CHAPTER ONE
INTRODUCTION AND ORIENTATION

Aim: The aim of this chapter is to introduce concepts related to hearing loss and hearing aids as well as to discuss the rationale and problem statement of the research study. Furthermore, it provides a description of the terminology used and provides an overview of the organisation of the chapter content.

1.1 INTRODUCTION

"*Health for a better life*"

- Vision of Gauteng Provincial Health
(Department of Health, 1997:2)

Hearing loss affects a person's quality of life and ability to function in society, as it hinders the most fundamental of all human attributes – social contact and communication (Ross, 1999:1). The effects of a hearing loss has far reaching consequences in that it influences all of those who come into contact with an individual with hearing loss. "While a 'patient' may have difficulty hearing, it is society, in its broadest aspect, that has the hearing 'problem' " (Ross, 1999:1). Hearing loss which affects communication also negatively impacts on aspects such as speech and language development, cognitive development, pragmatic skills, and employment opportunities. In other words, it affects all aspects of daily living (Sanders, 1982:7). Only a small number of individuals can be treated for hearing loss using medication or surgical procedures, as the incidence of sensorineural hearing loss is far greater than the incidence of conductive and mixed hearing losses (National Institute for Deafness and other Communication Disorders, 2006:1). Therefore, the majority of people with hearing loss seek to compensate for their difficulty with an assistive listening device (Alpiner & McCarthy, 2000:4-5).

"Assistive devices are any device and ergonomic solution capable of reducing the handicap experienced by an individual" (White Paper on an Integrated National

Disability Strategy, 1997:78). A hearing aid is an example of an assistive listening device. It is an effective restorative mechanism that amplifies sound to compensate for hearing loss (Sanders, 1982:179). For the greater part of the population with hearing loss it is the most cost-effective solution. Other prosthetic devices available for people with hearing loss include cochlear and middle ear implants. These devices, although vital breakthroughs in hearing technology, are expensive and not all individuals with a hearing deficit will qualify as candidates. Hearing aids make it possible for individuals to partake in social, cultural and economic activities of our societies by overcoming the communication obstacle that obstructs access to information. Hearing aids are remarkable devices and for many people indispensable. Without such devices, life would certainly be very demanding and more limited (Ross, 1999:2).

A conventional hearing aid consists of several basic parts i.e. microphone, amplifier, receiver (Figure 1.1).

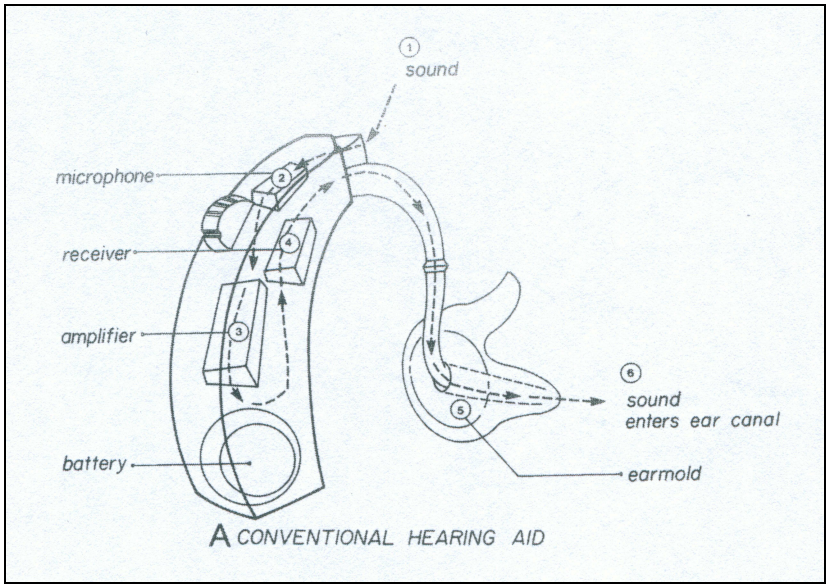

Figure 1.1: Parts of a conventional hearing aid (Bess and Humes, 2003:246).

The function of the various parts of a hearing aid allow for sounds from the environment to be picked up, amplified to a degree and manner that will enable an individual with hearing loss to use his or her residual hearing in an effective manner (Dillon: 2000:384).

According to the National Institute for Deafness and other Communication Disorders, (2006:1), the incidence of unilateral hearing loss is lower than that of bilateral hearing loss, however the majority of people with hearing loss are fitted with one hearing aid. The reason for this can be attributed to funding issues, cosmetic concerns and fitting guidelines of particular institutions (Ross, 1995:1).

Regardless of monaural or binaural fittings, a hearing aid on its own it's not enough. To realise a hearing aid's value, people with hearing loss need and will benefit from a comprehensive aural rehabilitation program (Sanders, 1982:420). A hearing aid is an intricate device and to first-time users, it may also appear to be complex to operate and maintain. Therefore, the device must be correctly fitted and used. The client must acquaint him / herself with how the instrument operates, how to handle it, how to care for it, and, most importantly, how to use it (Sanders, 1982:195-196). This involves a great deal of information giving, practice, and counselling (Sweetow, 1997:87), and speech-language pathologists and audiologists are required to fulfil these tasks (Alpiner & McCarthy, 2000:435). Previous research has shown counselling and follow-up to be an essential factor in the acceptance of hearing loss and hearing aids by reducing unrealistic expectations of the hearing aid (Humes, Wilson, Barlow, Garner and Amos, 2002:430).

Ideally, during the course of the hearing aid selection and fitting process, several follow-up and counselling appointments should be made in order to provide the recipient with a thorough orientation and skills-training programme (Sweetow, 1997:11, 276). This is important in order to ensure that the client is familiar with the hearing aid given to them so that it can be properly used. Individuals with hearing loss require comprehensive aural rehabilitation and counselling, which is essential in order to derive maximum benefit from their hearing aids (Alpiner & McCarthy, 2000:22). According to Sweetow (1997:85-106), an effective orientation and rehabilitation programme should constitute of the following: a discussion of the types of hearing loss, the facilitation of understanding of the audiogram; information on troubleshooting and using hearing aids effectively; as well as information on the guarantee of hearing aid/s. Speech-reading techniques, coping

and communication repair strategies are also important (Sweetow, 1997:87). The above points are also in keeping with the aspects outlined by the International Society of Audiology, with regard to good practice for adult hearing aid fittings and services (ISA, 2004:1-6). However, D'Costa (2004:5) noted that rehabilitation exercises using the hearing aid in different listening environments should also be included as part of aural rehabilitation as this will facilitate carry over of strategies learnt in therapy to real world situations. Additionally, the importance of wax management, legal rights of the client, value of follow-up visits, and family counselling are also mentioned, as most individuals are unaware the above mentioned aspects. The elements of effective hearing aid orientation and rehabilitation are applicable to the international and national context. However, in South Africa the provision of hearing aids has been of recent development.

In South Africa, the provision of hearing aids began in the early 1940s. Table 1.1 provides a summary of the founders of hearing aid companies in South Africa according to three of the major provinces.

Table 1.1: Outline of the founders of hearing aid companies in the main provinces of South Africa circa 1940-1970 (Allsop, 2006).

Province	Individuals / Companies involved	Year
Gauteng	- Mr. Needler – had a hearing aid shop located in a bookstore, which later became Needler-Westdene. Western Electric, Zenith and Beltone aids were sold and was later moved to a pharmacy.	-Mid 1940s
	- Percy van Rensburg opened a Hearing Aid Centre in central Johannesburg which later became part of Bonochord. In 1957, Desmond Smith joined Bonochord with Mr. van Rensburg and established Acoustimed Hearing Services in the 1970s.	- 1949
	- Amtronix was established with the help of Ken Southcott.	- early 1970s

	- Audio Clinic was established with John Carter and Pat de Valence.	- mid 1970s
Cape Province	- Captain Reichenburg opened a private practice which sold transitor hearing aids. - Bonochord (British hearing aid company) opened offices in 1957 with Jeff Clarke. -A branch of Acousticon (American hearing aid company) was opened.	- 1940 - 1957 - mid 1950s
Kwa-Zulu Natal	- Philip Kairus became the founder of Natal Hearing Aids which sold transitor hearing aids.	- 1949

It is important to note that hearing aid services were limited in South Africa, and available only in a few provinces i.e. where the major city centres such as Cape Town and Johannesburg were located. As can be seen from the above table, most hearing aids were dispensed at private practices, pharmacies and via hearing aid companies throughout the three main provinces in South Africa. Currently, in South Africa, hearing aids are dispensed nationwide at hearing aid companies, private practices, private hospitals, universities and government hospitals i.e. both the private and public sectors. A large percentage of the South African population utilise the public sector for health care rather than the private sector (Central Statistics South Africa, October Household Report, 1998:192). This is due to the fact that only an estimated 17% of the adult population of South Africa has access to some form of medical or benefit scheme (Central Statistics South Africa, October Household Report, 1998). This can be attributed to the prior health care system in South Africa.

Before the Government of National Unity took office in 1994, there was substantial fragmentation and gross inequalities in the health status, health infrastructure, and health services. Since then, there has been an intensive program of legislative and policy development to reform the service delivery of health care. Priority programs were

outlined in the White Paper for the Transformation of the Health System in South Africa. Rehabilitation services were addressed and stated that it should occur at primary level within the District Health System (Department of Health, 1997:5). South Africa has a population of approximately forty million. Just over half of this population (53%), live in rural areas and 75% of those who live in rural areas live in poverty (White Paper, 1997:2).

According to the levels of health care in South Africa (Refer to Figure 1.2), the highest level of health care is provincial health care which occurs at tertiary institutions. Following this is district health care which occurs at secondary institutions and the lowest level is community health care which can occur at primary institutions i.e. clinics.

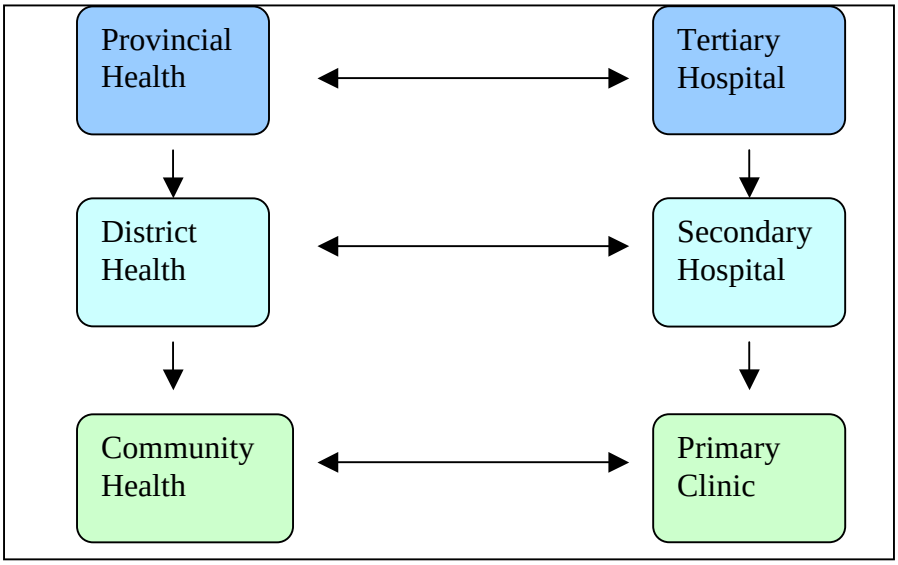

Figure 1.2: Levels of healthcare in South Africa (White Paper for the Transformation of the Health System in South Africa, 1997:1-40).

The above figure indicates where the various levels of the public health care system can occur. Provincial health care occurs at tertiary hospitals which are large hospitals, well equipped and well staffed and usually situated in a central location i.e. the city centre, for example: Pretoria Academic Hospital. The next type of health care is district health care which occurs at secondary hospitals. These hospitals are not as large as tertiary institutions, do not have as much diagnostic equipment and are situated close to specific

districts of a province, for example: Odi Hospital in Garankuwa. The last level of health care in the public health system is community health care which occur at primary clinics. These clinics are much smaller than tertiary and secondary hospitals, with minimal equipment, and staff, and are situated in communities within a particular district for example: Soshanguve Clinic (White Paper for the Transformation of the Health System in South Africa, 1997:5-30).

The levels of health care and location of hospitals and clinics are important to consider, especially for the dispensation of hearing aids, as half of the South African population live in rural areas i.e. community settings (White Paper for the Transformation of the Health System in South Africa, 1997:2). However, current hearing services including the dispensation of hearing aids, occur mainly at tertiary and secondary hospitals (Figure 1.3).

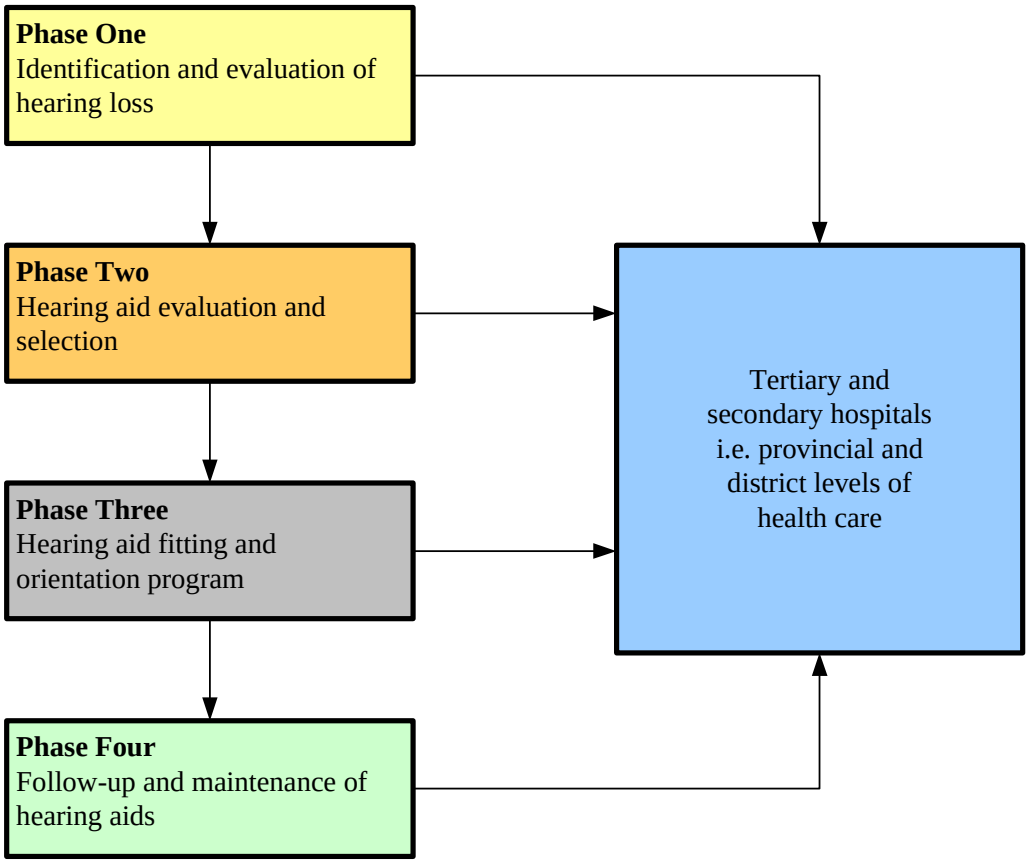

Figure 1.3: Phases of hearing health care (based on Provincial Strategic Plan, 2005).

As can be observed from Figure 1.3, all hearing services currently occur at provincial and district levels of health care, due to lack of infrastructure, equipment and human resources at community levels (Tshwane Annual Report, 2004:15-20). According to the Tshwane Annual Report (2004:22) the number of private hospitals accounted for 77% of all hospitals in Gauteng and there were only 29 public (tertiary and secondary) hospitals and six community health centers. There is a considerable discrepancy between private and public health care institutions in Gauteng. The cost of health care in the private sector is much higher than that in the public sector, and most of the population who make use of the private sector have medical aid schemes (Tshwane Annual Report, 2004:23).

Only 17% of the Black South African population has a medical aid scheme. Therefore, the majority utilises the public health care sector as cost of assessments, treatment and assistive devices such as hearing aids are less expensive, because it is partly subsided by the government (Central Statistics South Africa, October Household Report, 1998:192-195).

Funding of government hearing aids occurs via the Government State Tender Board. Various hearing aid companies tender each year to make several of their hearing aids accessible to individuals in the public sector at a lesser cost (Department of Health, Tender Documents, 2006:1). Each hospital has certain criteria which classify its clients according to their annual income (Gauteng Shared Service Centre, Report on the new tariffs, 2006:1-2). The amount of subsidy a client will receive for a hearing aid is dependent on how the client is classified. Most individuals will not pay more than 25% of the total cost of the hearing aid on tender. The hospital will contribute to the rest of the cost from their annual budget (Health Budget Speech, 2003:1).

The dispensation of hearing aids in the public sector of South Africa although aided by government monies, is burdened with problems such as lack of provision of batteries for hearing aids, poor repair services and inadequate follow-up. This consequently will affect the maximum benefit derived from the goals of hearing aid fittings.

Hearing aid prescription has two main goals, to maximise independent communication and to facilitate social integration. It is therefore important to fit a client with a hearing aid that meets all of his / her unique listening and individual needs. Otherwise problems such as non-acceptance of the device and premature breakage (due to lack of care / maintenance) could arise. Other factors such as lack of information, inapt orientation, and language barriers during orientation may also result in misuse and or under use of the device due to the inability of the patient to use the device adequately (Health Technology Assessment, 2000:101-110).

1.2 RATIONALE AND STATEMENT OF THE PROBLEM

A major scope of practice for speech-language pathologists and audiologists internationally as well as locally involves the fitting of hearing aids and the education of clients in the use and care of these instruments (American Speech-Language-Hearing Association, 2004:5 and Health Professions Council of South Africa, 2003:13). Information disseminated during aural rehabilitation is important for the client to learn and remember how to use the hearing aid effectively and independently (Reese & Hnath-Chisolm, 2005: 94).

It is hypothesized that the problem faced by many adult clients who are fitted with government hearing aids is that they cannot adequately utilise and maintain their devices. This is due to the large number of clients who do not return for servicing of hearing aids, batteries and those who return with damaged hearing aids (Dr. George Mukhari Statistics, 2000-2004). Information regarding utilisation and maintenance is usually disseminated to clients during the orientation and rehabilitation programme (Alpiner and McCarthy, 2000: 315-320). Therefore, it is also speculated that that the above problem of utilisation and maintenance could be related to the initial hearing aid orientation and lack of follow-up rehabilitation. The problem impacts largely on the financial resources (i.e. provincial and district budgets) that is spent on the purchase of hearing aids. If devices are not utilised and maintained properly a substantial percentage of this money spent is therefore wasted.

In South Africa, delivery of quality care is a requirement for accountable services for the profession of speech-language pathologists and audiologists. Quality assurance bodies, such as the Health Professions Council of South Africa (HPCSA) govern professional activities, conduct, and clinical decisions in a process of quality assurance. Quality assurance is there in order to evaluate whether the services provided to clients meet the required standards set out by the professional governing bodies. There is a need to constantly assess quality of standards of health care, optimisation of services and the extent to which services are clinically effective and cost effective. According to WHO Guidelines (2004:25) for hearing aids and services for developing countries, service delivery systems must be continuously monitored and regularly evaluated.

Healthcare systems increasingly rely on information from clinical outcome measures to determine effectiveness of services. Clinical outcome measures refer to a process similar to quality assurance, but closely examine consequences of specific clinical procedures / processes and ways in which these can be measured (Gatehouse, 1999:424). According to Cox (2005:419) there is an ongoing concern about the level of effectiveness of fitted hearing aids. Even though technology has vastly improved, the percentage of hearing aid users and overall satisfaction has not changed significantly in the United States. In South Africa, there is a lack of data with regard to service delivery during hearing aid dispensation and rehabilitation services.

To date, there have been no initial or follow-up studies regarding the utilisation and cost effectiveness of hearing aid service delivery in South Africa. This study therefore aimed to examine the maintenance and utilisation of hearing aids given to clients attending provincial hospitals in Tshwane and to probe factors that impacted on the aural rehabilitation and the hearing aid fitting process. The information derived from this study will not only provide the first data regarding the dispensation of hearing aids in South Africa but will also contribute to the formation of service delivery guidelines for the country.

In order for hearing aid service delivery guidelines to be developed and evaluated, it is essential that government officials and speech-language pathologists and audiologists closely collaborate and be made aware of the specific factors that may contribute to why persons fitted do not fully utilise their hearing aids.

1.3 ORGANISATION OF THE STUDY

A brief outline and description of the chapters included in this research study is provided in Table 1.2.

Table 1.2: Outline and description of the chapters.

Chapter One	This chapter provides the background to the study, the rationale and the statement of the problem. In addition, it provides the outline of chapter content.
Chapter Two	The second chapter comprises of an overview of the principles of hearing aid fittings, aural rehabilitation and service delivery in the developed world. Furthermore, this chapter investigates research conducted in developing countries regarding hearing aids and rehabilitation and examined the South African context in terms of challenges to provision of hearing aids.
Chapter Three	This chapter provides a comprehensive review of the aims of the research, research design, apparatus, collection procedures, and analysis procedures used in the study.
Chapter Four	This chapter forms a presentation and discussion of results from the study.
Chapter Five	The last chapter comprises of specific conclusions drawn from the study, including implications, limitations, and recommendations.

1.4 LIST OF ABBREVIATIONS

ASHA = American Speech-Language-Hearing Association

CBR = Community Based Rehabilitation

HPCSA = Health Professions Council of South Africa

PHC = Primary health care

SASLHA = South African Speech-Language and Hearing Association

WHO = World Health Organization

1.5 DEFINITIONS OF TERMS USED IN THE STUDY

Audiologist

An audiologist is a health care and educational professional who assists in the promotion of normal communication as well as the prevention, identification, assessment, diagnosis, treatment and management of the following disorders in variety of settings ranging from private practices, private hospitals, government hospitals, rural clinics, tertiary institutions, schools, pre-schools, industries, communities and home environments. (SHOUT, 2005:4).

Aural rehabilitation

Intervention aimed at minimising and alleviating the communication difficulties associated with hearing loss (Tye-Murray, 2004:767).

Community Based Rehabilitation (CBR)

CBR is a strategy within community development for the rehabilitation, equalisation of opportunities and social integration of all people with disabilities. It is implemented through the combined efforts of the disabled people themselves, their families and communities, and the appropriate health, educational, vocational and social services (WHO & UNESCO, 1994).

Communication handicap

A communication handicap consists of the psychosocial disadvantages such as that result from hearing loss (Tye-Murray, 2004:4).

Developed world / country

A developed country enjoys a relatively high standard of living through a strong high-technology diversified economy. Most countries with a high per capita gross domestic product (GDP) are considered developed countries such as the United States of America (Wikipedia - The Free Encyclopedia, 2006:1).

Developing countries

Developing countries are in general countries which have not achieved a significant degree of industrialisation relative to their populations, and which have a low standard of living. There is a strong correlation between low income and high population growth, both within and between countries. The term "developing country" often refers mainly to countries with low levels of economic development, but this is usually closely associated with social development, in terms of education, healthcare, life expectancy, etc, such as South Africa (Wikipedia - The Free Encyclopedia, 2006:1).

Ear mould

Component that directs sound efficiently and with the desired frequency response from the receiver to the tympanic membrane (Katz, 2002:666).

Hearing aid / instrument

An electronic device for amplifying sound delivered to the ear, consisting minimally of a microphone, amplifier, and receiver (Hall & Mueller, 1998:929).

Hearing aid fitting / orientation

Process of instructing a client (and a client's family) to handle, use, and maintain a hearing aid (Tye-Murray, 2004:774).

Hearing disability

Hearing disability is a loss of function imposed by the hearing loss (Tye-Murray, 2004:4).

Hearing impairment

A hearing impairment is a structural or functional impairment of the auditory system (Tye-Murray, 2004:4).

Hearing loss

This is measured as the number of decibels that the intensity of a tone must be raised beyond the normal threshold value for that tone to be detected (Hall & Mueller, 1998:929).

Indigenous languages

The term indigenous languages refer to all official South African languages, with the exception of English and Afrikaans (Drennan, 1998:8).

Microphone

Input transducer that picks up the acoustic signal and converts this into an electrical signal (Vonlanthen, 1995:63).

Primary Health Care (PHC)

Essential health care based upon practical, scientifically and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation, at a cost that the community and government can afford to maintain at every stage of development, in the spirit of self-reliance and self-determination (WHO, 1978).

1.6 CONCLUSION

Hearing loss and its wide-ranging effects on individuals' lives is devastating. Hearing aids provide a way in which the person with hearing loss can participate in all aspects of society. The provision of hearing aids in South Africa has vastly improved over the past decade in terms of addressing the needs of the public sector however, there is still an immense need for infrastructure with regard to follow-up and maintenance of devices. This study aimed to investigate factors that influence the maintenance and utilisation of government fitted hearing aids and provide ideas for the improvement of hearing aid service delivery.

1.7 SUMMARY

This chapter explored the nature of hearing aid fittings, aural rehabilitation, and why there is a need for aural rehabilitation and not just a hearing aid. Additionally, the organisation of information in the chapters was briefly summarised and an explanation of the terminology and abbreviations used throughout the study was included.