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Bridging the Gap: Establishing the Need for a Dysphagia Training Programme for Nurses and Speech-Language Therapists Working with Tracheostomised Patients in Critical Care in Government Hospitals in Gauteng

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March 2012

A research report submitted to the Department of Speech Pathology and Audiology

School of Human and Community Development

Faculty of Humanities

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In partial fulfilment of the requirements for the degree Master of Arts in Speech Pathology

Declaration

I hereby declare that this thesis is my own unaided work and that the assistance obtained has been only in the form of professional guidance and supervision. It is submitted for the degree Master of Arts in Speech Pathology to the Faculty of Humanities, Department of Speech Pathology and Audiology at the University of Witwatersrand, Johannesburg. It has not been previously submitted for any other degree or examination to any other university.

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Azra Hoosen

13th day of March 2012

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Abstract

The primary objective of the current study was to attempt to establish whether there is a need for a dysphagia training programme for nurses and speech-language therapists working with acute tracheostomised patients in critical care units in South Africa. The research design that was adopted for this project was within a mixed methods approach framework. An exploratory descriptive survey design using semi-structured face-to-face interviews was used. The final sample consisted of interviews with 20 speech-language therapists from eight different hospitals with critical care facilities and 12 nurses from four different hospitals with such facilities. Data from the close ended questions were analysed using descriptive statistics, while remaining data from open ended questions were thematically analysed and the constant comparison method was applied.

The data demonstrated that all speech-language therapists and 10 out of the 12 nurses were in agreement that there was a need for a dysphagia training programme for nurses in critical care for tracheostomised patients presenting with dysphagia. An important and unexpected result of this study was that speech-language therapists themselves required additional training in this area. The data demonstrated that the majority of speech-language therapists and nurses were of the view that they had received minimal theoretical and practical hours on tracheostomy screening, assessment and management at an undergraduate level. Overall, the results of the current study suggested varied practices in the screening, assessment and management of tracheostomy and dysphagia, particularly with regard to blue dye testing, suctioning protocols and cuff inflation and deflation protocols.

The research significance and implications of the study included the need to improve undergraduate training for speech-language therapists and nurses in the area of dysphagia and tracheostomy, to alert professional training bodies regarding institution of additional licensing and qualifications for speech-language therapists and nurses in the area of dysphagia and tracheostomy, and to thereby improve the situation of clinicians practising in dysphagia and tracheostomy management through the development of guidelines, protocols and position papers. An important implication of this research is that it established the need for a dysphagia training programme for both speech-language therapists and nurses in critical care in dysphagia and tracheostomy, and thereby monitoring the efficacy of this programme and measuring/monitoring the outcomes of multidisciplinary teamwork in the assessment and management of dysphagia and tracheostomy in critical care.

Key Words: critical care, dysphagia, tracheostomy, nurses, speech-language therapists, multidisciplinary team, evidence based practice.

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CHAPTER ONE

INTRODUCTION

1.1 Reader Orientation

This dissertation comprises four chapters. The first chapter orientates the reader to the study by introducing me as the researcher, exploring my personal motivations and rationale for conducting research in this area; it also presents a review of the relevant literature and explains the development of a sound rationale for the study. The second chapter briefly explores methodological considerations in qualitative research, the research method chosen for the purposes of this study and results of the two pilot studies that were undertaken for purposes of development of the research instruments. The results of this research and a discussion of these results are presented in two parts in chapter three. Part one explores the results of the research context through my field notes and observations as a participant researcher during the period 2009 to 2011. Part two explores the results from interviews with speech-language therapists and nurses. Lastly, chapter four integrates all findings, summarises the conclusions of the study and discusses implications for future research and a critical analysis of the study.

1.2 Introducing the Research and the Researcher

This research explores what transpired when a small group of nurses and speech-language therapists from a variety of hospitals with critical care facilities in Gauteng were interviewed regarding dysphagia screening, assessment and management procedures on tracheostomised individuals in these facilities. This dissertation emerged out of an interest in dysphagia in acute critical care settings: a pathology proven to be fatal if left untreated. As the researcher, I am a professional in the field of Speech-Language Therapy and Audiology which encompasses both the medical and educational spheres. From my exposure during my community service in 2006 at a clinic in Soweto, and working as a speech-language therapist in the largest teaching academic hospital in Africa, namely Chris Hani Baragwanath Academic Hospital (henceforth Chris Hani) for the past 5 years, I have gained immense

experience within the diverse South African health care context and its culture. I therefore have insight into public health care systems in Gauteng Province and also in the day-to-day challenges faced by different health care professionals working within the public health care sector.

In recognition of my working experience with acute tracheotomised patients in critical care I was invited to lecture to final year Speech Language Pathology and Audiology students from the University of Witwatersrand in 2011. I have been privileged to have been given the opportunity to host courses on dysphagia within the adult population to newly graduated speech language therapists over the past three years. Furthermore, I have been an active member of a tracheostomy and laryngectomy workgroup within the Gauteng Province since 2009, an active member of the critical care team at Chris Hani for the period 2009 to 2010; I also attended courses in advanced dysphagia and tracheostomy assessment and management. Based on the opportunities highlighted above, I have been privileged to be able to expand my knowledge in the area related to tracheostomy, critical care and dysphagia over the past 5 years. The knowledge I gained during this time was invaluable in the generation of this research topic, the development of the research instrument, the collection of data and the subsequent analyses of the results of the study. The aim of this study was to establish the need for a dysphagia training programme for nurses in critical care facilities who work with tracheostomised individuals and consequently to outline a proposed framework for what could be included in a training programme of this nature.

1.3 South Africa

The South African nation is culturally diverse with a population in excess of 49 million people comprising of a wide variety of ethnic groups, cultures, languages and religious beliefs. According to the mid 2010 population estimates published by Statistics South Africa, the country's population stands at approximately 49.9 million, up from the 44.8 million calculated in the census conducted in 2001. Black South African people constitute the majority, making up 79.4% of the population, whilst the remaining population is made up of White people (9.2%), Coloured people (8.8%) and Indian/Asian people (2.6%) (Statistics SA, 2010). The largest percentage of the population resides in Gauteng Province, with approximately 11.19 million people (22.4%). KwaZulu-Natal is classified as the province with the second largest population with approximately 10.65 million people (21.3%). The

Northern Cape Province, in contrast, is identified as the province with the smallest share of approximately 1.10 million people (2.2%) of the South African population (Statistics SA, 2010). It is expected that all South Africans may require access to health care at some stage of their lives.

1.4 Health Care in South Africa

South Africans receive their health care from one of two health sectors, namely the large public sector, and a smaller but fast-growing private sector. The degree of health care offered varies from the most basic primary health care to highly specialised health care services available in both the private and public sector. The majority of South Africans depend on the public health sector for their health care requirements; a study conducted by Shishana, et al. (as cited in Peltzer, 2009), found in a nationally representative survey that approximately 70% of the South African population attend public health care services, while 23.3% attended private health care services, and a smaller proportion (0.1%) utilised traditional health practitioners. Therefore, based on the large number of South Africans that access public health care services, it was deemed appropriate to conduct research within the South African public sector.

The Department of Health maintains an overall responsibility for health care in the country, with a specific accountability for public sector health care (*Draft Discussion on Packages of Tertiary and Regional Hospitals in Gauteng*, 2009). The National Department of Health, in a draft discussion paper, proposed that all provinces in South Africa should classify its public health institutions into one of the following 5 categories: (i) district health services, (ii) regional hospitals, (iii) provincial tertiary hospitals, (iv) specialised hospitals, and (v) national central hospitals (Draft Discussion on Packages of Tertiary and Regional Hospitals in Gauteng, 2009). Table 1 summarizes the services offered at each level of service delivery.

Table 1

*Summary of Health Services Offered at Each Level of Service Delivery**

Levels of Service Delivery	Services to be Offered in the Public Health Sector
District Health Services	The district health care system (DHS) has been adopted as the vehicle to deliver comprehensive primary health care services in South Africa. These services will include community-based services, services at mobile and fixed clinics, at community health centres and at district hospitals. Most care will be level 1 care delivered by general practitioners, medical officers or primary health care nurses.
Regional Hospitals	These hospitals would receive referrals from and provide specialist support to a number of district hospitals. Most care will be level 2 care that requires the expertise of general teams led by general specialists.
Provincial Tertiary Hospitals	These hospitals will receive referrals from and provide sub-specialist support to a number of regional hospitals. Most of the care will be level 3 care that requires the expertise of clinicians working as sub-specialist or in rarer specialities.
Specialised Hospitals	These hospitals will typically provide care for certain specialised groups of patients only, e.g. chronic psychiatric and tuberculosis hospitals to name a few.
National Central Hospitals	These hospitals will consist of highly specialised referral units which together provide an environment for multi-speciality clinical services, innovation and research. The costs associated with these services will be substantially higher for a low volume of services which will require the use of advanced technology and multidisciplinary teams and individuals with scarce skills to provide a higher quality of sustained care.

**(Draft Discussion on Packages of Tertiary and Regional Hospitals in Gauteng, 2009)*

1.5 Critical Care Services as Health Care in South Africa

Table 1 highlights the alignment of services to specific levels of service delivery depending on the severity of conditions and the level of specialisation. It is apparent that certain specialised services are limited to specific levels of service delivery within the public health sector. One such specialised service includes critical care services. Critical care refers to the specialized care of patients with conditions that are life-threatening and who require comprehensive care and constant monitoring, usually in intensive care units (Mosenifar & SooHoo, 2006). South African critical care units are structured and graded

according to the *1983 National Institutes of Health Consensus Development Conference* (Mathiva, 2002). The units are graded from level I to level IV with level I units mainly linked to academic and national central hospitals. These units usually have highly sophisticated equipment and are able to manage an array of critical illness profiles (Mathiva, 2002). A study conducted in 2002 regarding the types of illness profiles for adult admissions at Chris Hanis' critical care unit revealed that 53% of patients were admitted due to trauma, followed by 30% due to unspecified medical problems, 8% due to infectious diseases, 5% due to obstetrical/gynaecological diseases and 4% due to elective surgery (Mathiva, 2002).

Bearing in mind the varied disease profiles for which patients are admitted into critical care units, it is no surprise that most patients have multiple and extremely serious medical conditions which demand constant attention and treatment to prevent a downward spiral in their condition (Beukelman, Garrett, & Yorkston, 2007). Critical care environments are generally technologically complex, crowded and noisy (Beukelman, et al., 2007). Medical personnel conduct complicated procedures to sustain life in patients in critical care units. The environment is staff intensive with attending physicians, specialist doctors, nurses and assistants who rotate through rooms at unpredictable intervals throughout the day and night (Beaukelman et al., 2007). Various allied health care professionals including speech-language therapists, physiotherapists and dieticians often frequent these units. Recent reviews on critical care conducted in developing and underdeveloped countries have highlighted massive discrepancies in the load of critically ill patients compared to available resources and staffing and an extreme shortage of published research in the field of critical care, particularly in Africa (Bhagwanjee, 2009). Research further indicates that doctors, nurses and other health care professionals may not have some of the skills required to manage patients with complex needs in critical care environments. (Endacott & Chaboyer, 2006). Amongst the many complex needs and difficulties that patients may present with, a common difficulty in patients in critical care units is dysphagia.

1.6 Dysphagia in Critical Care Units

Dysphagia is defined as a difficulty in swallowing or in the process of transporting food and liquid from the oral cavity into the stomach (Logemann, 1998). Swallowing is a complex

process involving the coordination of approximately 30 different muscles and six cranial nerves in a complex chain of events (Logemann, 1998). These events consist primarily of four phases; the oral preparatory, oral, pharyngeal and oesophageal phase (Logemann, 1998). During the pharyngeal phase of swallowing, a period of apnoea (transient cessation of respiration) is needed to ensure that food, fluids and secretions are not inhaled (Higgins & Maclean, 1997). The pharynx is a shared cavity for both deglutition and respiration. Therefore, precise coordination of structures must occur to ensure that airway protection is always maintained during swallowing. The normal structure and function of the pharynx are such that pharyngeal secretions, food and fluid are prevented from entering the trachea. This complex process of swallowing may be interrupted, especially in critical care units by a number of mechanical and functional variables, including the presence of a tracheostomy tube (Higgins & Maclean, 1997).

1.7 Tracheostomy in Critical Care

Tracheostomy is a procedure frequently performed in critical care units for the management of airway obstruction and respiratory failure (Tippett, 2000). The procedure requires a surgical incision into the trachea through the neck which enables a tracheostomy tube to be inserted into the opening in order to provide a patent airway. The tube facilitates airflow to enter the trachea and lungs directly, bypassing the nose, pharynx and larynx (Myers & Johnson, 2008).

The number of patients who annually have a tracheostomy in National Health Service (NHS) care in the United States (US) is not documented, although it is widely accepted in literature that the procedure is common and becoming increasingly prevalent in the United States (Sherlock, Wilson, & Exley, 2009). Ward, Jones, Solley, & Cornwell (2007) have also reported an increase in the number of tracheostomy surgeries performed per annum in Australia. Studies conducted in the US acknowledged that tracheostomy is now one of the most common hospital surgeries in the US (Kasper, Stubbs, Barton, & Pierson, 1996; Manley, Frank, & Melvin, 1999). A study conducted in Australia revealed that up to 200 tracheostomy procedures were performed annually within one 26 bed critical care unit

(Choate, Barbetti, & Sanford, 2003). A tracheostomy is seldom the primary procedure but is usually a response to a deteriorating clinical condition. It is for this reason perhaps, that not enough data is collected about the frequency of the procedure across various countries. A study conducted by Tsakiris, Cleaton-Jones, and Lownie (2002) which was aimed at reviewing 11,622 maxillofacial surgery records (1987-1992) in South African hospitals, revealed that an abnormal airway was significantly more likely after a high velocity injury and when the tongue, floor of mouth, midline or bilateral facial skeletal bones were involved. The study further reported that three out of 37 patients with normal airways on admission later required emergency tracheostomies (Tsakiris, Cleaton-Jones, & Lownie, 2002). A study conducted by Booth (as cited in Norman, 2006) at the Red Cross Children's Hospital in Cape Town, South Africa, reported that the average number of tracheostomies performed annually at this hospital has increased from between 10 and 20 per year, to between 35 and 40 per year over the past five years and that this number continues to increase. However, this prevalence figure can only be generalised to a minute percentage of the paediatric population of Cape Town. Various literature searches for prevalence figures of adult patients with tracheostomies revealed a dearth of information.

Based on the following phenomena it may be assumed that patients with tracheostomies in critical care units of South African Hospitals constitute a diverse population:

- There is a high number of maxillofacial patients with tracheostomies in hospitals in South Africa (Woodnorth, 2004).
- South African hospitals experience an increased number of paediatric patients with tracheostomies.
- Tracheostomy is a frequently performed procedure in critical care units for the management of airway obstruction and respiratory failure Tippet (2000).
- In South African hospitals there is a high prevalence of admissions due to trauma related events (motor vehicle and pedestrian accidents, assaults, gunshots and stabbings) (Mathiva, 2002)
- Additionally, there are admissions due to underlying medical diagnoses, infectious diseases and developmental status (Woodnorth, 2004).

A tracheostomy may be indicated for various reasons, for example securing a clear airway in the event of upper respiratory tract obstruction, facilitating removal of secretions from the lungs, facilitating weaning from artificial ventilation and protecting the airway for patients who are at risk of aspiration (Tippett, 2000). Aspiration is defined as "the passage of material below the level of the vocal folds into the trachea" (Higgins & Maclean, 1997, p 215). The placement of a tracheostomy tube may contribute to various physiological changes. It may impact negatively on the patient's ability to produce voice and it may also bring about loss of humidification of the upper airways. It may also affect the motor and sensory function of the swallowing mechanism. Laryngeal movement may consequently be reduced and protective reflexes may be lost. Uncoordinated laryngeal closure may occur and oesophageal obstruction by the cuff in the proximal oesophagus and hypo pharynx (Logemann, 1998).

The above may result in dysphagia, an increased risk of aspiration and possibly aspiration pneumonia which can be fatal (Higgins & Maclean, 1997; Murray & Brzozowski, 1998). Aspiration pneumonia is defined as "the inflammation of the lungs and airways to the lungs (bronchial tubes) from breathing in foreign material" (Limper (as cited in Goldman & Ausiello, 2007, p 228). Understandably, in tracheostomised patients presenting with dysphagia in critical care units, the event of aspiration will severely stress an already vulnerable system (Hauck, 1999). Preventing aspiration of materials and facilitating safe swallowing is therefore of utmost importance.

According to a study conducted by Robbins, (2008), an estimated 18 million adults will require care for dysphagia related malnutrition, dehydration, pneumonia, aspiration and reduction in quality of life by 2010. More specifically, the studies highlighted in Table 2 have demonstrated that patients are at a significantly increased risk of aspiration when a tracheostomy tube is in place.

Table .2

The Incidence of Aspiration in Patients after Tracheostomy

Researchers	**Percentage Incidence of Aspiration**
Cameron, Reynolds & Zuidema (1973)	42 out of 61 patients (69%)
Bone, Davis & Zuidema (1974)	13 out of 15 patients (87%)
Sharma et. al (2007)	50-76 %

While the research mentioned above identified and quantified the frequency of aspiration in patients with tracheostomies, they have not specified the need to implement measures that would contribute to the early detection of aspiration in patients with tracheostomies, thereby preventing aspiration pneumonia and consistently ensuring safe oral feeding. Extensive literature searches for more recent studies on dysphagia in tracheostomised patients specifically in sub-Saharan Africa (including South Africa) revealed a dearth of information. In the light of the above mentioned studies conducted internationally, it is evident that dysphagia is a significant factor commonly observed in tracheostomy patients. Therefore, the lack of prevalence figures for South Africa and also the close relationship between dysphagia and tracheostomy warrant the need for further research in this area.

As mentioned previously, the extensive anatomical and structural impact that an insertion of a tracheostomy tube may have on an individual's system, that is, respiratory system, communication, swallowing and body image, necessitates a wide selection of health care professionals to generally be responsible for the optimal assessment and management of patient needs (Myers & Johnson, 2009). These health care professionals may include doctors, speech-language therapists, physiotherapists and dieticians to name a few. Table 3 briefly highlights the various health care professionals involved in the assessment and management of patients with tracheostomies, and their respective roles.

Table 3:

The Roles and Responsibilities of Health Care Professionals Involved in the Assessment and Management of Individuals with Tracheostomies

Health Professional	Role and Responsibility
Medical doctor	Prescription of oxygen therapy and humidification and the provision of clinical leadership related to the type of tracheostomy tube, weaning and removal (*Speech Pathology Australia, 2005*)
The nurse	Maintaining a patent airway through suctioning and humidification (Myers & Johnson, 2009). The role of the nurse in a patient with a tracheostomy will be discussed in more detail later in the study
The speech-language therapist	Assessment and management of speech, language, hearing and swallowing (Tippett, 2000). The role of the speech-language therapist will also be discussed in more detail later in the study.
The physiotherapist	To improve lung volume, facilitation of the removal of secretions and assistance in weaning (*Speech Pathology Australia, 2005*)
The dietician	Assessing and maintaining nutritional status, prescription of oral and enteral feeds and provision of nutritional support (Myers & Johnson, 2009)

All the above mentioned health care professionals involved in the assessment and management of individuals with tracheostomies are required to continuously communicate with the patient, the patient's family, and with each other to ensure effective patient care. Often one health care professional may rely on the expertise and opinion of another in order to ensure optimally efficient management of a patient's daily needs (Myers & Johnson, 2009). It is therefore imperative that the health care team be inclusive and collaborative; that the care of patient with a tracheostomy tube is the result of a well coordinated multidisciplinary team of skilled health care professionals (Davies, Taylor, Macdonald, & Barer, 2001). Within this, multidisciplinary team the literature supports the necessity of a team for the management of dysphagia within this population. This study will focus primarily on the collaborative involvement of two types of health care professionals in caring for patients with dysphagia, namely, the speech-language therapist and the nurse working in critical care.

1.8 Speech-language Therapy as a Growing Profession in South Africa

Historically, in South Africa, Speech-Language Therapy and Audiology has been a dual tertiary qualification. There are currently five universities offering training in Speech-Language Therapy and Audiology. At the turn of the 20th century, some training institutions started to offer a choice of qualifying in either Speech-Language Therapy or Audiology. This process is currently in transition, with some institutions having separated the training without an option to qualify in both, whilst other institutions still offer a combined qualification. This move toward a clear distinction between the professions has come about as a result of international trends and the increasing demands of providing adequate standards of training in two rapidly expanding professions in one degree course (Swanepoel, 2006).

South Africa is a developing country with a public health care system that relies heavily on the health professionals to be generalists who are able to attend to a variety of speech, language and feeding difficulties. Currently, there is no distinction in the scope of Speech-Language Therapy practice whether dually qualified or not. Registration as a professional speech-language therapist with the Health Professions Council of South Africa (HPCSA) is based on completion of a four year bachelor's degree and a subsequent year of community service (Swanepoel, 2006). The community service year was instituted in 2003 with the aim for new graduates to work in the national public health care system for one year. The Department of Health (DoH) stated that its objective for initiating community service was to ensure improved health services for all citizens in the country. Health professionals may, through rendering this service, develop their skills and acquire knowledge, behaviour patterns and critical thinking to assist in their professional development (Reid, 2002).

One of the few studies on the experiences of speech-language and hearing therapy professionals during their CCS year in South Africa was done by Penn (2009). The study reported on feedback of 132 graduates from the University of the Witwatersrand on their community service placements from 2003 to 2008. Many graduates described their experiences as life changing and described an initial "overwhelmed" stage. The results showed that the placement process has improved considerably from 2003 to 2008. Equipment improved, referral systems worked smoother and the recognition of the roles and functions of the SLTs and/or audiologists on the team became clearer. Penn (2009) further reported that

contextual issues such as poverty, vulnerability and HIV/AIDS provoked considerable ethical issues with community service professionals as they felt that they were required to deal with issues outside their recommended professional scope of practice. Based on the feedback regarding the adequacy of the undergraduate curriculum in preparing students for community service, the University of the Witwatersrand undergraduate curriculum was revised and adapted. More module content on cerebral palsy, dysphagia and ethical problem solving as well as rural clinical placement was included. Research regarding community service among the other health sciences professions in South Africa resulted in similar findings (Reid, 2002; Visser, Marais, du Plessis, Steenkamp & Troskie, 2006). Community service professionals are young and relatively inexperienced. They are often still in need of support, but within the reality of the South African public health service, they may be placed in remote locations to practise their professions without supervision (Reid, 2002). The undergraduate training programme plays a crucial role in preparing health professionals adequately for community service. The young professionals doing community service have to function effectively, render a professional service, adapt to sometimes harsh realities, make a useful contribution in the community where they serve and use their resources creatively.

A second study conducted by Wranz (2011) regarding readiness, reality and readjustment for SLT's doing their community service from Stellenbosch University also yielded similar results to Penn (2009). The areas, in which SLTs did not feel adequately equipped to work in, included the following: Xhosa language and culture, craniofacial abnormalities, sign language, cerebral palsy, and swallowing and feeding problems. With regard to swallowing and feeding, it was reported that this area is considered more specialised in the scope of the SLTs practice and perceptions of competency may depend largely on the amount of exposure to these areas during undergraduate training. Furthermore, the possibility of a patient choking or aspirating is always a reality and even skilled therapists need to be aware of these life-threatening complications. Dysphagia, the impairment of any part of the swallowing process, is associated with the development of aspiration pneumonia (Palmer, 2008). Palmer (2008) stated that aspiration pneumonia is the second most common type of nosocomial infection in hospitalised patients and a major cause of morbidity and mortality among the elderly who are hospitalised. The results confirmed yet again that curriculum design for SLT's needed some revision at an undergraduate level in order to better equip therapists to provide quality SLT services, and that more structured support and

supervision from government institutions should be employed to improve confidence and clinical skills of newly graduated SLT's.

Recent statistics provided by the HPCSA (2011) revealed that for the year 2011, 1,334 speech-language therapists and audiologists have registered with the HPCSA, followed by 444 speech-language therapists and 211 audiologists. When comparing the population size presented above with the number of qualified speech-language therapists and audiologists in this country, there is an obvious shortage of manpower in the public health sector (Uys, 1993). The large majority of the population with a higher prevalence of dysphagia due to the burden of disease and socio-economic deprivation cannot afford the services of speech-language therapists in the private sector and rely very heavily on the public health care sector (Swanepoel, 2006).

1.9 The Role of the Speech-language Therapist in Critical Care

The speech-language therapist's role and responsibilities in critical care facilities include assessing and treating tracheostomy patients presenting with communication, speech, language, feeding and hearing difficulties. The primary goal of the feeding assessment and management is to identify the nature and cause of the impairment, to normalise airflow, to treat underlying pathophysiology and to provide compensatory techniques for safe swallowing (Dikeman & Kazandjian, 2003). When any question of the safety of a swallow is present, a dysphagia assessment by a speech-language therapist is required. This bedside clinical assessment includes an examination of the oral mechanisms, assessment of oral and laryngeal function and the presentation of a variety of food and liquid consistencies via various utensils (Hauck, 1999). Behavioural observations inform the ability to feed orally in a safe manner. Monitoring for risks of aspiration, temperature changes and respiratory status, and referrals for objective swallowing evaluations may all contribute in the management of these patients (Ward et al., 2008). While speech-language therapists have traditionally managed the communication and swallowing impairments of tracheostomy patients, there has been a noted expansion of their scope of practice in critical care settings (Ward et al. 2007). This has contributed to an increased awareness of the benefits of early rehabilitation for patents in critical care. Furthermore, it highlighted the increasing involvement of speech-language therapists in the management of dysphagia in patients with more acute health

conditions. This includes the management of multifaceted, complex cases such as patients with tracheostomies and mechanical ventilation (Schwartz-Cowley, Swanson, Chapman, Kitik, & MacKay, 1994). In the past decade the clinical role in dysphagia management for these populations has also expanded, with increasing numbers of clinicians being involved in determining the suitability for decannulation (removal of a tracheostomy tube) (Thompson-Ward, Boots, Frisby, Bassett, & Timm, 1999).

Internationally, various studies have been conducted pertaining to the knowledge, confidence and skills of speech-language therapists in the assessment and management of tracheostomy patients. Manley, et al. (1999) conducted the first formal study of the clinical knowledge base and confidence levels of these professionals working with this population. They surveyed 228 American speech-language therapists through asking a series of questions identified as necessary knowledge for any speech-language therapists providing services to tracheostomised patients. The study revealed that only half the participants felt confident in managing this population, and between half to one third of the group failed a number of core questions.

A further study conducted retrospectively by Kasper (1996) studied the care received by 109 tracheostomy patients within an urban university teaching hospital in America and identified variable clinical practice. They found that speech-language therapists had performed swallowing evaluations on only 41% of the tracheostomy admissions. A study similar to the study conducted by Manley et al. (1999) has recently been conducted at an undergraduate level on speech-language therapists working in the private as well as public health sector in Gauteng. The study conducted by Sherwood (2007), aimed to describe the practices and knowledge of speech-language therapists in the management of patients with tracheostomy in South Africa. The researcher distributed questionnaires to 30 speech-language therapists from government and private health care sectors in South Africa. Overall, the findings of the study suggested that there was a specific need for documentation in the literature detailing with the role of the speech-language therapist in tracheostomy care. It was also found that practicing speech-language therapists had varying levels of educational preparation for making treatment decisions for these patients. Very few speech-language therapists reported that they felt confident to serve this population. At the time of the study it

was perceived that universities were attempting to train their students in the area of tracheostomy. However, it was found that academic training was not adequate and that speech-language therapists who experienced both academic and clinical exposure to patients with tracheostomies felt more confident. One of the limitations of the study was that it was carried out through the administration of a survey and as a result the data collected was of a subjective nature.

The current researcher hopes to overcome this aspect by personally interviewing speech-language therapists and nurses working in critical care facilities; it is therefore envisaged that the information obtained will provide insight regarding current practice and not perceived current practice. Furthermore, the study only focused on the knowledge and practices of speech-language therapists and did not research the roles of other multidisciplinary team members and their roles and training needs. The study by Sherwood (2007) also did not focus on patients with a tracheostomy presenting with dysphagia in critical care facilities specifically. Therefore, the current research aims to study a specific tracheostomy population within a specific setting.

Due to the reports on inconsistent clinical management of patients with a tracheostomy, hospitals in Australia have developed tracheostomy management groups to enable a coordinated and integrated approach to patient care (Choate, et al., 2003; Hyland & Lee, 2003). Furthermore, the *Tracheostomy Management Position Paper* (*Speech Pathology Australia, 2005*) reported that differential practices exist within the profession in Australia, noting that there continues to be little consensus on the following issues relating to the role of the speech-language therapist and other team members: swallowing assessment in tracheostomy patients (including the use of blue dye); the role of the speech-language therapist in decannulation; cuff management; involvement in suctioning; and choice of tracheostomy tubes.

Since the implementation of the above mentioned workgroups and the publishing of the *Tracheostomy Management Position Paper* (*Speech Pathology Australia, 2005*), a further study was conducted by Ward et al. (2008) to identify the preparation and training, the

clinical support and the confidence of speech-language therapists in relation to tracheostomy client care in Australia. Results of this study revealed that the majority of speech-language therapists are pursuing clinical training and education to enhance their clinical practice and/or working in supported clinical environments in order to feel confident in managing clients with a tracheostomy.

Therefore, when comparing the findings of the study by Ward et al. (2008) to studies conducted by Manley et al. (1999), and Kasper et al. (1996), it is evident that there has been a vast improvement in knowledge, skills and clinical support for the assessment and management of tracheostomy patients in Australia. This could be attributed to the above mentioned steps taken to improve this specialised service. It is therefore imperative to include speech-language therapists in the current study, because the researcher aims to ascertain information on similar practices, concerns and training within a sample of South African speech-language therapists working with tracheostomised patients presenting with dysphagia. Internationally, various workgroups are being initiated and various studies are being conducted on the role of the speech-language therapist and the clinical consistency in tracheostomy assessment. However, in South Africa this is an area that is still in its infancy and not much relevant research has yet been conducted.

The area of tracheostomy is considered a specialised service for which therapists require specialised training; this is not usually provided at an undergraduate level. The undergraduate training on the assessment and management of tracheostomised patients presenting with dysphagia is briefly covered with provision of a theoretical background related to the pathology, and minimal clinical exposure. Furthermore, due to the complexity of dysphagia and potential detrimental and even fatal consequences of mismanagement (assessment and intervention), ASHA (2002) stresses that it is essential that speech-language therapists possess the knowledge and skills to be proficient in their management of dysphagia. Therefore, while the primary objective of this study was to establish the need for a dysphagia training programme to nurses in critical care, it was anticipated that the study may further inform health care professionals regarding the roles and responsibilities of the speech-language therapist in tracheostomy assessment and management, and possibly highlight the need for future training for speech-language therapists in this specialised field.

1.10 The Role of the Nurse in Critical Care

Critical care nursing has evolved into a highly sophisticated and complex nursing environment, involving technical specialty that requires extensive theoretical knowledge and clinical skills (Towell, 2004). In South Africa, the Diploma in Medical and Surgical Nursing Science: Critical Care Nursing has been developed to meet the needs of critical care education. This diploma (henceforth the Diploma in Critical Care), is offered by nursing educational institutions in collaboration with a public or private health care institution.

As mentioned above, the primary objective of the current study is to establish the need for a dysphagia training programme for nurses working with tracheostomised patients in critical care units. The South African Nursing Council (SANC) has included a variety of acts and procedures as part of the nursing regimen (SANC, 2008). The management and maintenance of the fluid balance of a patient, the feeding of a patient and preparation for and assistance with diagnostic and therapeutic acts by a registered person, e.g. a speech language therapist, are some of the duties that comprise the nurse's scope of practice (SANC, 2008). While there are more than 196,914 nurses that are eligible to practice nursing in South Africa, this number is not nearly enough to address the health care demands facing the South African health care system (SANC, 2008). Nurses are the backbone of any health care system. The quality of nursing directly affects patient outcomes, that is, morbidity and mortality, adverse events and total cost of care (Scribante & Bhagwanjee, 2007). Nurses play a pivotal role in the delivery of care in acute and rehabilitation settings and spend much more time with patients than other members of the multidisciplinary team. Nurses are vital to the coordination of the needed consultations based on the individual patient's health care needs. General nursing duties related to nutrition include monitoring of the patient's weight, nutritional intake, swallowing ability, and diet tolerance. The nurse is required to also assess for any pain, nausea, vomiting, constipation or diarrhoea (Myers & Johnson, 2008). Reviewing the dietary plan and swallowing techniques and providing emotional support are further key nursing interventions (Myers &Johnson, 2008). Within critical care facilities specifically, nurses are often the first line of contact with patients with tracheostomies and are responsible for their oral intake prior to the assessment by a speech-language therapist. More commonly, once an evaluation is completed by a speech-language therapist, nursing staff typically provide hands-on care and supervision of meals. Therefore, speech-language

therapists should be seeking to improve outcomes for individuals with dysphagia by educating direct care staff (Davis & Copeland, 2005). However, this may not be easily attainable in South Africa, due to barriers such as increased patient loads and a shortage of nursing staff; these are discussed below.

The Department of National Health and the national nursing regulatory body SANC, have acknowledged that there is an acute shortage of nurses and specifically of nurses trained in critical care; but the magnitude of this problem has not been quantified (Scribante & Bhagwanjee, 2007). A national critical care audit was commissioned by the Critical Care Society of Southern Africa (CCSSA) in 2003. The purpose of the audit was to identify hospitals with and without critical care facilities and to determine the national distribution of units, the nature of medical and nursing staff support, the extent to which these units were compliant with the requirements of the South African Bureau of Standards and the standards of the Critical Care Society of Southern Africa.

The investigation clearly demonstrated that critical care nursing in South Africa faces the challenge of an acute shortage of trained and experienced nurses (Scribante & Bhagwanjee, 2007). Nurses are tired, often not healthy and plagued by discontent and low morale. Equally, the quality of the training and continuing medical education is dubious (Scribante & Bhagwanjee, 2007). There are no effective recruitment and retention strategies, with significant losses of nurses to migration and other career opportunities (Scribante & Bhagwanjee, 2007). The geographical population:nurse ratio in South Africa is 466:1 and in Gauteng specifically it is 291:1 (SANC, 2008). Employment of nurses via agencies occurs on a daily basis and some units rely mainly on agency staff for patient care. Due to this factor, quality of care is ultimately affected as nurses employed in the units for a day or two are not familiar with the routine or the policies and protocols that are in place. There is also a shortage of nurses trained in critical care in the public health sectors of South Africa (Scribante & Bhagwanjee, 2008). The number of such nurses in the country has decreased in the last 10 years from over 3000 critical care nurses in 1996 to less than 2500 in 2005 (SANC, 2008). Most nurses available via agencies are not qualified in critical care and mistakes occur more frequently; additional supervision is therefore required from shift leaders, increasing their workload and responsibilities (SANC, 2008).

The South African Nursing Council maintains a register of nurses in South Africa which gathers information pertaining to the qualifications of nurses but it does not track whether these nurses are practicing and, if so, where they are practicing. It is known, but not documented, that a substantial percentage of registered critical care nurses often practice in other nursing areas such as nursing management and education, or leave nursing altogether (Scribante & Bhagwanjee, 2007). It is anticipated that the findings of the proposed study may have significant implications for adding to the responsibilities of nursing staff in critical care units with regard to dysphagia training programmes. The findings mentioned above further support that, though it is a great challenge, it is important to obtain information on the current practices of critical care nurses with regard to dysphagia in tracheostomised individuals, and also to establish a dysphagia training programme amongst nurses in South Africa.

1.11 The Need for a Dysphagia Training Programme in Critical Care

Research has shown that early intervention through dysphagia screening programmes may positively influence health outcomes (Martino, Pron, & Diamant, 2000). Hinchey et al. (2005) found that aspiration pneumonia rates were 2.4% at institutions with a formal dysphagia screening protocol versus 5.4% at sites with no formal screening. Martino et al. (2000) noted that dysphagia screening leads to improved health outcome through reducing the risk of developing aspiration pneumonia, reducing the risk of mortality and reducing percutaneous endoscopic gastrostomy (PEG) insertion rates. A PEG is generally placed in a patient's stomach as a means of providing nutrition when he/she is unable to eat orally. It is an endoscopic procedure for placing a tube into the stomach through the abdominal wall (Gauderer, 2001). Both studies highlighted the need to have a formal dysphagia screening protocol for patients to reduce the risk of complications and improve health outcomes.

Furthermore, swallowing screening provides an indication of the likelihood of the presence or absence of dysphagia and identifies patients who require referral to a speech-language therapist or other health care professional for a comprehensive evaluation of swallowing function (Hinchey et al., 2005). The preceding discussion specifies the inclusion of a team approach to the assessment and management of tracheostomised patients. However, the realities of current practice in South African government hospitals are

somewhat different. Research completed in the South African context has shown that nurses working in hospitals have poor knowledge of the assessment and management of dysphagia and the role of the speech-language therapist in the management of dysphagia (Letsholo, 2000; Moothalugan, 2002). There is, however, limited information available about nurses' current practices in the assessment and management of dysphagia in patients with tracheostomies, hence the need for the present study. Further searches related to dysphagia assessment and management practices in critical care settings in South Africa yielded no results. Further research related to dysphagia in critical care settings is therefore warranted.

1.12 Evidence-Based Practice and the Need for Research

In recent years speech-language therapists have been called on to justify their assessment and treatment decisions in the area of dysphagia with sound scientific evidence and have been seeking resources to effectively engage in evidence based practice. Sackett et al. (as cited in Justice, 2008, p. 71), define evidence based practice as "the integration of best research evidence with clinical expertise and client values." It is further described as a process to which clinical professionals adhere when making decisions concerning the assessment or treatment of a given condition (Justice, 2008). Within the field of Speech-Language Therapy, it is increasingly advocated as best practice.

A study conducted by O'Connor and Pettigrew (2008), reviewed various perceived barriers affecting the successful implementation of evidence based practice in a group of speech-language therapists in Ireland. A group of 39 speech-language therapists were interviewed. Results from this study identified various barriers to successful implementation of evidence based research, including lack of time to read research, lack of time to implement new ideas, quality of research and manner of presentation, current lack of research in the field, lack of resources, lack of skills as well as limited access to research and journals. Furthermore, in 2008, The American Speech-Language-Hearing Association (ASHA) conducted a survey of knowledge, attitudes and practices which also revealed that speech-language therapists are aware of the need for evidence based practice, and the same barriers as above were identified (Ashford et al., 2009). In an effort to overcome these barriers and to better equip speech-language therapists to engage in evidence based practice, numerous

organizations in America have taken the lead in helping clinicians become more evidence based in their practices. Organizations such as the Academy of Neurologic Communication Disorders and Sciences, The Cochrane and Campbell Collaborations, The Agency for Health Care Research and Quality, ASHA's National Centre for Evidence based Practice in Communication Disorders (N-CEP), and the U.S. Department of Veteran Affairs are conducting systematic evidence based reviews on clinically relevant topics in speech-language therapy (Ashford et al., 2009). Systematic reviews offer speech-language therapists a concise view of the current state of the science on a particular treatment or diagnostic protocol (Ashford et al., 2009). With dysphagia research still in its infancy, the US Department of Veteran Affairs are in a unique position to guide and advance the evidence base and shape the future of dysphagia treatment.

In tracheostomy management there are numerous instances where practice varies across organisations, disciplines and individuals. When searching for evidence SLT's may find that little consensus exists in the literature or between experts in some areas. Russell and Matta (2004) state: "Where possible we have based our management plans on high quality evidence and research. However, in many instances, such data is lacking and the treatment plans we have provided are inevitably tinged with local bias." (Russell and Matta, 2004, pg xi) SLT's seeking to acquire best practice knowledge may be frustrated in their search to establish the "right approach". There may not be a single best approach to some of the questions that arise. SLT's should accept this reality but continue to expand their expertise. The following briefly addresses some of the differences of opinion, controversy or lack of clarity around issues that currently exist.

- Scope of practice

In Australia, some organisations have supported SLT's to perform roles outside of the Speech Pathology Australia Scope of Practice. In these instances SLT's are strongly advised to seek formal approval, credentialing, ongoing training and support and legal advice from their employer. These areas include suctioning, changing of tracheostomy tubes, decannulation progressions, and cuff inflation and deflation techniques.

- Managing Swallowing

Sound clinical skills and judgement are required to manage the multiple swallowing issues that patients with tracheostomy may present with. The serious potential consequences inherent in cuff deflation and swallowing trials must be recognised. Dikeman and Kazandjian (2003) and Hales (2004) review the causes of swallowing impairments in patients with

tracheostomy. Dikeman and Kazandjian (2003) divide the issues into mechanical impact (reduced laryngeal excursion, saliva and secretion issues, medication side effects) and physiological impact (disruption of airway pressures, reduction of airflow through the glottis). Dikeman and Kazandjian (2003) also include a section on the effects of mechanical ventilation on swallowing. In general, it is accepted that oral intake should be deferred in acutely ill patients who have tracheostomy tubes with inflated cuffs (Dikeman and Kazandjian, 1995). Based on clinical judgements, some patients with tracheostomy and inflated cuffs receive oral intake after careful assessment by an expert team. Suiter, McCullough & Power (2003) found no significant effect of cuff inflation versus cuff deflation using an aspiration/penetration scale in fourteen non ventilated patients with tracheostomy.

- Use of Blue Dye

Speech-language therapists have utilised blue dye to screen for aspiration of oral secretions or food/liquid in tracheostomised patients. There have been conflicting reports on the validity of the technique (Logemann, 1994; Thompson-Henry & Braddock, 1995). In light of the controversy and confusion surrounding blue dye it is advisable for Speech-language therapists to establish policies to clarify their position on this issue.

While various organisations are rapidly assessing and implementing measures to review and improve evidence based practice internationally, similar procedures are being initiated in South Africa. A draft document on guidelines for Speech Therapy and Audiology service provision in the health sector has been developed by the South African Speech Language Hearing Association (SASLHA) (Kritzinger, 2008). Its aim is to render the highest quality services based on evidence based practice as far as possible, that produce positive functional outcomes for clients and their families (Kritzinger, 2008). The draft noted that while evidence based practice is applicable to different disorders, adaptation to the diversity of South African communities, should continue. The draft further stated that the profession of Speech-Language Therapy is continuously changing, with therapists aiming to better their skills and keep up with best practice.

In view of the dynamic and evolving nature of Speech-Language Therapy as a profession, training received at an undergraduate level, as well as clinical experience garnered over time,

may not provide clinicians with knowledge of the most efficacious approaches to assessment and treatment of the cases they will confront in everyday practice over the span of their careers (Ratner, 2006). Evidence based practice may contribute to an improvement in clinical services, make clinicians more accountable, decrease the gap between research and practice, and reduce the variability of services provided to clients (Schlosser, 2003). Whilst the importance of evidence based practice has been recognized in the field of communication and swallowing disorders and professionals have been striving to implement it successfully into their practice of speech and language therapy (O'Connor & Pettigrew, 2008), practical application, particularly in the area of dysphagia, relies on various factors. Speech-language therapists working in the area of dysphagia receive specialized training in swallowing and swallowing disorders. This expertise is expected to be enhanced through clinical experience and observation of patient outcomes. The speech-language therapist and patient should discuss and weigh the patient's preferences before establishing a treatment plan. Current best evidence in South Africa in conjunction with the speech-language therapist's clinical expertise and the patient's individual circumstances and preferences help determine the optimal course of dysphagia assessment and management (Hegland et al., 2009).

In summary, as part of the swallowing examination for a patient with a tracheostomy the procedures as well as health professionals responsible in relation with best practice are summarised as follows:

- Oral and tracheal suctioning (to be performed by a critical care nurse or a respiratory therapist)
- Cuff deflation (inflated cuff may prevent laryngeal elevation or press into the oespohagus. Deflate either partially or fully by inserting a 5-10 ml syringe into cuff pilot balloon and withdraw air slowly. slow deflation allows positive lung pressure to push secretions upward from the bronchi.) (to be performed by a critical care nurse or a respiratory therapist)
- A four finger swallow test should be conducted (to be performed by a speech-language therapist)
- Assessment of dry swallow to feel laryngeal elevation and hyoid approximation (to be performed by a speech-language therapist)
- Re-administer oral and tracheal suctioning if required

- Administer food consistencies with blue dye (to be performed by a speech-language therapist)
- Tracheal suctioning to check for aspiration (to be performed by a critical care nurse or a respiratory therapist)
- Re-inflation of cuff (to be performed by a critical care nurse or a respiratory therapist)

(Dikeman & Kazandjian,2003;, Donzelli et al, 2001; Myers & Johnson, 2008; Swigert, 2003 and Windhorst et al 2009.

1.13 Summary of Rationale and Problem Statement

Based on the information provided above, it is evident that South Africa's population is diverse in terms of language, culture, ethnicity, literacy, financial status and health well-being (Bradshaw et. al., 2003; Benatar, 2004). Based on the studies mentioned above and considering the stressful nature of public critical care units in this country, the staff and specifically nursing shortages and other challenges in the public health sector and the lack of knowledge of speech-language therapists (indicated by research conducted in the area of dysphagia and tracheostomy), it may be surmised that many health professionals working in hospitals are placed in a difficult situation when screening, assessing and managing tracheostomised patients in critical care, often due to a lack of knowledge, skills, mentorship and training, which is essential for dysphagia management (Davis & Conti, 2003). This inadvertently leads one to question how assessment and management techniques are used and which of these techniques are used. The importance of evidence based practice and the implementation of training programmes to address efficient dysphagia management is therefore emphasised.

CHAPTER TWO
METHOD

2.1. Chapter Orientation

This chapter briefly explores the guiding principles for methodological considerations in qualitative research, and the method used in this research. The aims and sub-aims are outlined, followed by a discussion of the research design. The sampling strategy, data collection methods and the research protocol are discussed. It also includes a discussion of the pilot study and the main study.

2.2 Main Aim of the Study

To determine the need for a dysphagia training programme for nurses and SLTs working with acute tracheostomised patients in critical care units in government hospitals in Gauteng Province, South Africa.

2.2.1 Sub-aims

- To describe the training and education of participants, consisting of speech-language therapists and nurses, in the area of dysphagia and tracheostomy in critical care;
- To illustrate the respective roles of speech-language therapists and nurses in the screening, assessment and management of this population;
- To illustrate the insight of speech-language therapists and nurses into their own and each others' roles with this population;
- To describe the speech-language therapists and nurses views/knowledge on whether a team approach is employed in the intervention with this population;
- To describe the speech-language therapists' and nurses' views on what the composition of this team is.

2.3 Research Design

The research design is the plan for conducting the research. It focuses on the research problems and the results the study aims to achieve (Babbie & Mouton, 2001). This study was conducted within a mixed method framework. Table 4 briefly highlights a number of important features in terms of methodological considerations when conducting the qualitative component of this mixed methods design in research. These considerations are based on the evaluation of health research presented in Chapter 1, and on the contextual challenges and proposed nature of the pathology and research population to be studied.

Table 4

Methodological Considerations in Qualitative Research (Duffy, Whelan, Cole-Kelly, Frankel, Bouffon, et al, 2004; Glaser & Strauss, 1967; Mays & Pope, 2000)

Methodological considerations
Flexibility in design to continually negotiate and include participant reflections
Establishing baseline measures prior to administration of research instrument
The use of pre and post design and pilot studies to validate research instrumentation
The use of multiple methods of data collection and analyses to triangulate findings in order to increase credibility and contribute to greater scientific rigour
Data collection methods that allow for later re-evaluation e.g. through audio recordings
Reflexivity to attempt to account for researcher bias, by focusing on the context of knowledge construction and the researcher effect at every step of the process
Participant reflection and the use of respondent validation of findings to enhance validity
The use of interviews for participant perceptions is widely used as an indirect measure of what actually occurs within a specific context
Analysis led by data by allowing the data to "star" so that the data in all its richness and breadth become the main focus of the results of the study
Application of a constant comparison method and a grounded theory approach, and acknowledgement and awareness of researcher preconceptions through reflective practice to strengthen validity

A mixed-method study design was chosen to enhance construct validity, to increase the possibility of the gathered information complementing each other and to elaborate and clarify the data obtained. A further advantage of the mixed-method approach may be to cross-check and corroborate different types of data by means of triangulation (Schifferdecker & Reed, 2009).

Within this mixed method framework the qualitative component further employed an exploratory descriptive survey design using semi-structured face to face interviews. Exploratory research studies that which has not been previously studied and attempts to identify new knowledge, insights, understandings and meanings; it also explores factors related to a specific topic (Brink & Wood, 1998). Exploratory research further examines the relevant factors in detail to arrive at an appropriate description of the reality of an existing situation (Brink & Wood, 1998). The current study is exploratory in nature as it aims to establish the need for a dysphagia training programme for nurses by exploring the current practices of a group of speech-language therapists and nurses in the assessment and management of tracheostomised individuals with dysphagia.

Descriptive research is a most basic type of enquiry that aims to observe certain phenomena, typically at a single point in time (Kelley, Clark, Brown, & Sitzia, 2003), that provides an accurate account of characteristics of a particular individual, event or group in real life situations (Polit-O'Hara, 2004). The current study is descriptive in nature in that participants were required to describe various assessment and management procedures, as well as to describe the roles of various members of a multidisciplinary team, which was then quantified. Furthermore, a descriptive design was used for the purpose of developing theory, identifying problems in current practice, justifying current practice and making judgements (determining what others in similar situations are doing) (Burns & Grove, 2005). Patton (2002) has reiterated that it often becomes unavoidable that people and institutions often recurrently adopt routine ways of thought and work.

Within this mixed method design and in recognition of the importance of context in research, I also incorporated the use of a mini-ethnography in an attempt to reflect the social world and behaviour of the target population in the overall design of the study (Galanti, 1999). As this research was committed to describing and interpreting the participants' viewpoints, personal and participant reflections were included at points of the study. According to Hammersly (as cited in Evans, 2010) ethnographic data collection involves using various methods and sources with a small group of people in a specific environment in order to be able to understand the people better, and to assist in the development of new theories. It involves observation, immersion in the research setting and keeping field notes through the various stages of the research process. As mentioned previously, being a speech-language therapist based at the largest public hospital in Africa, I was able to conduct the

processes mentioned above specifically at my hospital and was therefore able to compile a mini-ethnography of the critical care research setting over a period of approximately two years.

2.4 Sampling

2.4.1 Sample

LoBiondo-Wood and Haber (2006) describe a sample as a portion or a subset of the research population selected to participate in a study, representing the research population. A convenience sample was recruited, that is, a sample restricted to a part of the population that was readily accessible (Singleton, Straits, B. C., & Straits, M. M., 1993). The sample comprised 20 speech-language therapists and 12 nurses working in critical care units in public hospitals in Gauteng. The study was therefore limited to hospitals with critical care facilities. The decision to use only hospital based health care professionals in government hospitals with critical care units was based on three premises:

- Statistics reveal that for reasons pertaining to finance and accessibility public health care facilities are accessed by the majority of the South African population (Shishana et al., as cited in Peltzer, 2009).
- The number of patients with dysphagia with or without a tracheostomy in public hospitals also shows an increase, possibly due to an increase in the prevalence of HIV, stroke, head injury and motor vehicle accidents in the South African population.
- The complexities involved in managing tracheostomised dysphagia patients will be more obvious in an acute critical care setting where life-threatening medical problems often co-exist with dysphagia.

Tables 5 and 6 respectively provide a brief summary of the speech-language therapists and nurses that participated in the current study.

Table 5

Description of the Sample of Speech-language Therapists (N=20)

Demographic factor		Number of respondents	Percentage
University of Graduation	Witwatersrand	10	50%
	Pretoria	2	10%
	Kwazulu Natal	1	5%
	Cape Town	2	10%
	Stellenbosch	1	5%
	Medunsa	4	20%
Total		**20**	**100%**
Current Institution	Hospital A	1	5%
	Hospital B	2	10%
	Hospital C	4	20%
	Hospital D	6	30%
	Hospital E	1	5%
	Hospital F	2	10%
	Hospital G	1	5%
	Hospital H	3	15%
Total		**20**	**100%**
Number of Years since Graduation	0-2 years	9	45%
	2-5 years	6	30%
	5-10 years	2	10%
	> 10 years	3	15%
Total		**20**	**100%**
Current rank at Institution	Assistant Director	1	5%
	Chief	4	20%
	Senior	4	20%
	Junior	7	35%
	Community Service	4	20%
Total		**20**	**100%**
Institution of Postgraduate Training	Witwatersrand	3	15%
	Pretoria	3	15%
	Kwazulu Natal	0	0%
	Cape Town	1	5%
	Stellenbosch	0	0%
	Medunsa	1	5%
	n/a	12	60%
Total		**20**	**100%**
Period of Employment at Current workplace	0-2 years	13	65%
	2-5 years	5	25%
	5-10 years	1	5%
	>10 years	1	5%
Total		**20**	**100%**

Demographic factor		Number of respondents	Percentage
Employment for Gauteng Department of Health	0-2 years	11	55%
	2-5 years	6	30%
	5-11 years	0	0%
	>10 years	3	15%
Total		**20**	**100%**

Table 6

Description of the sample of nurses (N=12)

Demographic factor	Institution	Number of participants	Percentage (%)
Institution of Graduation	Rahima Moosa College of Nursing	8	67%
	Pretoria Academic Hospital Nursing College	4	33%
Total		**12**	**100%**
Current Institution	Hospital A	1	8%
	Hospital B	2	17%
	Hospital C	4	33%
	Hospital D	5	42%
Total		**12**	**100%**
Number of Years since Graduation	0-2 years	0	0%
	2-5 years	2	17%
	5-10 years	3	25%
	> 10 years	7	58%
Total		**12**	**100%**
Highest Nursing Qualification Obtained	Critical Care Intensive Care Science	12	100%
Total		**12**	**100%**
Employment at Current Workplace	0-2 years	4	33%
	2-5 years	0	0%
	5-10 years	3	25%
	>10 years	5	42%
Total		**12**	**100%**
Period of Employment in Critical Care for Gauteng Department of Health	0-2 years	2	17%
	2-5 years	2	17%
	5-10 years	4	33%
	>10 years	4	33%
Total		**12**	**100%**

2.4.2 Participant Selection Criteria

There were two groups of participants involved in this research, namely speech-language therapists and nurses.

Participant Inclusion Criteria

- The participants were required to be health care professionals working at public hospitals in Gauteng where critical care units were available.
- The participants had to be either speech-language therapists registered with the Health Professionals Council of South Africa (HPCSA), or qualified nurses in critical care registered with the South African Nursing Council (SANC) with a South African National Intensive Care Nursing Diploma to be certified as critical care nurses (Mathiva, 2002).
- The nurses had to have direct experience in critical care nursing, as this is often a sub-set of nursing that requires additional qualifications.

Participant Exclusion Criteria

- Participants who worked in public hospitals where no critical care facilities were available were excluded from the study.
- Private health care practices in Gauteng were excluded.
- Participants who were not registered with the HPCSA or the SANC were excluded from the study.
- Nurses who did not have direct experience of or a qualification in critical care were excluded from the study.

2.5 Data Collection

Polit and Hungler (1999 p. 267) defined data as "information obtained during the course of an investigation or study". Interviews were scheduled to obtain data relevant to the study's aims and research questions. The rationale for using interviews as the method of data collection will be discussed below. Furthermore, as previously mentioned, ethnographic field

notes, observations and researcher reflections were all incorporated as part of the data collection process.

2.5.1 Data Collection Instrument

Data collection instruments refer to tools used to collect data, for example questionnaires, checklists and interview schedules (Kelley et al. 2003). The researcher aimed to design a semi-structured interview schedule comprising both closed and open-ended questions. In general, questionnaires are convenient to use because they can be administered to large numbers of people, are relatively economical and provide some anonymity (Rosnow & Rosenthal, 1996). However, for the purpose of this study, the researcher chose to utilise a face to face interview schedule instead, because it provided an opportunity to establish rapport with the subjects and to stimulate the trust and cooperation that was needed to probe sensitive areas. It also provided an opportunity to assist the participants in their interpretation of complex questions related to tracheostomy and dysphagia; furthermore, it allowed flexibility in determining the wording and sequence of the questions (Rosnow & Rosenthal, 1996). Additionally, the open-ended method was selected as it eliminated the chance of "guessing" which may often occur with Yes/No questions and allowed for variations in participant responses.

For the mini-ethnography, detailed field notes were a critical component of the data collection and involved "bracketing" (Silverman, 1993), which is the cognitive process of putting aside one's own beliefs and not making judgements. Field notes included the attitudes and feelings of the population group, the critical care environment, daily activities and routines of the environment and any other pertinent or interesting comments made within the research setting. For my own reflections and observations, I attempted to standardise the format of these self reflections following a six step format recommended by Christodoulou (2005). I was introduced to this format through an intervention study conducted by Evans (2010). The steps involved identifying the data, feelings, meaning, impact, need and the learning at each stage of reflection (Evans, 2010). Naturalism, understanding and discovery are three guiding principles of ethnographic research. Naturalism requires that the everyday context of people's lives forms the backdrop to the research setting (Hammersley, 1998, as

cited in Evans, 2010) and is considered a prerequisite for attempting to understand people in a specific context. All speech-language therapists were interviewed at their speech therapy departments, and all nurses were interviewed in a room within the critical care facility. I spent several hours during each day of the data collection process having casual conversations with various staff members within the critical care setting while allowing myself to jot down pointers to follow up on during the data collection process.

2.5.2 Construction of the Data Collection Instrument

2.5.2.1 Content Development

2.5.2.1.1 Literature Review

The content of the interview needed to be carefully planned to relate clearly to the research question in order to ensure content validity of questions included in the tool (Kelly, Clark, Brown, & Scitzia, 2003). Therefore, the research instruments (Appendices H and I) were constructed according to guidelines provided by Patton (1990) and Singleton et al. (1993). A number of decisions were made in effectively planning the interview tool. The first step involved drawing up an outline of the areas under investigation that would best inform the aims of the study. The amount of detail and the length of the interview further guided the content of the questions. Aspects such as types of questions, wording of questions, response formats and sequencing of questions were all taken into consideration (Patton, 1990). The content of the tool was derived from various academic resources (Dikeman & Kazandjian, 2003; Logemann, 1998; Myers & Johnson, 2008; Tippett, 2000) and also the *Speech Pathology Australia Position Paper* on the assessment and management of individuals with a tracheostomy (SPA, 2005) and previous studies that related to the area of dysphagia and tracheostomy patients (Hauck, 1999; Higgins & Maclean, 1997; Murray & Brzowski, 1998). In the planning stage, it was also crucial to establish if an appropriate, valid and reliable instrument already existed (Kelly et al., 2003). The following publications were also identified as relevant to the study: a survey by Manley et al., in 1999, on the training of speech-language therapists for service providing to patients with a tracheostomy tube, a study

by Ward et al. (2007), and a survey by Modi (1999) on the practices, training and concerns of a group of hospital based speech therapists working in the area of dysphagia. Following a review of these surveys, core questions were adapted for use in the current study.

2.5.2.1.2 Consultation with an Expert in the Area of Tracheostomy and Dysphagia

The information obtained from the literature reviews as well as from reviewing previous studies was discussed with an expert working in the field of dysphagia and tracheostomy. The expert has in excess of ten year's experience in working with this population. Advice or guidance on the appropriateness of the areas to be covered was provided. Various suggestions were taken into consideration and as a result the instrument that was developed initially consisted of approximately 22 questions.

2.5.3 Description of the data collection instrument

Participant Information Sheet

The primary goal of a participant information sheet is to inform the participants about the purpose of the study and to invite them to participate (Baker, 1994). A participant information sheet explaining the aim of the study was sent to all potential participants via distribution of these sheets to the heads of the respective speech-language therapy departments, and to nursing matrons at each hospital (Appendices B and E). The participant information sheet aimed to increase the response rate (Bowling, 2002). In the information sheet confidentiality was guaranteed and an explanation of how the results would be used was provided. An estimation of the time taken to complete the questionnaire was also included in the sheet.

The Interview Schedule

The interview schedule for speech-language therapists consisted of three pages, arranged into three sections labelled A to C; the nurses' interview schedule consisted of three pages, arranged in three sections labelled A to C. An outline of these sections is presented in Table 7, followed by a description of sections A, B and C as indicated in the table.

Table 7

Outline of Speech-Language Therapists' Interview Schedule versus Nurse Interview Schedule (Pilot Study)

Speech-language Therapist's Interview Schedule	**Nurses' Interview Schedule**
Section A: Training	Section A: Training
Section B: Multidisciplinary Team	Section B: Multidisciplinary team involvement
Section C: The need for a dysphagia training programme	Section C: The need for a dysphagia training programme

Section A: Training for all Participants

In order to establish rapport and goodwill, easy and basic questions were asked first (Fink, 1995; Bowling, 2002). The first section therefore requested biographical information that identified variables for correlation and reflected the representation of the sample. This section was structured to allow the participants to respond without revealing any personally identifiable information that would breach confidentiality, such as names of hospitals and participants. Biographical variables that were identified for inclusion were year and institution of graduation. The year of graduation was deemed important in terms of curricular changes and years of experience in the field. The institution of training was included to ensure that the sample was representative in terms of all the speech-language therapy and nursing training institutions in South Africa. The researcher also aimed to obtain information regarding critical care, and undergraduate and postgraduate training in the area of tracheostomy and dysphagia. Groher (1995), as well as Miller (1995), have both suggested that the training of students in the area of dysphagia tends to be inadequate at an undergraduate level. Therefore, participants were asked questions related to supervision and training at an undergraduate level. Furthermore, Logemann (1998) has found that postgraduate courses tend to be inadequate for the attainment of sufficient knowledge and skills. Therefore, questions related to the number of tracheostomised patients that participants work with, supervision and training in the care of tracheostomy patients presenting with dysphagia was probed. Questions were also asked about continued professional development activities and knowledge of evidence based practice in the field of tracheostomy and dysphagia.

Section B: Multidisciplinary Involvement

Dikeman & Kazandjian (2003) and Ward et al. (2007) have continuously reiterated the importance of the speech language therapist and other health professionals in the assessment and management of tracheostomised individuals presenting with dysphagia. Therefore, this section aimed to obtain information regarding current screening, assessment and management practices by speech-language therapists and nurses for these. It was anticipated that this section would assist to guide evidence based practice and provide insight in terms of the current knowledge and skills of speech-language therapists and nurses in government hospitals with critical care facilities regarding their roles in the management of dysphagia. This section further focused on participants' perceptions and knowledge related to multidisciplinary work and the roles of the various multidisciplinary team members in relation to dysphagia intervention with tracheostomised individuals. Questions about multidisciplinary teamwork was especially vital within this research instrument, because the main and secondary aims of this study focused primarily on the role of the critical care nurse as a member of the multidisciplinary team and also on the need for implementing dysphagia training programmes for nurses in critical care facilities. Furthermore, multidisciplinary teamwork is strongly advocated in the literature as being the most appropriate model of care in dysphagia (Davies, Taylor, Macdonald, & Barer, 2001).

Section C: The Need for a Dysphagia Training Programme

A section on questions pertaining to the definition and symptoms of dysphagia, as well as the necessary referrals made, was included in the nurses' interviews. Medical and allied medical disciplines have frequently been found to have poor knowledge of dysphagia and its signs and symptoms (Miller, 1995). Since the main focus of this study was establishing the need for a dysphagia training programme, it was felt that a question on its definition and symptoms would be appropriate. Participants were also asked for their opinions regarding the structure of future dysphagia training programmes for nurses with patients with tracheostomies. Furthermore, participants were requested to provide their opinion on what the content of such training programmes should entail. This information was expected to assist the researcher in developing a proposed theoretical framework of areas to be included in a dysphagia training programme for nurses.

The questionnaire concluded with a note of appreciation to the participants.

2.5.4 Equipment and Materials

I kept a book/diary at all times to make field notes and to document my own observations and self-reflections throughout the study. In addition, a voice recorder was utilised to record participant responses. The material used in the study included the two interview schedules (Appendices H and I).

2.6 Validity and Reliability

Validity refers to the ability of the instrument to measure accurately what it is supposed to measure (Burns & Grove 2001). Because the interview schedule utilised in this study was developed by the researcher, it was important to gather evidence to ensure validity before the actual data were collected (McMilan & Schumacher, 2001). Content validity as discussed previously was obtained by reviewing a broad range of important literature on the assessment and management by nurses and speech-language therapists of tracheostomised patients with dysphagia. The instrument used in the study was evaluated by an expert in the field. Furthermore, two pilot studies were conducted in order to improve the internal validity and, more importantly, the reliability of the data collection instrument. The results of these pilot studies will be discussed later in this chapter. Reliability refers to the consistency and stability of an instrument over time and conditions (Polit & Beck, 2004). If a study and its results are reliable, it means that the same results will be obtained if the study were to be replicated by other researchers using the same method. To add to the reliability of the research, feedback on the ethnographic results and on the semi-structured interview data was provided to small group of nurses and speech-language therapists working at my current hospital who were a part of the study. Participants were then given the opportunity to add comments which were included when reporting on the results of the study. The rationale for selecting participants from the hospital which I work at was purely related to them being easily and readily available. Furthermore, by audio recording the interviews conducted, all pertinent information was captured word for word, thereby enhancing the reliability of results.

2.7 Research Protocol

Various steps were followed in the development of the research protocol of the current study. Figure 1 highlights the steps involved in the research protocol.

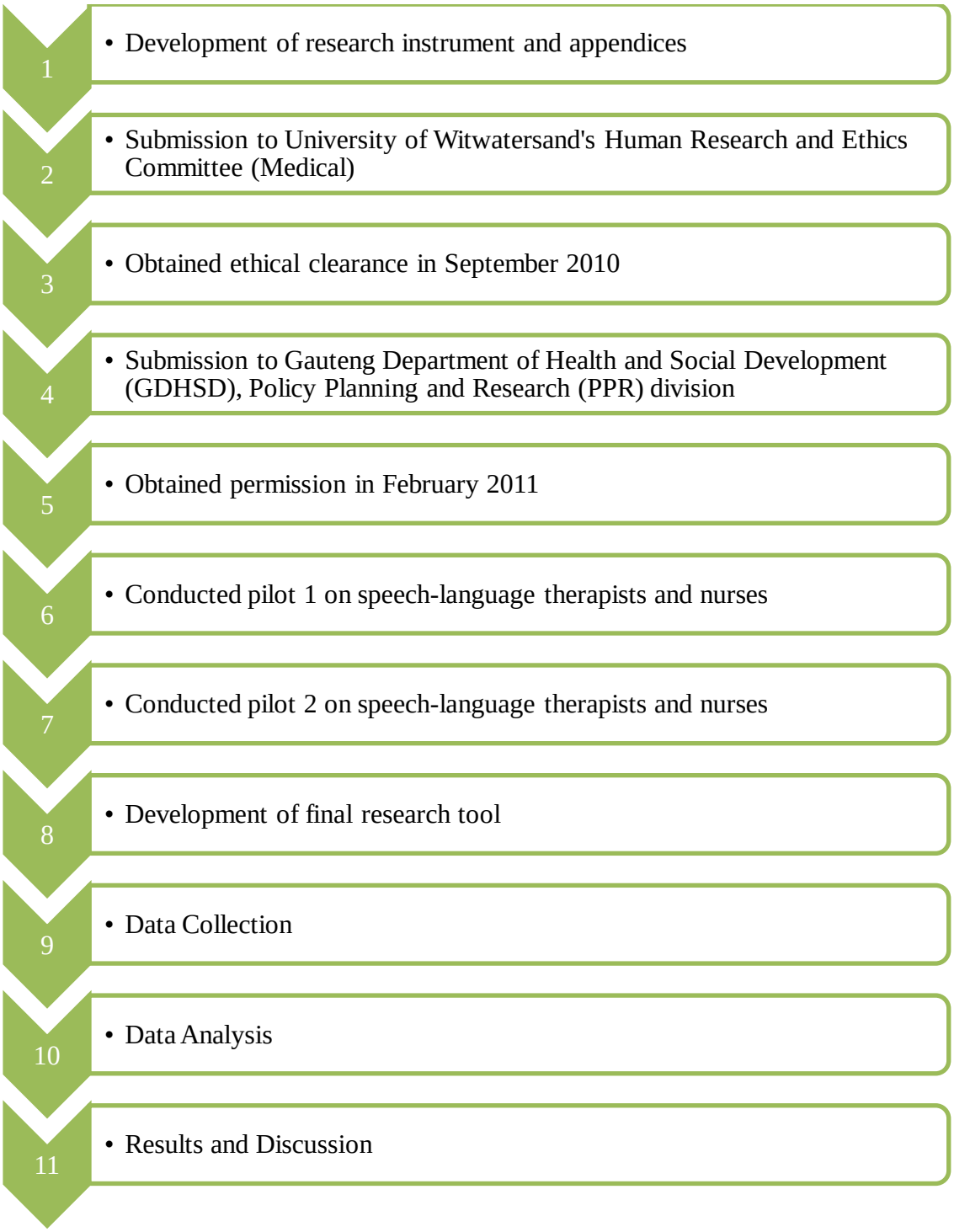


Figure 1 Flow chart summarising the research protocol that was followed for this study.

2.7.1 Submission of the Interview Schedule

The research proposal, ethics application form, participant information sheets, consent forms, and the questionnaire schedule were submitted to the University of Witwatersrand Human Research and Ethics Committee (Medical). The goal of ethics in research is to ensure that no one is harmed or suffers any adverse consequences as a result of the research activities (Cooper & Schindler, 2001). Ethical clearance was obtained in September 2010. (Appendix J). Once ethical clearance was obtained the necessary documentation was submitted to the Gauteng Department of Health and Social Development (GDHSD), Policy Planning and Research (PPR) division for consent as research was being conducted with Gauteng Department of Health employees as participants. Consent was obtained in March 2011 (Appendix K).

2.7.2 Recruitment and Consent

Participant information sheets and consent forms (Appendices B, C, E and F) were sent to prospective participants. The researcher aimed to hand out all documentation personally to participants in order to establish rapport early in the process. However, this was not always possible especially with regard towith regard to nurses due to staff shortages, changes in shifts and unfamiliarity with nurses from other hospitals. In these instances, documentation was left with nursing matrons. Participants were then followed up telephonically, and interviews were arranged at a time and place convenient to them.

2.7.3 Pilot study

2.7.3.1 Pilot 1

Aim

The aim of the pilot was to test the research instrument, that is, the interview schedule prior to its use in the main study to ensure that the researcher was obtaining the information required to address the aims of the study. The implementation of a pilot study assisted in the contribution of the reliability of the tool. Necessary amendments were made as required

where the aims of the instrument were not met (Burns & Grove, 2005). According to De Vaus (1991) and Singleton et al. (1993), the responses from a pilot study should be analysed with the aim of detecting research instrument problems such as confusion with the interpretation of questions, errors in the wording or sequencing of questions, ambiguous instructions, the diversity of responses to open-ended questions, the inclusion of all options in closed-ended questions, and the time taken to complete the interview.

Procedure

Two speech-language therapists and two nurses working in critical care were approached to participate in the pilot study. The participant information sheet was provided to them. Face-to face interviews were conducted individually with participants. The interviews were conducted in English and transcribed by the researcher. All participants were able to communicate in English and did not require an interpreter. A summary of the aims, procedure and the results is presented in Tables 8 and 9 respectively.

Table 8

Pilot 1 on Speech-language Therapists: Aims, Procedures and Results

Procedure	Aim	Results
Participants were asked to respond to open-ended and closed-ended questions with pre-coded responses available for each question	Section A: To obtain information on undergraduate training and current experience	Section A: Questions 1 and 2 regarding qualifications were found to be ambiguous. It was felt that the use of the option of selecting from a list of % pre-coded options were difficult for participants to answer. Participants found it difficult to answer question 6 & 7 as they were not separated into theoretical vs. practical experience.
	Section B: To obtain information regarding the roles of various professionals in the assessment and management of tracheostomised patients with Dysphagia	Section B One speech-language therapist commented that the two open-ended questions (12 and 13) on the assessment and management procedures were time consuming because one needed to think critically before responding, and one also did not know how much detail to include.
	Section C: Establishing the need for a dysphagia training programme	Section C This section was clearly understood by both participants and required no amendments.

- Overall, both participants reported that the interview schedule was fairly easy to follow, but that some of the instructions and the language used required further simplification.
- 1 participant reported that an interpreter should be available for some participants that may not be very proficient in English.
- Both participants reported that it would be useful to provide future participants with definitions of the terminology already discussed above.
- Participants further reported that the use of sections within the schedule made it easier to understand the context of the study.
- The time allocated for each interview averaged at approximately 20 minutes per interview which was felt to be an adequate amount of time being spent considering that the interviews were conducted on government employees who may not have more than 15-20 minutes to on being interviewed.

Modifications made based on Pilot 1:

- The interview schedule comprised five sections as opposed to the initial schedule which comprised three sections.
- A section on biographical information, as well as current practice was included to improve the structure of the interview schedule.
- Questions 1 and 2 were rephrased with the option of closed ended-pre-coded responses.
- Additional questions pertaining to postgraduate qualifications and years of employment in the public health sector were included.
- All % pre-coded responses were converted to numerical values
- Question 6 was further divided into practical versus theoretical training.
- Within the section on multidisciplinary work, a question pertaining to listing the key multidisciplinary team members in the assessment and management of tracheostomy patients presenting with dysphagia was included.
- Participants were to be reminded to take their time and provide as much detail as possible.
- The researcher developed a list of pre-coded keywords available to probe participants in certain sections, should they be unsure as to how much detail to provide.

Table 9

Pilot 1 on Nurses: Aims, Procedures and Results

Procedure	Aim	Results
Participants were asked to respond to open ended and closed-ended questions with pre-coded responses available for each question.	Section A To obtain information on training.	Section A: • Questions 1 and 2 regarding qualifications were found to be ambiguous. • One participant found it particularly difficult to answer the question on qualifications without the provision of options from which to choose. • It was felt that % pre-coded options were difficult to answer. • Participants found it difficult to answer question 5 as it was not separated into theoretical versus practical experience.
	Section B To obtain information regarding the need for a dysphagia training programme.	Section B: • One participant required a definition of dysphagia. • The question pertaining to continued professional development activities was not understood by both nurses. • The question pertaining to evidence based practice was not understood by both participants. • One participant was unable to provide information on more than five symptoms of dysphagia. • Question 12 yielded similar results to Question 11 and therefore appeared to be redundant. • Both participants were unable to provide detailed information regarding their current role in the assessment and management of this population.
	Section C: To obtain information regarding multidisciplinary roles and involvement.	Section C: • This section was clearly understood by both participants.

Additional Comments

- Overall, both participants reported that the interview schedule was fairly easy to follow, but that some of the instructions and the language used required further simplification.
- 1 participant reported that an interpreter should be available for some participants that may not be very proficient in English.
- Both participants reported that it would be useful to provide future participants with definitions of the terminology already discussed above.
- The time allocated for each interview averaged at approximately 20 minutes per interview which was felt to be an adequate amount of time being spent considering that the interviews were conducted on government employees who may not have more than 15-20 minutes to spare on being interviewed.

Modifications made based on Pilot 1:

- A list of keywords re possible symptoms of dysphagia was provided, in the event that participants are unable to answer this question independently.
- The questions on current screening, assessment and management procedures of nurses, was further subdivided and keywords were provided to nurses to facilitate discussion.
- Both participants reported that it would be useful to provide future participants with definitions of the terminology already discussed above.
- A definition of continued professional development was provided and a set of closed-ended pre-coded responses was used to assist participants.
- A definition of evidence based practice was provided.
- Key words to facilitate discussion were used to probe participants.
- A list of keywords re possible symptoms of dysphagia was provided, in the event that participants are unable to answer this question independently.
- The questions on current screening, assessment and management procedures of nurses, was further subdivided and keywords were provided to nurses to facilitate discussion.

Tables 8 and 9 clearly shows that the process of pre-testing the research instrument allowed the researcher to obtain specific information on questions that required rephrasing and additions to or omissions from the interview schedule. This contributed to improvement of the validity of the research instrument (Rosnow & Rosenthal, 2006).

2.7.3.2 Pilot 2

Because numerous changes were made to both interview schedules during the pilot study, it was important to conduct a second pilot study before embarking on the main study. The purpose of the second pilot study was to determine if participants were able to answer all the questions, including changes that were made from the first pilot. Participants were once again informed to provide recommendations for change based on the guidelines adhered to (De Vaus, 1991; Singleton et al., 1993) in the first pilot study. One nurse and one speech-language therapist participated in pilot 2.

Outcomes: ***Speech-language therapists and nurses pilot study***

Both participants understood all the questions asked and did not request any clarification of questions. The participants had sufficient knowledge to answer the questions posed. The interviews took an average of 20 minutes each. The interview schedule was easy to transcribe and the format appeared to be well structured and easy to follow. These findings indicated that the interview schedules were adequately developed for the main study. Thus, the pilot studies contributed to the development and validation of the interview schedules that were used in the main study. The rigorous validation process ensured that the content of the interview schedule related to the specified objectives of the study.

The final interview tool for speech-language therapists and for nurses is outlined in Table 10 (Appendices H and I).

Table 10

Outline of Speech-Language Therapist Interview Schedule versus Nurse Interview Schedule (Main Study)

Speech-Language Therapist Interview Schedule	Nurse Interview Schedule
Section A: Biographical Information	Section A: Biographical Information
Section B: Tracheostomy Experience and Training	Section B: Tracheostomy Experience and Training
	Section C: Dysphagia
Section C: Current practice	Section D: Current Practice
Section D: Multidisciplinary Roles and Involvement	Section E: Multidisciplinary Roles and Involvement
Section E: The Need for Future Training	Section F: The Need for Future Training

2.7.4 The main study

The interviews were conducted in a quiet room. Face to face interviews utilising the interview schedule were completed individually by the researcher with the participant. The researcher commenced every interview by stating the purpose of the interview and providing participants time for questions (Mc Milan & Schumacher, 2010, as cited in Balton, 2009). All instructions were read out as they appeared on the interview schedule. Table 11 outlines the interview routine followed in the main study.

Table 11

Interview Routine

Procedure	Area	Instruction/Question
The researcher greeted participants and introduced herself in order to establish rapport. The researcher provided a brief explanation of the interview process.	Introduction	"Hello. My name is Azra and I am a speech-language therapist currently working at Chris Hani Baragwanath Hospital. I am very grateful that you have agreed to participate in my study. As explained in the participant information sheet that was sent to you, I am conducting a study to establish the need for a dysphagia training programme for nurses in critical care for patients with tracheostomies. The interview will be done in English and will take between 20-30 minutes to complete. Should you require an interpreter, please inform me and the necessary arrangements will be made".
Each question in this section was read out to the participant, and the response was immediately transcribed.	Biographical Information	"I am going to ask you a few questions about the hospital that you're from, your level of qualification, the institution from which you graduated as well as your years of employment. Please let me know if you require clarity and repetition of questions".
Closed-ended questions were read out and transcribed via the pre-coded response options, while open-ended questions were read out and the responses were transcribed verbatim.	Tracheostomy Experience and Training	"This section looks at your experience and training as a health professional in critical care regarding dysphagia in tracheostomy patients. It comprises seven questions. If you need me to explain or repeat anything, please ask".
	Dysphagia (nurses only)	"This section is made up of four questions. The questions are related to your knowledge on what dysphagia is, and its signs and symptoms. Again, if you need me to explain anything, please ask".
	Current Practice	"This section is made up of four questions. The questions are related to what you are currently doing in your hospital to screen, assess and manage tracheostomy patients with dysphagia".
	Multidisciplinary Roles and Involvement	"This is the second last section of the interview and it looks at the roles and responsibilities of various health professionals in your hospital with regard towith regard to tracheostomy and dysphagia. If you need me to explain anything, please ask."
	The Need for	"This is the last part of the interview. It consists of four questions. This section looks at

Procedure	Area	Instruction/Question
	Future Training	whether there is a need to train nurses in the screening and management of patients with tracheostomy and dysphagia. Please ask for clarification if you don't understand the questions".
Participants were thanked for their participation and were asked to fill in the form with their details, should they require a copy of the results of the final study.	Conclusion	"Thank you for taking the time to participate in this study. Should you require a copy of the results of the study, please provide your details on the form provided and a copy will be made available to you upon completion of the study".

2.8 Triangulation and Reliability

The process for ensuring reliability and triangulation was as follows: The researcher employed more than one data collection method, namely the use of mini-ethnographic field notes at all the research sites and face to face interviews with participants. During the face to face interview process, participant responses were recorded on the response form as the participant spoke. Responses were further audio-recorded (Appendices D and G) to confirm the reliability of hand-written responses, which further contributed to the overall integrity of the researcher. One third of the audio recordings were audited by two qualified speech-language therapists to establish agreement reliability which is the type of reliability established by determining whether two or more persons agree with what has been recorded (McMilan & Schumaker, 2001, as cited in Balton, 2009). Once the data was analysed by the researcher taking into account comments from the audits conducted by the two qualified speech-language therapists, a summary of the results was presented to a small group of speech-language therapists and nurses that participated in the study to verify the overall results. In summary, various methods of data source triangulation, investigator triangulation and methodological triangulation was employed to enhance the trustworthiness of this study. The types of data triangulation identified by Denzin (1984) and that were used in this research, are summarised in Table 12.

Table 12

Triangulation used in this Study

Types of triangulation as identified by Denzin (1984)	**Triangulation in this study**
Data source triangulation	Mini-ethnographic field notes, participant interviews, interview recording, transcript documentation and recording
Investigator Triangulation	Data analysis by researcher, team of two colleagues to further analyse data, participant analysis
Methodological Triangulation	Thematic content analysis

2.9 Data Analysis

The purpose of all analyses is to summarise data in such a manner that it is easily understood and provides the answers to the original questions (Kelley et al, 2003). The data were handwritten by the researcher during the interview; these notes were later cross-checked

with the audio recordings and transcribed. In order to familiarise myself with all of the transcripts I listened to all audio recordings twice and jotted down additional comments on the original transcript. One third of all transcripts were then given to two speech-language therapists currently working in the public health sector, and they were provided with a checklist which assisted in enhancing the validity and reliability of results from the transcript. I then systematically read through each transcript and noted down "features of significance" (Love, 1994). Table 13 outlines features of significance commonly recorded in thematic content analyses.

Table 13

Features of Significance (Love, 1994, p. 2)

Number	Features of Significance
1	Repetition within and across interview
2	Levels and nature of affect
3	Historical explanations, descriptions and interpretations of the past
4	Explicit and implicit interpretations (connections between thoughts and activities)
5	Serendipity (behaviours and expressions that differed from what was expected)

Coding on the data was completed. The researcher completed the coding of data. Data from the close-ended questions were analysed using descriptive statistics. McCall (1990, p. 412) defines this type of statistics as "a procedure for organising, summarising and describing data or information". The remaining data from the semi-structured interviews, ethnographic field notes and researcher reflections were thematically analysed and the constant comparison method was applied in order for common themes to be identified across. Content analysis is a technique for analysing the symbolic content of any communication and reducing it to a set of categories that represent characteristics of research intentions (Singleton, Straits, & Straits, 1993). This technique identifies recurrent themes that are subsequently coded as phenomena; it is often recommended by a number of researchers Corbin & Strauss, 1990; Marshall & Rosman, 1995). Data from these emerging themes were coded and thereafter catalogued into sub-themes. Themes and sub-themes were then grouped together to create a picture of the participants' combined experience. This approached is often viewed to be subjective in nature because it may be affected by researcher bias. It is for this reason that I attempted to validate these findings by obtaining feedback regarding emerging

themes from a small group of nurses and speech-language therapists who participated in the study.

2.10 Summary

This chapter briefly explored methodological considerations in mixed methods research, and the methods used in this research. The aims and sub-aims were outlined. This was followed by a discussion of the research design, sampling strategy, data collection methods and the research protocol. A discussion on the pilot study and the main study was included. This chapter also briefly outlined the methods of data analyses that were used when writing up the results which are presented and discussed in the following chapter.

CHAPTER THREE

RESULTS AND DISCUSSION

3.1 Chapter Orientation

Chapter 3 describes the results obtained from the data collection process. This chapter is divided into two parts:

Part 1 presents the results from the mini-ethnography consisting of observations, field notes and personal self-reflections. The findings of Part 1 are integral to the results that follow in Part 2 of this chapter since they define the research context within which the subsequent results follow.

Part 2 describes the analyses of twenty audio-recorded interviews conducted with speech-language therapists from eight different hospitals in Gauteng Province with critical care facilities and twelve audio-recorded interviews conducted with nurses from four different hospitals in Gauteng, also with critical care facilities. The reasons behind a smaller sample of nurses than speech-language therapists and data collection at fewer sites as compared to speech-language therapists will be discussed in detail under the results of the mini-ethnography. These interviews were analysed as per the main aim and four sub-aims of the study. Furthermore, the data were analysed based on the coding system previously mentioned in Chapter 2. The results of the speech-language therapists' interviews and nurses' interviews under each sub-aim will be presented, followed by a discussion and summary related to each sub-aim.

3.2 Chapter 3, Part 1: Description of the Research Context

Description of the Chris Hani Critical Care Facility

The results presented in this section formed a mini-ethnography, which was largely a compilation of my experience as a speech-language therapist allocated to the critical care ward at Chris Hani, and from my experience at other hospital sites where data collection occurred. The ethnography is my compilation of notes over a 2-3 year period from 2009 to 2011. I have been employed at Chris Hani since January 2007; hence there were no concerns

of accessibility. The interviews with nurses and speech-language therapists took place between January 2011 and June 2011 at various hospital sites.

The aim of this chapter was to develop a detailed description of the South African critical care context by allowing the reader to understand the intensity, routine and pace of this environment, and the demands placed on health care professionals working within this setting. Data collected through informal interactions with doctors, nursing staff and other health professionals working within public critical care in South Africa are presented in this chapter. An extract from my field notes is presented below to provide a sense of the contextual atmosphere.

Researcher Field Notes: Tuesday a.m., Chris Hani

At 8:30 arrive at Chris Hani: I walk up a flight of stairs to reach the level of the main Critical Care unit. Chris Hani has a main critical care as well as a high care section. There is a gate separating the unit from the stairway and lift area. It is closed and requires a personal identification number (PIN) to gain entry. I buzz and wait in anticipation for somebody to buzz me in. Five minutes later a nurse on her way to the tearoom gets me into Chris Hani's Critical Care unit. I'm familiar with the logistics, as I've worked here daily for a year in 2009.

An array of health professionals can be seen in this 18 bed set-up. Doctors and nurses are continuously rotating through patients at ward rounds; nurses are continuously monitoring vitals, recording vitals hourly, administering medication, suctioning when necessary , monitoring oxygen saturation levels, feeding patients either orally or via nasogastric tubes or Percutaneous Endoscopic Gastrostomy tubes, cleaning patients and dressing their wounds, and attending to other patient needs. Physiotherapists, together with the nurse, are conducting percussions and vibrations before attempting to suction the patient in Cubicle 2. I don't see a dietician in the critical care unit today but it is often very common to see the dietician on a daily basis assessing patients' nutritional intake and supplying the appropriate feeds for many of the patients. There are a range of other health professionals with whom I am not familiar walking among the patients. I look further across the room and hear someone mention "exposing". I see nurses and doctors in that area scurry over to the other side and behind the health professional only to resume function once the individual has

completed his/her procedure. The individual is a radiographer using a portable x-ray unit to obtain a chest x-ray (I'm assuming).

Within the critical care setting, one nurse is usually allocated either to one or two patients. Critical care nurses rotate between main section of critical care units, high care and trauma according to a roster. Furthermore, different nurses are allocated to patients during the day, at night and between shifts. Patient monitors are continuously beeping from all areas within the room. I remember when I had first started as a speech-language therapist allocated to cover critical care units, how hearing all the beeping monitors was a very scary experience indeed. I am now very accustomed to the beeping monitors and am almost never alarmed by them. I pay close attention to the cubicle on the left of me where the monitors are beeping.

The patient in the critical care unit that I was in had the following equipment attached to her:

- *A vitals monitoring system: Continuously monitoring the patient's vital signs, such as heart rate, blood pressure, cardiac output, and blood oxygen levels.*
- *Pulse oximeter: Monitoring oxygen saturation in the blood.*
- *Some other form of a monitor which I am not familiar with, but upon asking a doctor at a later stage as to what it was, I found out that it was an intracranial pressure monitor for measuring the pressure of fluid in the brain in patients with head trauma or other conditions affecting the brain (such as tumours, oedema, or haemorrhaging).*
- *A ventilator assisting the patient, as she was unable to breathe independently. From my previous knowledge from attending a course on tracheostomy and ventilator dependency in 2009, I was aware that there were different modes and types of ventilation that patients are placed on. I was unable to see what type and mode of ventilation was specified for this particular patient.*
- *An infusion pump for aiding in the delivery of all fluids including blood and drugs intravenously. She has many intra-venous lines linked to her main infusion pump.*
- *I was unable to see an oro-gastric tube or a naso-gastric tube attached to this patient. She definitely did not appear to be alert enough to be feeding orally. I later learned that she had a PEG in situ.*
- *A tracheostomy tube was visible as well.*

- *There was also an emergency portable cart placed at the corner of the cubicle containing all the necessary emergency resuscitation equipment. Next to the emergency portable cart was a set of drawers containing dry dispensaries, e.g. gloves, syringes, gauze etc. A basin with soap and disinfectant is also available within the cubicle.*

After seeing the vast range of equipment attached to this patient, I realize that the cause for the beeping monitors were an increase in respiratory rate and a decrease in oxygen saturation levels due to a very frequent and common daily occurrence in critical care – the patient was being suctioned.

I redirect myself to the nursing matron's office which is situated at the second door to the left as I entered through the gate. I explain my purpose and provide her with the necessary documentation. She reports that it will be very difficult to recruit nurses to interview, especially today, because nurses are understaffed and the condition of patients currently in Critical Care are requiring extra attention. She suggests that I come back tomorrow morning during the two tea breaks to speak to the nurses and to recruit participants and arrange interview dates.

Wednesday a.m.: Chris Hani

I arrive at the critical care unit, this time during the first tea break. The nursing matron from yesterday is no longer on duty and there is a new matron today. She looks at me with some familiarity, appears to be more receptive to my reason for being in the critical care unit, and directs me to the nurses' tea room. The nurse's tea room is a constant buzz. Nurses are walking in and out; the banging of the door leading to the tea room; the banging of cutlery near the basin; the smell of tea, coffee and burnt toast are all evident; nurses communicating across the room in several languages over the sound of the boiling kettle. I am familiar with some words in Zulu and Sotho and so was able to identify single words but unable to make sense of the conversations that were unfolding. I have been seated in this room for five minutes now and it seems as if I am invisible to all around me. The nurses completely oblivious to my presence and continue with their routine. I attempt to introduce myself to the eight nurses that are sitting at the table with me. However, the voices of the nurses combined with the environmental sounds are overpowering my voice and I am unable

to get in a word. A nurse who seems to be observing this scenario nods at me in recognition and assists in gaining the other nurses attention. I am given the opportunity to briefly explain my purpose and by the end of the tea break I have managed to recruit four possible participants out of approximately 20-25 nurses that were on their tea break. All nurses preferred not to be interviewed during their tea breaks as it was the only time they had to rest briefly during the day. I discuss convenient times and interview dates and times are set for the week ahead. I leave the critical care unit feeling very hopeful. I don't need to buzz myself out – this time the gate has been left open.

1 week later: Wednesday and Thursday a.m.: Chris Hani

I arrive to interview nurses, based on the days and times that were convenient for them. I had received prior warning from all participants that these dates would be tentative and based on the nature and intensity of their days ahead and that I might not get the opportunity to conduct the interviews. Much to my dismay, none of the nurses could be interviewed on these days as the critical care unit was very busy and patients being nursed were extremely critical.

This was the common pattern over the next few weeks with regard to data collection at one research site, the hospital that I worked at. Thereafter, I had arranged various days and times including weekends and on all occasions interviews were just not possible. I eventually was able to conduct the four interviews at one specific site over a period of four weeks, mainly over weekends and with some nurses while they were not on duty. Nurses preferred being interviewed while on duty and many were reluctant to be interviewed during tea breaks and while not on duty. Similar patterns were observed when attempting to recruit nurses at other research sites. Familiarity with the speech-language therapists working at the various hospitals in Gauteng allowed the data collection process/recruitment of speech-language therapists to proceed more smoothly.

Critical Care Facilities within the South African Health Care System

The critical care environments within the different hospitals varied on different levels in terms of size, number of health professionals within critical care units and levels of ambient noise. However, the pace, intensity and routine at each site was similar. For many patients, a stay in a critical care unit can be a frightening and confusing experience. Some

patients may have been prepared for such an eventuality, while others may have been admitted there unexpectedly. The intensity of the environment and the level of staffing required can be very daunting for new health professionals within the setting, as well as for patients (Batty, 2009). Therefore, caring for critically ill patients in critical care is complex. It requires the establishment and maintenance of a working environment for a collaborative multidisciplinary team as was mentioned in Chapter 1. The complex needs of critically ill patients have increased the demand for collaboration between health professionals in South Africa. Based on personal experience, observations and the recorded field notes, it is clear that there is a need for an array of health professionals to continually attend to and monitor patients in critical care.

South African critical care units are structured and graded according to the 1983 National Institutes of Health Consensus Development Conference (Mathivha, 2002). Units are structured and graded from level I to level IV. The level I units are found in university-affiliated tertiary referral hospitals, and are run on a closed unit principle (Mathivha, 2002). These units usually have highly sophisticated equipment and can manage a wide spectrum of critical illness disease processes. The units have a dedicated medical director and 24-hour dedicated medical staff coverage. The institutions at which data was collected for the purposes of this study were all classified as level I units. The general nurse:patient ratio of 1:1 is adhered to in most units, but in some units this ratio is on a 1:2 basis (Mathivha, 2002). As evidenced from the field notes that were presented above, many institutions are forced to employ the 1:2 ratio due to staff shortages.

In South Africa, critical care beds account for only 1-2% in comparison to the remaining acute care beds within a hospital setting (Mathivha, 2002). There is therefore a dire shortage of critical care beds. For example, Chris Hani, a 3000-bed institution, has only an 18-bed multidisciplinary critical care unit (Mathivha, 2002). Availability of beds is dependent on the number of staff working on that day. This was evidenced from my field notes where only approximately 14-16 beds were available on the day that I was present in the critical care facility and as a result the nurse:patient ratios had to be increased from 1:1 to 1:2. A similar scenario is seen at other academic hospitals in South Africa (Mathivha, 2002). Although South Africa trained enough critical care nurses and doctors in the past, there is currently a shortage of both in the public sector (Mathivha, 2002). The private sector and developed countries that offer more attractive remuneration packages have attracted health professionals

(Mathivha, 2002). The field notes show that nurses in critical care facilities perceive their profession as being under-staffed and themselves as over worked. This aspect of staff shortages will be discussed in detail in Part 2 of this chapter.

Summary: Chapter 3, Part 1

This section of Chapter 3 highlighted the structured routine, immense intensity and increased pace at which critical care facilities in South Africa function. It further highlighted the types of patients that are often nursed in these critical care environments, and the complexities of their pathologies based on the types of medical equipment that they are attached to. A brief description on the structure of critical care settings in South Africa was also described. Delivery of critical care faces major challenges in South Africa as discussed above. Limited resources need to be evenly distributed amongst institutions. Staff and equipment shortages are huge stressors for current employees. There is no doubt that there is a strong place for critical care medicine in South Africa given the information provided in chapter one of this study. Critical care health workers often have to unnecessarily justify their role to the country's health policy-makers. . It is important that the authorities take heed of the skills/brain drain in health care and its impact on health care professionals and employ incentives to attract professionals to remain in the public health sector in South Africa (Mathivha, 2011).

3.3 Chapter 3, Part 2: Results of Interviews with Speech-Language Therapists and Nurses

In this section, the results of the interviews with the nurses and speech-language therapists are presented and discussed. On average, the interviews took 25 minutes, ranging from 15 minutes to 45 minutes. The duration of the interview appeared to be determined by the amount of information the participants were willing to provide and to some extent on the knowledge of the participants in relation to the topic under discussion. The interviews were conducted in the privacy of a room within the various speech-language therapy departments and in critical care facilities. At times, as is commonplace in a public hospital, there were interruptions from colleagues.

3.3.1 Sub-aim 1

The first sub-aim of the study was to describe the experience, training and education of participants in the area of dysphagia and tracheostomy in critical care. Participants were

required to provide information regarding: a) the number of patients they have worked with in the past 6 months; b) the number of theoretical and practical hours received at an undergrad level; c) the hours of clinical observation and supervision received while working; d) Continued professional development activities undertaken; and e) their views on evidence based practice in the area of tracheostomy and dysphagia. Information on training and experience provided insight into how well prepared participants were from a theoretical and clinical perspective to feel enabled to provide services to patients with tracheostomies presenting with dysphagia.

Results Sub-Aim 1: Speech-Language Therapists Interviews

Number of Patients seen with a Tracheostomy

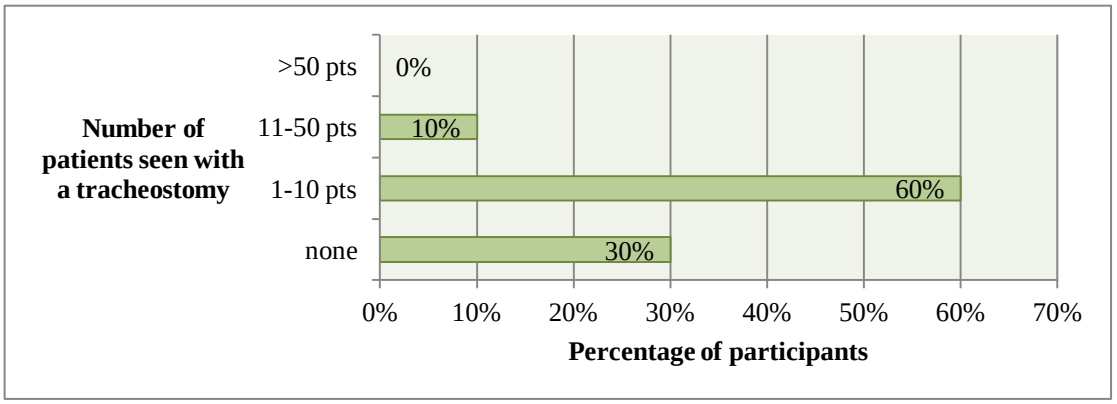


Figure 2: Number of patients with a tracheostomy seen in the past six months by speech-language therapists

The results depicted in Figure 2 indicate that majority of the speech-language therapists (60%) saw between 1-10 patients with tracheostomies in the past six months. An interesting finding was that at least 30% of the speech-language therapists had never once been consulted for an assessment in the past six months, unlike the findings from literature which documents that at least 18.5% of hospitalised individuals require treatment in a critical care environment (Dikeman and Kazandijan, 1995). Only 10% of speech-language therapists had worked with more than 10 patients in the past six months. It was interesting that 10% of the speech-language therapists, who reported contact with more than 11 patients, were from the same institution.

Theoretical hours in the assessment and management of patients with a tracheostomy

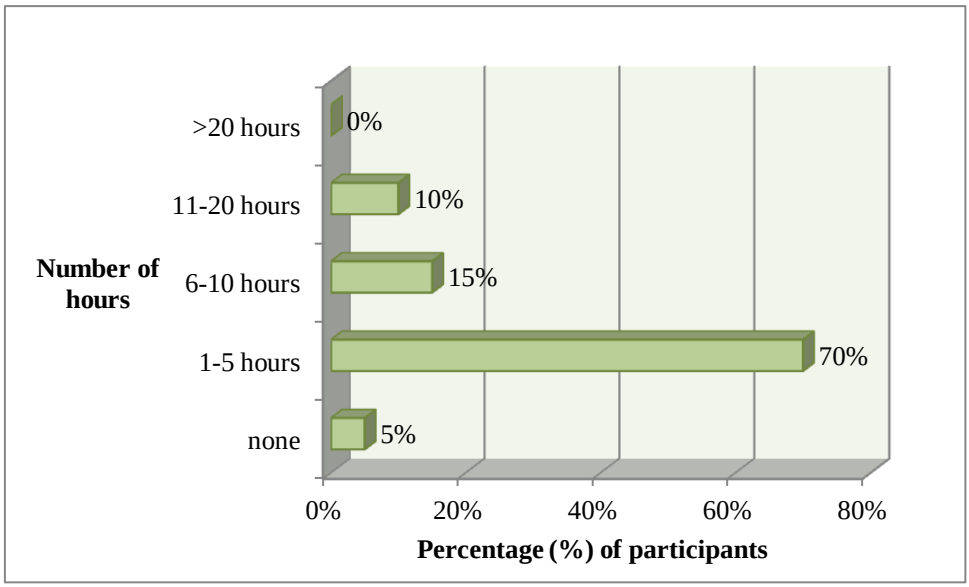


Figure 3. Number of theoretical hours received by speech-language therapists in tracheostomy assessment and management (undergraduate level)

A large percentage of speech-language therapists (70%) reported they had only received approximately 1-5 hours of undergraduate lectures on the topic of tracheostomy. Five percent of participants' (one participant) reported never having received any undergraduate lectures on the topic, while 15% reported receiving on average of 6-10 hours of undergraduate lectures. This was followed by 10% that reported receiving between 11-20 hours of lectures. It was significant that the 10% that reported more than 10 hours of theoretical training were from the same academic institution. Fifty percent of participants reported that the academic undergraduate training in this area, irrespective of training institution, was not very well structured in the curriculum and not much emphasis was placed on its importance. A participant reported, "*I can't even remember how many hours of lectures I received in tracheostomy assessment and management at university and I have just graduated a year ago. At university, not much emphasis was placed on the area of tracheostomy assessment and management. It was conducted as a joint lecture with the area of laryngectomy. The course content was not well structured and I felt that my confidence, knowledge and skills in the area were not well consolidated. Coming into a hospital set up with a critical care unit where we occasionally get called in to do dysphagia assessments, it is often very overwhelming and actually very scary. The machines that patients are hooked*

up to are very frightening and I often don't know where to start with the patient. I wish that this could have been taught at university so that I could feel prepared in the knowledge related to the area of tracheostomy. The skills, I know, is something that will come with experience."

Practical Hours in Tracheostomy Assessment and Management

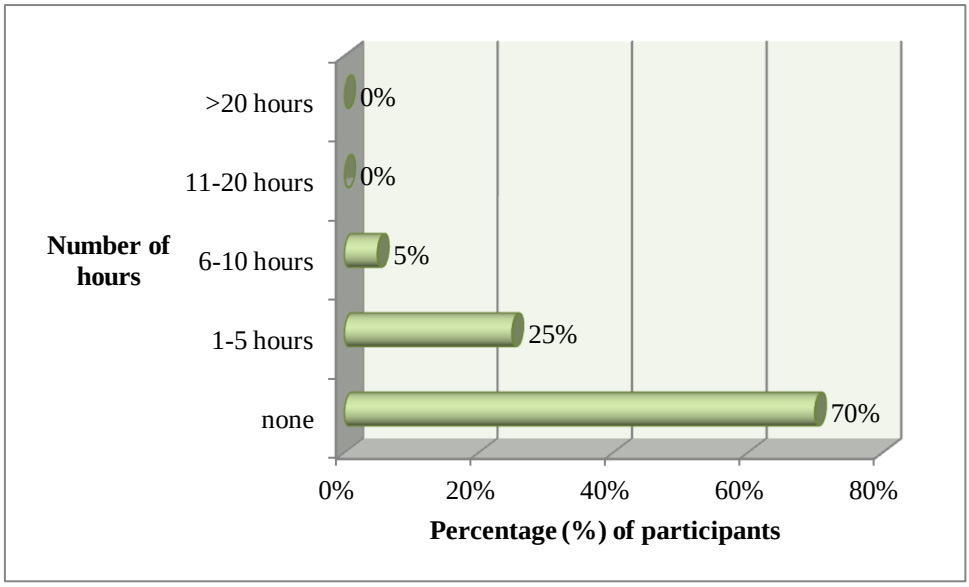


Figure 4. Number of practical hours received by speech-language therapists in tracheostomy assessment and management (undergraduate level)

According to Figure 4 majority of speech-language therapists (70%) reported that they did not receive any practical training at an undergraduate level in the field of tracheostomy while 25% reported receiving approximately 1-5 hours of practical training in this area. Only 5% of participants revealed obtaining between 6-10 hours of practical training. Again, the participant that reported obtaining between 6-10 hours of practical training was from the same institution where the most theoretical training was obtained. As per reports from participants, it appears that most academic institutions at present are providing students prior to graduation with less than 20 hours of theoretical and practical training in tracheostomy assessment and management.

Clinical Observation

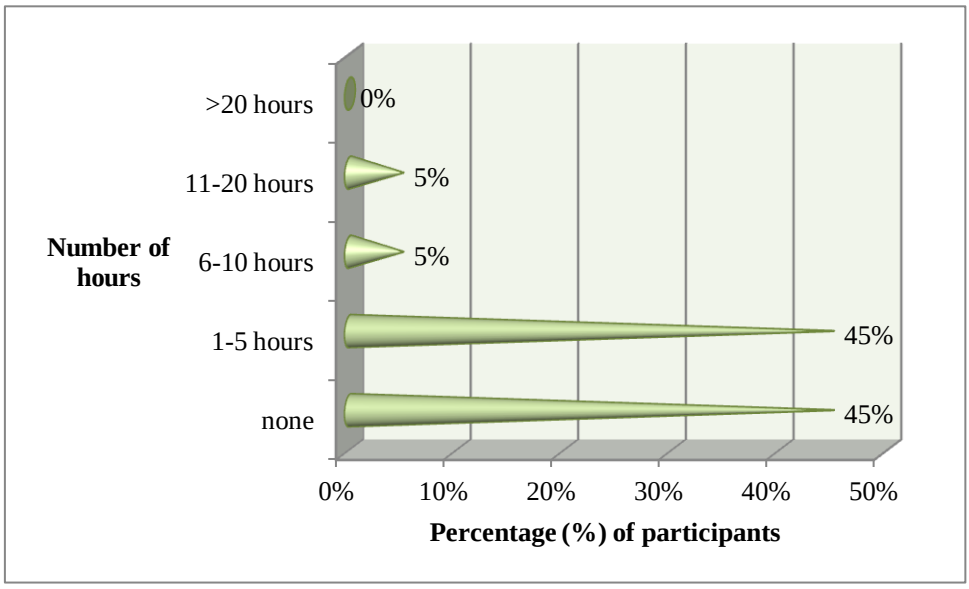


Figure 5. Number of hours of clinical observation obtained by speech-language therapists while working

Figure 5 shows that 45% of speech-language therapists had never observed a colleague or mentor assessing a patient with a tracheostomy presenting with dysphagia, followed by 45% who reported that they had observed another colleague for between 1-5 hours prior to having to assess and manage patients independently. Five percent reported observing patient assessments for 11-20 hours, and 5% had observed for more than 20 hours. The two participants that completed more than 20 hours observation before independently managing their own patients were from the same institution. One noted, "*I feel very privileged to be working at the institution that I am currently at. We have a big team of speech-language therapists who work well together. We have many capacity building initiatives amongst the team members and we conduct weekly speech therapy ward rounds at work. Through these ward rounds I've been able to observe blue dye testing, cuff inflation procedures and working together with the nurse or physiotherapist to suction the patient. I've learnt so much on tracheostomy in this past year and that was never covered at university.*"

Clinical Supervision

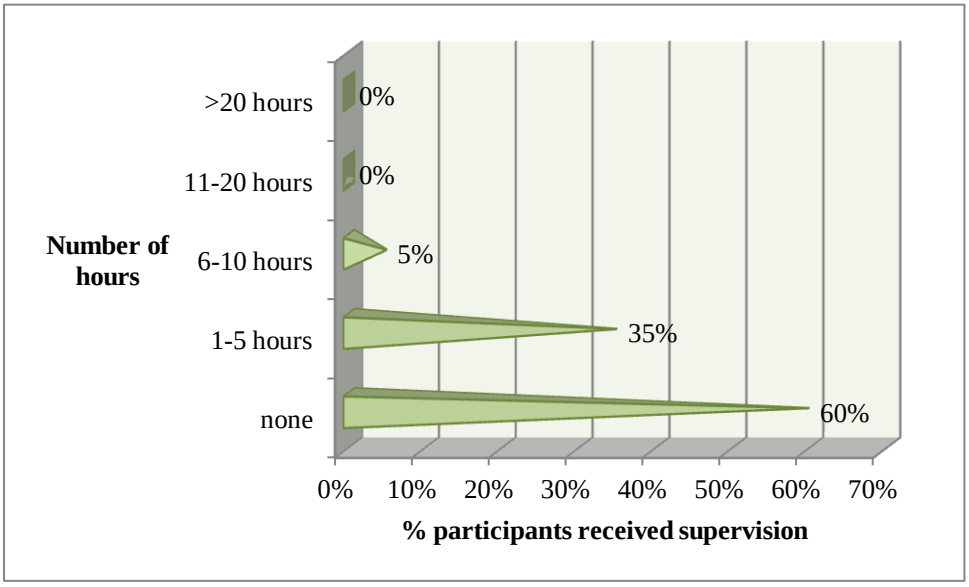


Figure 6. Number of hours of clinical supervision obtained by speech-language therapists while working

More than half of the speech-language therapists (60%) reported not having received any hours of clinical supervision in the area of tracheostomy and dysphagia post graduation in real life. One participant reported, "*I have never been provided the opportunity to observe someone assessing a patient with a tracheostomy, let alone be supervised. There is never time to go with somebody else to see a patient. We have a critical care facility at our hospital, but we're hardly ever asked to consult. We don't really market our services in critical care as we can barely cope with our current workloads. I almost feel glad that we don't get referrals, because I honestly don't know how to assess and manage patients in critical care with tracheostomies. I'm so afraid that I'm actually going to do more harm than good."* A further 35% of participants reported receiving between 1-5 hours of clinical supervision, and only 5 % of the sample reported receiving between 6-10 hours of clinical supervision at work.

Continued Professional Development: Activities and Training Needs

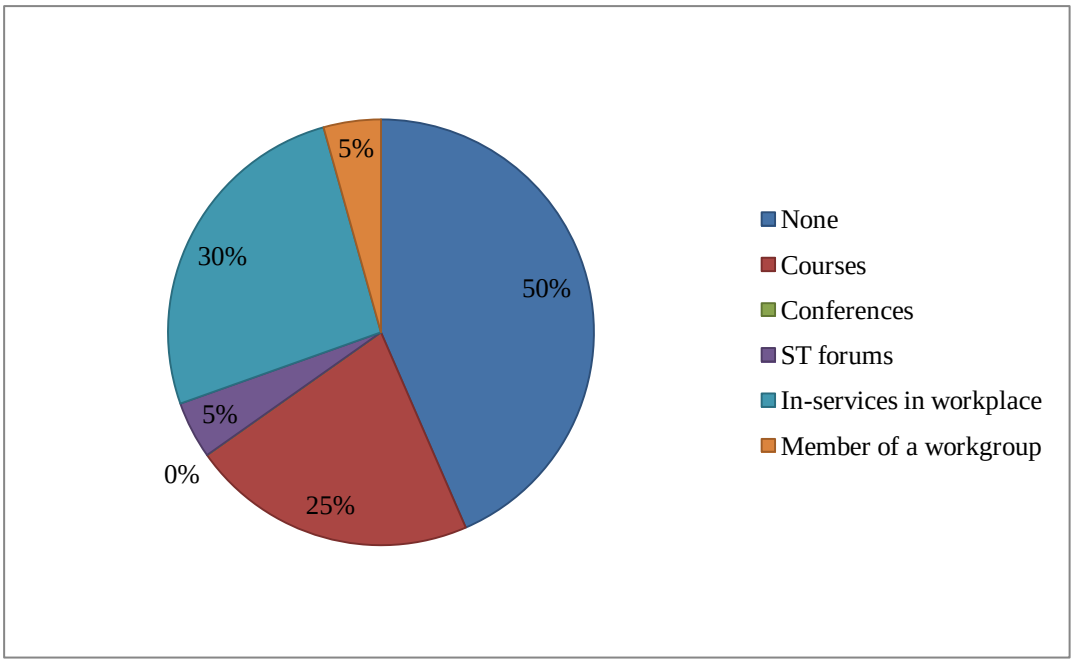


Figure 7. Continued professional development activities attended by speech-language therapists in the area of tracheostomy and dysphagia

Many speech-language therapists reported that tracheostomy and dysphagia were not given sufficient attention in continued professional development. Figure 7 reveals that at least half the sample (50%) had never attended any form of continued professional development activity related to tracheostomy and dysphagia, followed by only 25% of the sample that had attended a course on tracheostomy and dysphagia. Of these, 10% reported attending the same course where the primary focus was dysphagia, with dysphagia related to tracheostomy covered briefly. It is possible that despite being available, the 50% that reported not attending continued professional development related activities may have not wanted to at the time or may not have been interested in the area. All participants reported that they had never obtained any information related to tracheostomy and dysphagia at conferences that they previously attended because the topic was not covered at these conferences. One participant reported that she had attended a speech therapy forum in 2010 where an international speaker presented on the effects of a tracheostomy on swallowing. At least 30% of the sample reported receiving in-service training within their own hospitals. When this sample of 30% was further analysed it came to light that they all worked at to two specific hospitals in Gauteng. It is evident that from the eight different hospitals at which data was collected, only two hospitals were providing in-service training in tracheostomy and

dysphagia. It is also from these institutions that speech-language therapists have attended courses and speech-language therapy forums related to tracheostomy and dysphagia.

An interesting finding was that one participant reported being affiliated to a tracheostomy workgroup. She said, "*I have since 2010 been a part of an Ear Nose Throat workgroup. The workgroup is aimed at improving the profession of Speech-Language Therapy and Audiology specifically as it relates to the area of laryngectomy and tracheostomy. The current focus of the workgroup is to build our capacity and increase the knowledge and skills of speech-language therapists in the area of laryngectomy. We have to date developed a guideline, developed resources and are in the process of hosting a course on assessment and management of patients with a laryngectomy. As soon as these goals are achieved we are aiming to conduct similar capacity building initiatives in the area of tracheostomy. It is a fairly small workgroup with only three consistent members at present, but we hope for this to increase with time*".

Training Needs in the Area of Dysphagia and Tracheostomy

Table 14 identifies the common training needs that speech-language therapists voiced with regard to dysphagia and tracheostomy.

Table 14

Training Needs in the Area of Dysphagia and Tracheostomy

Training needs for participants	**Number (N=20)**
Practical training	13
Anatomy and physiology of the respiratory system and the impact of a tracheostomy tube on swallowing function	13
Everything	7
Information on guidelines and protocols on tracheostomy and dysphagia	5
Cuff protocols	3
The role of the speech-language therapist in a critical care setting	3
Information on management of more complex cases	2
Stoma care	2
Unsure	1
Basic life support training	1

As seen in Table 14, thirteen speech-language therapists (65%) reported the need for practical training with regard to tracheostomy and dysphagia and for information on the anatomy and physiology of the respiratory system and its impact on swallowing function. Seven participants reported a need for training on "everything". One participant reported,, "*When it comes to dysphagia in a patient with tracheostomy I wouldn't know where to begin. I think it's very important to attend a course on the assessment and management of these patients, especially since they would end up being very complex cases due to the critical nature of the environments that they're placed in. I really would like training on everything related to tracheostomy and dysphagia*". An interesting need that came to the fore from this question was participants requesting to be familiarised with current tracheostomy assessment and management protocols and guidelines.

Evidence Based Practice

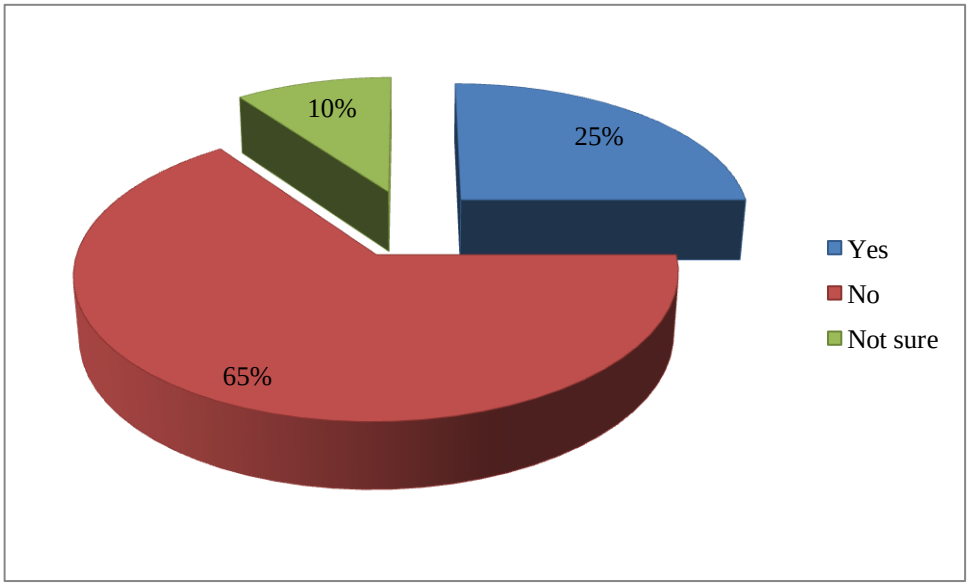


Figure 8. Up to date in the area of evidence based practice in tracheostomy and dysphagia (speech-language therapists)

Sixty five percent of speech-language therapists reported not feeling confident and were not on par with documented current best practice in tracheostomy and dysphagia. At least 25% of the sample reported feeling up to date with current practices. These were the same participants who had done observation and received supervision and who had attended courses and in-service training within their departments. When questioned further for reasons for not being knowledgeable about current best practice, the following common themes were extracted. These themes are highlighted in Table 15.

Table 15

Reasons for Speech-Language Therapists being/not being up to Date with Evidence Based Practices in Dysphagia and Tracheostomy

Reasons why speech-language therapists are/are not up to date on evidence based practices		**Number (N=20)**
NO	Lack of time and opportunity to attend continued professional development related activities	12
	Lack of undergraduate training	8
	Role of the speech-language therapist in critical care not well marketed	8
	Lack of access to technology in the workplace	6
	Insufficient practical training opportunities	4
	Lack of expertise in the profession	2
	Not an area of interest	2
	Lack of reading in the area	1
YES	Reliance on self-learning	5
	Information is available	2
	Reliance on undergraduate training	3

Results Sub Aim 1: Nurses Interviews

Patients seen with a tracheostomy

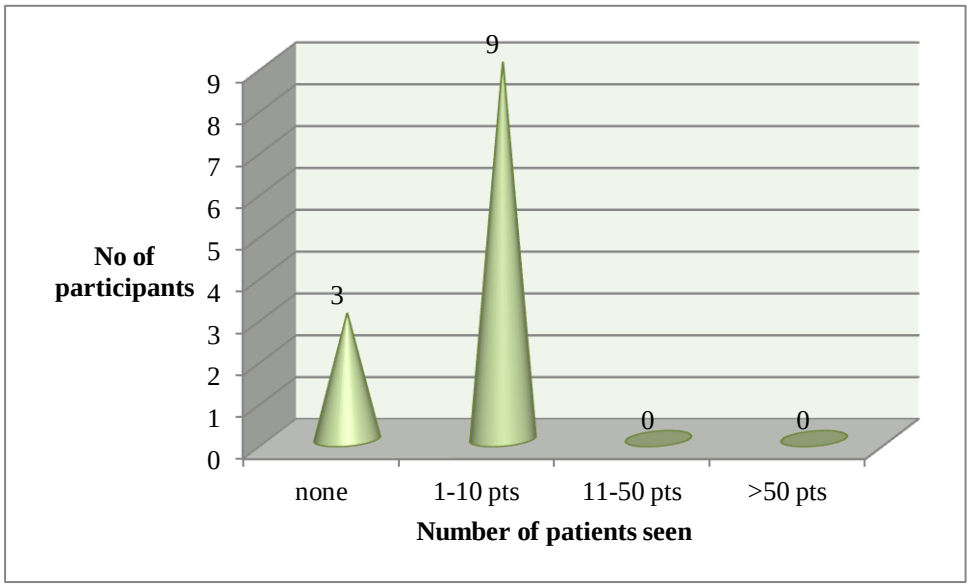


Figure 9. Number of patients seen by nurses with a tracheostomy in the past six months

Nine nursesreported to have only seen between 1-10 patients with tracheostomies that presented with dysphagia in the past 6 months, followed by 3 nurses having seen none. None of the participants had attended to more than 10 tracheostomy patients in the past six months. One of the participants reported, "*there hardly are patients in critical care that nurses screen*

for dysphagia. Most of these patients are so ill that the preferred method of feeding is usually nasogastric tube feeding or PEG."

Theoretical Hours in Tracheostomy Assessment and Management

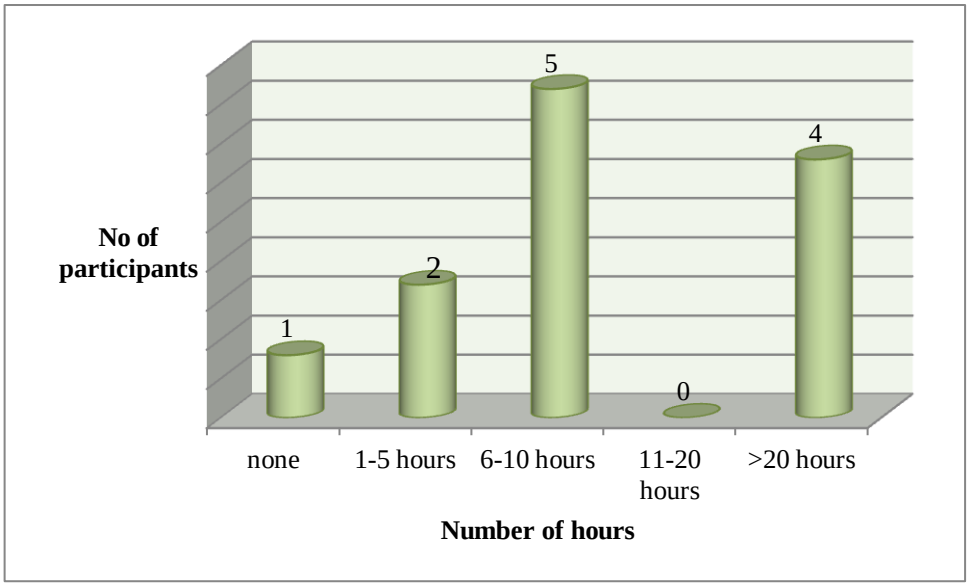


Figure 10. Number of theoretical hours obtained by nurses in tracheostomy assessment and management (undergraduate level)

Figure 10 reflects the number of theoretical hours obtained on tracheostomy care alone (without dysphagia). When questioned regarding tracheostomy care and dysphagia, all participants reported that it was never covered as part of their training diploma. Five participants reported having received 6-10 hours training in tracheostomy care, followed by four who reported having received more than 20 hours of training. Two participants reported obtaining between 1-5 hours of training. A very disconcerting finding was from reports by one participant who did not receive any training.

Continued Professional Development

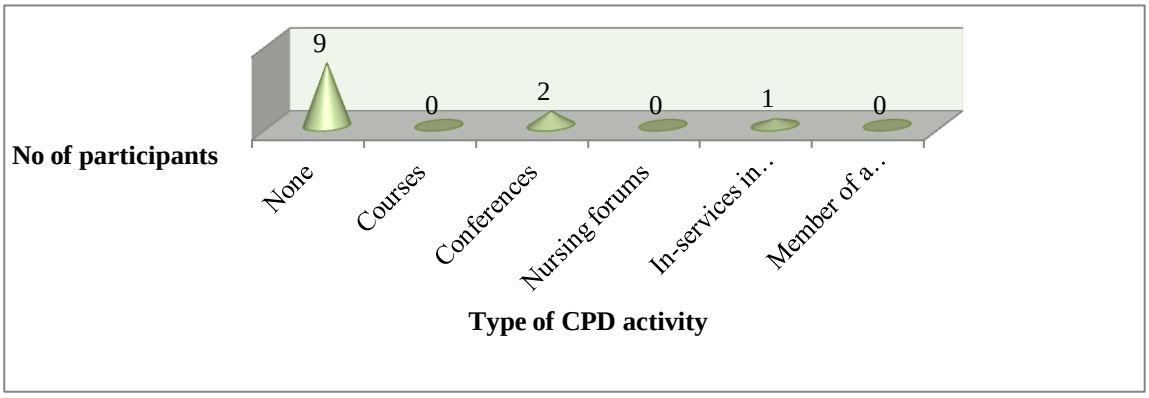


Figure 11. Continued professional development activities attended by nurses in the area of tracheostomy and dysphagia

From figure 11, nine nurses reported not attending any courses on dysphagia and tracheostomy. Six participants reported wanting to attend courses but that no opportunities have arisen. Two participants reported having attended conferences where topics related to tracheostomy and dysphagia were presented, and only one nurse reported attending an in-service in their workplace. When probed regarding courses, nursing forums and tracheostomy workgroups, all participants reported that it would be very beneficial if such forums were held regularly to increase knowledge and build capacity were available.

Evidence based practice

As depicted in figure 12, seven nurses reported that they did not feel up to date with current evidence based practice. Many were in agreement that they had not, since graduation, furthered their knowledge through recent literature. Three nurses reported not being sure as to whether they were up to date with recent evidence based practice, and only one participant reported being up to date. Common themes emerging when participants were probed regarding reasons for not being up to date with evidence based practice were mainly related to lack of interest, time and learning opportunities.

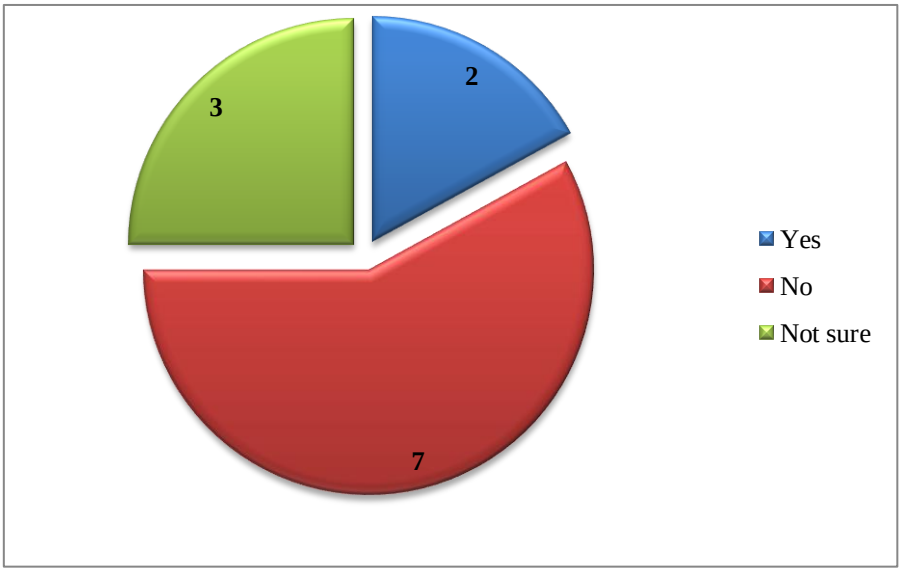


Figure 12. Up to date with evidence base practice (nurses).

Discussion of Sub-Aim 1

As highlighted in Chapter 1, there has been a recent expansion of the role of the speech-language therapist in critical care internationally. A similar expansion of speech-language therapy services is expected in South Africa due to the increase in the prevalence rates of trauma, motor vehicle accidents and other pathologies highlighted in the study conducted by Mathivha (2002). Consequently, it would be expected that speech-language therapists are receiving increased referrals to assess and manage patients in critical care facilities. However, the results obtained under Sub-aim 1 pertaining to the number of patients with tracheostomies seen by speech-language therapists in the past six months yielded unexpectedly low numbers. This could be attributed to various factors which are in keeping with the literature, for example poor collaboration between health care professionals, decreased inter-referrals, decreased marketing and awareness of the role of the speech-language therapist in critical care, inefficiency of service provision, and a lack of knowledge and confidence of speech-language therapists to assess and manage these patients (Ward et al., 2007; Manley et al., 1999). These themes emerged for both speech-language therapists and nurses.

The majority of the sample of speech-language therapists and nurses in this study reported that, at an undergraduate level, they had minimal theoretical and practical

knowledge and skill regarding dysphagia and tracheostomy. Where nurses were more familiar regarding management of patients with tracheostomies, they reported not having training specifically in dysphagia and tracheostomy. From the speech-language therapists interviewed, 20% constituted community service therapists. Of these, two graduated with a single qualification and the remaining two with a dual qualification. Responses from the single qualified therapists appeared to show greater consolidation of knowledge related to the area of tracheostomy and dysphagia when compared to therapists with a dual qualification. Therefore, it seems that there are possibly positive implications for the training received by the single as opposed to the dual qualified therapist in terms of content, amount of time spent on a particular area and clinical exposure. For the dually qualified therapists it is possible because of the amount of content and the vastness of the content that needs covering, that not sufficient time may have been spent on the area of tracheostomy specifically. It is anticipated that with the drives of universities towards splitting the degree in Speech-Language Therapy and Audiology this area of speech therapy could potentially be afforded more attention to allow students to obtain better grounded theoretical input, and greater or improved clinical competence.

It is evident from literature that the area of tracheostomy is considered a specialised service for which speech-language therapists and nurses require specialised training, not usually provided at an undergraduate level. It is also clear that academic institutions offering the Speech-Language Therapy and Audiology degree are only able to cover the area of tracheostomy in a limited number of lectures, often not sufficient to allow new graduates to feel confident in their knowledge or skill as it is required an area of specialisation that requires further licensing/training internationally. Even though it is apparent that the involvement in the evaluation and management of patients with tracheostomy tubes is within the scope of practice of speech-language therapy, practising within this area is seen as a specialist skill and management of patients with tracheostomy should not be undertaken by those without additional and specialist training, the reality of speech therapy in public health care is not always conducive to supervision and mentoring of inexperienced staff, given the pace and numbers of patients. Various organisations internationally (as mentioned previously), have developed position papers and guidelines to assist health professionals in the assessment and management of this population. For instance, the *Tracheostomy Management Position Paper (Speech Pathology Australia, 2005)* presents the national guidelines for managing clients with a tracheostomy. According to this document, prior to

independently managing the tracheostomised population, it is the practicing health care professional's responsibility to expand on the basic information he/or she gained at university to obtain competency in tracheostomy care. Furthermore, it is recommended that, when working with clients with a tracheostomy, speech-language therapists and nurses should routinely update their knowledge and clinical skills in order to maintain competency *(Speech Pathology Australia, 2005)*.

On a more positive note, the results related to Sub-aim 1 revealed that certain measures are being taken to improve knowledge and competence and build capacity of individuals working with tracheostomised patients presenting with dysphagia. The development of an ear nose and throat (ENT) workgroup within the province since 2009 was reported to be a positive step in the direction of expanding and improving services for patients with tracheostomies. A participant noted that this workgroup aims to develop guidelines for the assessment and management of tracheostomised patients with dysphagia, to develop resources in the area, to train health care professionals in the assessment and management of this population and to provide a support base for health care professionals that do not feel confident and competent with this population. While still in its infancy, it is anticipated that this workgroup may in the future collaborate with training institutions (for both speech-language therapists and nurses) to streamline the provided theoretical and academic input and to improve competencies and training of those professionals involved in the assessment and management of patients with tracheostomies presenting with dysphagia.

For nurses, tracheostomy alone is covered extensively as part of the diploma in critical care. However, participants reported that they are not provided with input specifically in the area of dysphagia and tracheostomy during their training for this diploma. This is disconcerting, especially since internationally it is usually the role of the nurse or the respiratory therapist to manage cuff inflation and deflation related to feeding patients with tracheostomies (Ward et al., 2007). Information, findings and concerns from this study can be relayed to nursing and academic institutions offering Speech-Language Therapy in an attempt to bridge the gap and ensure a smoother transition of new graduates into the clinical setting.

With reference to the lack of opportunities (noted above), these included opportunities to observe and obtain supervision from more experienced health care professionals in the

workplace. Many participants attributed this lack of opportunity to being by themselves in institutions, staff shortages, increased patient loads and lack of experienced professionals in the area of tracheostomy and dysphagia. It appears that most health care professionals within the public health care sector are not aware of who to consult with when advice related to specialised services is needed. The general aim of continued professional development courses is to expand both theoretical understanding and clinical skills necessary for making differential diagnoses and for appropriate management *(AASH, 2005)*. It is imperative that speech-language therapists and nurses working in critical care settings expand on the basic information gained at an undergraduate level to facilitate greater competency in this area. Health care professionals are required to routinely update their knowledge and clinical skills in order to maintain competency in various clinical areas. Martin (1995) found that speech-language therapists are frequently found searching for further training in dysphagia practice, possibly due to inadequate educational and clinical preparation at an undergraduate level and being faced with special patient populations which warrant specific skills obtained in facilities not available to many therapists. Therapists therefore frequently attend courses, workshops, conferences and in-service trainings presented by colleagues who have self-acquired clinical experiential expertise. There appears to be a need for therapists in South Africa to also become more proactive in their approach to gain expertise and competency, as therapists appear to be doing internationally.

With regard to the questions pertaining to continued professional development and training needs in the present study it is again evident that not many learning opportunities in the form of courses, in-service trainings and conferences have been available to nurses or speech-language therapists. However, despite these decreased learning opportunities, information pertaining to guidelines is available internationally for self-learning. A positive finding that emerged pertaining to the area of continued professional development and training from nurses was that at least two nurses have attended in-service training within their institutions with regard to the collaborative involvement between the nurse and the speech-language therapist in the screening, assessment and management of tracheostomised patients with dysphagia. It was evident from results obtained through interviewing these two nurses, that measures are being put into place to improve collaboration at institutions where speech-language therapists are feeling confident in the area of tracheostomy and dysphagia. Furthermore, another positive finding has been that, since 2007, a course mainly aimed at speech-language therapists but also available to other members of the multidisciplinary team

pertaining to the assessment and management of tracheostomy and ventilator dependant populations is run annually by a trained and experienced speech-language therapist in the area. However, it must be considered that despite being made available, not all qualified therapists may be aware of such continued professional development activities due to lack of contact with other colleagues, lack of time, lack of interest in the area, the cost associated with courses, accessibility for therapists from other provinces, lack of internet or e-mail services and/or undependability of postal services.

O'Connor and Pettigrew (2008) identified lack of time as the single most significant barrier preventing the successful implementation of evidence based practice. This applied to lack of time for both reading and implementing research. Interviewing both nurses and speech-language therapists in the present study showed similar results. Nurses reported that the intensity and pace of the environment they worked in prevented access to the Internet. There were never opportunities to access recent literature due to lack of time within a day and long work hours. Access to computers was also identified as a barrier to implementing evidence based practice, It is evident, based on the barriers highlighted above, that implementing and staying abreast of evidence based practice in a public health care sector can be very challenging. Providing opportunities and time dedicated to learning, as well as support from academic institutions, will address some of these barriers.

The aforementioned study also reported that many professionals do not consult the current literature. Instead, they rely on their clinical experience, anecdotal "evidence" from colleagues, or refer to textbooks that are sometimes out-dated. When speech-language therapists were asked how they keep themselves informed of current practice, many reported relying on self-learning; two reported reliance on undergraduate lecture notes. The setting in which the professional is working can also impose barriers and limitations that may hinder the implementation of evidence based practice. This was seen in the study by Closs and Lewin (1998) who found that 66% of the 103 rehabilitation therapists interviewed reported lack of proper facilities and resources necessary for professional management and development such as access to the Internet, which are essential components to ensure implementation of evidence based practice. From the current study, six speech-language therapists and all nurses reported having no access to the Internet or not having computers that work. One participant reported, "*There's never enough time to research recent and best practice related to speech therapy. We have one computer at work that's hardly ever*

functional. The computer is continuously 'virused' and the hospital server is always down and so we can never access the Internet. When we do have some kind of access to the Internet, we can't really access journal texts, unless we're current students at a specific university. I really feel that as academic hospitals, the universities should be supporting us in terms of providing us access to the electronic portals to be able to increase our knowledge and stay abreast of recent literature and practices in the field of Speech Therapy and Audiology."

It has been noted that, as part of their preparation for managing the tracheostomised population, speech-language therapists need to keep abreast with the literature on tracheostomy care in order to achieve and maintain competency and expand their expertise (Dikeman & Kazandjian, 2003; *Speech Pathology Australia, 2005*). There is, however, only a small body of literature (Hughson & Foulsum, 2000), little consensus regarding clinical practice (*Speech Pathology Australia, 2005*) and a lack of high-quality evidence (Russell & Matta, 2004) regarding tracheostomy management. The current study revealed that only 25% of speech-language therapists and 17% of nurses felt up-to-date with research evidence. Contributing factors were issues such as insufficient time to review, poor access to literature and/or clients with a tracheostomy forming only a small part of their caseload. Although there have been no studies specifically exploring the use of evidence to guide speech-language therapists' and nurses' tracheostomy assessment and management, an article by Brener, Vallino-Napoli, Reid, and Reilly (2003) found that few speech-language therapists were using research evidence to guide their dysphagia practice. The authors cited similar issues to those observed in the current study as reasons why speech-language therapists were not guided by evidence based practice. In response, Reilly (2004) encouraged speech-language therapists to negotiate with their supervisors and senior staff members for time in which to research and review the evidence. Indeed, this suggestion appears equally applicable to nurses' involved in tracheostomy management.

Summary of Findings in Respect to Sub-aim 1

In summary, the main theme that emerged regarding Sub-aim 1 was that a large percentage of participants (both speech-language therapists and nurses) are not in contact with patients presenting with a tracheostomy and dysphagia on a frequent basis within the critical care setting, despite the literature stating the contrary. This is partly due to lack of marketing of the collaborative role of the nurse and speech-language therapist in critical care,

as well as to lack of skill and confidence in the area. It is evident from the information obtained that both speech-language therapists and nurses do not receive adequate undergraduate practical training in this area. The results of Sub-aim 1 also revealed that approximately one quarter of speech-language therapists are pursuing clinical training and education to enhance their clinical practice, with less than three out of the sample of 12 nurses unable to do so. Results further revealed areas of clinical preparation and support, especially at an undergraduate level, and the barriers that prevented participants from accessing the research evidence. The majority of participants felt that they would benefit from clinical training and education opportunities and that various protocols and guidelines specifically related to the area of dysphagia and tracheostomy required further development.

It is clear that, while it is crucial to continue updating knowledge in the area of tracheostomy and dysphagia, the general assessment and management protocols for tracheostomy patients do not change. There are basic guidelines that need to be developed to assist health care professionals to improve their knowledge and skill in this area. Findings regarding Sub-aim 1 reveal that there needs to be closer collaboration between hospital institutions and training institutions in order to bridge the gap of knowledge, skills and training that has become apparent.

3.3.2 Sub-Aim 2

The second sub-aim of the study was to illustrate participants' roles in the screening, assessment and management of this population. All participants were required to provide information regarding a) their current screening and assessment methods, and b) their current management approaches for patients with dysphagia and tracheostomy. For nurses, this was preceded with a series of questions around dysphagia, to ascertain their understanding of and views about dysphagia. The results are presented below.

Results: Questions to Nurses Pertaining to Dysphagia

Definition, symptoms and referrals: dysphagia

When questioned regarding the definition of dysphagia, nine nurses were able to provide a correct definition in keeping with the literature. Three nurses reported dysphagia as being the difficulty or inability to speak.

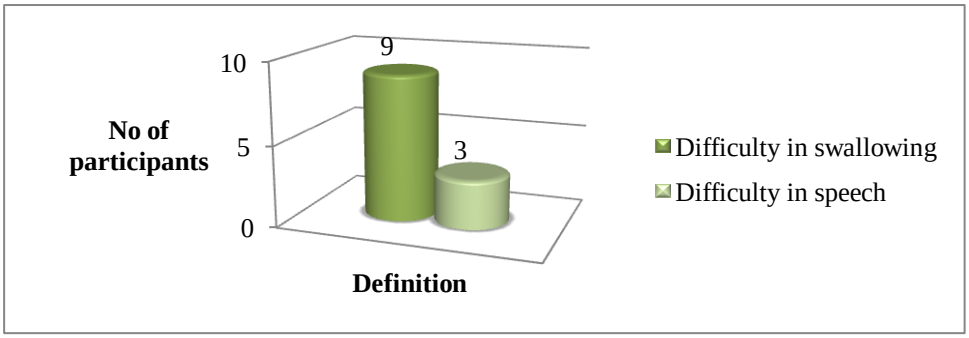


Figure 13. Definition of Dysphagia

When further probed regarding the symptoms of dysphagia, the following symptoms were identified and are illustrated in Table 16.

Table 16

Symptoms of Dysphagia (N=12)

Symptoms of Dysphagia	**Number (N=12)**
Inability to swallow	10
Odynophagia	7
Coughing	6
Food residue within the mouth/oral cavity	5
Food refusal	5
Weight loss	4
Insertion of a tracheostomy	3
Fluids coming out of a tracheostomy tube	3
Change in respiratory status	3
Aspiration	3
Aspiration pneumonia	2
Vomiting	2
Prolonged intubation	1

Referrals for Dysphagia Assessment

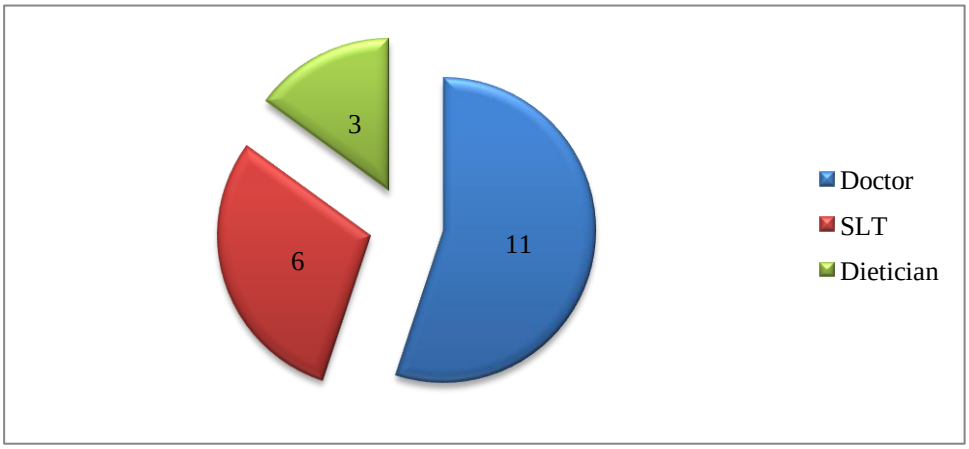


Figure 14. Referrals for dysphagia assessment

Figure 14 indicates that the majority of the nurses (11) reported referring patients to a doctor who would then make referrals to the necessary health professionals for a dysphagia assessment. Half the sample (six nurses) reported referring to a speech-language therapist for a dysphagia assessment based on patient symptoms. From these nurses, four reported referring to the speech-language therapist via the doctor. Four nurses reported that the dietician also played an important role in the assessment of patients with dysphagia and tracheostomy.

Results: Speech-Language Therapists' and Nurses' Interviews Combined

Screening, Assessment and Management Protocols

Tables 17 and 18 respectively summarises the key themes that emerged when speech-language therapists and nurses were probed regarding screening, assessment and management procedures for tracheostomy patients presenting with dysphagia.

Table 17

Nurses Views on their Role in Screening for Dysphagia in Tracheostomy Patients

Role of the Nurse in Screening for Dysphagia in Tracheostomy Patients	Total (N=12)
No specific protocol followed	6
Observe for safety of oral feeds	4
Ask patient to swallow their saliva	3
Provide patients with small amounts of solids	3
Suctioning prior to administration of feeds	3
Suctioning post administration of feeds	3
Avoid giving liquids to prevent aspiration	2
Non oral feeds if presenting with Dysphagia	2
Adherence to cuff inflation and deflation protocols	2

Table 17 depicts the results of probing nurses regarding their roles and responsibilities in the screening of tracheostomy patients presenting with dysphagia. It was evident from reports from half the nurses, that no specific protocol is generally followed. Most nurses reported that screening involved observation of patients post presentation of different food consistencies. Twenty five percent reported conducting suctioning prior to and post administration of feeds. Only two nurses reported appropriate adherence to cuff inflation and deflation protocols. One participant was reported as saying, "*What is a cuff on a tracheostomy tube? And why would it need to be inflated or deflated?"* None of the nurses

reported conducting a blue dye test as a screening measure for dysphagia in tracheostomy patients. This was quite disconcerting considering that blue dye testing is advocated in the literature as a quick screening measure for dysphagia in tracheostomised patients. When further probed, two nurses reported being present while the speech-language therapist was conducting the blue dye test. On further analysis, the nurses that were conducting blue dye assessments were the same participants whose responses to the previous questions already discussed were viewed more favourably. The two nurses who had attended in-service training and were aware of blue dye testing, reported that the speech-language therapist conducts the administration of the blue dye, and the nurse was responsible for the suctioning prior and post feeds, and inflating and deflating the pilot balloon.

Table 18

Common Themes emerging regarding Speech-Language Therapists' Assessment Procedures by a Speech-Language Therapist

Speech-language therapists' views on their role in assessment of tracheostomy patients presenting with dysphagia	**Number (N=20)**
Oral sensory motor evaluation	17
Bedside assessment	15
Review bed letter and obtain case history	15
Equipment modification	13
Observation	12
Consistency trials if patient tolerates	11
Blue dye testing	10
Suctioning protocols	9
Refer dietician	8
Evaluate patients respiratory status	6
Cuff protocols	6
Referral for video-fluoroscopy	5
Awareness of equipment the patient is attached to	4
Mode of ventilation	3
Unaware of assessment procedures specific to tracheostomies	2
Cervical auscultation	1

Blue dye testing

According to the results presented in table 18, 50% of speech-language therapists reported awareness of conducting blue dye assessments on patients with tracheostomies. Of these, five therapists routinely conducted blue dye testing on all patients with tracheostomies presenting with dysphagia. Despite conducting blue dye testing, it appeared that different therapists were using different protocols. One participant reported, "*I know that we should be*

using blue dye with a patient in the assessment. However, I'm not sure what the actual procedure of administration is. For example, do I administer it in its original form, do I add water, do I trial a whole lot of consistencies, or just liquids? I am very unsure and as a result I am hesitant to conduct a blue dye test."

Suctioning

Nine speech-language therapists showed insight on suctioning, reporting the need for assistance of the physiotherapist or the nurse. One participant reported, "*I generally use the assistance of the nurse or the physiotherapist in the critical care unit for suctioning. I prefer to work with the physiotherapist but that's just because we have a better relationship. However, it would make more sense that the nurse suctions with me because she would have to suction and record regularly*". When further probed regarding whether these suctioning procedures are being followed she reported, "*It generally is quite a mission to get a nurse to suction immediately prior and post blue dye administration, let alone monitor the strict timeframes between the suctioning procedures that follow."*

Cuff Protocols

Table 17 and Table 18 show that six of speech-language therapists and two nurses were aware of cuff inflation and deflation protocols. The remainder of the sample was not aware of these protocols. After being probed, only four speech-language therapists and one nurse had a vague knowledge related to cuff status and protocols while the remaining participants were ignorant of the role a cuffed tube played in the assessment of a patient with dysphagia. One speech-language therapist referred to the cuff as a "cup" and another one reported, "*I have heard from university lectures I think, that a tracheostomy tube may have a balloon attached to it. I don't know whether this balloon is the cuff that you are referring to. I don't know if the balloon must be filled with air or water or whether it must remain empty. I am also not sure what the implications are for swallowing if the balloon has air in it. I'm assuming the patient will not be able to swallow well – is that correct?*"

Lack of awareness regarding cuff inflation and deflation protocols was a common finding from participants interviewed. A very interesting result that emerged from two participants in the study was the role of the speech-language therapist in cuff inflation and deflation. One of the speech-language therapists reported, "*I know based on the courses that I have attended, that assessing the status of a cuff is very important. I know that it is*

important to conduct a dysphagia assessment on a deflated cuff, provided that the patient is able to tolerate cuff deflation. What is a little concerning is whose role it is to assess the status of that cuff and to who administers the inflation and deflation protocols. I as a speech therapist do not feel equipped to take on that role and from my observations working in critical care, neither are the nurses. You often find patients being fed on inflated cuffs by nursing staff within the critical care unit. I know that internationally there are respiratory therapists trained to take on this role. Who then becomes responsible for this role in our country and specifically within the public health sector where adding more responsibility to the already thinly stretched staff is a huge issue."

Equipment

Table 18 shows that only four (20%) of participating speech-language therapists appeared to have a good understanding of the equipment in the critical care environment, compared to nurses who all appeared to have a good understanding of the equipment. All nurses were able to provide normative data as per the literature for aspects such as temperature recordings, heat rate and respiratory rate normative data, and the different types of ventilation and how these may impact a patient's swallowing ability due to the compromised status of the respiratory system. With regard to the speech-language therapists approximately 80% of participants were able to name a few items that can be found in a critical care setting. However, at least 50% were unable to report on the interpretation of these findings and how they may impact on a dysphagia assessment. This was of some concern. One of the participants said, "*if we as practicing speech-language therapists are put into a critical care environment with no awareness as to how various aspects, e.g. temperature, respiratory rate, heart rate, oxygen saturation levels and types and modes of ventilation can affect the swallowing assessment procedure, we may end up causing more harm than good. I personally was not even aware that as speech-language therapists we require knowledge in this area and have only learnt this from you now*". It is imperative for speech-language therapists in critical care environments to increase their knowledge related to the scope of practice and to also increase their medical knowledge in this area.

Table 19

Nurses Views on their Role in the Management of Dysphagia as per Speech-Language Therapists' Recommendations

Role of the Nurse in Management as per speech-language therapists' recommendations	**Number (N=12)**
Unsure how to manage dysphagia as per speech-language therapists' recommendations	9
Dysphagia not to be managed by nurses	8
Position correctly for feeding	3
Document if blue dye is evident from tracheostomy site on hourly suctioning	2
Feeding thickened liquids on a deflated cuff	2
Record time the patient copes on a deflated cuff	2

Nine nurses reported that they are unsure as to how to manage dysphagia in tracheostomy patients as per the speech-language therapists' recommendations. Eight participants reported that dysphagia should not be managed by them. One participant correctly pointed out, "*Dysphagia management is not within our scope of practice. We are responsible for feeding patients daily. However, if the patient cannot feed well it is the role of the speech therapist to take over. We are already so overworked and understaffed and unable to conduct basic nursing duties. We can't be expected to also start screening and managing dysphagia in patients with tracheostomies*".

An interesting finding that emerged was that, where speech-language therapists were not confident in understanding of the equipment in the critical care environment, nurses on the other hand were able to provide normative data as per the literature for aspects such as temperature recordings, heart rate and respiratory rate, and for the different types of ventilation.

Table 20

Speech-language Therapists' views on their Role in Management Procedures

Role of the speech-language therapist in management of dysphagia and tracheostomy	**Number (N=20)**
Alternative feeding	13
Referral to multidisciplinary team members	13
Compensatory techniques	12
Based on results of assessment	8
Unsure specific to tracheostomies	4
Increasing sensory input	4
Cuff deflation and weaning protocols	3
Objective studies	2
New dysphagia advances	2
Oral motor treatment	1

The use of compensatory techniques, including diet modification, postural head movements as well as increasing sensory input were reported to be used by approximately 60% of the speech-language therapist participants (Logemann, 1998). Two other uncommon but interesting themes that emerged under the section on management was the use of advanced dysphagia techniques incorporating myofascial manual therapy and vital stimulation therapy (2 participants), and the role of the speech-language therapist in administering and monitoring cuff deflation and inflation protocols as part of the management process in dysphagia (3 participants).

Discussion of Sub-Aim 2

Overall, the results of the current study suggested varied practices in the screening, assessment and management of tracheostomy and dysphagia. In most cases clinical practice was inconsistent with existing expert opinion, scientific research evidence, or national practice guidelines for both speech-language therapists and nurses. Lack of consensus appeared to stem from either conflicting expert clinical opinion or absent/emerging scientific support. Some aspects of clinical care, including the use of instrumental procedures in dysphagia assessment, were found to be inconsistent with best practice as reflected in currently available research evidence. The current data highlights the need for more research evidence in order to establish true evidence based practice guidelines and optimize clinical consistency of management for the tracheostomised patient by both speech-language therapists and nurses.

Since the sub-aim of this section was to identify specific screening, assessment and management procedures in dysphagia and tracheostomy, I have chosen to highlight all emerging themes as depicted above, but to specifically explore four themes considered to be especially relevant based on the findings of this study. These themes are as follows: bedside assessment; modified evans blue dye testing procedures; suctioning procedures and equipment; and the interpretation of results from equipment to which patients may be to.

Bedside assessment

Regarding common practices in dysphagia assessment, there was strong clinical consensus that the clinical bedside evaluation was the main tool used by speech-language therapists to evaluate swallowing function. A number of authors have conducted studies into the reliability of the clinical bedside examination of tracheostomy patients and have documented the limitations of this assessment method, even when performed by experienced clinicians (Elpern et al., 1994; Tolep et al,. 1996). Tolep et al. (1996) reported that for seven out of 11 patients identified as having a normal swallow on clinical bedside examination, three were observed to aspirate and the others had swallowing "abnormalities" observed during video-fluoroscopy. Elpern et al. (1994) demonstrated a high incidence of silent aspiration in long term ventilated patients as demonstrated via video-fluoroscopy assessment and reported that episodes of aspiration are not consistently accompanied by clinical symptoms of distress in tracheostomised and ventilated patients. Considering that literature strongly advocates the assistance of video-fluoroscopy to confirm bedside findings, only 25% of speech-language therapists reported referring their patients for this procedure, despite over 75% of the sample having access to video-fluoroscopy.

The relatively limited use of video-fluoroscopy in the evaluation of swallowing in tracheostomised patients may be partly explained by the logistical difficulties in accessing these procedures for such patients. The presence of a tracheostomy tube or mechanical ventilation does not prevent the successful use of instrumental procedures (Dikeman & Kazandijian, 2003); however, the compromised pulmonary conditions and the medical complications of the patient often limits his/her mobility, hindering easy administration (Brady, Hildner & Hutchkins, 1999). When speech-language therapists from the current study were probed regarding reasons for not referring for video-fluoroscopy, over 75% were in agreement with the above statement from the literature. Furthermore, most participants

reported being afraid of referring patients in critical care for such procedures due to the already coexisting complexities.

Modified Evans Blue dye testing

Results of the present study revealed that approximately half of the speech-language therapists (50%) and no nurses were conducting modified evans blue dye testing when assessing and screening swallowing in the tracheostomised patient. In light of the body of evidence questioning the validity of blue dye testing, the absence of strong clinical consensus regarding this test was not unexpected. However, despite evidence questioning the validity of this technique, the speech-language therapists who reported using this technique did not appear to present with awareness regarding its questionable validity. A number of authors have compared the results of blue dye testing with objective measures of swallowing, including video-fluoroscopy (Brady et al. 1999; Donzelli, Brady, Wesling, & Craney, 2001; O'Neil-Pirozzi, Lisieki, Momose, Connors, & Milliner, 2003; Peruzzi et al., 2001; Thompson-Henry, & Braddock, 1995). They found blue dye testing to produce significant false negative error rates in detecting trace aspiration (failure to detect aspiration), with the error rate being as high as 50% in two different studies (Brady et al., 1999; Donzelli et al., 2001). These investigations have led to the conclusion that blue dye testing is not sensitive for detection of trace amounts of aspiration; however, if the patient aspirated greater than trace (>10%) it was sensitive in detecting aspiration (Brady et al. 1999; Donzelli et al., 2001; O'Neil-Pirozzi et al., 2003; Peruzzi et al., 2001; Thompson-Henry & Braddock, 1995). Consequently, a number of authors noted that this procedure should be used as a screening tool and that negative blue dye testing results should be investigated with instrumental measures to rule out trace aspiration (Brady et al., 1999; Dikeman & Kazandjian, 1995; Goldsmith, 2000; Manison, 2003). O'Neil-Pirozzi et al. (2003) conducted the most rigorous examination of blue dye testing to date. Although they reported 80% sensitivity and 62% specificity for identifying aspiration, they called for more studies to explore the methodological issues raised in their study and examine the accuracy of the tool in different tube conditions and with different consistencies, suggesting that this may lead to a revised protocol with better accuracy. It is argued that the technique have the advantages of being easy to perform, economic, and simple (Brady et al., 1999). However, the limited reliability of blue dye testing may significantly increase the number of assessments required before a speech-language therapist can progress confidently with swallowing rehabilitation or decannulation, thereby rendering the economy of blue dye testing void. An interesting point

that warrants noting is that while the literature advocates mainly for blue dye testing to be used as a screening tool, the results of the current study revealed that no nurses are using blue dye testing as part of their screening protocols for dysphagia in tracheostomised individuals.

Suctioning protocols

The current results demonstrate that it is not common practice for the participating speech-language therapists to be involved in suctioning patients with a tracheostomy. All of them reported that they do not conduct suctioning procedures, as it is not within their scope of practice. Most of them reported working with either a nurse or the physiotherapist with regard to suctioning. Logemann (1998) states that although speech-language therapists should be knowledgeable about oral and trans-tracheostomy suctioning practices for emergency situations or when nursing staff is unavailable, this procedure is best performed by nursing staff. Results of studies conducted in Australia revealed that some speech-language therapists are conducting suctioning procedures. Those who are conducting suctioning are either doing so within professional guidelines and are only perform oral suctioning or have undertaken formal suctioning competency training programmes within their facilities (*Speech Pathology Australia, 2005*). Within the South African context, speech-language therapists are still in the process of consolidating knowledge and skills pertaining to assessment and management procedures. In view of this, the inclusion of suctioning as part of the speech-language therapist's scope of practice should be a future goal.

Literature recommends suctioning pre and post blue dye administration, then every 15 minutes for an hour, and thereafter every hour for the next 24 hours (Dikeman & Kazandjian, 1995; *Speech Pathology Australia, 2005*). It was evident from further probing of nurses that patients were not being suctioned every 15 minutes within the first hour. Given the context within which the current study took place as well as the various challenges faced by nurses that were discussed previously, such findings were anticipated. Nurses in critical care are continuously busy, very fatigued and understaffed. It was evident from the results obtained from them that all nurses are competent in conducting suctioning procedures as per a standardised protocol. The challenge lies within suctioning protocols pertaining to patients with dysphagia, since only two participants were able to correctly report on appropriate suctioning protocols pre and post feeding, and on hourly post administration of feeds for the next 24 hours.

Equipment

From the interviews conducted it was evident that when probed regarding knowledge on critical care equipment specifically and its use and functions, nurses were very knowledgeable in this area. However, regarding speech-language therapists, it was apparent that most do not have the necessary knowledge pertaining to common equipment within the critical care setting. However, despite the findings from this study, various recent studies have shown that the knowledge of critical care nurses in South Africa in a variety of clinical areas is lower than the acceptable standard (Scribante & Bhagwanjee, 2007). This did not correlate with the findings from this study in terms of knowledge of equipment. However, the findings from this study could be applicable to nurses' knowledge pertaining to screening procedures for dysphagia in tracheostomy patients. Two studies showed a poor correlation between knowledge levels and years of experience and a lack of an on-going process of accreditation for nurses practicing in critical care. In keeping with the study conducted by Scribante and Bhagwanjee (2007), it is once again reiterated that critical care nursing in South Africa faces the challenge of an acute shortage of trained and experienced nurses. Nurses appear to be tired, often not healthy and plagued by discontent and low morale. Equally, the quality of the training and medical education is also questioned. It is hoped that the results pertaining to this sub-aim will assist in embracing short and long term strategies in an attempt to address all these challenges for nurses trying to improve their knowledge and skills within the area of tracheostomy and dysphagia in critical care.

Summary of findings in pertaining to sub-aim 2

The results emerging from sub-aim 2 described specific screening, assessment and management protocols to be adhered to in patients with tracheostomies presenting with dysphagia. Various aspects pertaining to blue dye testing, suctioning protocols regarding scope of practice for both speech-language therapists and nurses, and cuff inflation and deflation protocols were discussed. The general feeling obtained from the results of this sub-aim was a lack of knowledge and adherence to specific protocols by both speech-language therapists and nurses. In accordance with the lack of guidelines as discussed in the preceding aim, all participants were using different procedures and were varied in their screening, assessment and management protocols for patients with tracheostomies presenting with dysphagia.

It appears that decisions related to patient assessment and management are generally left to the discretion of the original admitting service and the health care professional that takes on the case management of the patient. Furthermore, decisions about cuff protocol, blue dye testing, downsizing and decannulation, are varied across individuals and is not necessarily made with the entire team, but rather as a result of the health care individual attending to that patient. Daily care plans, such as suctioning schedules, do not appear to be optimised by the entire team and often not by nurses either; nurses' experience with tracheostomies appear to be variable, based on the results of this study. It is critical that nurses and speech-language therapists work collaboratively to complement each other. Nurses have the knowledge and skill pertaining to suctioning a patients with a tracheostomy in general, whereas the speech-language therapists has the knowledge specifically pertaining to dysphagia and tracheostomy; he/she will usually be able to provide input regarding frequency and duration of suctioning of tracheostomy patients presenting with dysphagia. A team approach is therefore strongly advocated to help improve this situation and thereby the quality of patient care.

Sub-aim 4 further explored results that were obtained in relation to multidisciplinary team work. The results are presented and later discussed under sub-aim 4.

3.3.3 Sub-Aim 3

The third sub-aim of the study was to illustrate the insight of participants regarding each other's roles in critical care.

Tables 21 and 22 respectively summarises the common themes extracted when speech-language therapists were questioned regarding what the current roles of nurses in their critical care environment entailed and vice versa.

Table 21

Speech-Language Therapists' Reports on the Role of the Nurse in Critical Care with Tracheostomised Patients with Dysphagia

The role of the nurse in the screening and management of tracheostomy patients (speech-language therapists' reports)	**Number (N=20)**
Suctioning	11
General patient care	6
Tracheostomy care	6
Feeding patients	6
Stoma hygiene	5
Carryover of speech-language therapists' recommendations	5
Cuff inflation and deflation	4
Monitor patient vitals	4
Participant unsure	4
Positioning during feeding	3
Recording of food intake	2
Insertion of naso-gastric tubes	2
Taking instructions from doctors	1

The results shown in Table 21 reveal that 55% of the speech-language therapists (11) considered the role of the nurse to include suctioning, followed by 30% (6 speech-language therapists) mentioning aspects such as general patient care, tracheostomy site care and the feeding of patients as a common role. Twenty five percent of participants reported carryover of the speech-language therapists' dysphagia recommendations and that as stoma hygiene should also to be a role allocated to nurses. At least 20% of the sample reported that it was the nurses' duty to carry over recommendations by the speech-language therapists, and to be the professionals responsible for inflating and deflating the cuff prior to and post administration of the blue dye test. Other less common themes that emerged from the study as possible roles of nurses included positioning of patients, recording of food intake, insertion of naso-gastric tubes and implementing orders given by doctors.

Table 22

Nurses' Reports on the Role of the Speech-Language Therapist in Critical Care with Tracheostomised Patients with Dysphagia

The role of the speech-language therapist **in critical care in the assessment and management of tracheostomised patients with dysphagia (nurses' reports)**	**Number (N=12)**
Unsure	7
Observe patients' feeding	4
Observe different food consistencies	3
Ensure safety of oral feeding	3
Administer a blue dye test	2

The results depicted in Table 22 revealed that the majority of nurses were unaware of the role of the speech-language therapist in the assessment and management of tracheostomy patients with dysphagia. Seven nurses reported that they were unsure about exactly what a speech-language therapist's work description regarding this population entails, while four reported that the speech-language therapist primarily observes patients' feeding. Three participants reported that the speech-language therapist's roles included observation of different food consistencies to ensure safety of oral feeding. Only two nurses reported administration of blue dye testing as part of assessment and management procedures by speech-language therapists.

Discussion Regarding Sub-Aim 3

From the results obtained pertaining to sub-aim 3, it is apparent that there is a general lack of awareness regarding roles of the nurse and the speech-language therapist in critical care. Recently, Hyland and Lee (2003) commented that within the Australian health setting they examined, there was inadequate communication and poor role awareness among health professionals involved in tracheostomy care. It could therefore be suggested that these health professionals were not working as a coordinated team and hence lacked team support while managing the tracheostomised population.

Soklaridis et al. (2007) reported that there is ambiguity with regard to different health professionals' roles and responsibilities. This lack of understanding of each other's roles can impact negatively on the success of the multidisciplinary team by creating what they termed inter-professional tension (Soklaridis et al., 2007). Ryan and McKenna (1994) state that such tensions are believed to contribute to work dissatisfaction and poor inter-professional

communication, with negative implications for patient care. Hall and Weaver (2001) stated that while each health care professional learns about his/her role through professional education, when faced with working as part of a team they have poor understanding of the other members' roles. In the current study, while speech-language therapists appeared to have some understanding regarding the role of the nurse in critical care, most nurses were unaware of the role of the speech-language therapist when assessing and managing a patient with a tracheostomy and dysphagia. . This is disconcerting since, in order to effectively collaborate as a team in the assessment and management of this population, it is imperative that all multidisciplinary team members have a clear understanding regarding role definition and the roles and responsibilities of the professionals they work with.

Nisbet et al. (2008) found that a pre-qualification inter-professional learning programme for medical, nursing, and allied health professional students resulted in enhanced understanding of the roles of other team members and that it positively influenced their ability to work together effectively. The need for such education was first highlighted by Felsher and Ross (1994) and more recently in a similar study by Insalaco et al. (2007). The results of these studies suggested that students had a fairly good understanding of the concepts of rehabilitation and teamwork, but a lack of recognition/understanding of team members' knowledge and training. Insalaco et al. (2007) advised that students need further knowledge about the specialities of the other professionals that they will be working with. Such knowledge of students' attitudes towards each other's disciplines is vital to ensure that stereotypes and role confusion do not exist when students embark on their professional careers. The results of the current study indicate that further efforts are needed to prepare nurses and speech-language therapists fully for collaborative working after having qualified. It is hoped that training institutions could offer an effective environment for undergraduate inter-professional learning. While difficulties may be encountered in the organization of such training due to course structures and differing training and education settings, this is an area that warrants investigation by health care faculties.

Summary of Findings in Respect to Sub-Aim 3

The results regarding sub-aim 3 revealed a general lack of knowledge and awareness regarding each others' roles in critical care and dysphagia in tracheostomised patients. Bearing in mind the results obtained for sub-aim 2 whereby most participants were still in the process of understanding their own roles within the critical care setting with regard to

dysphagia and tracheostomy, it is understandable that they would not yet be completely confident and familiarised with the roles of other members of the team. Once again, it is imperative that the guideline development that was proposed under sub-aims 1 and 2 provide the opportunity for inclusion of roles and responsibilities of various health professionals in the critical care of dysphagia and tracheostomy.

3.3.4 Sub-Aim 4

The fourth sub-aim of the study was to describe participants' views on whether a team approach is applied in their intervention with this population and the composition of this team.

Results: Interviews with Speech-Language Therapists

Establishment of a defined role within the multidisciplinary team

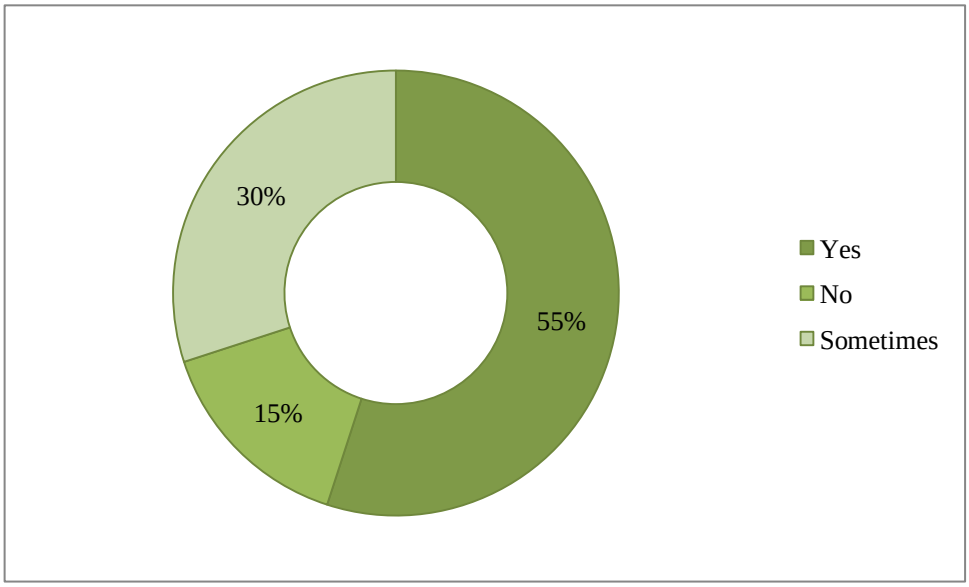


Figure 15. Speech-language therapists' views on whether they have a defined role within the multidisciplinary team

More than half the sample (55%) reported having a defined role within the multidisciplinary team. Thirty percent of speech-language therapists felt that they did not have such a role, while the remaining 15% reported that role definition varied depending on the health professionals that worked with them.

Table 23 highlights some common themes regarding role definition reported by team members. These themes will be further elaborated on in the discussion of this sub-aim.

Table 23

Common themes regarding Role Definition reported by Speech-Language Therapists

Role definition within the multidisciplinary team	Number (N=20)
Role is defined in terms of scope of practice	6
Numerous referrals from physiotherapy, occupational therapy and dietetics.	6
Work as a team with Ear Nose Throat doctor	5
Weekly multidisciplinary team (physiotherapy, occupational therapy and dietetics) meetings	5
Numerous referrals from doctors	4
Have a defined role in terms of dysphagia but not dysphagia and tracheostomy	4
Often patients are under referred due to lack of role definition	3
Attendance at ward rounds to improve role definition	1
Unsure	1

Following a Team Approach

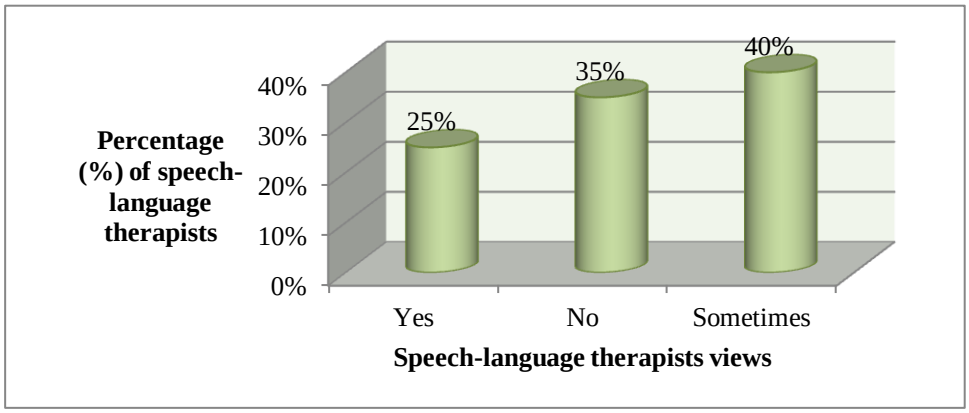


Figure 16. Speech-language therapists' views on whether a team approach is employed

When questioned about whether a team approach was followed at speech-language therapists respective institutions, 40% reported that it was employed only sometimes, followed by 35% that reported that a team approach was not followed and only 25% of the sample reported a team approach being followed. However, of the 25% that reported that a team approach was being followed, half of the participants reported it being adhered to only with regard to dysphagia, and not for dysphagia and tracheostomy.

Confidence within the multidisciplinary team

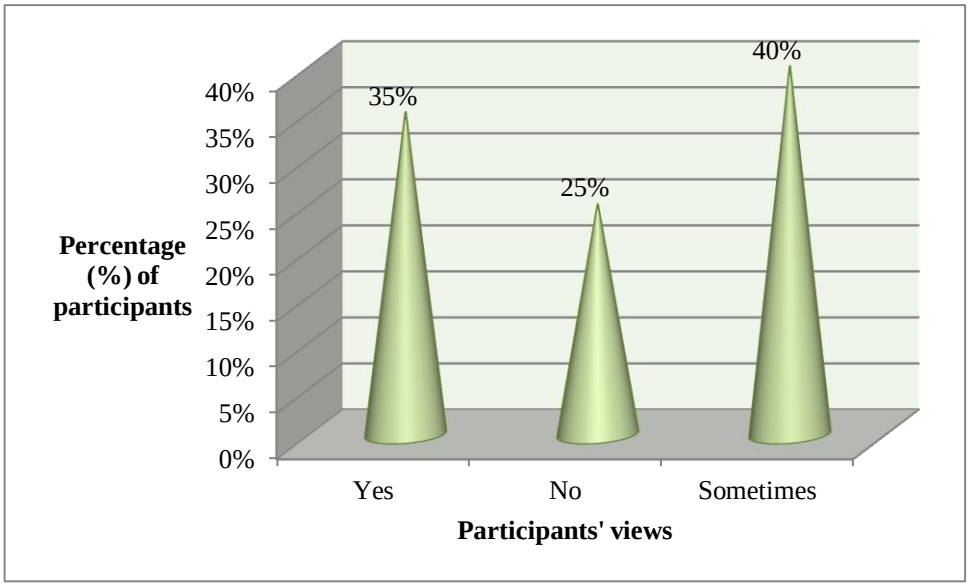


Figure 17. Percentage of speech-language therapists who feel confident working within the multidisciplinary team

From figure 17 forty percent of speech-language therapists reported that they occasionally felt confident in working within the multidisciplinary team. These feelings were attributed to many factors which will be highlighted in the discussion later. At least 35% of participants reported feeling confident working within a multidisciplinary team setting, while the remaining 25% did not feel confident at all. A common theme extracted from participants who reported on confidence and team approaches revealed that most participants were referring mainly to dysphagia and multidisciplinary team work, and not to dysphagia, tracheostomy and multidisciplinary team.

Key members of the multidisciplinary team

Table 24

Speech-Language Therapists Views on Key Members of the Multidisciplinary Team

Key Members of the Multidisciplinary Team	Number (N=20)
Physiotherapist	19
Speech Therapist	18
Nurse	15
Doctor	14
Dietician	10
ENT	10
Family	5
Occupational Therapist	4
Social worker	3
Stoma sister	2
Patient	1

Table 24 highlights participants' views on key members that should constitute the multidisciplinary team in assessing and managing tracheostomy patients presenting with dysphagia. An array of health professionals were listed as being key members of the multidisciplinary team. The physiotherapist was considered most essential (19 participants), followed by the speech-language therapist, the nurse and the doctor. Half the sample also reported the ear nose throat doctor and the dietician to be key members of the multidisciplinary team.

Results: Interviews with Nurses

Establishment of a defined role within the multidisciplinary team

Figure 18 shows that while six nurses reported having a defined role within the multidisciplinary team the remaining six reported having no such role. The large number of participants reporting that they do have a defined role within the multidisciplinary team does not correlate with findings obtained for sub aims 1 2 and 3 where it was clear that participants presented with minimal knowledge regarding each other's roles in the assessment and management of these patients. Furthermore, it is clear that more than six participants were unaware of the screening and management procedures of nurses working with tracheostomised individuals presenting with dysphagia.

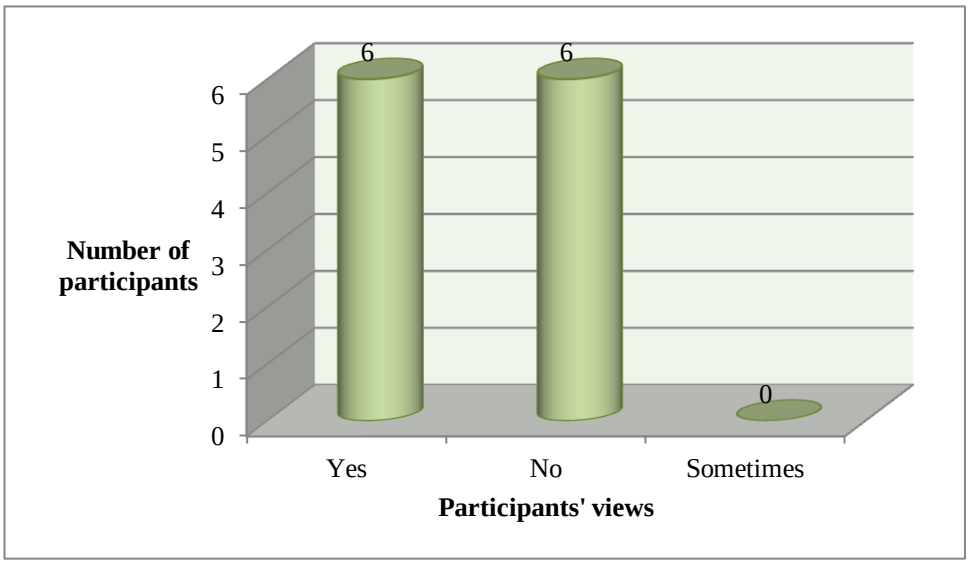


Figure 18. Nurses' views on whether they have a defined role within the multidisciplinary team

Key members of the multidisciplinary team

Table 25

Nurses' Views on Key Members of the Multidisciplinary Team

Key health professionals that form the multidisciplinary team	Number (N=12)
Doctor	11
Speech-language therapist	11
Nurse	10
Physiotherapist	4
Dietician	4
Ear nose and throat specialist	2
Radiologist	1

Eleven nurses indicated the doctor and the speech-language therapist as key members of the multidisciplinary team, followed by ten that reported the role of the nurse as being in the key position. Only four participants included the physiotherapist and the dietician as key multidisciplinary team members. These values differ greatly from the results of the interviews with the speech-language therapists. The radiologist and ear nose throat doctor

were also reported as being part of the multidisciplinary team by a small number of participants as depicted in Table 25.

Following a team approach

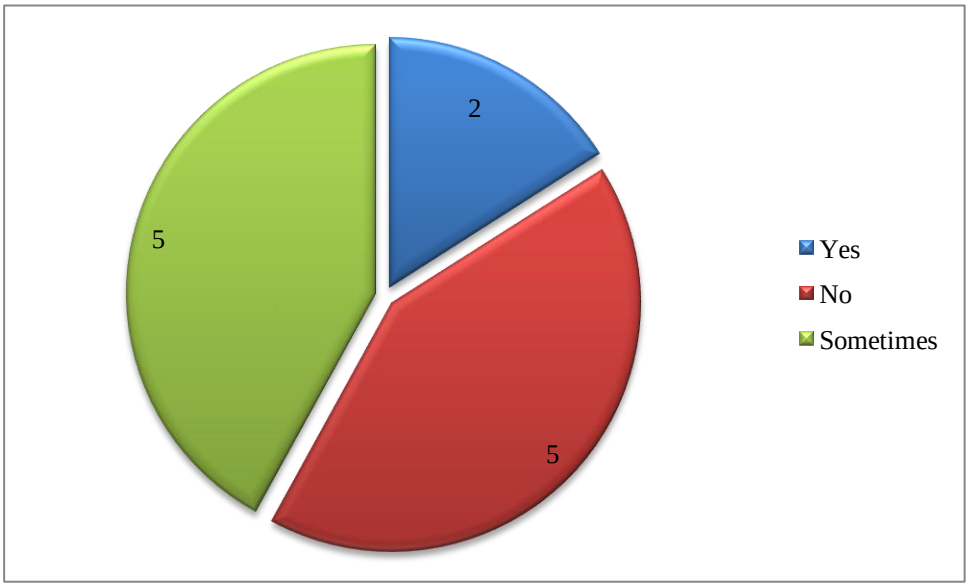


Figure 19. Nurses' views on whether a team approach is followed

In Figure 19 it can be seen that only two nurses reported working within a team approach in the assessment and management of tracheostomy patients with dysphagia, while the remaining five reported a team approach not being followed and a further five reporting that it was followed sometimes.

Reasons for a team approach not being followed

Table 26 highlights some of the more common themes that emerged when probing regarding reasons why a team approach was not being followed.

Table 26

Nurses' views as to why a team approach is not being followed

Reasons contributing to a team approach not being followed	Number (N=12)
Poor carryover of management	7
Lack of communication between multidisciplinary team members	5
Lack of visibility of speech-language therapists in critical care wards	5
Staff shortages	5
Require further training	3

Confidence within the multidisciplinary team

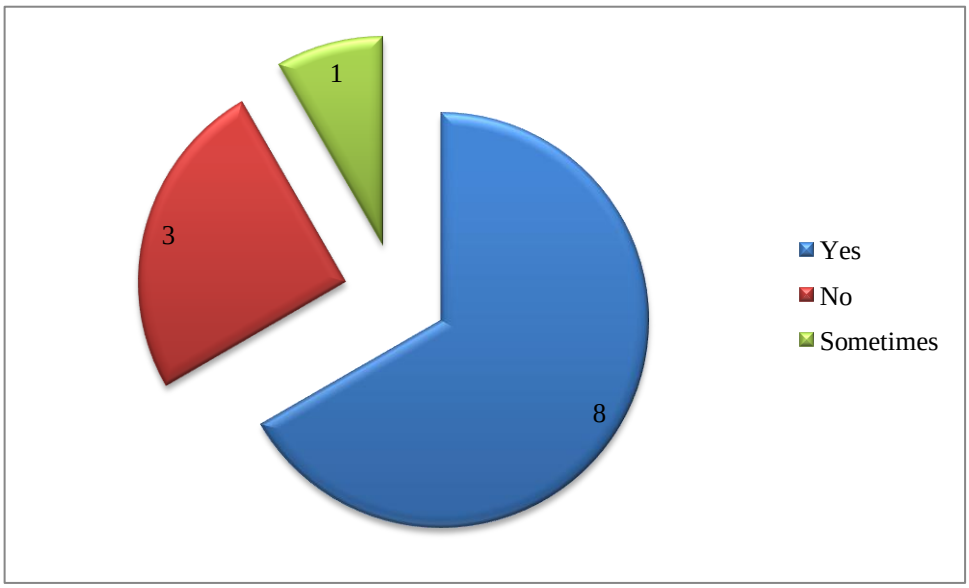


Figure 20. Number of nurses that feel confident working within the multidisciplinary team

Figure 20 shows that eight nurses reported feeling confident working within the multidisciplinary team. A further three reported that they did not feel confident and one nursereported that she sometimes felt confident.

Reasons for not feeling confident within the multidisciplinary team

Table 27 highlights the common themes attributing to patients not feeling confident within the MDT.

Table 27

Nurses' views on why they do not feel confident within the MDT

Reasons for participants not feeling confident within the MDT	Number (N=12)
Lack of skill in dysphagia and tracheostomy	6
Lack of time to further knowledge	3
Lack of training in the area	3
Lack of knowledge in dysphagia and tracheostomy	2

Discussion Pertaining to Sub-Aim 4

Role definition

In the present study, a substantial number (more than 50%) of nurses felt they had a defined role within their multidisciplinary team for the management of dysphagia in clients with a tracheostomy. However, only 16% of speech-language therapists felt they had a defined role. For a number of the speech-language therapists this role was not recognized in critical care facilities where patients with a tracheostomy were managed within their respective workplaces. This finding would suggest these speech-language therapists need to educate other health professionals' in order to raise their awareness of the role of the speech-language therapists in managing dysphagia among the tracheostomised population (Dikeman & Kazandjian, 2003).

Multidisciplinary team approach

Many authors specified that a team approach to tracheostomy management is critical (Dikeman & Kazandjian, 1995; Goldsmith, 2000; Hauck, 1999; Higgins & Maclean, 1997; Kasper et al., 1996), recognizing that management of patients is improved through the development and maintenance of team based relationships.

In contrast, results of the present study revealed that most speech-language therapists and nurses were not working within what they perceived to be a multidisciplinary setting. The fact that many felt their teams were not multidisciplinary, highlights that many clinicians felt improvements were needed to their team based practice for tracheostomy patients. This finding is comparable to Manley et al. (1999) who reported that only half of the American speech-language therapists surveyed indicated that they were part of a multidisciplinary team for the assessment and management of such patients.

The benefits of implementing a coordinated and integrated tracheostomy team have been previously documented. Generally, implementing a team approach within the health care sector to determine patient goals and treatment has produced improvements in patient care and satisfaction, while at the same time reducing the time spent in hospital (Morrison, Lincoln, & Reed, 2004). Additionally, authors have noted clinical and professional benefits such as reduced variability of tracheostomy tube selection (Choate et al., 2003), increased ability to meet patient and professional needs and improved communication between team members (Hyland & Lee, 2003). Literature also reports better working environments and improved work satisfaction for clinicians working in a team approach (Morrison et al. 2004).

Issues of professional scope of practice and minimization of inadvertent risks to patients can be addressed effectively within a skilled multidisciplinary team. Considering the diverse and complex nature of tracheostomy care, a team approach is particularly relevant in facilitating optimal management for this clinically complex group (Dikeman & Kazandjian, 1995; Murray & Brzozowski, 1998). Developing team based approaches for tracheostomy patients should become a priority issue for any clinician working with this population.

The team approaches that have been reported are characterised by regular team meetings, enabling co-ordination of care and prioritisation of patient goals (Parker et al., 2007). Decisions regarding downsizing, decannulation, changes to daily tube care (e.g. increased suctioning) and feeding should be discussed and communicated to all health care professionals. Together, the team members identify specific patient needs and, in complex cases, follow a problem solving strategy (Dikeman & Kazandjain 2003). Ward rounds by the team ensure clear communication and sharing of information (Dikeman & Kazandjain 2003). In the current study it was evident that participants were not meeting regularly to prioritise team goals for patients. Furthermore, it was evident that while nurses were attending ward rounds, speech-language therapists were often never a part of critical care ward rounds due to time constraints. Health care professionals in public health care are still in the process of defining their own roles in the area of dysphagia and tracheostomy and it may therefore seem challenging for them to work collaboratively at this point in making decisions regarding downsizing and decannulation.

Clinical confidence

Results from the current study revealed that a higher proportion of nurses (67%) than speech-language therapists (35%) felt confident of their ability to manage the tracheostomised population. Despite the majority of findings, several nurses and speech-language therapists in the current study reported that they only felt confident of their ability to provide tracheostomy care some of the time. The participants argued that this was because they spent only a small proportion of their caseload caring for this clinical. This perception is congruent with Manley et al.'s (1999) statement that speech-language therapists gain confidence in their ability to manage patients with a tracheostomy from a combination of both academic training and clinical exposure to clients. In light of this relationship it is important that speech-language therapists with limited access to clients ensure they have established clinical guidelines within their practice setting, and contact with other experienced team members to call on to facilitate optimal client care. Indeed, of the speech-language therapists who lacked confidence, many attributed their reduced confidence to their limited exposure to the tracheostomised population and recognized this area as one needing improvement, training opportunities, and professional education activities.

3.3.5 Main Aim

The main aim of the study was to determine the need for a dysphagia training programme for nurses working with acute tracheostomised patients in critical care units in government hospitals in Gauteng Province, South Africa.

Information obtained from both speech-language therapists and nurses was used to inform the need for a training programme for nurses by providing evidence of nurses' knowledge and training in the area of tracheostomy in general and more specifically to tracheostomy with dysphagia. Based on this information and participants' opinion on the need of further training for nurses in screening and management of dysphagia in tracheostomy patients, the matter of core areas to be included in such a programme was further probed. The results are presented below:

Results: Speech-language therapists' and Nurses Interviews

Speech-language therapists' views on training in screening procedures

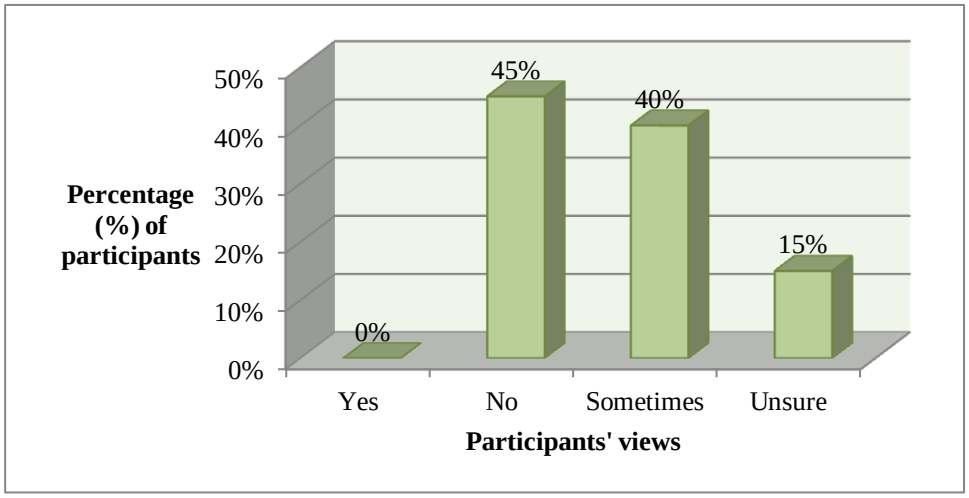


Figure 21. Speech-language therapists' views on whether nurses are trained adequately to screen for the presence of dysphagia in tracheostomy patients

Nurses' views on training in screening procedures

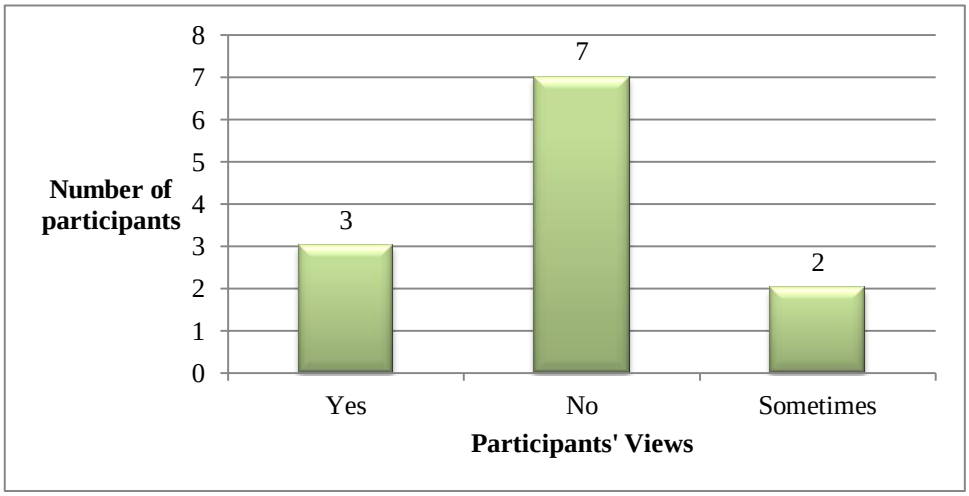


Figure 22. Nurses' views on whether they are trained adequately to screen for the presence of dysphagia in tracheostomy patients

Figure 21 reveals that forty five percent of speech-language therapists perceived nurses as not being adequately trained in the screening of dysphagia and tracheostomy

patients, followed by 40% who reported that nurses are adequately trained and 15% that were unsure. Comparing **S**peech-language therapists' views to those of the nurses as depicted in figure 22, it was evident that seven reported not being adequately trained to screen for the presence of dysphagia in a tracheostomy patient, followed by three nurses who reported that they were adequately trained; two nurses reported only sometimes being able to adequately screen for dysphagia in a tracheostomy patient.

Views on training in management procedures

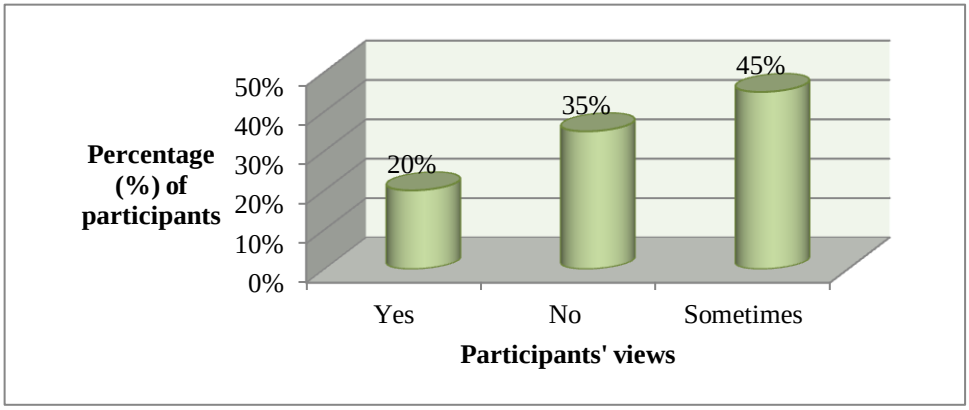


Figure 23. Speech-language therapists' views regarding whether nurses are perhaps adequately trained to manage dysphagia as per speech-language therapists' recommendations

Forty five percent speech-language therapists were of the view that nurses may be sometimes trained to manage dysphagia appropriately as per the speech-language therapists' recommendations, followed by 35% that reported that nurses may not be trained, and only 20% reported that nurses may be adequately trained to manage dysphagia in tracheostomy patients. Many speech-language therapists (50% of the sample) reported that this view was based on assumption, because they did not always work closely and regularly with nurses in critical care. Furthermore, since many speech-language therapists in this study were still in the process of developing their knowledge and skill in this area, it appeared difficult to ascertain their viewpoints on whether nurses were presenting with the skills needed to manage these patients.

In comparison to the results depicted in figure 23, when nurses were questioned regarding management procedures as per speech-language therapists' recommendations, it

was evident that a greater percentage of nurses reported not being trained adequately. The results obtained from nurses in this regard, is depicted in figure 24.

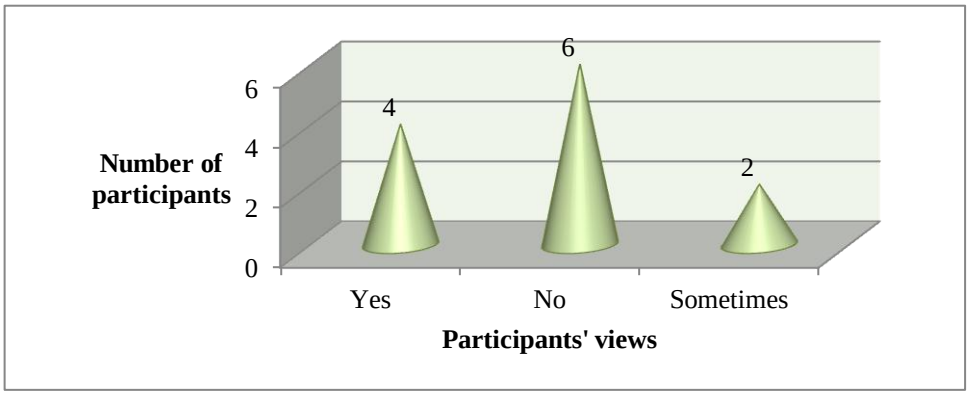


Figure 24. Nurses' views regarding whether they are adequately trained to manage dysphagia as per speech-language therapists' recommendations

Figure 24 shows that six nurses reported not being adequately trained, followed by four that reported being adequately trained, and two reporting that they were adequately trained only sometimes.

Possible reasons why nurses may not be trained to screen for as well as manage Dysphagia and tracheostomy patients

When nurses and speech-language therapists were further probed regarding possible reasons as to why nurses may not be trained adequately to screen for and manage dysphagia in tracheostomised patients, similar themes were obtained from both disciplines. Results are depicted in Table 28 and 29 respectively and will be elaborated on under the discussion of this sub-aim.

Table 28

Speech-Language Therapists' Views on why Nurses may not be Trained Adequately in the Screening and Management of Tracheostomy Patients with Dysphagia

Common themes emerging	**Number (N=20)**
Lack in undergraduate training	8
Lack of knowledge from personal interactions	7
Limited referrals from nursing staff	6
Lack of consistent training by experienced speech-language therapists of nurses regarding dysphagia assessment and management in general	5
Lack of skill	4
Speech-language therapists are not feeling confident; therefore cannot expect nurses to be confident in screening	3
Lack of experience	3
Too many workload demands to improve knowledge and skill	3
Negative attitude	2

Table 29

Nurses' Views on why they are not Trained Adequately in the Screening and Management of Tracheostomy Patients with Dysphagia

Common themes emerging	**Number (N=12)**
Content not covered in undergraduate training	8
Lack of knowledge	6
Lack of time for self learning	5
Lack of skill	5
Need to attend lectures on the area	3
Does not feel confident	2

Speech-language therapists' views on the need for a training programme

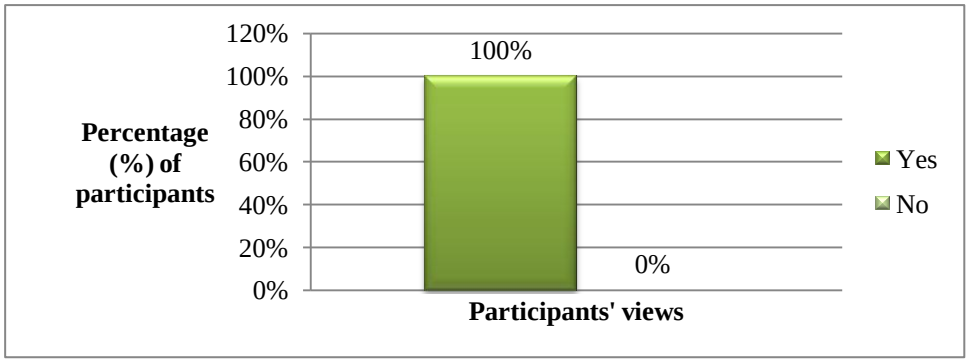


Figure 25. Speech-language therapists' views regarding whether nurses should be trained in the screening and management of tracheostomy patients with dysphagia

All speech-language therapists (100%) reported that it would be beneficial if nurses in critical care were trained in the screening and management of dysphagia with tracheostomy patients. In addition, all of them were in agreement that this training should not only be confined to nurses but that it should be extended to speech-language therapists; as well, since over 50% of the sample of speech-language therapists were not feeling confident regarding their knowledge and skills in this area. A suggestion from three speech-language therapists was that training of this nature should be conducted by therapists and nurses who have the relevant training in the field. One speech-language therapist, who was aware of the provincial work group that has been developed, suggested that training could be arranged through this work group because the members would have the knowledge and expertise in the area.

Nurses views on the need for a training programme

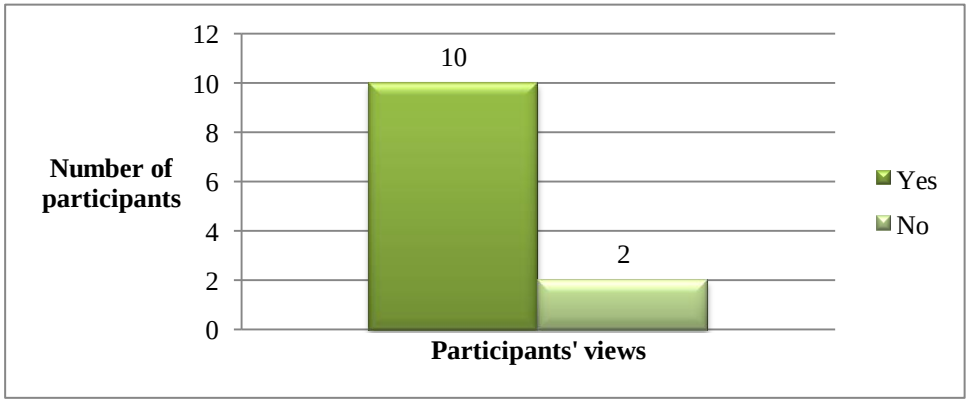


Figure 26. Nurses' views regarding whether they should be trained in the screening and management of tracheostomy patients with dysphagia

When nurses were probed regarding whether there is a need for a dysphagia training programme, similar results were obtained. Ten nurses reported that there was a great need for them to obtain further training, while two reported that a dysphagia training programme was not needed. Participants that reported no need for a training programme attributed this to lack of time, resources, and staff shortages.

When nurses and speech-language therapists were further probed regarding the possible content of a dysphagia training programme on tracheostomised patients in critical care, similar themes emerged from both disciplines. Therefore, the information obtained from this question will be presented in a single table, namely Table 30.

Table 30

Speech-Language Therapists' and Nurses' Responses regarding Areas to be Covered in a Dysphagia Training Programme

Areas to be covered in a dysphagia training programme	**Number (N=32)**
Definition, causes and symptoms of dysphagia in a patient with a tracheostomy	26
Role of the speech-language therapist	17
Role of the nurse	14
Referral criteria	13
How to screen for, assess and manage Dysphagia	11
Demonstration of examples of feeding recommendations (compensatory techniques, consistency modification, positioning)	10
Anatomy of normal safe swallow	10
Blue dye testing	10
Cuff-inflation and deflation protocols	10
Role of of the multidisciplinary team members	10
Impact of tracheostomy on swallowing and risk factors	7
Tracheostomy care (secretion management, cleaning and care, suctioning)	5
Types of pathologies requiring dysphagia intervention	5
Anatomy of the respiratory system	4
Negative implications of poor dysphagia management	4
Oral motor function and care	2
Case history indicators	1
Explanation of terminology used in files	1

Discussion Pertaining to the Main Aim of the Study

Dysphagia is a serious, frequently under diagnosed and common condition arising from various aetiologies. The complications of dysphagia are serious and potentially life threatening (Ward et al, 2007). From the information presented in the current study, it is clear that diagnosis and management of dysphagia most commonly falls to speech-language therapists due to their training in the anatomy, neuro-anatomy and physiology of deglutition (Logemann 1998). However, although speech-language therapists have taken the lead in assessment and management of tracheostomy patients presenting with dysphagia, there is an increasing amount of literature to support the idea of nurses screening and managing dysphagia as recommended be a speech-language therapist (Westggren et al., 1999). Speech-language therapists are most commonly available during standard working hours on weekdays. Their work description does not entail weekend work in public health care facilities. Nurses however, provide 24-hour care to patients. Therefore, among health professionals, they play a pivotal role in patient care and communication. At meal times, nurses are expected to vigilantly ensure that patients are able to safely swallow their food (Westergren et al., 1999). Given nurses' the key role in acute care hospitals, enhancing their skills in identifying and monitoring dysphagia management programmes in tracheostomy patients appears both logical and necessary. Therefore, training nurses plays a crucial role in shaping health professional practice.

The results of various sub-aims of this study show that there definitely is a role and place for the critical care nurse to be trained in areas of dysphagia screening and management of tracheostomy patients. Raising awareness of dysphagia by training nurses is expected to possibly facilitate early detection and management of dysphagia and its associated risks. A literature search regarding the benefits of dysphagia training programmes, specifically regarding tracheostomy patients, yielded a dearth of information. However, many previously conducted studies advocated for the need to conduct dysphagia training programmes for nurses in acute health care settings, thereby improving patient outcomes.

Training nurses to be able to effectively screen for the presence of dysphagia has proved to be an effective tool in improving patient outcomes such as reducing the risk of a patient commencing oral intake inappropriately or unsafely. Hospital-wide dysphagia screening programmes have previously been shown to reduce the risk of pneumonia threefold (Hinchey et al., 2005). The cost of a single episode of care for aspiration pneumonia has

been reported to be 6000 US dollars (Waters et al., 2004). In addition to medical costs there are hospital catering costs associated with improper diet allocations (Barton et al., 2000). Poor nutritional intake may exacerbate hidden costs relating to recovery time and length of stay. It has been reported that up to 30% of patients were admitted to hospital with protein energy malnutrition (PEM), but that 70% of patients are discharged with this form of malnutrition (Shronts & Cerra 1999).

A study conducted by Magnus (2002) which looked at dysphagia training for nurses in acute hospital settings revealed several benefits of training. These benefits included an increase in nurse insight into feeding and swallowing, which had resulted in a decrease in inappropriate referrals. Nurses were confidently screening those patients who may have been placed automatically nil by mouth following a hospital admission. There had also been a reduction in requests to assess patients with a reduced level of alertness and there was further evidence of increased nurse compliance with speech-language-therapists' recommendations and more involvement of nurses (not just those trained) in the nutrition needs of their patients (Magnus, 2002).

Only 17% (2 nurses) believed that they should not be trained in a dysphagia training programme. On further questioning, these participants believed that it is not within their scope of practice. Additional training would result in additional duties and responsibilities which public sector critical care nurses would not be able to cope with due to already increased workloads and staff shortages. Participants further reported that they are constantly fatigued and that the condition of critical care patients is such that they are generally medically complex and should be fed via enteral feeds.

These themes on being over worked due to staff shortages that emerged from the two participants are very important. It is in keeping with literature that reiterates that it is essential for speech-language therapists and other health professionals to examine how some nurses may perceive themselves, both in relation to other professionals and in relation to dysphagia. For example, nurses may see themselves as the meeting point for a number of other professionals who expect them to comply with their instructions rather than to contribute their own findings and to operate as equally valid members of the multidisciplinary team (Miller & Krawczyk, 2010).

Furthermore, the literature states that nurses may perceive that speech-language therapists are simply trying to off-load some of their responsibilities onto them (Miller & Krawczyk, 2010). This factor is more than likely to foster some resistance to the idea of incorporating dysphagia screening and management into their core duties. Therefore, it would seem imperative to obtain buy-in, to acknowledge nurses' contribution to patients in critical care and to delineate roles and responsibilities of health professionals with regard to tracheostomy and dysphagia in critical care, prior to conducting training.

Despite two nurses who felt that there was not a need for a dysphagia training programme in critical care, a general positive finding that emerged from this sub-aim is that despite the challenges faced by many speech-language therapists and nurses working in South African critical care it was evident that the majority of both speech-language therapists and nurses were in agreement of the need for a dysphagia training programme for nurses in critical care for patients with tracheostomies. Speech-language therapists and nurses highlighted similar topics or content that should be included in a programme of this nature. The current results highlight that South African nurses and speech-language therapists want additional training opportunities; therefore, there needs to be an active drive within professional associations and clinical settings to provide these training opportunities.

The current study highlights that there definitely is a need for a dysphagia training programme for nurses in critical care for tracheostomised patients. It is believed that in order for a programme of such nature to be conducted, the speech-language therapists involved in facilitating this training would have to present with the necessary experience with this population. Results obtained from interviewing nurses and speech-language therapists showed that a large number of speech-language therapists themselves do not feel confident to assess and manage patients with tracheostomy and dysphagia. Therefore, it appears that the need for a training programme would not just apply to nurses in critical care, but also to speech-language therapists working in such facilities. It is felt that nurses can still be trained with regard to dysphagia and tracheostomy, provided that the training is conducted by speech-language therapists with the required knowledge, skills and expertise. A suggestion from two participants was that this training be facilitated by experienced speech-language therapists that are members of the current workgroup in collaboration with nursing and speech-language therapy training institutions.

Prior to initiating a training programme, it appears imperative that all team members be educated regarding their roles within dysphagia and tracheostomy in critical care, because a collaborative effort is expected to play a part in the success of such a programme. Information obtained from participants were in keeping with information available from a recently developed position paper in Australia regarding the assessment and management of tracheostomy patients in critical care, and a position paper developed by the Royal College of Speech and Language Therapists in the United Kingdom on Speech and Language Therapy in Adult critical care. Therefore, the content from both position papers and information obtained from participants' needs was collated and is presented in Table 31.

In summary, it is hoped that implementing dysphagia training programmes will assist in improving patients nutritional conditions in critical care, thereby possibly reducing the rate of mortality and improving patients' quality of life. It is also hoped that these positive implications could possibly indirectly enhance critical care nurses work satisfaction and reduce staff turnover. Hence, providing these nurses with training through theoretical and practical dysphagia training programmes could potentially enhance their performance.

CHAPTER FOUR

CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

4.1 Conclusion

The present study was the first to document the need for a dysphagia training programme for nurses and speech-language therapists in critical care for tracheostomised individuals in the South African public health sector as well as the first to provide possible content to be covered in a programme of this nature, should such a need be identified. This study was also the first to document the training, clinical support and education of speech-language therapists and nurses at an undergraduate level and in the work place. It further documented the screening, assessment and management procedures followed by these professionals in South African government hospitals and provided insight into whether a team approach to dysphagia management of tracheostomised individuals is being followed.

The Need for a Dysphagia Training Programme

The data demonstrated that all speech-language therapists and over 80% of nurses were in agreement that there is a need for a dysphagia training programme for nurses in critical care for tracheostomised patients presenting with dysphagia. An interesting finding from this aim was that speech-language therapists believed that training was not only warranted for nurses but for speech-language therapists as well. Therefore, the title of this research was later modified based on areas of speech-language therapy that were also tapped into. All participants provided valuable information pertaining to content that should be included in a dysphagia training programme for nurses in critical care for tracheostomised individuals. Again there was the belief that this content should be extended to incorporate speech-language therapists in the training process as well. As mentioned previously, the information obtained from participants was combined with information from recently developed position papers on tracheostomy and dysphagia in critical care in Australia and in the United Kingdom, as well as current literature sources and a proposed model regarding content was developed and is presented in Table 31.

Table 31

Proposed Model regarding Content of a Dysphagia Training Programme for Nurses in Critical Care for Tracheostomised Patients

Content
Definitions pertaining to critical care, dysphagia and tracheostomy
Aetiology of dysphagia in relation to tracheostomy
Risk factors and complications pertaining to dysphagia and tracheostomy
Signs and symptoms of dysphagia pertaining to tracheostomy patients
Referral criteria
Anatomy and physiology of the swallowing system
Anatomy and physiology of the respiratory system
The role of the Speech Language Therapist
The role of the Nurse
The Role of other multidisciplinary team members
Implementation and evaluation of blue dye testing
Implementation and evaluation of suctioning protocols
Implementation, evaluation and monitoring of cuff protocols
Implementation of dysphagia intervention according to speech-language therapists recommendations
Readiness for weaning and discharge

(Logemann, 1999; Meyers & Johnson, 2008; *Speech & Language Therapy in Adult Critical Care Position Paper, 2006; Tracheostomy Position Paper, 2005).*

Training and Education

The data demonstrated that the majority of speech-language therapists were of the view that they had received minimal theoretical and practical hours on tracheostomy assessment and management at an undergraduate level. Regarding critical care nursing, results revealed that while nurses received adequate hours in relation to general tracheostomy care and management, the clinical area of tracheostomy care in a patient with dysphagia was not taught at an undergraduate level as part of the critical care nursing diploma. Despite challenges at an undergraduate level, the data obtained indicated that some speech-language therapists are pursuing clinical training and education to enhance their clinical practice; some are already working in supported clinical environments and a few (approximately 25%) are confident to manage individuals with a tracheostomy presenting with dysphagia. With regard to nurses, results demonstrated that there were limited opportunities, if any, to pursue clinical training and education to enhance clinical practice. As a result larger numbers of nurses are not feeling confident about caring for adults with tracheostomies that present with dysphagia. The results further revealed areas of clinical preparation and support that require attention, and a number of barriers that prevent nurses and speech-language therapists from accessing

the research evidence. The majority of speech-language therapists and nurses were in agreement that they would benefit from additional clinical training and education opportunities. Bearing in mind that the management of a patient with a tracheostomy is not a competency expected of a new graduate nor is it appropriate for a new graduate to practice in this area, universities and academic institutions cannot be blamed for new graduates not being adequately equipped. It is the responsibility of the nurse and speech-language therapist to obtain basic tracheostomy management competency. Competency should be obtained through reading, workshops, directly supervised clinical experience and discussions with specialist clinicians. Having said that, it is crucial that professional health regulatory bodies begin to place systems in place to ensure additional licensing for this specialist service.

Screening, Assessment and Management

Overall, the results of the current study suggested varied practices in the screening, assessment and management of tracheostomy and dysphagia. In most cases clinical practice was inconsistent with existing expert opinion, scientific research evidence, and/or national practice guidelines for both speech-language therapists and nurses. Core themes that emerged from this section and require further attention included the development of protocols for blue dye testing, suctioning and cuff inflation and deflation. From a review of the literature and consultation with experts in the field and also from reviewing evidence based practice, the following guidelines or protocols depicted in Figures 27 and 28 respectively, are suggested for blue dye testing, suctioning and cuff inflation and deflation.

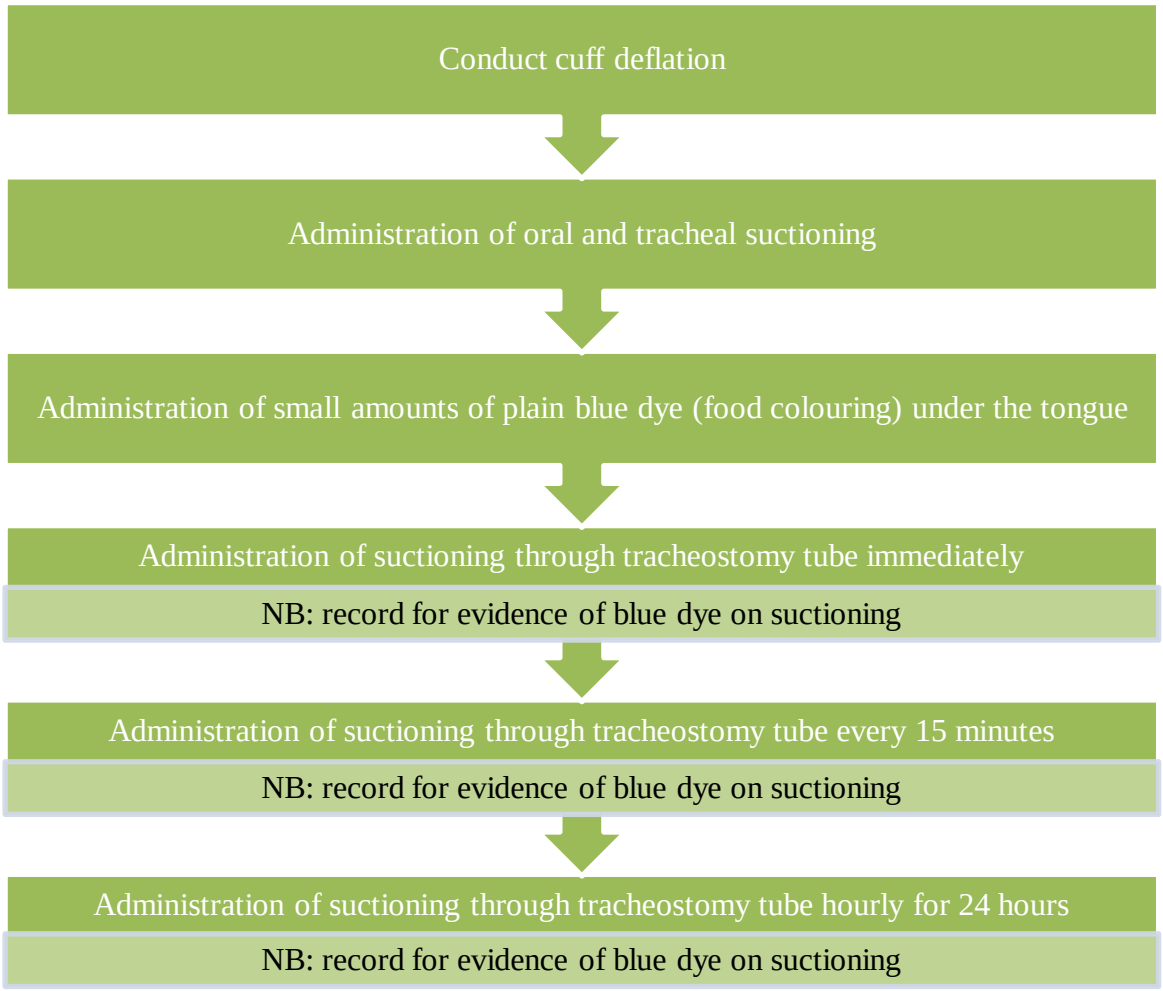


*Figure 27***.** Suggested protocol for Modified Evans Blue Dye Test with suctioning

Blue dye testing protocols (Modified Evans Blue Dye Test)

NB: Administration of blue dye is generally to be conducted by the speech-language therapist and suctioning and cuff deflation is generally to be conducted by the nurse or physiotherapist.

(Donzelli et al, 2001; Higgins & MacLean, 1997; Myers & Johnson, 2008; Swigert, 2003; Windhorst et al, 2009)

NB: Evidence of blue dye on tracheal suctioning MAY mean that the patient is aspirating.

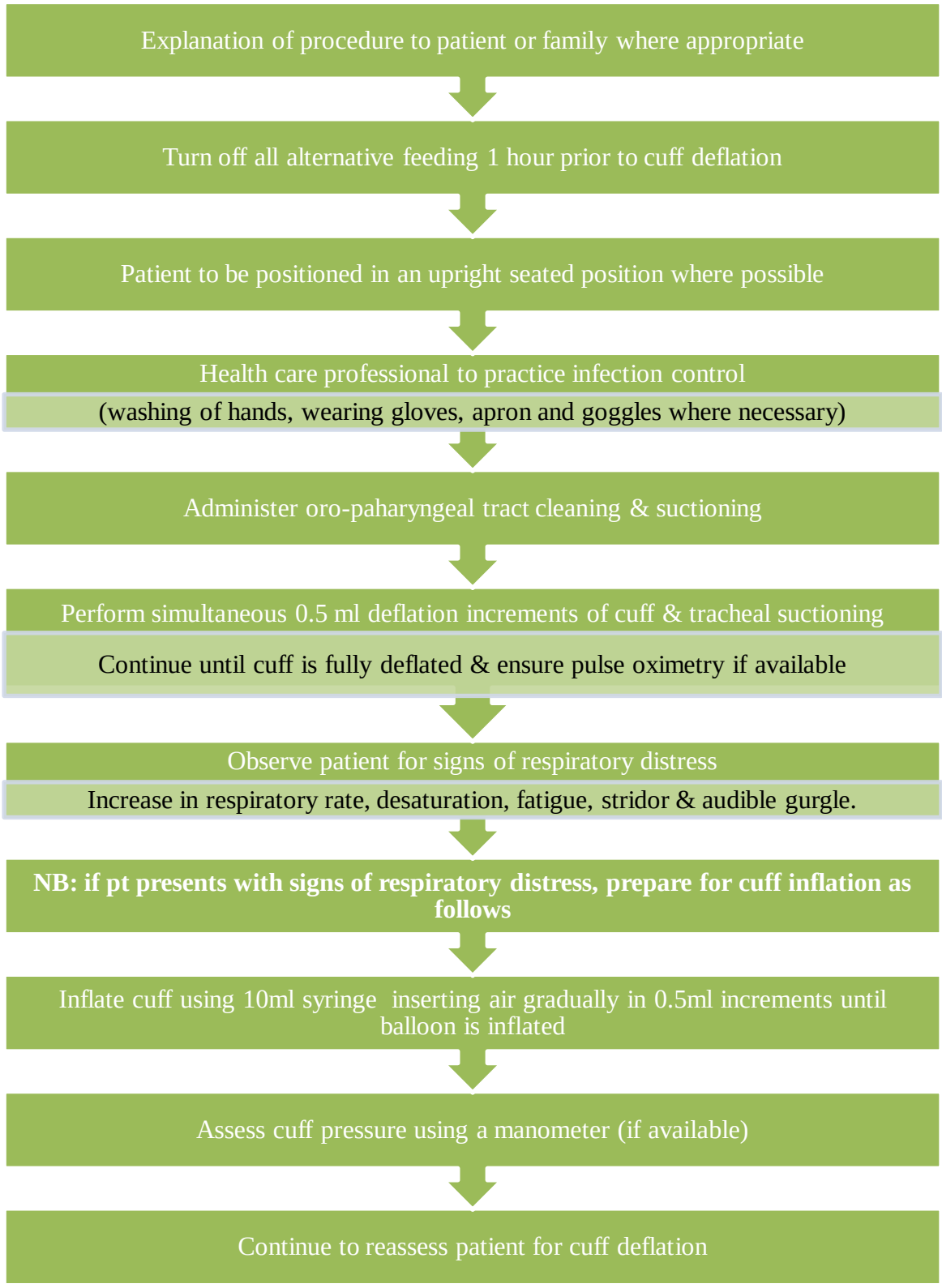


Figure 28. Suggested protocol for cuff inflation and deflation with suctioning procedures, generally conducted by the nurse or physiotherapist.

(Donzelli et al, 2001; Frank, Mader and Sticher, 2007; Higgins & MacLean, 1997; Swigert, 2003; Windhorst et al, 2009; Course facilitated by Mershen Pillay on

Management of Communication and Swallowing in Tracheostomy and Ventilator Dependent Population, 2011).

Multidisciplinary team work

This study revealed that there does not appear to be a consistent multidisciplinary team in the assessment and management of tracheostomy patients presenting with dysphagia in government hospitals in Gauteng Province, South Africa. However, reports from some participants in the current study that are working towards multidisciplinary team work in tracheostomy management, positively support previous studies that have identified the benefits of a multi-disciplinary or interdisciplinary approach to tracheostomy management (AustinHealth Trams 2006, Hunt & McGowan 2005). The results demonstrate that when a team approach is employed, it does lead to a greater awareness of the needs of patients with a tracheostomy and improved education and participation of staff across the whole service. Furthermore, the current study reconfirmed that multidisciplinary team success is contingent on effective communication, early notification and monitoring strategies, together with regular attendance and visibility of all team members at ward rounds. This study's outcomes indicate the importance of a well developed and established multidisciplinary team approach for coordinated care of patients with a tracheostomy in critical care facilities.

Research and the literature advocate for the following team members to be included in the multidisciplinary management of all tracheostomy patients presenting with dysphagia: clinical nurse consultants, ear nose throat specialist, physiotherapist, speech-language therapist, dietician, social worker and medical officers. Teams should meet weekly to conduct ward rounds and consult on patients with a tracheostomy within the critical care facility. The multidisciplinary team members should provide regular feedback to each other regarding tracheostomy care and patient progress, and short and long term goal setting. Key features of the team approach should include:

- A coordinated and collaborative approach to patient care
- An automated mechanism for alerting team members of the presence and status of patients with a tracheostomy
- Development of a central data repository and collation system
- Efficient sharing of patient information
- Development and implementation of standardised guidelines
- On-going review of practice guidelines

- Provision of educational support to staff, patients and families
- Application of evidence to practice

(Parker, Giles, Shylan, Austin, Smith, Morison,& Archer, 2010)

4.2 Implications for Future Research

4.2.1 The Need to Improve Undergraduate Training for Speech-Language Therapists and Nurses in the Area of Dysphagia and Tracheostomy

Lubinski and Frattali (1994) maintain that it is critical for universities to continually update and modify existing curricula according to the changing needs of the profession. It is hoped that the information obtained from current practicing speech-language therapists and nurses in the present study will assist in providing universities and nursing colleges with feedback on possible gaps in existing curricula. It is therefore suggested that a key step towards improving undergraduate training in dysphagia and tracheostomy would be to make the relevant universities and nursing colleges aware of this need for improvement. From the results of the present study, specific recommendations could be made about the importance of including theory on aspects of the role of multidisciplinary team members in tracheostomy and dysphagia management, and the development of protocols and guidelines on blue dye testing, suctioning and cuff inflation/deflation protocols. The need to allocate more time for clinical practical training in undergraduate dysphagia in tracheostomy patients could also be highlighted.

4.2.2 The Need to Alert Professional Health Regulatory Bodies Regarding Further Specialised Licencing/ Training in the Area of Dysphagia and Tracheostomy

A foreseeable problem that may be encountered by South African universities in increasing the theoretical and practical content of the dysphagia and tracheostomy curricula would be the lack of time allocated to teaching in the area of dysphagia, especially since dysphagia in tracheostomy patients is considered a specialised skill, often requiring further licensing. However, the researcher feels strongly that these recommended improvements in theoretical and practical curricula should not be compromised, since dysphagia intervention is the only area of work of a speech-language therapist where lack of intervention holds potentially life-threatening risks for patients (Tippett, 2000). Moreover, with the current compulsory community service to hospitals post graduation, newly graduated therapists

(community service therapists) are often immediately faced with patients with dysphagia whom they are required to assess and manage. This brings to the forefront an ethical dilemma which many new graduates face, namely, do they provide a service being the only therapist (but lacking experience), or do they refuse to see the patient due to their inexperience? Despite the above challenges it is imperative that health professional regulatory bodies be alerted regarding these challenges and that systems be put into place to initiate additional training/licencing in the area of Dysphagia and tracheostomy.

4.2.3 The Need to Improve the Situation of Clinicians Practising in Dysphagia and Tracheostomy Management

While it is important that practicing clinicians identify the strengths and limitations of their knowledge and skills in tracheostomy and dysphagia practice, a general lack of guidelines, protocols and a core set of standards for these clinicians to follow in the assessment and management of dysphagia in tracheostomy patients was revealed. Therefore, once again, an important role of academic institutions and professional regulatory bodies is to provide clinicians with the support to improve their knowledge and skills by ensuring accessibility to protocols and guidelines which can be followed.

Tracheostomy and dysphagia guidelines/protocols

The development of a tracheostomy and dysphagia guideline is expected to have many benefits. This guideline should be drawn up by a multidisciplinary team using evidence where it exists and best practice standards. The development of such a guideline should be intended for use by all South African health care professionals involved in the care of adults with a tracheostomy presenting with dysphagia. Care should be taken that a guideline of this nature should not be construed or to serve as a standard of care. Standards of care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve.

Tracheostomy position paper

The aims of the development of a tracheostomy and dysphagia position paper are as follows:

- To reflect current best practice in tracheostomy management and, where possible, to identify evidence based practice

- To address the major issues in current tracheostomy management
- Involvement in the evaluation and management of patients with tracheostomy tubes is within the scope of practice of nursing and speech-language therapy. However, practising within this area is seen as a specialist skill and management of patients with tracheostomy should not be undertaken by those without additional and specialist training.
- The involvement of the speech-language therapist in tracheostomy management must be determined by the policies and procedures of their employing organisation.
- The involvement of a multidisciplinary team approach should be advocated.
- Management of a patient with a tracheostomy is not a competency expected of a new graduate, nor is it appropriate for a new graduate to practice in this area. It is the responsibility of the speech-language therapist and the nurse to obtain basic tracheostomy management competency. Competency should be obtained through reading, workshops, directly supervised clinical experience and discussions with specialist clinicians. Nurses and speech-language therapists working in the area of tracheostomy management must maintain and update their knowledge and skills on a regular basis.
- Adherence to the safety guidelines of health care facilities as well as awareness regarding risks and management of risks involved in tracheostomy care should be addressed.
- Consistent, accurate recording and documentation of all areas of patient management should occur.
- Projects on tracheostomy management should be incorporated into general departmental quality assurance and quality improvement programmes.
  (SPA Tracheostomy Position Paper, 2005; RCSLT Tracheostomy Position Paper, 2006)

4.2.4 The Need to Identify the Barriers to Implementing Evidence based Practice Regarding Dysphagia and Tracheostomy in Critical Care in Government Hospitals

While many participants in the current study reported many challenges within the government health sector that was preventing successful positive attitudes towards evidence based practice, it was not within the scope of this research study to probe for further detail

regarding evince-based practice barriers. Therefore, a possible future research implication could entail obtaining information about the greatest barriers faced by speech-language therapists and nurses in SA government hospitals, whether there is an association between rank or salary grade and/or years of experience and perceived barriers and whether there is an association between specific perceived barriers and workplace settings. It would also be interesting to ascertain what access nurses and speech-language therapists have to professional academic journals to further their knowledge and to improve clinical skill.

4.2.5 Establishing the Need for a Dysphagia Training Programme for Speech-Language therapists in Dysphagia and Tracheostomy

While the main aim of the present study was to establish the need for a dysphagia training programme for nurses in critical care of tracheostomised patients, it was evident from the results obtained from interviews with speech-language therapists that a training programme of this nature is deemed as valuable by them. As a result the current studies title was modified to include the need for a training programme for speech-language therapists as well. Future research can focus on areas of training in assessment and management pertaining to speech-language therapists specifically.

4.2.6 Conducting a Training Programme for Nurses in Critical Care of Dysphagia and Tracheostomy, and thereby Monitoring the Efficacy of the Programme.

The results of this study have highlighted a need for a dysphagia training programme for nurses working with patients with tracheostomies. The results from this study highlighted only a few speech-language therapists are confident and skilled in conducting a training programme of this nature. Therefore, the finding of the current study have implications for future research whereby speech-language therapists who have the necessary knowledge and skills in the area of dysphagia and tracheostomy may conduct and monitor training programmes with nurses in their institutions, following the guidelines on proposed content that was provided in chapter four.

4.2.7 Measuring/monitoring the Outcomes of Multidisciplinary Team Work in the Assessment and Management of Dysphagia and Tracheostomy in Critical Care

The benefits of multidisciplinary tracheostomy team approaches have been clearly demonstrated and are consistent with those reported in the literature (Norwood et al., 2004; Tobin & Santamaria, 2008). Improved staff knowledge and also confidence and awareness

have been reported, together with patient-centred improvements such as shorter review time and shorter hospital stay. Complications resulting from early cuff deflation have also been minimised with a shift to team based, case-specific decisions rather than the application of blanket protocols that required cuff deflation prior to discharge from critical care. Findings from previous studies internationally indicate improved monitoring and surveillance results in streamlined cross-professional decisions around dysphagia assessment, management, weaning and decannulation which reduces delays associated with the need to reconcile multiple separate opinions (Tobin & Santamaria, 2008). Organisational benefits arising from the team approach include rationalisation of resources and reduction in duplication of services. Greater numbers of patients are being discharged from critical care units internationally to general care wards with a tracheostomy in situ and this has freed up scarce resources and improved bed access. The current study was unable to explore the benefits of multidisciplinary team work at such an intricate level. Therefore, it is advised that further research be conducted in the South African context in an attempt to highlight the critical importance of multidisciplinary team working towards achieving effective outcomes for patients and health facilities.

4.3 Critical Evaluation of the Research

A critical evaluation of the research is essential because it assists in establishing the value of the research project. In addition, a comprehensive evaluation of the study will guide research projects of a similar nature, especially in view of the lessons learnt by the researcher. Therefore, the strengths and limitations of the study are discussed below

4.3.1 *Strengths*

- This study was conducted on 20 speech-language therapists from eight different hospitals with critical care facilities in Gauteng, and on 12 nurses from four different hospitals with critical care facilities in Gauteng. A strength of the study was that it was a comprehensive evaluation of speech-language therapy practices in the whole of Gauteng, since the sample was representative of therapists from all hospitals in Gauteng that have critical care facilities.
- The research design employed could be viewed a strength of the study. In order to investigate the need for a dysphagia training programme for nurses in critical care of tracheostomised patients an exploratory, descriptive survey research design with the

use of mini-ethnography was selected. This design enabled an exploration of an area not previously researched and yielded sufficient qualitative and quantitative data for a comprehensive description. Furthermore, the use of a mini-ethnography allowed me as the researcher to observe and immerse myself in the research setting in order to better understand the research population and context, and thereby to assist in the development of realistic, feasible and appropriate theories and protocols within the South African critical care setting.

- A further strength of the study was the utilisation of face to face interviews which were audio recorded. All participants complied with the process of interviews. This enabled a comprehensive analysis of the results which could then be further validated by other colleagues.

4.3.2 Limitations

Methodological Limitations

- A component of the current study relied on information provided by health care professionals regarding their assessment and management procedures. These reports were purely based on participants' perceptions and thus the researcher was unable to observe the procedures mentioned. Therefore, for future research, the results of this study could be further validated by adding an observational component where health care professionals could be observed over a period of time while assessing and managing tracheostomy patients presenting with dysphagia in critical care settings.
- There appeared to be a recurring lack of clarity from participants' responses whether they were referring specifically to tracheostomy and dysphagia, or just management of dysphagia in general. As a result, the researcher had to continuously remind participants that their responses must refer specifically to dysphagia and tracheostomy and not to dysphagia in general. This initial lack of clarity may have contributed to inaccurate recording of responses.
- The current research was confined to interviewing speech-language therapists and nurses from government institutions specifically. It would be interesting to extend the data collection process of this research to the private sector in order to identify whether similar practices are being conducted and if similar challenges are being faced by the health care professionals in the private sector.

- While the sample of speech-language therapists appeared to be fairly representative of this population within the province, the sample of nurses was much smaller. Furthermore, the sample of nurses was restricted to nurses from only four hospitals with critical care facilities in Gauteng. For this reason, it is recommended that the current study be reduplicated on a larger sample of nurses from a variety of health care facilities in order to obtain a more representative sample.

The critical evaluation of the research has indicated the benefits and limitations inherent in the research process undertaken to establish a need for a dysphagia training programme for nursesand speech-language therapists in critical care for tracheostomised patients. The benefits allow one to appreciate the value of the research and the limitations urge the readers to consider the findings within the confines of this study.

4.4 Final Comments

In conclusion, the results of this study suggest that there is a definite need for a dysphagia training programme, not only for nurses but for speech-language therapists who work with tracheostomised individuals in critical care settings as well. Findings from this study have indicated that there are possible gaps in nurses' and speech-language therapists' knowledge and skills in this area and that these may be linked to inadequate training received at undergraduate and postgraduate levels, but more importantly due to a lack of additional licensing/training instituted by professional health regulatory bodies in South Africa. This problem is probably exacerbated by a lack of expertise and support in this area in a work place setting as well, since nurses and speech-language therapists may be faced with limited access to supervision systems and continued professional development related activities. These difficulties appear to be further confounded by limited knowledge regarding each others' roles in tracheostomy and dysphagia and a subsequent lack of clarity regarding optimal multidisciplinary team functioning.

While health professionals have a responsibility towards themselves to continually increase and update their knowledge and skills in areas where these skills are perceived to be lacking, it is apparent that their practices in the assessment and management of tracheostomy and dysphagia is varied. Therefore the need for development of guidelines and protocols in this area are strongly advocated. Furthermore, it appears that professional training institutions and educators also have a responsibility to themselves, their students and their

programmes to ensure that the practices they advocate are motivated by the best of current science and that their students graduate with a certain level of competence allowing them to have the necessary knowledge and skills base to screen, assess and manage individuals with a tracheostomy presenting with dysphagia.

It is imperative that the professions of critical care Nursing and Speech-Language Therapy provide an equitable service to all patients to keep in line with the social and political imperatives of South Africa. This is necessary if one is seeking to introduce training programmes, make suggestions toward changes in curricula as well to provide of information to assist in the development of core guidelines, protocols and position papers in the assessment and management of tracheostomy patients in critical care presenting with dysphagia. As the professions of Speech-Language Therapy and Critical Care Nursing advances, nurses and speech-language therapists must maintain realistic perspectives on the profession. Their commitment must be fortified in new ways to meet societal and economic changes. To meet these changes, our basic training programmes need to dynamically address South African issues that are unique to our nation that reflects a mosaic of cultural and linguistic diversity (Lubinski & Frattali, 2001).

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APPENDICES

APPENDIX A

SPEECH PATHOLOGY AND AUDIOLOGY
School of Human & Community Development

Faculty of Humanities

University of the Witwatersrand

Private Bag 3, WITS, 2050

Tel: (011) 717 4500 Fax: (011) 717 4559

Date: _____

RE: Request for permission to include Speech Language Therapists (SLT's) and nurses working in critical care in a research project

Good Day,

My name is Azra Hoosen and I am a postgraduate student studying towards a Masters degree in Speech Therapy at the University of Witwatersrand. I am also employed at Chris Hani Baragwanath hospital as a Chief Speech Therapist and Audiologist. As part of my postgraduate degree, I am conducting research on establishing the need for a dysphagia training programme to nurses in critical care units in government hospitals in Gauteng, for tracheostomised patients. By undertaking this study, I hope to attempt to describe nurses as well as SLT's reported practices in the assessment and management of tracheostomised patients, to identify nurses awareness of dysphagia in patients with tracheostomies, to determine whether a team approach is followed in the assessment and management of tracheostomised patients, as well as to explore and identify future training needs in the area of dysphagia and tracheostomised individuals.

Dysphagia is defined as a difficulty in swallowing or in the process of transporting food from the mouth to the stomach. This complex process of swallowing may be interrupted by a number of mechanical and functional variables, including the presence of a tracheostomy tube. A variety of health care professionals are generally responsible for the optimal assessment and management of patient needs. This study will focus primarily on the collaborative involvement of SLT's and nurses working in critical care. The SLTs' role includes the assessment and management of speech, language, hearing and swallowing. Nurses occupy a pivotal role in the delivery of care in acute and rehabilitation settings, and are generally responsible for maintaining a patent airway through suctioning and humidification as well as the supervision over and maintenance of the fluid balance and

feeding of a patient. Safe feeding practices have implications for improving quality of life as well as decreasing length of stay at hospitals. Therefore, it is hoped that this information may enhance professionals' understanding of dysphagia assessment and management practices in tracheostomised individuals in order to improve patient care in a holistic manner as well as contribute towards the provision of quality services to these patients.

I wish to apply for permission from the CEO's, Heads of Speech Therapy Departments, as well as Nursing Directors at all government hospitals in Gauteng. If permission is granted, I hope to conduct personal interviews with both SLT's as well as nurses working in government hospitals in Gauteng. The interviews will be conducted with SLT's and nurses, at places and times suitable for them. A series of approximately 20-25 questions will be asked to participants. The duration of the interview will last approximately 15-20 minutes. Participation is entirely voluntary, and refusal to participate will not be held against participants in any way. Please be assured that neither their names nor their personal details will be included in the final report or revealed under any circumstances. Participants may choose to not answer questions at any time during the duration of the study and will have the right to withdraw from the study at any time without any negative consequences. The interviews will be audio-recorded with permission from the participants. No one other than my supervisor will have access to the tapes. These recordings will be kept strictly confidential. The tapes and interview schedules will be kept for two years following any publications or for six years if no publications emanate from the study

The findings of this proposed study will provide information as to whether there is a need for a dysphagia training programme to nurses in critical care for tracheostomised patients. This will have implications on the quality of life of patients that present with dysphagia in government hospitals in Gauteng, as well as provide insight related to the need as well as current multidisciplinary teamwork in South Africa related to tracheostomy patients. It will educate and create awareness amongst SLTs, nurses as well as other healthcare professionals, regarding the assessment and management practices for tracheostomy patients in critical care.

Upon completion of the research, a copy of the research report will on request be made available to you and nurses and SLT's who participate in the study. The findings of this study may also be presented in academic forums/conferences, and will also be published in academic journals.

Thank you for taking the time to consider this request. It is hoped that this request will be viewed favourably and should you require any additional information or clarification, please do not hesitate to contact me. You may contact me on (011) 855 3874/ 076 246 7112. You may also contact Anisa Keshav from the ethics and research office on (011) 717 1234.

Yours sincerely,

_____	_____
Azra Hoosen	Jaishika Seedat
(MA Speech Pathology Student)	Research Supervisor
University of Witwatersrand	University of Witwatersrand

Consent to conduct research

Name of hospital: _____

I, (name of CEO) _____ of (name of hospital) _____ provide permission to Ms Azra Hoosen to conduct research with nurses as well as Speech Language Therapists working at the hospital.

Signed _____ on this _____ day of _____ 2010

Witness 1: _____ Witness 2: _____

I, (name of Head of Speech Therapy department) _____ of (name of hospital) _____ provide permission to Ms Azra Hoosen to conduct research with Speech Language Therapists working at the hospital.

Signed _____ on this _____ day of _____ 2010

Witness 1: _____ Witness 2: _____

I, (name of Head Matron/ Nursing Manager) _____ of (name of hospital) _____ provide permission to Ms Azra Hoosen to conduct research with nurses working at the hospital.

Signed _____ on this _____ day of _____ 2010

Witness 1: _____ Witness 2: _____

APPENDIX B

Request for participation by Speech Language Therapist (SLT) in research project

Good Day,

My name is Azra Hoosen and I am a postgraduate student studying towards a Masters degree in Speech Therapy at the University of Witwatersrand. I am also employed at Chris Hani Baragwanath hospital as a Chief Speech Therapist and Audiologist. As part of my postgraduate degree, I am conducting research on establishing the need for a dysphagia training programme to nurses in critical care units in government hospitals in Gauteng, for tracheostomised patients.

As a hospital based healthcare professional, you are ideally suited to providing information about the area of dysphagia in patients with tracheostomies. The purpose of this study is to describe nurses' as well as SLT's reported practices in the assessment and management of dysphagia in tracheostomy patients in critical care, to determine whether a team approach is followed, to ascertain whether the SLT is a member of the team in a critical care setting, as well as to establish future training needs in the assessment and management of dysphagia in tracheostomised patients. Since the area of dysphagia intervention is growing rapidly, it is important that this type of information be obtained.

Therefore, I wish to invite you to participate in my study. If you agree to take part, an interview date will be arranged with you at a time and place suitable for you. You will be required to answer approximately 25 questions related to the study, which will last approximately 20 minutes. Participation is entirely voluntary, and refusal to participate will not be held against you in any way. You may choose to not answer questions at any time during the duration of the study and will have the right to withdraw from the study at any time without any negative consequences. With your permission, the interview will be tape-recorded. No one other than my supervisor will have access to the tapes. The tapes and interview schedules will be kept for two years following any publications or for six years if no publications emanate from the study. Please be assured that your name and personal details will be kept confidential and no identifying information will be included in the final research report.

Upon completion of the research, a copy of the research report will on request be made available to you should you require it. The findings of this study may also be presented in academic forums/conferences, and will also be published in academic journals.

Thank you for taking the time to consider participating in this study. Should you require any additional information or clarification, please do not hesitate to contact me. You may contact me on (011) 855 3874/ 076 246 7112. You may also contact Anisa Keshav from the Ethics and Research office on (011) 717 1234

Yours sincerely

_____	_____
Azra Hoosen	Jaishika Seedat
(MA Speech Pathology Student)	Research Supervisor
University of Witwatersrand	University of Witwatersrand

APPENDIX C

Consent Form for Speech Language Therapist (SLT) to participate in research study

I agree to participate in this research project. I have read and understood what the abovementioned research project entails. I agree to participate voluntarily and understand that I may refuse to answer any particular questions or choose to withdraw from the study at any time without it being held against me in any way. I also understand that my responses will remain confidential.

Name of participant: _____
Date: _____
Signature: _____

I have fully explained the purpose and procedures of the study to the best of my ability. I agree with the terms and conditions mentioned in the consent form and will adhere to them

Name of researcher: _____
Date: _____
Signature: _____

APPENDIX D

Consent by Speech Language Therapist (SLT) to be Audio-recorded

- I will allow the researcher to tape-record me for the duration of the interview
- I am aware that I have the right to withhold any of the audio material at any time from the researcher. At the end of the study, the researcher will keep the tapes for two years following any publications or for six years if no publications emanate from the study
- I understand that my name will not be used after the study at any time, unless I want it to be.
- I have the right to withdraw from the study at any time, with immediate effect without any negative consequences to myself or the study.
- I have read and fully understood the accompanying information sheet and agree to be tape-recorded for this study.
- I can direct any queries to Azra Hoosen, the primary researcher for this study at any time at the details listed on the signature sheet.

Name of participant: _____
Date: _____
Signature: _____

I have fully explained the purpose and procedures pertaining to tape-recording the interview to the best of my ability. I agree with the terms and conditions mentioned in the participant information sheet form and will adhere to them

Name of researcher: _____
Date: _____
Signature: _____

APPENDIX E

Request for participation by critical care nurse in research project

Good Day,

My name is Azra Hoosen and I am a postgraduate student studying towards a Masters degree in Speech Therapy at the University of Witwatersrand. I am also currently working at Chris Hani Baragwanath hospital as a Chief Speech Therapist and Audiologist. As you may know, a speech and hearing therapist works with people that have communication and/or hearing difficulties. We also assess and manage dysphagia or swallowing difficulties, which is what I am especially interested in. I am interested in doing research on patients that have tracheostomies and that have swallowing difficulties. Therefore, as part of my Masters degree in Speech Language Pathology at the University of Witwatersrand (WITS), I am presently conducting research on establishing the need for a dysphagia training programme to nurses in critical care in government hospitals in Gauteng, for patients with tracheostomies.

As a hospital based healthcare professional working in critical care units, you may be frequently responsible for maintaining a patent airway through suctioning and humidification of patients with tracheostomies, as well as the supervision over and maintenance of the fluid balance and feeding of these patients. Therefore, it is felt that you would be best suited to participate in this study. The purpose of this study is to describe nurses' as well as SLT's roles in the assessment and management of dysphagia in tracheostomy patients in critical care, to determine whether a team approach is followed, to find out whether the SLT is a member of the team in a critical care setting, as well as to identify future training needs in the assessment and management of dysphagia in tracheostomised patients. Since the area of dysphagia intervention is growing rapidly, it is important that this type of information be obtained.

Therefore, I wish to invite you to participate in my study. If you agree to take part, an interview date will be arranged with you at a time and place suitable for you. You will be required to answer approximately 22 questions related to the study, which will last approximately 30 minutes. Participation is entirely voluntary, and refusal to participate will not be held against you in any way. You may choose to not answer questions at any time during the duration of the study and will have the right to withdraw from the study at any time without any negative consequences. With your permission, the interview will be tape-recorded. No one other than my supervisor will have access to the tapes. The tapes and interview schedules will be kept for two years following any publications or for six years if no publications emanate from the study. Please be assured that your name and personal

details will be kept confidential and no identifying information will be included in the final research report.

Upon completion of the research, a copy of the research report will on request be made available to you should you require it. The findings of this study may also be presented in academic forums/conferences, and will also be published in academic journals.

Thank you for taking the time to consider participating in this study. Should you require any additional information or clarification, please do not hesitate to contact me. You may contact me on (011) 855 3874/ 076 246 7112. You may also contact Anisa Keshav from the Ethics and Research office on (011) 717 1234

Yours sincerely

_____	_____
Azra Hoosen	Jaishika Seedat
(MA Speech Pathology Student)	Research Supervisor

APPENDIX F

Consent Form for Critical Care Nurse to participate in research study

I agree to participate in this research project. I have read and understood what the abovementioned research project entails. I agree to participate voluntarily and understand that I may refuse to answer any particular questions or choose to withdraw from the study at any time without it being held against me in any way. I also understand that my responses will remain confidential.

Name of participant: _____
Date: _____
Signature: _____

I have fully explained the purpose and procedures of the study to the best of my ability. I agree with the terms and conditions mentioned in the consent form and will adhere to them

Name of researcher: _____
Date: _____
Signature: _____

APPENDIX G

Consent by Critical Care Nurse to be Audio-recorded

- I will allow the researcher to tape-record me for the duration of the interview
- I am aware that I have the right to withhold any of the audio material at any time from the researcher. At the end of the study, the researcher will keep the tapes for two years following any publications or for six years if no publications emanate from the study
- I understand that my name will not be used after the study at any time, unless I want it to be.
- I have the right to withdraw from the study at any time, with immediate effect without any negative consequences to myself or the study.
- I have read and fully understood the accompanying information sheet and agree to be tape-recorded for this study.
- I can direct any queries to Azra Hoosen, the primary researcher for this study at any time at the details listed on the signature sheet.

Name of participant: _____
Date: _____
Signature: _____

I have fully explained the purpose and procedures pertaining to video-recording the interview to the best of my ability. I agree with the terms and conditions mentioned in the participant information sheet form and will adhere to them

Name of researcher: _____
Date: _____
Signature: _____

Appendix H

Interview questions to speech language therapist's (SLT's): Establishing the need for a Dysphagia Training Programme to Nurses working with tracheostomised patients in Critical Care in government hospitals in Gauteng (Adapted from Ward et al, 2007)

Respondent Number: _____
Hospital Code: _____

Section A: Biographical Information

1. How many years since you graduated from Speech Language Therapy and Audiology?
   a) 0-2 years
   b) 2-5 years
   c) 5-10 years
   d) more than 10 years

2. What is your current rank within the institution that you are working at?
   _____

3. Institution of undergraduate training?
   a) WITS
   b) UP
   c) UKZN
   d) UCT
   e) Stellenbosch
   f) Other_____

4. Institution of postgraduate training?
   a) WITS
   b) UP
   c) UKZN
   d) UCT
   e) Stellenbosch
   f) Other: _____

5. What is the highest academic qualification you have received in the field of Speech Therapy and Audiology?
   a) Honours
   b) Masters
   c) PHD
   d) Other_____

6. How long have you been employed at your current workplace?
   a) 0-2 years
   b) 2-5 years
   c) 5-10 years
   d) more than 10 years

7. How long have you been employed for the Gauteng department of health?
   a) 0-2 years
   b) 2-5 years
   c) 5-10 years
   d) more than 10 years

Section B: Tracheostomy Experience and Training

8. Please indicate **how many** patients you have worked with in the past six months who are tracheostomized?
   a) none
   b) 1-10
   c) 11-50
   d) more than 50

9. Approximately how many **theoretical hours** of training (i.e., undergraduate level) did you receive in tracheostomy management?
   a) none
   b) 1-5
   c) 6-10
   d) 11-20
   e) more than 20

10. Approximately how many **practical hours** of training (i.e., undergraduate level) did you receive in tracheostomy management?
    a) none
    b) 1-5
    c) 6-10
    d) 11-20
    e) more than 20

11. Prior to treating patients independently, **how many hours of clinical observation** did you do in tracheostomy management (on the job)?
    a) none
    b) 1-5
    c) 6-10
    d) 11-20
    e) more than 20

12. Prior to treating patients independently, **how many hours of clinical supervision** did you gain in tracheostomy management (on the job)?
    a) none
    b) 1-5
    c) 6-10
    d) 11-20
    e) more than 20

13. Please indicate what tracheostomy-related **continued professional development (CPD) activities** you have undertaken?
    a) Attendance at courses
    b) Attendance at conferences
    c) Speech therapy forums
    d) In-services within my workplace
    e) Becoming a member of a tracheostomy workgroup or an interest group
    f) Other _____

14. Do you feel up-to-date with the available **evidence-based practice** in tracheostomy management?
    a) Yes
    b) No
    c) Not sure

    Please state why:
    _____
    _____
    _____
    _____

15. What **training**, if any, would you find beneficial to you regarding patients who are tracheostomized?
    _____

    If possible, please make suggestions as to why
    _____
    _____
    _____
    _____
    _____

Section C: Current Practice

16. Overall, do you have a **defined role** within the multidisciplinary team at your hospital working with patients who are dysphagic and require a tracheostomy?
    a) Yes
    b) No
    c) sometimes

    Please state why:

    _____
    _____
    _____
    _____

17. Please describe the **assessment** procedures undertaken by you when assessing patients in your hospital with tracheostomies presenting with dysphagia? (elaborate on **detailed** assessment procedures)
    List of keywords to assist participants if needed:
    - Observation
    - Patient file info
    - Case history
    - Blue dye
    - Suctioning
    - Cuff deflation
    - Swallow trials

    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____

18. Please describe the **management** procedures undertaken by you at your hospital when assessing patients with tracheostomies presenting with dysphagia? (elaborate on **detailed** management procedures)

    _____
    _____
    _____
    _____
    _____

_____
_____
_____
_____

Section D: Multidisciplinary Roles and Involvement

19. Can you name the key health professionals that are current MDT members of your team in the assessment and management of tracheostomised patients with dysphagia and briefly outline their roles and responsibilities

_____
_____
_____
_____
_____
_____
_____
_____
_____

20. Does your current work setting have an **optimal team approach** for the management of patients with a tracheostomy?
    a) Yes
    b) No
    c) sometimes
    Please state why

_____
_____
_____
_____
_____
_____
_____
_____
_____

21. Are you **confident** to manage patients with a tracheostomy within your multidisciplinary team?
    a) Yes
    b) No
    c) sometimes
    Please state why

_____
_____
_____
_____

22. Within your current multidisciplinary team, what is the **role of the nurse** in managing tracheostomy patients presenting with dysphagia? (please provide a **detailed** description)

_____
_____
_____
_____
_____
_____
_____
_____
_____

Section E: The Need for Future Training

23. Are nurses within the critical care unit that you work in, trained adequately in **screening** for the presence of dysphagia in tracheostomised patients?
    a) Yes
    b) No
    c) sometimes

    Please state why:

_____
_____
_____
_____

24. Are nurses within the critical care unit that you work in, trained adequately in conducting a **management** programme as per your recommendations:
    a) Yes
    b) No
    c) sometimes

    Please state why

_____
_____
_____
_____

25. Should nursing staff working in critical care be **trained in screening** for dysphagia as well as management of tracheostomised patients presenting with dysphagia?

a) Yes
b) No

If yes, what specific information/areas should be included in the **training programme**?

_____
_____
_____
_____
_____
_____
_____
_____
_____

Thank you for your time

Appendix I

Interview questions to critical care nurses: Establishing the need for a Dysphagia Training Programme to Nurses working with tracheostomised patients in Critical Care in government hospitals in Gauteng

Respondent Number: _____
Hospital code: _____

Section A: Biographical Information

1. How many years since you graduated from Nursing?
   a) 0-2 years
   b) 2-5 years
   c) 5-10 years
   d) more than 10 years

2. Institution of undergraduate training?
   _____

3. What is the highest nursing qualification you have received?
   _____

4. Where are you currently working?
   _____

5. How long have you been employed at your current workplace?
   a) 0-2 years
   b) 2-5 years
   c) 5-10 years
   d) more than 10 years

6. How long have you been working in CC for the department of health?
   a) 0-2 years
   b) 2-5 years
   c) 5-10 years
   d) more than 10 years

Section B: Tracheostomy Experience and Training

7. H**ow many** patients have you worked with in the past six months who have a tracheostomy?
   a) none
   b) 1-10
   c) 11-50
   d) more than 50

8. Before managing patients on your own, **how many hours of lectures** did you receive in tracheostomy management?
   a) none
   b) 1-5
   c) 6-10
   d) 11-20
   e) more than 20

9. Before managing patients on your own, **how many hours of practical hands on training** did you receive in tracheostomy management?
   a) none
   b) 1-5
   c) 6-10
   d) 11-20
   e) more than 20

10. Please indicate what tracheostomy-related **continued professional development (CPD)** activities you have undertaken?

    Definition of CPD: The Health Professions Council define CPD as 'a range of learning activities through which health professionals maintain and develop throughout their career to ensure that they retain their capacity to practise safely, effectively and legally within their evolving scope of practice'.

    a) Attendance at courses
    b) Attendance at conferences
    c) Nursing forums
    d) In-services within my workplace
    e) Becoming a member of a tracheostomy workgroup or an interest group
    f) Other _____

11. Do you feel up-to-date with the available **evidence-based practice** in tracheostomy management?
    Definition of evidence-based practice: "the integration of best research evidence with clinical expertise, and patient values".

a) Yes
b) No
c) Not sure

Please state why:
_____
_____
_____
_____

Section C: Dysphagia

12. What is dysphagia
_____
_____
_____
_____

13. List 10 symptoms of dysphagia

14. To whom do you refer individuals presenting with dysphagia?
_____

15. How often do you come into contact with patients with a tracheostomy that have dysphagia?
a) Always
b) Sometimes
c) Never
Please explain
_____
_____
_____
_____

Section D: Current Practice

16. Overall, do you have a **defined role** within the multidisciplinary team working with patients who have dysphagia and require a tracheostomy?
    a) Yes
    b) No
    c) sometimes

    Please state why:
    _____
    _____
    _____
    _____

17. Please describe the **screening** procedures undertaken by you when screening patients with tracheostomies that have dysphagia? (elaborate on **detailed** screening procedures)
    List of keywords to assist participants if needed:
    - Observation
    - Patient file info
    - Case history
    - Blue dye
    - Suctioning
    - Cuff deflation
    - Swallow trials

    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____

18. Please describe the **management** procedures undertaken by you when treating patients with tracheostomies presenting with dysphagia as per recommendations from the SLT?
    List of keywords to assist participants if needed:
    - Suctioning
    - Cuff deflation and re-inflation
    - Feeding patients
    - Recording of feeding intake
    - Administration of feeds as per SLT's recommendations
    - Implementation of compensatory techniques as per SLT's recommendations

Section E: Multidisciplinary Roles and Involvement

19. Can you name the key health professionals that are current MDT members of your team in the assessment and management of tracheostomised patients with dysphagia and briefly talk about their roles and responsibilities

20. Does your current work setting have an **optimal team approach** for the management of patients with a tracheostomy?
    d) Yes
    e) No
    f) sometimes
    Please state why

21. Are you **confident** to manage patients with a tracheostomy within your multidisciplinary team?
    a) Yes
    b) No

c) sometimes

Please state why

_____
_____
_____
_____
_____
_____
_____

22. Within your current multidisciplinary team, what is the **role of the SLT** in assessment of tracheostomy patients presenting with dysphagia? (please provide a **detailed** description)

_____
_____
_____
_____
_____
_____

23. Within your current multidisciplinary team, what is the **role of the SLT** in the treatment of tracheostomy patients presenting with dysphagia? (please provide a **detailed** description)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Section F: The Need for Future Training

24. Please list any trainings on dysphagia and tracheostomy that you have attended as well as when you attended?

Type of training	**Year**

25. Are you trained adequately in **screening f**or the presence of dysphagia in tracheostomised patients?
    a) Yes
    b) No
    c) sometimes

    Please state why:

    _____
    _____
    _____
    _____

26. Are you trained adequately in conducting a **management** programme as per the SLT's recommendations
    a) Yes
    b) No
    c) sometimes
    Please state why

    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____

27. Should nursing staff working in critical care be **trained in screening** for dysphagia as well as management of tracheostomised patients presenting with dysphagia?
    a) Yes
    b) no
    If yes, what specific information/areas should be included in the **training programme**?

    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____

Thank you for your time

APPENDIX J

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Miss Azra Hoosen

CLEARANCE CERTIFICATE	**M10610**
PROJECT	Bridging the Gap for Nurses Working with Trachestomised Patients in Critical Care- Establishing the Need for a Dysphagia Training Programme
INVESTIGATORS	Miss Azra Hoosen.
DEPARTMENT	Speech Pathology & Audiology
DATE CONSIDERED	26/06/2010
DECISION OF THE COMMITTEE*	Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 14/09/2010 **CHAIRPERSON** .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable
cc: Supervisor : Ms J Seedat

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES...

APPENDIX K

CONDITIONS OF APPROVAL OF A RESEARCH STUDY PROPOSAL

health and social development
Department: Health and Social Development
GAUTENG PROVINCE

Vision of the Department

"To be the best provider of quality health and social services to the people in Gauteng"

POLICY, PLANNING AND RESEARCH (PPR)
Enquiries: Siviwe Mkoka
Tel: +2711 355 3249
Fax: +2711 355 3675
Email: Siviwe.mkoka@gauteng.gov.za

CONTACT DETAILS OF THE RESEARCHER	
Date	14 February 2011
Tel number	(Mobile) +276 246 7112, (Office) +2711 933 9263
Email	azrahoosen@hotmail.com
Researcher /Principal investigator (PI)	Azra Hoosen
Supervisor	Ms J Seedat
Institution	Faculty of Health Sciences, Wits University, Speech and Audiology Department
Research title	**Bridging the gap for Nurses Working with Tracheostomised Patients in Critical Care- Establishing the Need for Dysphagia Training**

This approval is granted only for a research study entitled "**Bridging the gap for Nurses Working with Tracheostomised Patients in Critical Care- Establishing the Need for Dysphagia Training**" to be conducted by A Hoosen

Approval is hereby granted by the Gauteng Department of Health and Social Development for the above mentioned research study proposal for a study to be conducted within GDHSD domain. Approval is limited to compliance with the following terms and conditions:

1. All principles and South African regulations pertaining to ethics of research are observed and adhered to by all involved in the research project. Ethics approval is only acceptable if it has been provided by a South African research ethics committee which is accredited by the National Health Research Ethics Council (NHREC) of South Africa; this is regardless of whether ethics approval has been granted elsewhere.

   Of key importance for all researchers is that they abide by of all research ethics principles and practice relating to human subjects as contained in the Declaration of Helsinki (1964, amended in 1983) and the constitution of the Republic of South Africa in its entirety. Declaration of Helsinki upholds the following principles when conducting research, respect for:
   - Human dignity;
   - Autonomy;
   - Informed consent;
   - Vulnerable persons;
   - Confidentiality;
   - Lack of harm;
   - Maximum benefit;
   - and justice

2. The GDHSD is indemnified from any form of liability arising from or as a consequence of the process or outcomes of any research approved by HOD and conducted within the GDHSD domain;
3. Researchers commit to providing the GDHSD with periodic progress and a final report; short term projects are expected to submit progress reports on a more frequent basis and all reports must be submitted to the Director: Policy, Planning and Research of the GDHSD;
4. The Principal Investigator shall promptly inform the above mentioned office of changes of contact details or physical address of the researching individual, organisation or team;
5. The Principal Investigator shall inform the above office and make arrangements to discuss their findings with GDHSD prior to dissemination;
6. The Principal Investigator shall promptly inform the above mentioned office of any adverse situation which may be a health hazard to any of the participants;
7. The Principal Investigator shall request in writing authorization by the HOD via PPR for any intended changes of any form to the original and approved research proposal;
8. If for any reason the research is discontinued, the Principal Investigator must inform the above mentioned office of the reasons for such discontinuation;
9. A formal research report upon completion should be submitted to the Director: Policy, Planning and Research of the GDHSD with recommendations and implications for GDHSD, the Directorate will make this report available for the HOD.

2

This approval is granted only for a research study entitled **"Bridging the gap for Nurses Working with Tracheostomised Patients in Critical Care- Establishing the Need for Dysphagia Training"** to be conducted by A Hoosen

AGREEMENT BETWEEN THE GAUTENG DEPARTMENT OF HEALTH AND SOCIAL DEVELOPMENT (GDHSD) AND THE RESEARCHER

Ms Sue le Roux

Director: Policy, Planning and Research, Department of Health and Social Development

Date: 15/02/2011

Signature:

Name and surname of Principal Researcher

Research/Academic Institution

Date:

Signature:

3

This approval is granted only for a research study entitled **"Bridging the gap for Nurses Working with Tracheostomised Patients in Critical Care- Establishing the Need for Dysphagia Training"** to be conducted by A Hoosen