers own experience. This may aim to inform specific areas that can be addressed via means of observational and explicit learning.

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Appendices

Appendix A- Ethics Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

R14/49 Ms K Hugill

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M190928

NAME: (Principal Investigator)	Ms K Hugill
DEPARTMENT:	School of Community Development Department of Speech Pathology and Audiology University
PROJECT TITLE:	An international analysis of communication between caregivers and audiologists in paediatric implant appointments in South Africa
DATE CONSIDERED:	2019/09/27
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Professors J Watermeyer and A Kanji
APPROVED BY:	Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2020/01/24

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the 3rd Floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.
I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to submit details to the Committee. I agree to submit a yearly progress report. When a funder requires annual re-certification, the application date will be one year after the date when the study was initially reviewed. In this case, the study was initially reviewed in **September** and will therefore reports and re-certification will be due early in the month of **September** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature

10/02/2020
Date

PLEASE QUOTE THE CLEARANCE CERTIFICATE NUMBER IN ALL ENQUIRIES

Appendix B – Caregiver consent for Video Recording and Interviews



CONSENT FORM FOR VISUAL RECORDING OF STUDY PARTICIPATION - CAREGIVERS

Project Title: An international analysis of communication between caregivers and audiologists in paediatric implant appointments in South Africa

I hereby consent to visual recording of our appointment with the audiologist.

I understand that:

- The recording will be stored in a secure location (a locked cupboard or password protected computer) with restricted access to the researcher and the research supervisor.
- The recording will be transcribed and any information that could identify me or my child will be removed
- Neither my face and voice, nor that of my child will be identifiable in any visual recording
- The recordings will normally be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research, or:
- The film, with all identifying information removed, will be stored permanently and may be used for future research
- Anyone wishing to access this information in the future will first have to obtain the approval of the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg
- Direct quotes from my interview, without any information that could identify me or my child, may be cited in the research report, or other write-ups of research.

Name of Participant: _____
Date: _____
Place: _____
Signature or mark _____
Name of child: _____
Name of Audiologist: _____

Witnessed by:

Name of Witness: _____
Signature: _____
Date: _____

WITS UNIVERSITY

PARTICIPANT CONSENT SHEET – CAREGIVERS - INTERVIEWS

Project Title: An international analysis of communication between caregivers and audiologists in paediatric implant appointments in South Africa

I, _____agree to participate in the interview component of the above research study, which is being conducted by Miss Kelly Hugill. I have read the information sheet provided and agree with the conditions of my participation in the study.

I understand that my participation is voluntary, and that I maintain the right to withdraw from the research process at any stage (please tick)

Yes ☐
No ☐

I agree that my participation will remain anonymous (please tick)

Yes ☐
No ☐

I agree that the researcher may use anonymous quotes in the research report (please tick)

Yes ☐
No ☐

I agree that the interview may be audio recorded

Yes ☐
No ☐

I agree that the information I provide may be used anonymously by other researchers following this study, provided they have their own ethics clearance

Yes ☐
No ☐

Contact details:

Ms K Hugill, Principal Investigator, telephone no. , or by e-mail at 446805@students.wits.ac.za

Professor J Watermeyer, Supervisor, on telephone no. 011 717 4578, or by e-mail at Jennifer.Watermeyer@wits.ac.za

Dr CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.
Ms. Z Ndlovu or Mr R Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____
Date: _____
Place: _____
Signature: _____

Witnessed by:

Name of Witness: _____
Signature: _____
Date: _____

Appendix C – Research Site Permission

Appendix II

WITS UNIVERSITY

Permission Letter

An Interactional Analysis of Communication between Caregivers and Audiologists in Paediatric Cochlear Implant Appointments in South Africa

Dear Sir/Madam

My name is Kelly Hugill. I am writing to request permission to conduct a research study at your institution. I am currently enrolled as a Masters student in the field of Audiology at the University of the Witwatersrand.

In this study we want to learn how audiologists communicate with primary caregivers of cochlear implant patients under the age of 6 years old. The aim of this research is to add to the growing body of research looking at health communication practices conducted by the Health Communications Research Unit, which may help to inform the training of future audiologists.

I am writing to request permission to conduct this study at the Johannesburg Cochlear Implant Centre. Participants will include approximately two to three audiologists as well as caregivers of children under the age of 6 years old who attend your centre for appointments, following written consent to participate in the study. The children will not be included in this study.

This study will take place during the planned appointment time in your cochlear implant clinic. It will involve a video recorded session with the audiologist which I will later be analysed in order to document the communication that takes place during the appointment. Following the appointment I will conduct an interview, either face to face, or over the telephone no more than three to five days after the appointment. This interview will cover aspects of the appointment that went well and those that could have gone better in terms of the communication used in the appointment. The interview will require approximately 30 minutes of the audiologists time and will be audio recorded.

As the aim of the project is to examine the communication between the audiologist and the caregiver, communication with the child present in the appointment, will not be analysed and the video recording device will be positioned in such a way as to eliminate view of the child during the appointment. Video and audio recordings will be securely stored in a password protected memory device where the data may be held for a period of up to 6 years following the research period in accordance with HPCSA guidelines (2007). Only myself, my research assistant, Chloe Rose, and my supervisors will have access to this data and it will be used only for research purposes. Destruction of video recorded data will occur in accordance with HPCSA guidelines (2007) in a manner that would prevent reconstruction of the information for other purposes, this may involve writing over existing data or incineration.

Personal information will be treated in the strictest confidence and will only be available to the Principal Investigator (PI) and my research supervisors. Video recorded data will not be shared outside of the confines of the research project and will be stored securely.

I am happy to answer any questions or concerns you may have.

Any findings from the study will be reported in anonymised, aggregated form so as not to identify particular audiologists.

Contact details of researcher/s:

Principle Investigator:
Kelly Hugill kieelyh@gmail.com / hugillkelly@gmail.com
Tel: +447778460185
Research Supervisor:
Prof. Jennifer Watermeyer Jennifer.Watermeyer@wits.ac.za
Tel: +27117174578
Dr Amisha Kanji amisha.kanji@wits.ac.za
Tel: +27117174551

This study has been approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg ("Committee"). A principal function of this Committee is to safeguard the rights and dignity of all human subjects who agree to participate in a research project and the integrity of the research.
If you have any concerns over the way the study is being conducted, please contact the Chairperson of this Committee who is Professor Clement Penny, who may be contacted on telephone number 011 717 2301, or by e-mail on Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234 and the e-mail addresses are Zanele.Ndlovu@wits.ac.za and Rhulani.Mukansi@wits.ac.za

Sincerely,

Kelly Hugill

I hereby grant permission for the proposed research study to be conducted at the Johannesburg Cochlear Implant Centre in accordance with the information shared above.

Wendy Deverson

Name

Date 20/12/2019

Signature

Appendix D – Distress Protocol

Distress Protocol- Interviews with Caregivers

Although a low risk of distress was anticipated to occur as a result of the interviews following appointment sessions, this distress protocol aimed to address potential distress factors which may have arisen.

Stage 1:

- In the event that the caregiver expresses distress during the interview process, the researcher will stop the interview immediately.
- Thereafter the researcher will offer the caregiver immediate support and assess their well-being.

Review:

- If the caregiver expresses that they are able to continue with the interview, the interview process will continue.
- If the caregiver is unable to continue with the interview the researcher will employ stage 2 of the distress protocol.

Stage 2:

- Terminate the interview and ensure that the caregiver safely leaves the interview environment.
- The caregiver will be encouraged to express the cause of distress with their clinical audiologist working within the cochlear implant team. If the cause of distress cannot be addressed within the clinical context, appropriate referrals will be made.

Johannesburg Cochlear Implant Centre (JCIC)

Emthonjeni Community Psychology Clinic

Ms Paballo Lepota

Tel: +27 (0)11 717 4513

Email: paballo.lepota@wits.ac.za

Follow-up:

- The researcher will follow-up with the caregiver with a courtesy call (if consented to by the caregiver).
- The researcher may also encourage the caregiver to call them if they experience any further distress.

Appendix E – Interview Schedules

Interview Schedule for Caregiver Interviews

I. Opening

My name is Kelly Hugill and as a part of the research process I thought it would be valuable to gain a better understanding about how you experience the appointments with your audiologist.

I would like to ask you some questions about your understanding of cochlear implant, and what you find challenging and successful about what is communicated in your appointments. I would also like to explore what your understanding is regarding the rehabilitation process and the goals that have been set for your child's audiological development.

I hope to use this information to add to the research I have gathered from the video recording of the appointment (s) in order to better understand the communication and interactions that audiologists use in these appointment settings.

The interview should take about 30 minutes. Are you available to respond to some questions at this time?

A.) Today's appointment

1 a.) Tell me about today's appointment.

b.) What do you think went well about the appointment today and what was challenging?

c.) Why did you find that challenging?

d.) How do you think the audiologist contributed to what went well in the appointment?

B.) Cochlear Implant

2a.) What do you understand about the cochlear implant based on today's appointment (specific to the appointment setting)?

b.) How do you think the audiologist communicated this information? Was there anything she/he did to make it easier to understand?

c.) What could have been done to make this information easier to understand do you think?

C.) Involvement of Multi-Disciplinary Team members.

3a.) Does your child receive any therapeutic intervention outside of the audiology service and as such do you think this made information shared in the audiology appointment any easier to understand?

b.) Did you receive your initial counselling for implantation by the audiology team, or another team member (ie. Ear nose and throat doctor, audiologist from another clinic, speech and language therapist etc.).

c.) Do you think the role of other team members (speech and language, social worker, ENT etc.) assisted in the process of the counselling involved in cochlear implant?

D.) Rehabilitation process

4a.) What is your understanding regarding the rehabilitation process that has been set for your child following implantation?

b.) Was there anything that you found challenging regarding how the rehabilitation process was explained?

c.) Are things as you would expect in terms of the rehabilitation post implantation?

D.) General Communication

5a.) If you can recall your first appointment at the centre how has your audiologist assisted you to understand the cochlear implant process?

b.) Is there anything you would change about the communication between you and your audiologist?

What would you like audiologists to know / what could they do differently / how could they make things easier?

Anything else to add?

II Closing

To summarise our discussion, you believe the audiologist communicated _____well, however you believe _____ could have gone better.

I appreciate the time you took for this interview. Is there anything else you think would be helpful for me to know that may be useful to this research project?

Thank you for taking the time today to share this information with me. This provides valuable information for the research project. I wish you all the best for the future.

Interview Schedule for Audiologist Interviews

I. Opening

My name is Kelly Hugill and as a part of the research process I thought it would be valuable to gain a better understanding about how you conduct appointments with the caregivers of your paediatric patients.

I would like to ask you some questions about what you find challenging and successful about what is communicated in your appointments. I would also like to explore how you communicate the rehabilitation process and the goals that have been set for the child's audiological development, in a way that is easy for caregivers to understand and commit to.

I hope to use this information to add to the research I have gathered from the video recording of the appointment (s) in order to better understand the communication and interactions that are used in these appointment settings.

The interview should take about 15 minutes. Are you available to respond to some questions at this time?

A.) Today's appointment

1 a.) Tell me about today's appointment.

b.) What do you think went well about the appointment today and what was challenging?

c.) Why did you find that challenging?

d.) How do you think you contributed to what went well in the appointment?

B.) Cochlear Implant

2a.) How do you communicate technical information to parents regarding the cochlear implant and its functioning?

b.) Do you find it difficult to communicate this information in a manner which is easy for caregivers to understand?

c.) What could have been done to make this information easier to understand do you think?

C.) Rehabilitation process

3a.) Do you think the caregivers generally have a good understanding regarding the rehabilitation process involved in cochlear implant?

b.) Do you find it challenging, explaining the rehabilitation process to caregivers?

c.) How do you manage caregivers expectations when it comes to communicative goals and the rehabilitation process?

D.) General Communication

4a.) What do you think is necessary for effective communication in an audiology appointment context? How do you think you fulfil this in your role as an audiologist?

b.) Is there anything you would change about your strategy towards communicating more effectively with your patients?

c.) What non-verbal aspects of communication do you believe are important when engaging in cochlear implant appointments?

Anything to add?

II Closing

To summarise our discussion, you believe that as an audiologist working in the area of cochlear implant you communicated _____well, however you believe _____ could have gone better.

I appreciate the time you took for this interview. Is there anything else you think would be helpful for me to know that may be useful to this research project?

Thank you for taking the time today to share this information with me. This provides valuable information for the research project. I wish you all the best for the future.

Appendix F – Transcription Key

Transcription Key	
Italics	Used to indicate speech.
Bold	Exclamative speech
()	Referring to - name of person
[]	Inaudible speech.
[?]	Approximation of speech heard.
= =	Speech overlapping between conversation partners.
…	Pause.
CAPITALS	Emphasis on a letters or word/s.
NV	Non-verbal movements.

(Eggins and Slade, 2005)

Appendix G – Complete Consultation Transcript

Case B – Mapping appointment

Participants: Audiologist, Caregiver

Appointment took place in consultation room 1. The child made a frequent interjection of noise from the toys they were playing with, making some speech inaudible.

1	**A3:**	***Alright, I will schedule a follow-up appointment, but I just want to find out, what do you see and what have you learned from me?***
2	C:	*We [inaudible] in January, actually.*
2	A1:	*Really? Okay.*
3	C:	*October, November, December, January. Four or five months. Okay. So, we get a lot of… play with that one, okay, there we go. Uhm, we get very quick [inaudible] on the second side, we tell him… a few times in the evenings we have practiced; "hello, (child's name), how is it going? Good thank you!" You know, so it's, just about two or three times that we practice and then we get it right. And then, what he… what we are still struggling with a little bit is the, the, the, (low sounds) like, "sshh" and the…*
	NV:	Child interrupts
4	A1:	*Softer sounds.*
5	C:	*(nods head) Softer sounds, yes.*
6	A3:	*Okay. Have you noticed that if it's more bass… like…*
7	C:	*== I think it's…*
8	A3:	*… 'Aaah, ooooh'*
9	C:	*… I think it's more, yeah, more bass and then also much higher sounds also, like "ssss", yeah. Yeah. You know, no, that is something that I must repeat the whole time*
10	A3:	*…Okay.*
11	C	*So it feels to me as though everything [inaudible] very small [inaudible]*
12	A3:	*Yes, I think so. So how often do you take….*

12	C:	*==Every night…*
14	A3:	*The first ear off? (refers to first device implanted)*
15	C:	*Just so the new little ear can listen?*
16	A3:	*==Yes.*
17	C	*Every night I do it for about half an hour. I am almost now, where, he doesn't complain at all. And, if I call him then, "yes mommy?" you know [inaudible]. So he hears me now, [inaudible] with the other side.*
18	A3:	*Okay, Great.*
19	C:	*I can see him, the sound [inaudible] but, you just need to be a bit louder.*
	NV:	Nod in agreement.
20	A3:	*Yes.*
21	C:	*And it's [easier to understand him], in the beginning it was difficult, when we, if I take the new little ear off, then, he doesn't want to [inaudible]. Now, sometimes I leave him, if we've finished practicing little sounds, then I leave just that little ear on. And sometimes he forgets and just carries on and he communicates with his little brother and his little brother communicates with him … he can't as well as with both little ears, you know, but, um, he can definitely hear and understand. Yeah. It's not yet as clear as with both ears at the same time, but it's definitely great progress.*
22	A3:	*It's still a bit too early ….*
23	C:	*]Yeah, yeah, by the time he has the other one on… so …*
24	A3:	*I had a quick look in his file, the first one was the same story…*
25	C:	*Yes… it was long….*
26	A3:	*… but after three months, six months, that we didn't have (short) progress.*
27	C:	*== Yes.*
28	A3:	*… but you're already seeing the long haul…*
29	C:	*==Yes, definitely.*
30	A3:	*And there's nothing that's too loud…*
31	C:	*==Not at all.*
32	A3:	*… that he ever wants to take it off?*

33	C:	*== Not at all. On the contrary, I have noticed, uhm, we were in the… a few weeks back there was a concert at the church bazaar. And we sat close to one of the speakers, and I thought, 'yoh' and I thought, if it's too loud, he'll take them off, but not at all. He didn't take them off. Nothing.*
34	A3:	*The previous apparatus, if a sound… we adjust boundaries, right, so if a sound is too loud, then it actually compresses it…*
35	C:	*Is it? … So he doesn't hear it as loudly as we hear it?*
36	A3:	*and that's why it's sometimes longer…*
37	C:	*Yes, so that we're right…*
38	A3:	*Yes, [inaudible]play, so that there's no discomfort. Because it must be loud, but not too loud.*
39	C:	*Yes. Yes. Because, if (it's strong enough), and I wondered about that, sometimes, if his brother, if mommy and his brother are fighting, then (childs name) will start crying and then it's that naughty, screaming cry. Then I'll say "(childs name), owwie", you know? And then he takes it off. So that is too loud. But, music, that's not… alright. That is very positive, I mean I can hear much more speech.*
	NV:	Audiologist nods in agreement.
41	C:	*Yes. Definitely. Yes.*
42	A3:	*Much more little words… Okay. And is he going to school?*
43	C:	*Uh, only next year Grade R, and then…*
44	A3:	*Okay…*
45	C:	*Yes. He's now RR. Next year…*
46	A3:	*So we still have a year basically (audiologist speaking to herself)*
47	C:	*Okay, so yes, but the teacher, every week I go see her [inaudible] how much [inaudible] does he have so that he can go to grade R.*
48	A3:	*This is now the most important decision…*
49	C:	*… and she says to me that she's very happy.*
50	A3:	*Is he using language?*

51	C:	*She tells me that, the colours, the shapes, she tells me that he's very eager about them because he can hear nicely and can talk easier. Anything that he can do, he's very eager about. He'll immediately tell the teacher "blue, red…". She says with the other children she has to ask nicely, but he just by himself says, "come teacher! Red… this this this". You know, so she says it's something that she's never had.*
52	A3:	*So that says that he's now gained a bit of confidence…*
53	C:	*Yes. Yes. He definitely has much more confidence, you know, to go talk to her and to go talk to friends. And she says the most wonderful thing is that the friends understand one another. You actually get, half, a communication level, which [inaudible] that he's looking for.*
54	A3:	*Great! And what does (speech therapist name) say about therapy?*
55	C:	*No, she says also, she's very happy because when we did 'Aah, Oooh', he can say that nicely, just with his new little ear. And then she says she thinks just, also the high, and the very low… you know… [inaudible] soft…*
56	A3:	*Bass. Must we make that louder? (audiologist speaking to herself)*
57	C:	*Low… bass, I think we must set that louder…*
58	A3:	*Right. [inaudible] two points. Right. We'll begin and do that and then we're going to quickly test and test him just to see if it's enough [inaudible].*
59	C:	*Alright. Alright.*
60	C:	*Right. Come.*
	NV	[inaudible overlapping voices and child] Parent gestures to child to come to her.
61	C:	*Come sit here.*
62	A3:	*He can sit on your lap.*
63	C:	*Okay. Come let's stand up…. Come, sit here by mommy.*
64	A3:	*Okay… jacket. Let's just put all the buttons in….*
65	C:	*… Oops! Oh, he's got nothing on now…*
66	A3:	*That's okay. It's actually better.*

67	C:	*Okay.*
68	A3:	*The fact that everything's on, and everything still works…*
69	C:	*Everything. No problem. I have just changed the batteries because we were… so now I have on the old ear, the new batteries, [child interrupts] mommy will help you! Okay.*
70	A3:	*Right, if he understands it's fine.*
	NV:	Child and parent interact
71	A3:	*Okay, I'm again just going to go through the motion [inaudible]… He just must not walk to far and get the little wires twisted. Let's check that everything works and everything is right… Okay. Good. So, this is once again, just to check, you already know this story… [inaudible] look, everything is green there …*
72	C:	*So that means… yes.*
73	A3:	*… So, everything works. The (implant) has settled very nicely. [inaudible]*
74	C:	*Yes.*
75	A3:	*Okay. So, every time we check that the implantation is working, everything on the inside, and then I also look [inaudible]…*
76	C:	*How he keeps it on and that.*
77	A3:	*Yes. So, if I look at the right ear, very good. (Every) two hours… so that is, that is a long time for a young child….*
78	C:	*Yes, to have it on.*
79	A3:	*… to have to wear. And, it's still falling off I see from the coil… [inaudible] twenty seven times… that's a lot.*
80	C:	*Yeah, but that's from [inaudible] playing, because remember they're active the whole time.*
81	A3:	*[inaudible] and all the other things, I see, he's perfect. The biggest part of those eleven hours … [parent overlapping, inaudible]*
82	A3:	*… noise, listening… so that's perfect*
83	C:	*Okay.*

84	A3:	*Come let's quickly look at how his [inaudible] looks… Okay, so I'm now, actually on my gut, [inaudible] so actually, you can see these are bass sounds and these are high frequencies.*
85	C:	*Okay.*
86	A3:	*And this is the middle frequency.*
87	A3:	*So [inaudible] so we're actually already there. Yes.*
88	A3:	*But he has a little bit of this and a little bit of this.*
89	C:	*Okay.*
90	A3:	*So I'm going to set that a little higher… he can play…*
91	C:	*Okay…*
92	A3:	*So I'm going to now, here… I'm going to set it in, and then run it and check if there is any discomfort.*
93	C:	*Yes. Yes, he'll show us.*
94	A3:	*It will be loud…*
95	C:	*Okay.*
96	A3:	*As long as it's not uncomfortable… Just bear with me…*
97	C:	*Look, he can definitely hear far. Uhm, I've actually tested it. I stand in my room, and he'll be playing with Tomas in the kitchen in front, and I'll say 'Where you!?' and then immediately he'll hear "Come mommy!" So, if I from far… I don't think it's too much of a big problem, it's just the last small…*
98	A3:	*Okay. This is tweaking [inaudible].*
	NV:	Audiologist turns to address the child.
99	A3:	*Almost (child's name), almost!*
	NV	Parent interacts with child.
100	C:	*Must I hold?*
101	A3:	*Sorry, just a small moment… make sure it's still the right pipe.*
	NV:	Parent interacts with the whilst the audiologist adjusts the device. Child makes a noise- indicates restlessness.
102	C:	*Must I throw it off? What must mommy do? Must I throw if off?*

103	C:	*Can he hear now, with that?*
104	A3:	*Yes. So what I want to do now, I'm going to play this chunk. To us it's going to sound pretty loud.*
105	C:	*==But just to see that for him…*
106	A3:	*Yes. But I'm first going to play it very softly. I just want to see if he notices, that there is a sound and then we can play it louder… Okay. Right. You'll hear a beep.*
	NV:	Audio form the laptop plays in increasing loudness and changing frequencies.
107	A3:	*He's aware of something. Okay, this sounds terribly loud for us…*
108	C:	*No, it's okay….[inaudible]*
109	A3:	*Uhm, but he didn't show he can't hear on the other ear. Right. Now I'm going to put it on the louder one, let's see… You can help me check if you want. But he will immediately…*
110	C:	==and then…
	NV:	Audio plays
111	A3:	*Okay, he immediately looked up.*
112	C:	*==Yes.*
	NV:	Audio continues to play
113	C:	*[inaudible]*
114	C:	*But he's okay?…*
115	A3:	*If it bothers him he'll touch it immediately. You'll immediately see… but….*
116	A3:	*I just want to quickly play the first part where he looked up, check.*
	NV:	Audio sounds play
117	A3:	*We're looking for any contraction or anything.*
118	C:	*Yes. Yes.*

119	A3:	*Okay, let's put that on for him.* ***Hello*** *(childs name),* ***Hello!*** *Do I sound good? (Sings)*
120	C:	*Can you hear the lady?*
121	A3:	***"ssss"***
	NV:	Audiologist bashes and shakes toys on the table.
122	A3:	*Oh wow that's a big noise!*
	NV:	Audiologist makes sounds
123	A3:	*Okay, he's okay.*
124	C:	*No he's okay.*
125	A3:	*(childs name), can you quickly do the ling test, as you always do it.*
126	C:	*Okay, but he, he shouldn't look at me…*
127	A3:	*Yes.*
128	C:	*(childs name), come, give to mommy quickly. Okay.*
129	A3:	*Look at me.*
130	C:	*Look at the lady. Listen to mommy. Look. "Aaah"… Yes, yes, yes, look. "Aaah" (child repeats) "eee" (child repeats) "oooo" (child repeats) "ooooe" (child repeats) "ooooe"*
131	A3:	*He can't hear.*
132	C:	*Look, look, look. Come let's hear what mommy says.*
	NV:	Caregiver 'shushes' child and child fusses.
133	A3:	*Sssh, is that too loud?*
134	C:	*Listen to mommy.*
135	C:	*(softer) ssh (child repeats) "oooee" (child repeats) "ssss" (child repeats)*
136	A3:	*(gasp) (childs name)! That's very nice!*
	NV:	Parent claps
137	C:	*Very nice!*
138	A3:	*Right. I am happy.*

139	C:	*Yes.*
140	A3:	*Okay I've just saved that, and then I just want us to go to into the [inaudible] and quickly look if this has made a difference.*
	NV:	Child opens toy box
141	C:	*Close that. Thank you very much…*
142	C:	*He can't hear anything. You're dead right.*
143	A3:	*I've saved it.*
144	C:	*… just stop that. Yes.*
145	A3:	*Okay, do you have any questions?*
146	C:	*No. No, every week I see new little things and everything, so we're very happy.*
147	A3:	*==so it's now just a question of time…*
148	C:	*Yes, [inaudible] so that's why go to (name of speech therapist) every week, and then, at the school he also has someone who helps, so he see's her twice a week and he gets homework from (name of speech therapist) and her, so every night we get up to that.*
149	A3:	*The big thing is, it's not only [inaudible]*
150	C:	*==Yes, definitely.*
151	A3:	*So let's just see.*
152	C:	*Okay. We're going to play a bit more! That's yours. Come. Put those away then we're going to go with the lady.*
153	A3:	*We're going to play in there now!*
154	C:	*Put these away.*
155	A3:	*Aunty (name of speech therapist) is coming.*
156	C:	*Put away. There we go. There we go.*
	NV:	Child fusses

Caregiver, child and audiologist leave the room and re-enter the main reception area where the speech therapist will collect them.

Appendix H – Ethnographic descriptions (participant observations)

Ethnographic notes and First Impressions

For cases A-E the researcher was able to be onsite at the cochlear implant centre to set up the recording device before the appointments began, and to observe the operation of the clinic. Greeting and closure elements to the appointments were also observed in the waiting area.

Site Notes:

I arrive at the cochlear implant centre at their opening time as one of the audiologists has an 8 o'clock appointment. The waiting area appears to be child friendly, with two rows of chairs and toys set-up for children to play with. The longest wall in the centre is decorated with small canvases denoting patient experiences and what cochlear implants have done to help the families and older patients experience life in a different way. When entering the space the waiting area feels welcoming. The receptionist was happy to talk to patients when they came into the centre and it was evident that some of the patients had come to know her well as she received hugs from some of the children.

Consultation room one is sparsely decorated consisting of two tables and minimal posters. Before appointments in this room the audiologist brought in her laptop and mapping equipment. Case A is recorded in this space. Whilst in the waiting area I see the paediatric patient leave the consultation room and run to the toy box in the waiting area to grab some toys. A routine of greeting and saying goodbye occurs with the caregivers and the audiologist in the room as the child begins to enter and exit the room a few times, as part of what has now become a game.

Consultation room two consisted of a table and chairs in the middle of the room. This room is pleasantly decorated with posters from both the cochlear implant companies as well as motivational quotes. This room is used for one of the recorded consultations for an older child.

Consultation room three consists of a round table and several chairs. One of the chairs is a booster chair allowing a child to sit at table height with the adults. This room is used for AVT appointments as well as follow-up appointments. This room is decorated with posters depicting the ear and the audiogram. Toys are also present in this room which are to be used in the AVT

appointments. This room is the biggest of the three rooms and 2 of the recorded appointments are conducted here.

Clinic Diary:

News regarding the COVID-19 crisis had been shared on the news the night prior to the first day of data collection. There was therefore apprehension that the patients that had been booked would likely cancel. On the morning of data collection all 5 of the recruited caregivers had confirmed appointments.

Day 1:

8.00-12.00

One of the audiologists had an early start, conducting the first appointment between 8 and 9am. The practice was relatively empty at this time of the day as only the office manager, audiologist and patient and the researcher were present. Appointments scheduled in the diary went ahead for the morning patients with all 3 audiologists consistently busy with patients throughout the morning. It was important to note that all three of the audiologists took care to interact with the patients and their families in the waiting area before the appointments had begun as opposed to just calling them into the consultation rooms. The audiologists conducted greeting in the waiting area and used modelling techniques demonstrating to parents. The children and caregivers appeared to enjoy this routine, shown by smiling and cordial conversation. Two of the parents used techniques of discussion and modelling with their children in the waiting area, as the children played with the toys on display. This was not prompted by the audiologist, however after repetition this may be part of the waiting area routine for the parents and children.

One of the audiologists left the practice at around midday to attend a cochlear implant surgery. She explained that this is part of their job however theatre assistants are also instructed on how to switch the implant on and check that the implant itself is working following the surgery itself. She explained that care is taken with the paediatric patients as parents often like the reassurance from the audiologist that the procedure has gone well.

Day 2:

8.00-12.00

I was made aware that in light of the COVID-19 crisis some appointments were being cancelled by patients. However, the researcher was reassured that the pre booked patients were all still scheduled to go ahead.

Once again parents were noted to practice modelling techniques in the waiting area unprompted. The audiologist once again used modelling and verbal explanation with gesture and visual cues to explain to the first patient that they would be having their hearing tested before they would have their follow-up appointment. The audiologist did not allow the next step of the appointment to commence until the patient had verbally responded to what they heard. The audiologist then asked the patients caregiver to model what she had just done.

The practice continued to be busy throughout the day with patients arriving for scheduled appointments.

Day 3:

7.45-12.00

Modelling in the waiting area was noted again. Although some of the patients may now have been seen by a particular audiologist, the audiologists appeared to be aware of the other patients and had relationships to the level where they could greet the family with familiarity. Although the first scheduled appointment was scheduled for 45 minutes the family required a longer period of time with the audiologist and this could be accommodated. Having knowledge of the families and what they require as individuals appeared to allow for this flexibility in the diary.

Initial Thoughts

The centre itself provided a child friendly atmosphere and all patients were noted to feel comfortable and familiar with the staff.

Each audiologist appeared to approach families differently perhaps based on their personalities. Families appeared to be paired with audiologist based on their approach (AVT-communication

focused versus programming focused), however this may also have been down to the adaptability of the audiologist.

Non-verbal communication aspects including gesture, facial expression and the use of visual aids were noted by all of the audiologists, however this may have been more prevalent in the AVT appointments as opposed to the other follow-ups. Two out of three of the audiologists commented on the importance of non-verbal communication, however they acknowledged that non-verbal communication is generally an unconscious process.

It was noted that when interacting with patients using communication aspects necessary in cochlear implant appointments, did not end at the appointment room, but extended to the waiting area as well. In one instance one of the audiologists expressed that she was ‘goal oriented’ in her approach and as such greeting punctuated by a communication task in the waiting area may have been part of this.

What was noted was that each group of caregivers presented with their own approach to the appointments. The audiologists adapted their approaches to the families, and expressed what they found challenging in these instances. The audiologists also expressed how they adapt to assist in these instances.

What was mentioned by both parents and audiologists was that a collaborative approach was used in the clinic appointments. I found this interesting as it was evident that although adaptation in appointments appeared unconscious, it was clear that the audiologists and families were aware that work was necessary to gain the most optimal outcomes in the appointments.

One of the audiologists identified areas in which she is aware that she may need to improve. She was introspective regarding the challenges she faced as well as acknowledging that she may need to be more conscious of what she was doing in these instances.

Working with families who speak English as an additional language was mentioned by one of the audiologists. In terms of breadth of cultural differences and language differences, the majority of the cases seen were found to speak English.

Modelling of communication aspects both in the appointments and outside of the appointments was noted to be used by all of the audiologists. It was explained that this modelling was very important to ensure carryover of techniques and for parents to see this in a naturalistic context.

Management of goals and expectations was explained as a continuous process and this was evident in some of the appointments with the children who were most recently implanted. It was explained that this process starts prior to implantation and continues throughout the cochlear implant follow-up process. It was explained that at times parents need to receive all of the facts and need to be reminded of this in several appointments before this is accepted.

Appendix I – Content Matrix

Content Matrix

Case	Audiologist	Appointment Type	Content Category	Content Detail
A	1	Programming	Mapping	- Discussion about progress. - Audiologist shows the program map and activation of the electrodes; explains to caregivers what is this means. - Data logging of the implant discussed and examples shared about current implant tolerance (wearing). - Explanation of progress and changes made to the implant as a result. - Speech work and progress discussed as an element of MDT involvement.
B	3	Programming	Program change	- Discussion about progress. - Change in program in relation to progress discussion. - Use of computer screen and programming images to explain changes. - Discussion about speech progress and work with the SLT.
C	2	AVT and Programming	AVT and program change	- Discussion of test results. - Discussion about speech sounds in relation to hearing. - AVT work, detection of phonemes and production work. - Change to program.
D	2	AVT and Programming	AVT and mapping	- AVT work; identification of sound and scaffolding of speech cues. - Working with Ling sounds.

				- Reiteration of Ling sound concept. - Volume change to programme map.
E	1	Programming	Mapping	- Discussion about current program use and progress. - Collaborative discussion about program use at home between caregiver and audiologist. - Use of computer screen to explain electrode array and activation of programs. - Discussed strategies for implant tolerance (wear ability).
F	1	Trouble shooting	Progress update	- Caregiver raises lack of progress following hearing test. - Audiologist explains replacement of microphone covers. As well as collaborative working with the Speech and Language Therapist. - Caregiver shares concerns about implant volume and lack of speech progress at home. - Collaborative discussion about steps moving forward and joint working with SLT.
G (1)	1	Programming	Mapping	- Discussion about current progress. - Caregiver shares examples about home use of the implant. - Audiologist uses computer screen to explain usage and electrode activation. - Discussion and demonstration about implant placement on the head. - Addition to map.
G (2)	1	Programming	Mapping	- Progress update following map addition at previous appointment.

				- Caregiver shares variation in progress since the last appointment and compares and contrasts speech production of the child.