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# THE IDENTIFICATION PROCESS IN EARLY COMMUNICATION INTERVENTION FOLLOWED BY PRIMARY HEALTH CARE PERSONNEL IN DITSOBOTLA SUB-DISTRICT

**BY**

**JEANNIE VAN DER LINDE (née MULLER)**

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# SUMMARY


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|---|---|
| **TITLE:** | The Identification Process in Early Communication Intervention followed by Primary Health Care Personnel in Ditsobotla Sub-district |
| **NAME:** | Jeannie van der Linde |
| **SUPERVISOR:** | Professor A. Kritzinger |
| **CO-SUPERVISOR:** | Mrs. A Redelinghuys |
| **DEPARTMENT:** | Communication Pathology |
| **DEGREE:** | M. Communication Pathology |

Although the importance of early identification and intervention of infants at risk for communication delays and disorders have been advocated and emphasized in literature, case finding and service delivery in rural areas in South Africa appears to be problematic. The implementation of early communication intervention (ECI) within public service delivery has been proposed in the past. The primary health care (PHC) package had to be considered as a possible vehicle to be utilized for the implementation of ECI functions in rural communities.

Against this background the existing identification methods and referral systems, utilized in Ditsobotla sub-district, were described in the current study to determine the limitations in case finding, and the feasibility of the implementation of ECI functions in collaboration with other PHC programmes. A descriptive dominant-less-dominant model provided the design to describe the identification process and teamwork in Ditsobotla sub-district.

Data triangulation was utilized to improve reliability and validity of results which entailed a rating scale, face-to-face interviews with PHC personnel (participants in Group 1) and face-to-face interviews with PHC programme managers (participants in group 2).

The results indicated that the capacity of facilities and human resources to support the implementation of ECI functions vary within the sub-district. Therefore an incremental implementation of ECI functions is feasible in collaboration with the

existing PHC package. The current identification methods and referral systems are limited and a great need for collaboration exists. ECI functions need to be implemented formally within the PHC package and guidelines for such an implementation are provided. Furthermore the identification process to be introduced needs to form part of the incremental implementation of ECI functions. The implications are discussed in terms of ECI service delivery in rural South Africa.

The proposed process of incremental implementation of ECI functions in rural areas, i.e. Ditsobotla sub-district, within the PHC package is provided. The need to develop identification methods, referral systems and guidelines for the implementation of ECI in PHC are emphasized. Future practice-based research is recommended in order to improve ECI service delivery in rural areas in South Africa.

***Key words:*** *early communication intervention, early identification, referral systems, case finding, infants and young children, at-risk, communication delay or disorders, primary health care, collaboration, incremental implementation, collaborative activities.*

# ABBREVIATIONS

| | |
|---|---|
| EI: | Early Intervention |
| ECI: | Early Communication Intervention |
| PHC: | Primary Health Care |
| CBR: | Community Based Rehabilitation |
| CBI: | Community Based Intervention |
| SSI: | Supplemental Security Income |
| IEP: | Individualized Educational Plans |
| MCWH: | Maternal, Child and Women's Health |
| WHO: | World Health Organization |
| FASD: | Foetal Alcohol Spectrum Disorder |
| JCIH: | Joint Committee on Infant Hearing |
| AABR: | Automated Auditory Brainstem Responses |
| OAE: | Oto-Acoustic Emission |

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# CHAPTER 1

# THE PROBLEM OF EARLY COMMUNICATION INTERVENTION CASE FINDING IN SOUTH AFRICA

**The aim of this chapter is to pose the research problem of case finding in early communication intervention in South Africa, to provide a rationale for the research study and to give an overview of the chapters to follow.**

## 1.1 INTRODUCTION

The benefits of early intervention (EI) for children with established disabilities and for those with delayed development due to biological and/or environmental risk factors have been dealt with in various studies (Guralnick, 1997). Although EI is an evidence-based practice (Rossetti, 2001) and has the potential to improve the developmental outcome of young children and the quality of life of their families, the implementation of EI is still widely lacking, especially in rural areas in South Africa.

EI could enhance the development of young children with disabilities or delays and support the family, which would maximize the long-term benefits of the intervention for the family and the child (Feldman, 2004). By identifying such children as early as possible and starting EI services immediately after detection, the goal of intervention for these high-risk infants and their families is to prevent or minimize developmental problems (Feldman, 2004).

The most common symptom of developmental disability in children under three years of age is delayed communication development, and among all childhood behaviours communication skills provide the highest predictive correlation with school performance and later intelligence attainment (Rossetti, 2001). EI services – with an emphasis on communication skills – therefore have the potential to make a difference in the long-term for infants and young children at risk for developmental delay or disorders (Rossetti 2001; Moodley, Louw & Hugo, 2000).

EI aims to improve children's development, minimize the potential of delays, address existing problems, prevent further deterioration of existing developmental skills, limit the acquisition of other deficient conditions, and promote adaptive family functioning (McConkey, 1995). EI is directly related to the aims of early communication intervention (ECI), which specifically focuses on the communication development of infants and children and exists under the broader term of EI.

In South Africa tertiary health care is inadequate to provide ECI services to infants at risk and their families in small communities (Kritzinger, Louw & Hugo, 1996). ECI services in South Africa are not sufficiently meeting the needs of the majority of the at-risk population that are under three years of age, resulting in a call to expand service delivery to include community-based ECI services (Moodley, 1999; Pickering et al., 1998).

## 1.2 PROBLEM STATEMENT AND RATIONALE

The need for ECI services in rural areas in South Africa is evident when considering the statistics regarding these areas.

From January to March 2005, 511 infants were born in the hospitals in the Ditsobotla sub-district of Lichtenburg in the North West Province. Approximately 18% of these infants weighed less than 2 500 g (Monthly Hospital Statistics, North West Province, 2005), which indicates a high incidence of low birth weight and a subsequent risk of developmental delay (Rossetti, 2001). According to these statistics a total of 90 infants born during this three-month period may, therefore, be at risk for developmental delay. It can be assumed, therefore, that the number of infants with low birth weight and requiring EI is rising exponentially, as new infants are born all the time.

Risk factors are not only found in infants, but also in their mothers. According to the statistics referred to above, 5% of the mothers were adolescent and 15% of mothers who gave birth in the hospitals in the district during that period had syphilis (Monthly Hospital Statistics, North West Province, 2005). Adolescent mothers are inexperienced and often without support, while severely infectious diseases such as syphilis are established risks for developmental delay and/or disability in infants (Rossetti, 2001).

Approximately 5% of infants were born to mothers with HIV and AIDS (Monthly Hospital Statistics, North West Province, 2005), and therefore they are at risk for health and developmental difficulties, congenital hearing loss or the development of a hearing impairment shortly after birth (Swanepoel, 2004a).

In addition, poverty may be regarded as a further risk factor for infant development as the concentration of families living in poverty is found in rural areas (Department of Health, 1997). It is now generally accepted that children living in poverty are at increased risk for developing disability (Msall, Bobis & Field, 2006). A recent study found for instance that in the USA black children living in poverty have higher rates of disability and more biological and environmental risk factors than their white non-Hispanic counterparts (Msall et al., 2006). An increased prevalence of risk conditions for communication disorders in certain communities in South Africa (Kritzinger, 2000) should be taken into account, as this will influence the number of infants at risk for communication delays or disorders. Despite the urgent need for ECI in the Ditsobotla rural district, there is a shortage of speech-language therapists and health workers trained in ECI to form a comprehensive team to manage the much needed services. In 2005 the researcher was the only speech-language therapist and audiologist working in Ditsobotla sub-district who had to provide services for the entire population of patients with communication and hearing disabilities. As a result ECI received little attention due to the workload experienced by the speech-language therapist and audiologist, who was based at primary health care facilities in the district.

As the efficacy of EI services is consistently linked to the age of identification (Rossetti, 2001), early identification of risk conditions in infants should be the primary function of ECI (Kritzinger, Louw & Rossetti, 2001). Early identification of an infant's genetic condition may also allow parents to make informed decisions about family planning (Logan, 1995). EI plays a crucial role in shaping the future of infants, their families and communities in establishing a full and decent life (McConkey, 1995) and, consequently, owing to the comprehensiveness of EI, an early start can be of great advantage to the infant concerned as well as to the family and the community.

According to Blackman (1995), the early identification process ideally comprises certain methods and an accessible referral system to assessment and intervention

services. Without an effective identification process and successful case finding, EI cannot exist (Blackman, 1995), as it is the entry point to the intervention process (Kritzinger, 2000). Developing and implementing effective identification strategies, especially in rural areas, is one of the biggest challenges in ECI because, conversely, a lack of identification strategies will compromise the efficiency of the services (Kritzinger, 2000).

Different methods may be employed to identify infants with risk conditions as early as possible. Developmental screening can be used as a method of identification when groups of children are assessed. Developmental screening focuses on the early identification of young children with pre-existing conditions that will put them at risk for developmental delays, or on children with established disabilities in one or more developmental domains (Glascoe, 1995).

A range of instruments may be used for developmental screening, and although ideally standardized screening tests are preferred to informal assessment (Glascoe, 1995), standardized screening tests are not available in the South African context. In the case of infants, where formal tests cannot be used, informal assessment methods generally apply, such as checklists, reviews of milestones and clinical judgments. Rossetti (2001) makes a case for the use of criterion based instruments rather than standardized instruments as the infant and young child's development can be determined, regardless of the setting or manner in which the behaviours were observed. With the use of high-risk registers, however, which is an informal assessment method, only fifty percent of hearing losses are identified (DeConde Johnson, Benson & Seaton, 1997). It appears that current approaches to the early identification of young children at risk for communication disorders are not sufficiently sensitive to detect the early stages of communication disorders, as screening instruments aim to identify more general developmental delays (Kritzinger et al., 2001). Few childhood impairment screening programmes can be justified in countries with inadequate resources such as South Africa (Logan 1995); consequently screening programmes are currently not common practice in South Africa and are therefore not meeting the needs of the South African population (Swanepoel, Delport & Swart, 2004).

Developmental surveillance is another strategy used for the early identification of infants at risk of communication disorders. This method entails brief evaluations of an infant's developmental skills over a period of time in order to monitor the child's progress (Kritzinger, 2000). If the primary health care (PHC) personnel carry out developmental surveillance routinely and use sensitive screening instruments, this strategy could play a significant role in identifying infants and toddlers that are at risk for communication disorders (Kritzinger, 2000). It has been suggested that screening programmes should be part of routine maternal and child health services in developing countries (Logan, 1995), rather than a once-off procedure.

Developmental questionnaires that are completed by parents are potentially an effective and economical way to identify infants who are at risk or have an established risk for developmental delay (Squires, Nickel & Bricker, 1995). However, as one in every five African women has received no education at all (Central Statistics, 1998; Swanepoel, 2004a), developmental questionnaires completed by parents cannot be effectively applied due to the low literacy level of the parents.

There thus appears to be no ideal screening method or instrument for the early identification of communication delay that can be used in rural communities in South Africa. Another important issue regarding the implementation of effective screening in ECI requires that formal pre-existing operating systems, such as the health care referral system, may be used in order to link ECI clients to ECI service providers.

Any district-based PHC system requires an effectively functioning referral system in order to operate efficiently (Van Rensburg & Pelser, 2004). A referral system operates as intricate accessible layers of health care facilities, services or providers that render diagnostic and therapeutic services in a sequential manner, ranging from primary, secondary to tertiary levels, according to the needs of the patients (Van Rensburg & Pelser, 2004). ECI services are not always available at all the health care levels especially in rural areas, and therefore a referral system, as defined by Van Rensburg and Pelser (2004), is necessary.

In the referral system framework used by the North West Department of Health, the network of facilities and service providers functions in a certain geographical area to deliver the following outcomes:

- Even-handed access to appropriate care according to the patients' needs.
- Efficient and effective use of the available health care resources.
- Best health outcomes within the current available resources.

(North West Department of Health, 2003)

Although this referral framework refers to health-related matters in general, it applies to disabilities and developmental delays in young children as well. The referral framework may be relevant in the field of ECI in the PHC context, as the outcomes of referrals may imply the efficient and effective use of ECI, access to ECI for patients, and delivering the best ECI services possible for the patient.

Important underlying principles for an effective referral system are that the system must be a two-way process and that the retention of patients in a referral institution should be as brief as possible (Van Rensburg & Pelser, 2004). In order to achieve collaboration between professionals, the referral process must include back-referral information given to the original provider who made the referral (Equity Project, 2000). Through effective collaboration in ECI, time-delays can be reduced, which is crucial as developmental delays should be addressed as early as possible. Back-referral information may motivate PHC personnel as well as raise awareness of the success of ECI. A well-functioning PHC system is not limited to the first level of care only, but includes secondary and tertiary health care as well. The PHC system is therefore dependent on a smooth flow of referrals between all the levels of health care (Van Rensburg & Pelser, 2004).

One of the objectives stipulated in the *White Paper for the Transformation of the Health System in South Africa* (Department of Health, 1997), was to reorganize the health care system based on primary health care services, with effective referral systems at the primary, secondary and tertiary care levels, and therefore it is important to have an effectively operating referral system. PHC refers to comprehensive care that includes curative, preventative, promotive and rehabilitative care within the context of, amongst

other things, community participation and intersectoral collaboration (World Health Organization, 1978). PHC is the patients' first level of contact with the health system, where basic screening, diagnostic and therapeutic services are rendered. Secondary health care provides more specialist services, while tertiary health care services provide expertise associated with specialties, subspecialties and less common specialties (Department of Health, 1997). From this explanation it is evident that referral systems should start at the first level of contact between the health care system and the patient. PHC is therefore the first point of contact and is provided at clinics, PHC centres and district hospitals. Since one of the principles of ECI is to provide services in the local communities (Louw, 1997), the services should not be available on a tertiary and secondary health care level only but on a PHC level as well. Although ECI can be available on all health care levels, the services are not being rendered at all levels in South Africa because of the shortage of speech-language therapists and audiologists.

In South Africa a mixed referral system applies, meaning that both the public and private sectors make up the major parts of a larger health care system, and crossing from one sector to another is a commonplace (Van Rensburg & Pelser, 2004). As stipulated in the *White Paper for the Transformation of the Health System in South Africa* (Department of Health, 1997), the health care system needed to be reorganized in order to achieve intersectoral collaboration. Intersectoral collaboration between the public and private health sectors has not yet been achieved, as evidenced by the numerous deficiencies that exist in the referral system, for instance: the over-development and over-utilization of secondary and tertiary health care institutions, the self-referral of patients to higher levels of care in the public sector, and the provision of unnecessary sophisticated care to patients at hospitals who could be safely treated in PHC facilities (Van Rensburg & Pelser, 2004). These deficiencies in the referral system result from two core conditions:

- The absence of clear policies and guidelines designed to regulate referrals between different levels of care and cross-referrals from private to public sector.
- Failure to implement and/or comply with existing policies and guidelines for regulating access to services and resources in the public health sector.

(Van Rensburg & Pelser, 2004)

Owing to deficient intersectoral collaboration, sectors such as the private health sector, schools and hospices may not be collaborating effectively. The lack of collaboration influences ECI as infants with developmental delay or disorders may not be referred speedily for ECI when the problem is first noticed. Referral systems do not operate only intersectorally, but also within a specific facility, which is referred to as the network organization.

Referral systems are integrated into the clinic and hospital network organization. Three different levels of network organizations can be identified in hospitals:

- Intra-departmental - this means within a department in the hospital, e.g. the cohesion and coordination of services among staff in the speech-language therapy and audiology department.
- Inter-departmental - across various organizational departments, that is a multidisciplinary approach, e.g. the speech-language therapist, occupational therapist and clinic sister working together as a team.
- Inter-organizational - across the boundaries of the hospital, e.g. when the speech-language therapist refers a patient for specialized audiological testing at another hospital (Spanjers, Peterson & Smits, 2001).

It is evident that these network organizations play a very important role in the early identification of infants with developmental delays or developmental disorders, provided that the network organizations function optimally within the context of PHC.

In the PHC context of the Ditsobotla sub-district it appears that the emphasis is currently on an inter-organizational network, as on average 58 patients (Monthly Hospital Statistics, North West province, 2005) need to be referred to secondary and tertiary health care hospitals on a monthly basis. The inter-organizational network used for referral is working effectively and much has been done in this regard, but transport limitations still exist (Van Rensburg, 2004). Inter-departmental networking, on the other hand, such as referrals and collaboration between the PHC nurses and the speech-language therapists, is not given the same amount of attention. It is specifically within the inter-departmental network that various developments and improvements, such as

the introduction of transdisciplinary teamwork, can be made with regard to ECI services.

A transdisciplinary team approach functions across the barriers of the network organization, where collaboration between professionals includes sharing knowledge, exchanging information, role release and support, as well as enriching one's own knowledge (Galentine & Seery, 1999). According to various authors, ECI may be improved by facilitating a transdisciplinary approach as this provides a more holistic approach to all components of the intervention process (Galentine & Seery, 1999; Kolapan, 2004).

Effective inter-departmental networks require a holistic approach that necessitates the collaborative involvement of various disciplines (King, 1999). Only with a holistic approach to health care will it be possible to address the health care needs of individuals and groups in the community (King, 1999). Collaborative transdisciplinary team effort combines different scientific fields, skills and beliefs, which are directed to the maintenance and improvement of the health of all the people through collective or social actions (Dennill, 1999). Since the World Health Organization regards a holistic approach as fundamental to all health care (Shaikh, 2005), the importance of this approach in ECI is evident. The infant is seen as part of a dynamic family system and a community, and all the developmental domains of the infant should be taken into account (Kritzinger, 2000).

The effectiveness of a referral system is in direct relation to the outcomes that the system achieves. By means of a smoothly functioning referral system the ECI client and family, for example, receives diagnostic and therapeutic services from a specialized team of medical and rehabilitative professionals, ensuring that PHC is more unified and financially sustainable (Equity Project, 2000; North West Department of Health, 2003). Limited referrals and improper coordination of referral systems are partially responsible for ECI being unknown in the South African health care system (Kritzinger, 2000). The researcher has had first hand experience in poor case finding of infants and young children at risk for communication delays or disorders in Ditsobotla sub-district, consequently the majority of patients seen by the speech-language therapist and audiologist was adults.

Kekki (2003) identified common problems and challenges regarding PHC in South Africa, including an ineffective referral system. Another problem that goes hand in hand with ineffective referral systems is vagueness of roles (Kekki, 2003). Doctors and nurses may not be sufficiently aware of their role in the early identification of infants at risk of developmental delay.

In general, non-life-threatening diseases and conditions, such as developmental delays and disorders, are neglected in terms of institutional support, research funding and political advocacy (Swanepoel, 2004b). According to Kopp (2000), further investigation is required into the effectiveness of a health referral system in South Africa, and a broader picture of the referral system, with regard to ECI, is needed. Therefore, the specific challenges in the Ditsobotla sub-district which may act as barriers to an effective ECI case finding and referral system must be investigated in order to improve the effectiveness of the early identification process in ECI.

## 1.3 ADDRESSING THE PROBLEM

Children with special needs within the developing context in South Africa are not receiving adequate ECI services (Fair & Louw, 1999). In developing countries, such as South Africa, the priority should be to develop services for the assessment and management of children with impairments. Until such services are in place, attempts to facilitate early identification of infants at risk will be of little benefit (Logan 1995). Within the PHC context community-based intervention is proposed as a health care service delivery strategy, but there are constraints in its application (Fair & Louw, 1999).

Yet, despite the fact that there may be constraints in terms of staff/personnel, recent developments in the professions of speech-language therapy and audiology in South Africa have brought about some positive changes. Since 2003 it is compulsory for all speech-language therapy and audiology graduates to complete one year of community service, which has facilitated the inclusion of speech-language therapists in the application of the policy on PHC (Hugo, 2004). Although there is a shortage of speech-language therapists in South Africa and services are not rendered on all health care

levels, these services are currently more accessible in rural areas as a result of the allocation of speech-language therapists for community service.

The dire need for speech-language therapy services in EI is demonstrated in the health statistics of North West Province. Increased numbers of infants at risk of developmental delay occur, due to low birth weight, adolescent mothers, low literacy of parents, intra-uterine exposure to syphilis, mothers with HIV and AIDS, and living in poverty (Rossetti, 2001). More than one risk factor may be present in an infant and family, which may have a cumulative effect on the infant's development. Owing to these multiple risk factors, the infants must be screened and referred for ECI. The problem is, however, that despite an increased presence of speech-language therapists in some communities, many infants and their families with risk conditions are still not receiving ECI. Although no research findings document ECI service delivery in PHC in South Africa, difficulty in case finding has been experienced by other speech-language therapists and audiologists in the North West Province (as discussed at quarterly meetings of North West Department of Health, 2005)

The identification process can be improved by collaboration between the speech-language therapist and the PHC nurses (Moodley et al., 2000). Collaboration, in a transdisciplinary team, means that professionals are working together to achieve a better efficiency of services (Straka & Bricker, 1996). Collaborative partnerships between the PHC personnel and the speech-language therapist are vital in ECI in the PHC context (Moodley et al., 2000). An efficient method of sharing responsibility between health care professionals and services, such as a transdisciplinary approach, is necessary to provide comprehensive management of the at-risk infant's medical and developmental problems (ASHA, 1989). More effective services result when collaboration is used through a transdisciplinary approach in EI (Galentine & Seery, 1999). A collaborative team effort requires an environment that supports teamwork. The environment therefore needs to be adapted in order to accomplish a supporting role in transdisciplinary teamwork (Straka & Bricker, 1996).

One of the crucial roles of the community nurses within a collaborative team approach is the developmental screening of at-risk children (Moodley et al., 2000). Screening tests may be used by professionals to act as gatekeepers to EI services, even if such

professionals do not have extensive knowledge of developmental milestones (Glascoe, 1995). As doctors or nurses are responsible for managing access to the health system, their capacity to manage a wide variety of health problems, in the PHC context, is being relied on (Kekki, 2003). The implementation of routine developmental screening of infants is often hindered due to heavy workload (Moodley et al., 2000). The emphasis is mainly on health and less on development, with the result that developmental delays are not effectively screened in PHC settings.

On a referral level the health workers, which include doctors and nurses, are relied upon to respond to the community's health needs. The health workers must be socially and technically trained to work as a health team (Kekki, 2003). PHC workers in developing countries like South Africa cannot rely solely on the parents of the infants who require ECI as source of information on their development, since parents tend to be preoccupied with other basic needs (Moodley, 1999). If doctors and nurses are not fully aware of the importance of early identification of delayed development or disabilities in infants, the emphasis will be solely on the community's health needs, and developmental delays in children will not be a consideration.

Effective ECI services in rural areas cannot be developed without collaborative processes, but clinicians already trained in ECI must take the initiative. It is evident that the PHC personnel, more specifically the PHC nurses, are ideally placed to identify infants at risk for developmental delays or disorders and to refer them to the other professionals for assessment and intervention (Moodley, 1999). As starting point of ECI collaboration it is therefore important to investigate the identification process, i.e. methods, instruments and referral practices, currently used by the PHC personnel.

The focus of this study is on community-based ECI and aims to describe the identification methods and referral practices that are already used, in order to provide guidelines for an early identification and referral framework for infants at risk for developmental delays and/or disorders, which would be applicable in Ditsobotla sub-district. Thus the research question posed is as follows: What are the characteristics of the identification and referral process for ECI in the PHC context of the Ditsobotla sub-district, and how can the process be adapted in order to enhance collaboration and ensure a more effective early identification process?

The central arguments posed in the research study are depicted as a flow diagram in Figure 1.1.

**Statement of the problem:** Many infants at risk for developmental delay or disorders and their families are not identified or referred to ECI services in the PHC context, which consequently leads to ineffective ECI service delivery.

⇩

**Implication:** The identification methods and referral system used by the PHC personnel may not be effective to identify all infants at risk for developmental delays or disorders.

⇩

**Rationale:** To determine what the speech-language therapist and audiologist can do to understand and support the identification process, in order to gain access to all infants at risk for developmental delays or disorders

⇩

**Proposed solution:** The identification methods and referral system for ECI case finding will be described, and guidelines will be developed, in order to propose a more user-friendly and effective collaborative system.

⇩

**Research question:** What are the characteristics of the identification methods and referral practices for ECI in the PHC context of Ditsobotla sub-district, and how can the process be adapted in order to minimize limitations and ensure a more effective early identification process?

⇩

**Aim of the study:** To describe the characteristics of the identification process and referral practices for ECI in the PHC context in Ditsobotla sub-district, in order to develop guidelines that may be implemented in the district.

**Key: ECI = early communication intervention PHC = primary health care**

**Figure 1.1 The central arguments of the study**

## 1.4 CLARIFICATION OF TERMINOLOGY

The following terms are defined according to their use in this study.

- **Early intervention**

  Early intervention is "…an array of services that is put in place through a partnership with families for the purpose of promoting their well-being and the well-being of their infants, toddlers and young children whose development may be at risk due to a combination of biological and environmental factors" (Thurman, 1997:1).

- **Early communication intervention**

  Early communication intervention (ECI) is an EI initiative where the focus is on enhancing communication skills and interaction between infants and young children and their caregivers. As communication skills are the best predictor of future school achievement and communication disorders are the most common developmental disability in children, it is considered best practice where the focus is on communication, without excluding other developmental areas (Kritzinger, 2000). EI services from a communication-based perspective are therefore referred to as ECI (Kritzinger, 2000; Rossetti, 2001).

- **Risk factors**

  "Anything that interferes with a child's ability to interact with the environment in a normal manner is a potential cause of, or contributing factor to, the presence of development and, more specifically, communication delay" (Rossetti, 2001:2). Risk factors are currently classified in the categories of *established risk* or *at risk* and can be defined as follows:

  - Established risk refers to children that have known patterns of developmental delay that accompanies whatever places them in the at-risk grouping, for example neurological disorders, congenital malformations, inborn errors in metabolism, sensory disorders, atypical developmental disorders, severe toxic exposure, chronic medical illness, severe infectious diseases or genetic disorders (Rossetti, 2001).
  - The term 'at risk' refers to infants and young children who are at risk for a developmental delay due to biologic or environmental factors, e.g. low birth weight, prematurity and/or low socio-economic status (Rossetti, 2001), but

who may not yet display the full consequences of the impact of risk factors on their development.

- **Communication disorders**

  Communication disorders can be categorized according to the underlying processes that may contribute to the disorder:

  - Language disorders refer to a breakdown in the coding of meaning into a system of arbitrary symbols that are acknowledged by members of the community (Plante & Beeson, 1999).
  - Speech disorders refer to the impaired functioning of the vocal mechanism and oral structures that are used to produce sounds of a language. Voice, articulation and fluency disorders are included in this type (Plante & Beeson, 1999).
  - Hearing impairment refers to an impaired ability to distinguish between sounds, impaired awareness of sounds, as well as an impaired ability to process sound that occurs at a rapid rate (Plante & Beeson, 1999).

  Another way of classifying communication disorders is as organic, non-organic or combined in origin (Owens, 2001). Organic disorders have a physical origin such as brain damage or hearing loss, whereas non-organic disorders originate for example from faulty learning or environmental deprivation (Owens, 2001). Generally a combination of both organic and non-organic origins is present in communication disorders seen in practice (Owens, 2001).

  Various terminologies are used to describe communication that is not developing normally. As there is little consensus on the use of terminology, the term 'communication disorders' is used as an overall descriptive term, and includes the qualitative and quantitative differences in children's communication development (Moodley, 1999). Disorders refer to diagnosed conditions, such as Down syndrome, cerebral palsy, hearing loss, specific language impairment and stuttering. Communication disorders are therefore used to indicate interference by diagnosed conditions in the child's ability to learn or to use language, which results in poorer language and speech or hearing behaviours other than what is expected of the child according to his/her chronological age (Moodley, 1999).

- **Communication delay**

  When certain factors interfere with the child's ability to interact in a normal way, it may potentially cause a developmental delay (Rossetti, 2001). In ECI the first symptoms of developmental disorders often present with delayed development, e.g. when risk factors such as low birth weight and prematurity are present. The full extent of the symptoms of a disorder such as cerebral palsy may not be present in an infant, and the descriptive term 'delayed communication development' may be used.

- **Identification process**

  An identification process consists of two components, namely the identification methods used and the referral system (Blackman, 1995). These two components ensure that patients have equal access to assessment and services and that the transition to these services is effective (Blackman, 1995). In order to define the identification process the two concepts can be described as follows:

  - Identification methods are screening tests and/or informal assessments that are used for early identification of infants and children at risk or with an established risk for delays in one or more of their developmental domains (Glascoe, 1995).
  - A referral system operates as intricate accessible layers of health care facilities, services or providers that render diagnostic and therapeutic services in a sequential manner ranging from primary, secondary to tertiary levels, according to the needs of the patients (Van Rensburg & Pelser, 2004).

- **Primary health care personnel**

  PHC personnel are the facilitators of primary health care, which entails the promotion of health and the prevention of diseases by using education as one of their main tools (Van Rensburg, 2004). PHC personnel also aim to cure sick people and assist people with disabilities to improve their quality of life (Van Rensburg, 2004). Preventative, curative and palliative health care are the roles of PHC personnel, and the emphasis is mainly on the prevention of diseases and disabilities. PHC personnel therefore refer to nurses in training, nurses, sisters and doctors working in the PHC context. Community nurses are recognized as the

cornerstone in the National Health System, as they are based at family health clinics where they provide available, affordable and accessible services to the majority of the population (Moodley, 1999). Community nurses not only represent the health professionals in the EI team, they also provide a unique perspective on real health issues that infants and toddlers at risk as well as their families have to face (Moodley, 1999). Therefore community health nurses play an important role in the transdisciplinary partnership in ECI (Moodley, 1999).

- **Collaboration**

  Collaboration means that people are working together to achieve a greater efficiency. For EI teams collaboration specifically has three essential elements:

  - A commitment to developing and using a common goal that guides and directs the team activities.
  - An agreed upon process that is respectful of each member's contribution.
  - An outcome that is coordinated and integrated in order to produce more effective and satisfactory outcomes.

  (Straka & Bricker, 1996)

## 1.5 BRIEF OUTLINE OF THE CHAPTERS

Table 1.1 provides a brief outline of the five chapters of this dissertation.

**Table 1.1 Outline of dissertation chapters**

| Chapter | Title | Content |
|---|---|---|
| **1** | The problem of early communication intervention case finding in rural areas in South Africa | The background against which the study originated is described. The importance of ECI as well as the need for these services in the PHC context of Ditsobotla sub-district is highlighted. The identification process is described by looking separately at the identification methods and referral systems as its two components within the South African context. Describing the identification process, in order to recognize certain limitations and developing guidelines to improve early case finding, is proposed as an appropriate method to facilitate earlier identification of infants at risk of communication developmental delays or disorders and for the effective referral of these infants for ECI. |
| **2** | Towards an integrated approach to early communication intervention services in primary health care in South Africa | The importance of ECI is discussed. A critical discussion of the challenges in rural areas and a proposed ECI model are provided. The PHC package is then described by looking at the considerations of the PHC package, the different programmes and what the package as a whole entails. An in-depth discussion of the integration of ECI into the PHC package follows where each PHC programme is considered separately. Finally the conclusion whether integration of ECI in the PHC package is possible is discussed. |
| **3** | Methodology | This chapter describes the methods used to investigate the characteristics of the identification process for ECI in the PHC context in order to develop guidelines that may be implemented in the district. The objectives to achieve the aim are specified. Detailed descriptions of the research design, subject selection, as well as materials and apparatus are provided. Steps taken to ensure an ethical research study and to increase reliability and validity are discussed. The research procedure provides a precise description of the development of the two interview schedules and the checklist, the pilot studies for both, and the process used in the implementation of the main study. Finally, the procedures regarding the collection, recording and analysis of the data are discussed. |

| Chapter | Title | Content |
|---|---|---|
| **4** | Results and discussion | In chapter 4 the results are organized, presented and discussed according to the main aim and objectives of the study. A detailed analysis and discussion of the PHC facilities, human resources, identification methods and referral practices are then discussed. The participants' views on the integration of ECI by means of collaborative activities in collaboration with the other PHC programme managers are explored and discussed. The chapter concluded that various limitations exist, which influences ECI service delivery, but the participants provided suggestions and ideas to overcome the limitations. The PHC programme managers were of view that ECI can be effectively implemented by means of collaborative activities. |
| **5** | Conclusion and implications | Chapter 5 presents the general conclusions drawn from the present descriptive study where interviews were conducted with the participants and an environmental analysis were completed. Important theoretical, practical and research implications with regard to the capacity of PHC facilities and human resources, the current identification methods and referral systems, teamwork and the implementation of collaborative activities are discussed. A general conclusion is reached that the limited identification methods and referral systems need to be addressed by means of a formal approach to the incremental rollout of ECI functions within the PHC package at PHC facilities in rural communities. |

## 1.6 CONCLUSION

In South Africa infants at risk of developmental delay and their families face additional constraints that place them at increased risk for developmental disabilities (Moodley, 1999). Even though the prevalence of developmental disabilities in children under three years is increasing (Moodley, 1999; Rossetti, 2001), and multiple risks occur in the Ditsobotla sub-district, many infants are not identified and referred for ECI. By describing the identification process, which includes the identification methods and referral system, certain constraints may be recognized in a rural area and guidelines may be developed in order to improve the process, therefore enhancing access to ECI services for all infants at risk for communication disorders and their families. The next

step is to investigate the possible interactions between ECI and PHC on a theoretical level in order to gain insights to be applied in the planned descriptive study.

## 1.7 SUMMARY

Chapter One describes the background against which the study originated. The importance of ECI as well as the urgent need for these services in the PHC context of Ditsobotla sub-district is highlighted. The identification process is described by looking separately at its two components (identification methods and referral systems) within the South African context. Describing the identification process in order to recognize certain limitations and to develop guidelines to improve early case finding, is proposed as an appropriate method to facilitate earlier identification of infants at risk for communication developmental delays or disorders and the effective referral of these infants for ECI. The terminology used in the study is clarified, and the chapter concludes with a brief outline of all the chapters.

# CHAPTER 2

# TOWARDS AN INTEGRATED APPROACH TO EARLY COMMUNICATION INTERVENTION SERVICES IN PRIMARY HEALTH CARE IN SOUTH AFRICA

**The aim of this chapter is to discuss how ECI (early communication intervention) services can be integrated into the existing PHC (primary health care) package of the Department of Health in a rural area.**

## 2.1 INTRODUCTION

Before the advent of democracy in 1994, the rural areas in South Africa were severely under funded and disadvantaged as the social and economic services in those regions were limited (Emmett, 2005). Consequently communities in rural areas have a higher risk of disability, which correlates significantly with poverty in South Africa (Emmett, 2005). In order to improve health care services in rural areas, the South African government published the *White Paper for the transformation of the health system in South Africa* (Department of Health, 1997), which sets out the implementation of PHC to meet the basic needs of all people. Since the implementation of PHC in the South African health system, communities and individuals who previously did not have access to health services have reaped numerous benefits from the system.

According to the PHC Facilities Survey of 1998 and 2000, significant improvements are evident in rural areas, such as better emergency vehicle response times, daily immunization of infants and children, and antenatal services (Van Rensburg, 2004). As a further strategy to improve PHC services various authors have already discussed the implementation of ECI – within the South African health care system – to all infants who are at risk for communication disorders (Fair & Louw, 1999; Kritzinger, 2000; Moodley et al., 2000).

As PHC has been identified as the main approach in reconstructing the health system in South Africa, attention should be given to making ECI part of PHC service delivery. This could extend the services for infants and toddlers as well as their families, and thus

increase the range of health care services already provided by the Department of Health. A better understanding of the history of ECI in South Africa is necessary in order to understand how the integration of ECI into PHC will be possible. A critical discussion of the challenges in rural areas as well as a proposed ECI model can provide insight into the needs and limitations identified as well as the successes achieved in the past.

## 2.2 A CRITICAL DISCUSSION OF CHALLENGES IN RURAL AREAS AND AN EXISTING ECI MODEL

ECI services have developed gradually in South Africa over the past 20 years which resulted in the provision of services to infants and toddlers with special needs in order to prevent communication disorders and to facilitate age appropriate communication skills (Fair & Louw, 1999). Although ample progress has been made to date, ECI services are not yet accessible and effective in many rural communities in South Africa.

The South African context poses various challenges to the development of ECI services. Multicultural and multilingual communities, the limited number of speech-language therapists working in South Africa, the extensive geographical dissemination of children with special needs, limited literacy skills of caregivers, and environmental risk factors are some of the challenges faced (Fair & Louw, 1999), and need to be considered as the implementation of the National Health policy unfolds and new issues arise. A continuous review of the challenges in South Africa that influence the development of ECI may prove to be beneficial as changes can be made on an ongoing basis. Various approaches to implementing ECI, will be critically discussed in order to determine whether it would be feasible to implement any of them in the South African context.

Fair and Louw (1999) propose the development of a model for ECI service delivery in disadvantaged communities in order to establish more effective and accountable services rendered to infants and young children and their families. Internationally EI was widely described even before the concept of ECI was developed. Rossetti (1996) initiated the concept of early *communication* intervention based on the notion that communication skills should be the main focus of any effective EI programme. Communication skills should therefore be seen as a fundamental component of the array

of EI services provided to children at risk for developmental delays or disorders (Rossetti, 2001).

Based on Rossetti's (1996) suggestions, Fair and Louw (1999) explored the integration of ECI into the framework of the comprehensive early intervention system. Implementing ECI within the EI framework seems to be a relevant and appropriate way of introducing ECI services in the rural communities of South Africa (although EI services have not yet been established in many rural communities). Although rehabilitation services are included in the *Primary Health Care Package for South Africa - a set of norms and standards* (Department of Health, 2000), EI is not mentioned, which creates a need to explore ECI within the PHC service delivery package. The isolated efforts of speech-language therapists and audiologists in rural communities, without any guarantee of continuation of services when staff change, hamper the establishment of ECI, whereas the implementation of ECI in an already existing EI programme provides the necessary resources for and support to establish ECI services.

The ECI service delivery model proposed by Fair and Louw (1999) consists of four components, namely: an early identification programme, an assessment facility, a treatment programme, and administration services. The proposed EI model appears to be comprehensive, but little has been documented on how the referrals should be handled between the different components. This is a very important aspect and must be addressed in the South African context, as effective referral frameworks for ECI have not yet been established in many of the rural communities.

Although there has been little mention of referral between the different health care professionals, the involvement of a team is described extensively in the ECI model of Fair and Louw (1999). In terms of legislation in USA, team involvement in EI is mandatory, and the transdisciplinary teamwork model is described as an efficient method for rendering EI services (Fair & Louw, 1999). The transdisciplinary teamwork model can be successful because skills, information and knowledge are shared across the disciplines and parents are viewed as equal team members (Rossetti, 2001). Given that information and knowledge are shared across disciplines, other disciplines may facilitate ECI, which would help to overcome the challenge of having only a few

speech-language therapists in rural communities in South Africa. Although other disciplines may facilitate ECI through the transdisciplinary team approach, the speech-language therapist still needs to be available on a consultation basis. Therefore a speech-language therapist working on a secondary health care level could – through the transdisciplinary team approach – assist other disciplines involved in ECI on a PHC level.

Even if the transdisciplinary teamwork model appears to be the most appropriate model for rendering EI services, the implementation of this teamwork model might be problematic in the South African context, owing to constraints such as lack of legislation and funding. It is for this reason that multidisciplinary teamwork, as opposed to transdisciplinary teamwork, is mainly used within the context of PHC in South Africa. Collaboration between the disciplines in the multidisciplinary teamwork model is limited as the professionals, while working alongside each other, still render services separately.

A multidisciplinary team approach limits the rendering of all-inclusive services since each professional has to facilitate their own functions, i.e. role expansion and release are not established between team members. Thus referral processes need to be developed and identification methods established for each separate discipline. The transdisciplinary team approach, on the other hand, creates the structure for using a single referral process and combined identification methods for providing a comprehensive service to the rural community. The effectiveness of the teamwork model currently used in the PHC context in South Africa (which is mostly multidisciplinary) has not yet been established (Moodley, 1999), creating a void of information needed to determine which changes should be made in order to ensure better collaboration.

Similar to the teamwork models, the principles of community-based rehabilitation (CBR) may be relevant when the integration of ECI is considered. CBR refers to developing rehabilitation within the community and providing equal opportunities to and social integration of all people with disabilities (Fair & Louw, 1999). CBR has been implemented in other countries as a strategy to improve rehabilitation service delivery to adults in rural communities (Fair & Louw, 1999). Although CBR was

developed to improve service delivery for adults, the principles of CBR might provide insight into how ECI services could be implemented in the rural community in South Africa. As PHC has been implemented in South Africa, CBR may easily be integrated into the communities by using the PHC facilities as platform (Department of Health, 1997).

Home visiting and family centred care is a principle of CBR that could be integrated into PHC (Fair & Louw, 1999). In rural communities in South Africa the effectiveness of home visiting for ECI service delivery has not yet been established, and therefore the possibility that home visiting may improve case finding of infants at risk for communication delay needs to be explored. When applying the principles of CBR to the implementation of ECI, it should be considered that CBR refers to rehabilitation and therefore focuses on tertiary prevention for an established disorder, whereas primary and secondary prevention are not taken into account (Fair & Louw, 1999). The early identification and referral of infants at risk of communication delay are functions of primary and secondary prevention. Community-based intervention (CBI) would therefore seem to be a more comprehensive service delivery approach, as it provides a basis for primary, secondary and tertiary prevention (Fair & Louw, 1999). The principles of CBI seem to be more appropriate for introducing ECI in a rural community, whereas the levels of prevention in CBR are limited. The significance of community participation needs to be explored when implementing ECI services.

Although community participation is ideal in ECI, many rural communities in South Africa are still struggling with basic issues such as infrastructure, water supply and electricity (Pelser, 2004). The focus of the rural communities is on improving general living conditions, and therefore the importance of ECI may seem trivial to them. Fair and Louw (1999) mention these conflicting priorities experienced by communities, and state that CBR cannot be integrated if PHC has not been fully implemented.

In the USA, the prevalence of children with disabilities who are living in disadvantaged socioeconomic circumstances has been rising steadily over the past few decades (Msall et al., 2006). As a result of the higher prevalence statistics, the Supplemental Security Income (SSI) was implemented to assist families financially where disability is present (Msall et al., 2006). The government of Finland also provides children in need of

special care with an increased allowance, depending on the severity of the disorder, while EI services are provided free of charge to infants and children in this country (Michelsson & Byring, 1997). SSI and state allowances appear to be a successful initiative in the USA and Finland, but the success of such a concept might well not be applicable in the South African context, because of the limited available resources such as lack of funding and the availability of services. Although resources are limited, South Africa aims to support families by means of providing free health care services to all the children under 6years of age (Department of Health, 2003).

Further support for families with children at risk for developmental delays or disorders in other countries can be found in the following examples. In the USA the health, developmental, rehabilitation and behavioural professionals are responsible for the prompt and comprehensive evaluation of children who show signs of delay or disability (Msall et al., 2006). The Individuals with Disabilities Education Act (IDEA) provides federal support in the USA for the development, implementation and monitoring of national organizations of family-centred, community-based, multidisciplinary and interagency early intervention services to infants and toddlers with disabilities and their families (Taylor et al., 2000). Under the Preschool Child Find system, which includes individualized educational plans (IEP), eligibility teams use comprehensive, multi-source behavioural ratings and explicit assessment of the growth, health, communication, social and adaptive skills to identify children who show signs of delay or disability (Taylor et al., 2000).

No such legislation or mechanisms exist in South Africa to identify and refer young children for EI services, and although South Africa provides families with monthly disability grants (in terms of the Social Assistance Act, 2004). It is necessary to guide the families of children at risk for developmental delays or disorders in putting the grant to good use, such as spending it towards the education of the child or paying fees for transportation to ECI services. Therefore, even if the ECI services required for the infants' needs are available in the communities, positive outcomes for the child and family may not be the result. If there is no one to assist families with the meaningful employment of the special grant paid towards the care of their identified children, the effective implementation of EI in the community may be almost impossible. The doctor usually completes the disability or care dependency grant when a child has a physical or

mental disability (Social Assistance Act, 2004). It appears that comprehensive assessment of candidates for the grants has yet to be established, since a developmental evaluation protocol is not available to doctors and consequently the doctors tend to complete the disability grant form on what the family members report. Although financial assistance appears to play an intricate role in the implementation of ECI services, it is but one aspect of a multifaceted approach to providing effective ECI services.

Another aspect that needs to be taken into account is the rural communities' traditional beliefs regarding health and disability, because the cultural practices in rural communities may be a barrier to the successful implementation of EI (McConkey, 1995). Mokhosi and Grieve (2004) found that rehabilitation programmes are not likely to be successful unless they take the patient's cultural belief system into consideration. If PHC personnel keep the patient's beliefs and customs in mind, the quality of health care is improved (Beuster & Schwär, 2005). It therefore appears that a better understanding of the patient's beliefs and customs may provide a platform for planning the treatment and integrating it into the life of the patient.

A traditional African custom is to understand the spiritual meaning of the condition, rather than focusing on the symptoms that must be treated (Beuster & Schwär, 2005). Illness is therefore considered as something that must be understood and acknowledged, instead of cured or controlled (Mkize, 2003). The expectations of the speech-language therapist therefore differ from what the patient regards as necessary in addressing the illness. Acquiring an understanding of illness in terms of rural customs could thus influence the integration of ECI significantly, as the emphasis in ECI is on 'controlling' or preventing and improving the delay in infants as early as possible and acknowledgement of the needs of the parents. Zhang and Bennet (2001) state that the EI professional has to respect the beliefs and perceptions of the patient and the family in order to establish effective working relationships through a family-centred philosophy.

Therefore, understanding African families' perceptions of health, illness and healing and their health-seeking behaviour is important for the planning and implementation of effective health services in the South African context (Vilakazi, 1998). The family's perceived meaning of disability has a decisive effect on the family's adjustment to

raising an infant with a disability, as well as on decision-making and seeking services for the child (Zhang & Bennet, 2001). The meaning of disability for the family should therefore be determined in order to improve service delivery to the family. The value of the African family and its role in the management of ill family members is of great importance (Vilakazi, 1998), and consequently the families' involvement may play an intricate role in managing infants at risk for communication delay or disorders. The families must be seen as stakeholders (Vilakazi, 1998) in the management of the children's developmental difficulties, especially when they are provided with skills regarding communication development.

Although it may be feasible to implement ECI as CBI, the limitations need to be identified so that the process can be adapted specifically for the purposes of ECI. As proposed by Fair and Louw (1999), the process of CBI includes recognition of the problem or need in the community, a situational analysis of what is needed and the potential resources in the community, fact finding according to the needs of the communities, planning of specific goals, action taken by the community, and the evaluation of the process. According to the process of implementation of ECI proposed by Fair and Louw (1999), an external stimulus is usually responsible for the implementation of CBI within a community in order to be effective. Such an external stimulus may be a non-governmental organization or PHC personnel (Fair & Louw, 1999).

The implementation of ECI should be initiated by a speech-language therapist or audiologist. In order to be able to reach the communities, ECI could be integrated with the existing PHC programmes, but in the South African context, where resources are limited, the implementation of ECI may be difficult when the process has to be implemented without the support of an existing health care programme. The WHO (1995) identified three primary role players in CBI, namely the community, the community volunteers, and the PHC community worker. These role players may form part of an invaluable team in ECI, but the PHC programme managers need to be included as well as they could provide invaluable information on the implementation of ECI.

Fair and Louw (1999) ultimately suggest the integration of ECI into CBI, as these two service delivery models have the same objectives, and in their discussion of the proposed framework for such integration they take as an example a child with a cleft lip and palate. The identification of an infant with a cleft lip and palate is fairly easy as it is a visible defect, whereas communication delay and communication disorders have to be detected by means of assessing communication development and therefore are more difficult to detect in the PHC context. Hess, Dohrman and Huneck (1997) support the notion that the early identification of infants at risk for communication delay may be more difficult than identifying physical disorders and motor delays. The proposed framework of Fair and Louw (1999) provides a few guidelines on the identification of infants and young children with communication disorders in rural communities. The limited availability of effective identification methods for ECI in the PHC context may be problematic, as this influences case finding in South Africa.

Another limitation in the model proposed by Fair & Louw (1999) that needs to be considered is the referral practices. Fair and Louw (1999) indicate that referrals must be made between professionals, but their model does not provide information on what the referral practices should entail. An effective referral framework will improve collaboration and determine the success of the implementation of ECI services. Conversely, if referrals are not effective it will have a negative outcome on the implementation of ECI services.

Fair and Louw (1999) assume that the PHC personnel will handle the administrative component of ECI, in other words the administration of the identification, assessment and treatment of infants at risk for communication delay. This might not be the ideal solution, however, as the PHC personnel already have too much administrative work and will hardly be able to cope with the additional workload. Alant and Lloyd (2005) state that the original strategies developed to establish CBI programmes reflected a tendency of being either comprehensive with less focus, or very specific with a single strong focus, which limited the long-term impact. Therefore the supportive role of PHC in the implementation of ECI needs to be determined, in order to establish comprehensive services with a strong focus.

Fair and Louw (1999) recommended that PHC should be seen as the basis for implementing ECI according to the CBI process. Although this approach may be relevant, the existing PHC package (Department of Health, 2000; 2001) has not been considered. The possibility of integrating ECI with the PHC package may be less complex and more realistic, as the PHC package already exists and valuable implementation information could be provided by PHC programme managers. As it is more cost and time efficient to use existing resources, the integration of ECI into the PHC context might be the most cost-effective way of reaching rural communities.

The critical discussion of a proposed model for ECI in South Africa (Fair & Louw, 1999) clearly indicates that the current PHC system is a suitable platform for the integration of ECI, and that therefore such integration would improve case finding in rural communities. In South Africa the PHC package was developed to address the needs of the rural communities, and therefore has to be scrutinized to determine whether ECI could be successfully integrated (Department of Health, 2000; 2001).

## 2.3 PRIMARY HEALTH CARE IN SOUTH AFRICA

In order to implement the changes required by the *White Paper on the transformation of the health care system* (Department of Health, 1997) and make services accessible to all in South Africa, a comprehensive PHC package (Department of Health, 2000; 2001) was developed based on the PHC model (Van Rensburg, 2004). The National Health Bill (Department of Health, 2003) for South Africa necessitates the development of norms and standards for the PHC package to guide PHC service delivery. Hence *The Primary Health Care Package for South Africa - a set of norms and standards* was produced, which provides the foundations for a single and integrated health system (Department of Health, 2000). The focus of the PHC package is derived from the core and aims of the PHC model, which is based on the following five considerations (Van Rensburg, 2004):

- Addressing the health care needs of every person according to how they want to receive their care.
- Providing comprehensive health care services in rural areas, and therefore improving service delivery to rural communities.

- Involving the local community in decision-making and the implementation of services, resulting in empowerment of the community.
- Involving the community in the planning and designing of services by means of fully representative community health bodies.
- Focusing on the quality of care and improving health in local communities, rather than administering health services.

From these considerations it is clear that the needs of the patients come first, different programmes need to be integrated within the PHC package, and services must be rendered according to each community's needs. The inclusion of the community in decision-making and the prevention of diseases and disabilities are also important aspects to consider in PHC. The five considerations of the PHC package may assist in improving the health care system, overcoming certain limitations identified over the years, and determining the specific needs of rural communities in South Africa. As the services are directed at patient needs, cultural aspects and religion are taken into account and are respected by PHC personnel. The same considerations are also advocated for ECI, and therefore the implementation of ECI within the PHC context may be feasible.

The PHC package was derived from the guiding considerations proposed in the *White Paper on the transformation of the health care system* (Department of Health, 1997) and entails a standardized and comprehensive 'basket' of services delivered in the PHC context, which includes preventive, promotive, basic curative and rehabilitative services (Department of Health, 2000). Furthermore, the PHC package stipulates the common quality norms and standards for each PHC service and is mutually supported by the health care professionals delivering the services (Department of Health, 2000). The PHC package makes a 'one stop' approach possible where interventions are delivered together in clusters congruent with the infrastructure and the model of care functioning at district level (Van Rensburg, 2004).

Lequerica (1997) described a one-stop approach where developmental, behavioural and educational services are provided for low-income preschoolers in the USA. If the application of the one-stop model is successful, it facilitates an integrated approach, which proves to be cost and time effective. It also improves communication and

collaboration between team members and families in the USA (Lequerica, 1997). The clients may also experience a sense of caring and support through the one-stop model, while the professionals and service providers experience a sense of purpose and work satisfaction (Lequerica, 1997). The ideal of a one-stop approach is significant but has not yet been fully established in the South African context as the programmes are relatively new and there are limited guidelines for the integration of interventions. An effective one-stop model should be accessible from one facility located in the community, and services need to be comprehensive and holistic, which is provided through an interdisciplinary teamwork approach, while follow-up visits have to be monitored effectively (Lequerica, 1997). Although Lequerica (1997) provides the characteristics of an effective one-stop approach, it was designed to restructure an existing system of care in the USA. In contrast, rural communities in South Africa do not have an established system of care where developmental, educational and behavioural needs are addressed.

The PHC package was specifically designed to adapt the previous health system in South Africa and therefore it cannot be implemented through separate, vertical programmes (Van Rensburg, 2004). Although the PHC package was designed to provide comprehensive and integrated services, vertical programmes split the services according to the disciplines, ultimately hindering teamwork across the different disciplines. Where the previous health system in South Africa focused on PHC sporadically, the new health system as stipulated in the *White Paper on the transformation of the health care system* (Department of Health, 1997) aims to elevate PHC to a more central position in health care in South Africa. A description of the package currently implemented by the Department of Health and the Ditsobotla sub-district is provided in Table 2.1.

**Table 2.1 Components of the PHC package (Department of Health, 2000; 2001)**

| PHC Programmes | Description |
|---|---|
| 1. Non-personal health services | • Promotion of occupational health<br>• Promotion of health and disease prevention<br>• Dissemination of information on environmental health |
| 2. Disease prevention and control | • Prevention of chronic diseases<br>• Promotion of well-being in geriatric patients<br>• Rehabilitation of disabilities<br>• Promotion of oral health and prevention of oral diseases<br>• Prevention of communicable diseases (including notifiable medical conditions) |
| 3. Maternal, child and women's health | • Provision of ante-natal and post-natal care<br>• Provision of contraceptive methods<br>• Screening for cervical cancer<br>• Termination of pregnancy<br>• Provision of genetic services<br>• Management of childhood illnesses and immunization<br>• Intervention in protein energy malnutrition<br>• Sustaining the primary school nutritional programme |
| 4. HIV and AIDS/ sexually transmitted infections (STI) and tuberculosis (TB) | • Support and home based care for HIV and AIDS patients<br>• Voluntary confidential counselling and testing for HIV and AIDS<br>• Prevention of mother-to-child HIV transmission<br>• Prevention and management of sexually transmitted diseases<br>• Diagnosis and treatment of tuberculosis |
| 5. Health monitoring and evaluation | • Obtaining health information from health care facilities<br>• Surveillance of the public health system<br>• Coordination of research on health related topics and current issues influencing health care in South Africa |

| PHC Programmes | Description |
|---|---|
| 6. Mental health and substance abuse | • Prevention and treatment of mental disability<br>• Prevention of substance abuse |
| 7. Gender issues | • Referral and counselling of victims of violence and sexual abuse |

According to Table 2.1 the PHC package provides for a wide range of health services. Implementation of this package makes it possible to effectively reach rural communities in South Africa. The PHC package appears to be comprehensive; it addresses general health issues as well as more specific conditions, such as HIV and AIDS and tuberculosis. The package appears to be comprehensive on health issues but less attention is focused on the development and disabilities of infants and young children.

As the package includes all the PHC programmes (see Table 2.1) linked together as a service delivery model for health care, parameters of service delivery can be established and services can be measured accordingly (Van Rensburg, 2004). A health monitoring and evaluation programme (see Table 2.1 no 5) is integrated into the PHC package in order to measure services according to the parameters of service delivery. The PHC service package is not just the sum total of the different services for various health needs of individuals and communities, but rather the organizational base of service delivery that is patient-orientated and not condition-orientated (Van Rensburg, 2004).

A more holistic approach to service delivery can be attained through this package. As demonstrated by Lequerica (1997) in the USA, when paediatric health care and developmental services for infants at risk for communication delay are integrated into the various PHC programmes, holistic care and services for families and their children are achieved on a wider scale.

One of the PHC programmes utilized by families during the first year of an infant's life for immunizations is the Maternal, Child and Woman's Health programme (MCWH), which may be one of the best opportunities to provide ECI services to the family and infants. Families are already accessing the programme and therefore providing ample opportunity for the early detection of communication delays or disorders in infants. Although the opportunity is present, currently the speech-language therapists working in

the PHC context mostly play a consulting role, instead of working as a team with the PHC personnel during immunization to identify infants at risk for communication delay (as discussed at North West Province quarterly meetings, 2005). Since the number of speech-language therapists and audiologists is limited in South Africa, there is a great need in rural communities for these services. Therefore speech-language therapists and audiologists should ideally be working in primary, secondary and tertiary health care contexts, but the scope of practice will differ accordingly.

The main advantage of the PHC package is that it provides guidelines to determine on which level of health care the different services should be made available and for providing continuum of care between these services (Van Rensburg, 2004). At PHC level therefore, all the programmes indicated in Table 2.1 are implemented at clinics in rural communities. More specialized personnel, such as orthopaedic surgeons, neurologists and therapists, are allocated at secondary and/or tertiary health care facilities, which are the referral facilities for the PHC clinics (Van Rensburg & Pelser, 2004). The needs of the health care professionals on each health care level have to be determined in order to improve service delivery.

Services are monitored by means of the health monitoring and evaluation programme included in the PHC package, and thus the needs for equipment and training in PHC can easily be established. The requirement to establish comprehensive health services (Department of Health, 1997) can be achieved by the integration of preventative and curative services (Van Rensburg, 2004). Comprehensive services are possible as many programmes provide preventative as well as curative services and the programmes support each other in these services. Every South African is entitled to comprehensive services through the PHC package, thus ensuring a unified health care system (*The primary health care package for South Africa- A set of norms and standards,* Department of Health, 2000; *A comprehensive primary health care service package for South Africa,* Department of Health, 2001*).*

According to the *White Paper on the transformation of the health care system* (Department of Health, 1997), the different PHC programmes must be implemented at all PHC facilities, which may be either clinics or hospitals. Some PHC facilities are operational for certain hours per day, e.g. 8-hour clinics, 12-hour clinics and 24-hour

clinics, while others are hospitals. Although the programmes are described separately, the personnel work together as an integral team that provides all the services at a specific facility. Working in an integral team is relevant as the different programmes have many areas of mutual responsibility and teamwork is required in order to be effective and time efficient.

An example of integral teamwork is when the HIV and AIDS programme, the Health Promotion programme and the Maternal, Child and Women's Health programme work together to address and intensify all the aspects of HIV and AIDS on World AIDS Day. This is an example of integrated services being provided for a special occasion, but the integration of services also happens on a continuous basis between programmes. The collaboration between the Maternal, Child and Women's Health programme and the HIV and AIDS programme to determine the HIV status of pregnant mothers and neonates is an example of the continuous integration of services. Likewise, the continuous integration of ECI into the PHC programmes should be explored.

ECI has not been integrated into PHC in South Africa, and functions mainly as an isolated service. An integrated approach is already being followed in the implementation of services in PHC, therefore ECI could also be implemented incessantly as well as on special occasions in order to promote ECI amongst community members. Integrating ECI would support the PHC programmes with specialized services, which would broaden the scope of service delivery and thus be beneficial to the health care system and the clients. ECI could strengthen existing programmes by making a wider range of services available and by providing additional input in areas of mutual responsibility, such as paediatric HIV and AIDS. Services to infants and their mothers are already included in various programmes, such as the Maternal, Child and Woman's Health, the HIV and AIDS, and the Disease Prevention programmes. Integrating ECI with PHC could also improve case finding in South Africa as the rural communities can be reached effectively, and effective health care service delivery would be promoted. Teamwork may therefore be possible, even though vertical programmes may split services according to the different disciplines involved in PHC. The integration of ECI into the PHC package has to be described critically in order to determine whether such integration is feasible in the rural communities in South Africa.

## 2.4 PRIMARY HEALTH CARE AND EARLY COMMUNICATION INTERVENTION

Developmental delays in infants and toddlers are significantly under-identified, resulting in limited ECI services for many infants and families in need (Wetherby et al., 2003). The PHC package may provide the vehicle for effective implementation of ECI services in rural areas. The focus of ECI with regard to planning and management is to develop strategies to prevent communication disorders in all people, including rural and disadvantaged communities (Kritzinger, 2000), and as prevention is the ultimate goal, primary prevention programmes could be implemented at PHC clinics.

The onset and development of communication disorders may be reduced or eliminated by changing the susceptibility or minimizing exposure for women in the childbearing period (Kopp, 2000). Primary prevention in ECI would therefore include providing information on early communication development to the pregnant mothers at baby clinics in order to prevent a communication delay in infants due to lack of stimulation. In ECI secondary prevention entails the early identification and intervention of infants at risk for communication delay or disorders in order to eliminate or hinder the progress of the delay/disorder and therefore prevent further problems. Tertiary prevention in ECI focuses on the improvement of the functioning of an infant by reducing the effects of communication disability.

ECI operates mainly on primary and secondary prevention levels. The Disease Prevention and Control programme (see Table 2.1 no 2) in the PHC package focuses on the prevention of diseases and disabilities and this programme can be used as a vehicle for ECI services. According to Swanepoel (2004a), PHC clinics could be a platform for the implementation of universal infant hearing screening in South Africa. The early identification of communication disorders as a result of hearing loss could also be addressed at an early stage within the context of PHC, i.e. secondary prevention.

Prior to the implementation of screening programmes relationships have to be built with the nurses at a facility and limitations need to be determined. Swanepoel (2004a) proposes a strategy to describe the assets and barriers in the PHC context and in interaction between personnel in order to develop evidence-based hearing screening

programmes. The ECI strategy is similar to the PHC considerations described by van Rensburg (2004), as both indicate that the programmes should address the specific needs of the communities and that communities should be included. Swanepoel (2004a) successfully demonstrated that the implementation of hearing screening programmes at PHC clinics may be feasible in the South African context and this strategy could likewise be applied to the implementation of ECI services in rural clinics, although staff and equipment constraints might influence the success of the implementation.

The implementation of new strategies and service delivery models in South Africa is essential, as an inadequate number of professionals are rendering services to the growing population of people with communication disorders (Kritzinger, 2000; Moodley et al., 2000). It is estimated that for every 8 000 people with communication disorders there is only one speech-language therapist available (Moodley et al., 2000). Although there is a shortage of auxiliary health professionals, which includes speech-language therapists and audiologists, community nursing represents the largest number of health workers in South-Africa (Kopp, 2000), establishing PHC nurses as the most universal members of the multidisciplinary PHC team (King, 1999; Kopp, 2000). It is therefore evident that collaboration with community nurses is one of a few solutions to improve the provision of services (Kopp, 2000). PHC nurses play a significant role where collaboration is required between speech-language therapists, audiologists and nurses to address the challenges in PHC within the South African context (Kopp, 2000). Consequently collaboration with PHC nurses should be investigated in order to improve case finding in ECI.

Community nurses work in the PHC context in community health clinics on a daily basis and are therefore available, accessible to and affordable for the majority of the population (Moodley et al., 2000). PHC nurses are responsible for implementing the PHC programmes in the facilities and provide a variety of services to the community. As a result of the services rendered at PHC level, the nurses have greater access to the population (Kopp, 2000). Not only do the nurses have access to the population, but they are also able to fulfil the role of the Family Advocate, who is a professional that speaks the home language of the patient and who was able to build a relationship with the families (Kritzinger, 2000). The role of Family Advocates is vital in the collaborative team, as they act as the link between the family and the professionals.

Family advocacy may help to overcome language and cultural barriers in South Africa which influence communication between the patients and professionals (Kritzinger, 2000). Thus collaboration between the speech-language therapists, audiologists, community sisters and nurses as well as the programme managers of the different PHC programmes may add value, as services offered through collaboration are more comprehensive.

A transdisciplinary framework was proposed by Kritzinger and Louw (2003) for the implementation of ECI in public service delivery in South Africa, which illustrates the many different functions of service delivery in ECI as well as the importance of collaboration with other health care professionals. The conceptual framework describes service delivery at certain points according to a child's age, and the following age categories are proposed: before the infant is born, neonatal period, postnatal period, and toddler years (Kritzinger & Louw, 2003). These periods were identified according to developmental stages of young children and the contexts at which caregivers can be reached. The collaborative partners in ECI, as indicated in the framework of Kritzinger and Louw (2003), are ideally the parents, community nurses, speech-language therapists and audiologists, as well as the secondary caregivers at crèches and day-care facilities (Kritzinger & Louw, 2003).

The components of ECI services proposed by the conceptual framework include raising awareness of communication development among parents and caregivers, hearing screening and surveillance of communication development, as well as providing intervention by speech-language therapists and audiologists (Kritzinger & Louw, 2003). Facilitation and reinforcement of the mother's interest in her neonate's abilities and developmental needs just after birth as well as advocacy for education are other functions proposed by the framework for ECI service delivery. The authors describe the different services in detail, but determining which services should be implemented first should be decided by the different communities according to their needs. It is evident that the conceptual framework (Kritzinger & Louw, 2003) addresses relevant ECI challenges faced by the public health sector in South Africa. However, the possibility of integrating this conceptual framework into the PHC package has not yet been explored.

The inclusion of ECI in the PHC package may be indicated by explaining how the different ECI functions proposed in the conceptual framework for the implementation of ECI in public service delivery (Kritzinger & Louw, 2003) may be incorporated into each PHC programme.

### 2.4.1 Non-personal health services and ECI

According to the *White Paper on the transformation of the health care system* (Department of Health, 1997), it appears that non-personal health services are directed at changes in the environment and not so much focused on direct service delivery to the community and individuals. Environmental health and occupational health are two subdivisions through which the programme addresses certain environmental and occupational issues. Non-personal health services seem to be less obtrusive, as services are provided to the environment instead of to patients and communities.

ECI services as part of non-personal health services (no 1 in Table 2.1) could be integrated into health promotion in order to promote ECI as a preventative measure for communication disorders. Mass media strategies, such as posters and brochures, which are available at the clinics are used to promote the community's health. Another strategy may be having regular oral presentations to the community or to mothers visiting the clinic by programme facilitators or speakers arranged by the programme facilitators.

Mass communication media strategies are used in the HIV and AIDS programme where the focus is on prevention of infection and overcoming discrimination against HIV-infected individuals (Department of Health, 1997). The emphasis of the mass communication is reviewed as the AIDS pandemic progresses *(*Department of Health, 1997). The use of mass media appears to be effective in the South African context as a relevant way of reaching rural communities. According to the *Jakarta Declaration on Leading Health Promotion into the 21st Century* (WHO, 1997), health promotion has a distinct impact on health as people gain better health, inequities in health are limited, and human rights as well as social capital are built.

Raising awareness of normal communication and literacy development in children and its importance for school success may have an important promotional value and may

therefore contribute to the prevention of communication disorders. Awareness of normal communication and early literacy development may be raised through talks with the mothers at prenatal visits to the clinic, while posters and brochures on communication development should be readily available in the languages spoken by the different communities. Training mothers to stimulate their infants and the advocacy of education (Kritzinger & Louw, 2003) are functions that may be effectively integrated into this programme. The mothers' awareness may be raised and an interest in communication and literacy development of young children (Kritzinger & Louw, 2003) may be facilitated when Baby Wellness clinics are held. The majority of the people in rural communities live in poverty (Redelinghuys & Van Rensburg, 2004), are multilingual and multicultural (Beuster & Schwär, 2005) and have low literacy skills. The multimedia approach may be used to compensate for low literacy skills in people visiting the clinics and the choice of language as a medium of communication is very important. As the population of Ditsobotla sub-district mainly communicates in Setswana, this language should be the primary language used when providing information orally and in writing to the community. Another programme into which ECI may be integrated is Disease Prevention and Control.

### 2.4.2 Disease prevention and control and ECI

ECI may also be integrated into the Disease Prevention and Control programme (no 2 in Table 2.1), which includes rehabilitation of persons with disabilities as one of its components. Rehabilitation services constitute the reorientation of rehabilitation from institution- based services to community-orientated and community-based services (Department of Health, 2000). The services for disease prevention and control include primary, secondary and tertiary levels of prevention, and the community nurse is the point of access for the community (Department of Health, 2000). Assessments must be conducted, assistive devices, such as hearing aids, have to be provided, and the patient has to be assessed for disability or care dependency grants (Department of Health, 2000). Although services include rehabilitation for children and adults, ECI may also be integrated into this PHC programme.

It has been widely documented that improving a mother's educational status positively influences the family's health and development (Bryant & Maxwell, 1997; Department of Health, 1997). Therefore, educating mothers as a strategy to prevent communication

disabilities may have a significant influence on the prevalence of conditions. Screening, assessment and intervention for infants and young children at risk for communication disorders are three important functions in ECI that may be integrated in the disease prevention and control programme under the rehabilitation component. It is evident that the scope of services that can be provided through ECI is in direct relation to the services already provided by the rehabilitation programme in the PHC package. One of the programmes into which ECI may be integrated to a greater extent is the Maternal, Child and Women's Health (MCWH) programme as the focus is already on mothers and their children.

### 2.4.3 Maternal, child and women's health and ECI

The Maternal, Child and Women's Health (MCWH) programme (no 3 in Table 2.1) has been developed according to the following principles (Department of Health, 1997):

- The services must be accessible to all mothers, children, adolescents and women of all ages, with the focus on rural, urban poor and farm worker communities. Many infants are at risk for developmental delays due to environmental factors, since they live with their families in persistent poverty (Rossetti, 2001), and therefore the population targeted in this programme is in dire need of ECI services.
- MCWH services should be comprehensive and integrated. Currently services provided to infants are mainly focused on health and physical development, but hearing abilities and communication development are not receiving the same degree of prioritization. The limitation in the monitoring of development in young children is evident when perusing the Road to Health Chart (Department of Health, 2000), which is used to document immunizations, development and medical history for every child from 0-5 years of age. Only a quick screening of visual and hearing abilities is done. Currently the hearing screening entails the child's reaction to a voice and to loud noise (Department of Health, 2000), which is a subjective opinion and therefore not sufficiently accurate to detect hearing impairment. According to the 'Year 2002 Hearing Screening Positions statement', published by the Health Professions Council of South Africa (2002), electrophysiological measures should be used to screen infant hearing, as this is the first step to further diagnostic testing (Swanepoel, Hugo & Louw, 2005). Although electrophysiological measures are objective and reliable, the availability of the electrophysiological instrumentation is

limited in rural areas in South Africa. The current limitation in developmental screening needs to be addressed in order to improve case finding and the integration of ECI in the PHC context in South Africa.

ECI services entail providing information, training and support to the caregivers, as well as facilitating communication development in the infants with disabilities or who are at risk for developmental delays (Rossetti, 2001). Providing services according to a family-centred approach may be effectively integrated in MCWH, as the services have similar underlying principles. When ECI is integrated into the PHC context, disabilities may be prevented, delays may be limited, the progress rate of disabilities may be minimized or secondary complications may be prevented (Kritzinger, 2000). The programme poses the ideal opportunity to integrate ECI services as mothers visit the clinics for prenatal assessments and infants and children come to the clinics for immunizations and general health assessments. If ECI services can be integrated into this programme, it will be possible to identify infants with problems earlier, which in turn will positively influence the effectiveness of ECI services (Rossetti, 2001). In the USA universal newborn hearing screening is mandatory at clinics and hospitals, and the benefits of this have been documented (Swanepoel et al., 2005). The possibility of the integration of ECI services is therefore not only beneficial but also realistic and needs to be explored. Thus the integration of ECI into MCWH programme may be the most viable integration within the PHC package. One of the greatest challenges in the South African context is the HIV and AIDS pandemic and therefore the inclusion of ECI in PHC and its influence on managing HIV and AIDS, in infants affected and infected, need to be considered.

### 2.4.4 HIV and AIDS, sexually transmitted infections, tuberculosis and ECI

This programme is based on the *National AIDS Plan for South Africa*, which was developed by the National AIDS Convention of South Africa (1997). Objectives and strategies are provided in the *Health Sector Strategic Framework 1999-2004* (Department of Health, 2004) to address the HIV and AIDS pandemic within the health care context. The programme entails mechanisms to control HIV, which include behavioural strategies, detection and treatment of sexually transmitted diseases, maintenance of safe blood supplies, and the popularization and extensive distribution of barrier methods (Department of Health, 1997). Infants and children exposed to HIV and

AIDS have unique needs and the speech-language therapist has a significant role to play in supporting and educating parents and caregivers as well as providing unremitting intervention (Bolton, 2005). HIV and AIDS is therefore an important health care programme into which ECI can be integrated (no 4 in Table 2.1). A policy document recommends that the needs of HIV and AIDS patients must be met at PHC level, resulting in a greater demand for clinics and PHC centres (Pelser, Ngwena & Summerton, 2004). As the impact of HIV and AIDS on health care is adverse (Pelser et al., 2004), health needs caused by the HIV and AIDS pandemic in South Africa must be addressed at PHC level also.

Infants with paediatric HIV and AIDS represent a diverse population, as the children may either develop serious symptoms at an early age, or display little or no symptoms over a number of years (Strasheim, 2004). As the central nervous system is influenced by HIV and AIDS, neuropsychological complications are usually present in developing children with HIV and AIDS (Strasheim, 2004). HIV and AIDS pose a challenge to clinic staff working in the field of EI in the South African context, as interdisciplinary teams must be established in order to prevent the transmission of the infections. Secondary interventions for infants with HIV and AIDS, each with their own health problems, neurological, developmental and general care needs, have to be established (Bam, Kritzinger & Louw, 2003). When working as an integrated team within the PHC context, professionals are supporting each other and the challenging nature of HIV and AIDS may be addressed more effectively. Team members include the parents and/or family members, PHC personnel, PHC programme managers, speech-language therapists and audiologists, other health care professionals such as occupational therapists, and doctors.

The early identification of infants at risk for HIV and AIDS and the advances made in medical management can help to extend the life expectancy of infants and children with HIV and AIDS (Strasheim, 2004). As life expectancy has improved, issues such as speech and language development, learning disabilities, hearing deficits and special education needs (Larsen, 1998) will need to be addressed. Infants of HIV positive mothers may have congenital hearing loss or develop a hearing disorder shortly after birth (Swanepoel, 2004a). Ototoxic medications used to treat HIV-related illnesses prenatally may cross the placenta and cause a delay in foetal hearing system

development (Swanepoel, 2004a). Infants with hearing loss require ECI services in order to facilitate the development of speech and language skills.

A large number of children with HIV and AIDS display risks of developmental disabilities (Larsen, 1998). Depending on the severity and its progressive nature, the involvement of the central nervous system will evidently lead to functional impairments of speech, language, cognition, hearing and swallowing in young children (Larsen, 1998). It is very important to educate the parents and caregivers on the outcome when the central nervous system is involved in the progression of HIV and AIDS and its impact on speech, language, cognition, hearing and swallowing. Providing information to the community will empower the community members to take action to prevent the progression of HIV and AIDS by seeking the necessary help from PHC professionals and to obtain the prescribed medication as early as possible. The expectations of family members may be more realistic when they are well educated on the topic.

One aspect that has to be taken into account, is infants and young children with paediatric HIV and AIDS whose parents have died as a result of this pandemic (Bam et al., 2003, Bolton, 2005; Strasheim, 2004). The absence of the parents may have significant implications on the ECI services rendered, as the parents are not there to be part of the comprehensive team and as the experience of losing a parent is very traumatic (Bolton, 2005). Infants growing up without their parents are a tragic reality which needs to be explored in order to determine the impact thereof on ECI service delivery.

Infants or young children of parents or primary caregivers with severe or chronic illnesses, such as HIV and AIDS, are at risk for developmental delays (Rossetti, 2001). The population of infants growing up in households were parents or caregivers have HIV and AIDS need to be targeted, as ECI services can provide support to the families and address communication delays or disorders in the infants or young children.
As infants with HIV and AIDS have multiple risk factors for communication disorders, the promotion of the development of speech and language, as well as of cognitive, social and emotional skills from an early age, is evident (Bam et al., 2003). Effective ECI for infants with HIV and AIDS may increase their potential for further development and education if they survive (Bam et al., 2003).

It is therefore appropriate to establish ECI in the HIV and AIDS programme for different times in a child's life, namely before birth, during the neonatal period, in the postnatal period, and in the toddler years, in order to address the infant's development in intervention accordingly. Health Monitoring and Evaluation differs from the other programmes as it monitors the other programmes and promotes research at PHC level. The possibility of the integration of ECI into this programme needs to be explored.

### 2.4.5 Health monitoring and evaluation and ECI

Health Monitoring and Evaluation is a programme (no 5 in Table 2.1) that may be relevant to ECI services. This programme monitors the entirety of PHC programmes and other major projects such as the annual HIV/syphilis survey, maternal mortality and termination of pregnancy. After the implementation of ECI, it should be monitored by means of surveillance, notifications and maintenance in the different PHC programmes in order to establish whether improvements have been made in ECI integrated in PHC service delivery.

Public surveys and regular visits to the clinics may provide valuable insight into the needs of the community and PHC personnel, as well as the successes and barriers in the implementation of ECI services. The health monitoring and evaluation programme will assist the integration of ECI in other programmes as the services can be monitored accordingly and recommendations can be made during quarterly reviews in the district. Monitoring the process of implementation of ECI will require regular meetings and audits. It is therefore essential to establish involvement between this programme and the speech-language therapists and audiologists. The integration of ECI in the Mental Health and Substance Abuse programme will be explored next.

### 2.4.6 Mental health and substance abuse and ECI

The mental health aspect of this PHC programme seeks to improve the mental health and social wellbeing of individuals and communities, which includes the promotion of mental health and preventative measures for mental disability (Department of Health, 2000). The substance abuse aspect of the programme aims to prevent and manage substance abuse, which includes reducing substance abuse in adolescents and alcohol-related motor vehicle accidents.

Similar to non-personal health services, the Mental Health and Substance Abuse programme (no 6 in Table 2.1) is another PHC programme where ECI could play a preventative role, as pregnant women must be made aware of the influences of alcohol and other substances on the unborn child. Providing information to communities may play an important role in the prevention of infants with Foetal Alcohol Spectrum disorder (FASD). FASD is the most common cause of unnecessary mental retardation in infants in the world, and South Africa has the highest recorded prevalence of the condition (Foetal Alcohol Syndrome Research Initiative University of Witwatersrand, 2006). When cases of FASD are suspected and diagnosed, ECI services will be commenced during the neonatal period, postnatal period and the toddler years. Parents as substance abusers are a complex population and may not necessarily respond to intervention (Foetal Alcohol Syndrome Research Initiative, 2006), which may influence the ECI services rendered to their infants and young children.

### 2.4.7 Gender issues and ECI

Gender issues entail addressing violence and sexual abuse experienced by patients, and close collaboration between the health sector, police department, social development and justice department are necessary (Van Rensburg, 2004). The integration of ECI by means of collaborative activities appears to be unnecessary within this programme as no common areas that need to be addressed are present.

### 2.4.8 School health services and ECI

The *Primary Health Care Package for South Africa- a set of norms and standards* (Department of Health, 2000) includes school health services in community-based clinic initiated services. School health is another possible area for ECI integration. School health services promote health by playing a coordinating role between the learners, communities, non-governmental organizations and educators, and therefore provide ample opportunity to educate the service providers on ECI services. The speech-language therapist would have the opportunity to facilitate a collaborative team approach, which will assist in the implementation of ECI services, such as the screening of hearing and communication development at preschools and crèches, as part of the school health programme. As there are currently no speech-language therapists and audiologists allocated to schools, the burden is on PHC and the entire health care system

to provide the services to pre-school and school children. The support provided by a collaborative approach between the school health nurses, speech-language therapists and audiologists may improve service delivery and may be more cost and time effective.

Although the focus of PHC is more on health-related issues, and less on the development of infants, the philosophy of EI is still compatible with the considerations for the PHC package (Department of Health, 1997; Van Rensburg, 2004). Both ECI and PHC focus on the prevention of diseases and disorders and aim to provide these services to all communities in South Africa.

Speech-language therapy and audiology as professions are experiencing the need to transform standards in order to improve the imbalanced rendering of services, correct the training programmes, and place the focus of research on the needs of the context (Kritzinger & Louw, 2003), in this case a rural area in South Africa. Table 2.2 provides a summary to the possible integration of ECI within the PHC programmes.

**Table 2.2 A summary of the PHC programmes in which ECI may be implemented**

| PHC Programmes | ECI integration possibilities |
|---|---|
| 1. Non-personal health services | • Promotion of ECI services by means of mass media strategies and oral presentations<br>• Raising awareness of normal communication development in infants |
| 2. Disease prevention and control | • Screening, assessment and intervention of infants and young children at risk for developmental delays or disorder<br>• Educating parents and caregivers on normal communication development, the importance of stimulation and early literacy skills |
| 3. Maternal, child and women's health | • Screening, assessment and intervention of infants and young children at risk for developmental |

| PHC Programmes | ECI integration possibilities |
|---|---|
| | delays or disorder<br>• Providing, information, training and support to parents or caregivers of infants at risk for developmental delays or disorders |
| 4. HIV and AIDS/ sexually transmitted infections and tuberculosis | • Supporting and educating parents or caregivers on paediatric HIV and AIDS.<br>• Identifying and providing continuous intervention to infants and young children with HIV and AIDS<br>• Establishing a team to work with infants and young children with HIV and AIDS |
| 5. Health monitoring and evaluation | • Monitor implementation of ECI collaborative activities<br>• Monitor case finding of infants and young children at risk for communication delay or disorders |
| 6. Mental health and substance abuse | • Providing information to public to prevent FASD<br>• Identifying and providing intervention to infants and young children with FASD |
| 7. Gender issues | • No implementation of ECI functions in this regard |
| 8. School health | • Identification of infants and young children in crèches and pre-schools with communication delays or disorders<br>• Advocating pre-literacy skills and communication stimulation at crèches and pre-schools. |

In Table 2.2 it is evident that multiple PHC programmes may be utilized in order to effectively implement ECI functions in rural communities. The current study aims to determine the feasibility of utilization of PHC programmes in the implementation of ECI functions on primary, secondary and tertiary prevention level. Figure 2.1 illustrates the possible integration of PHC programmes and ECI functions according to the different prevention levels.

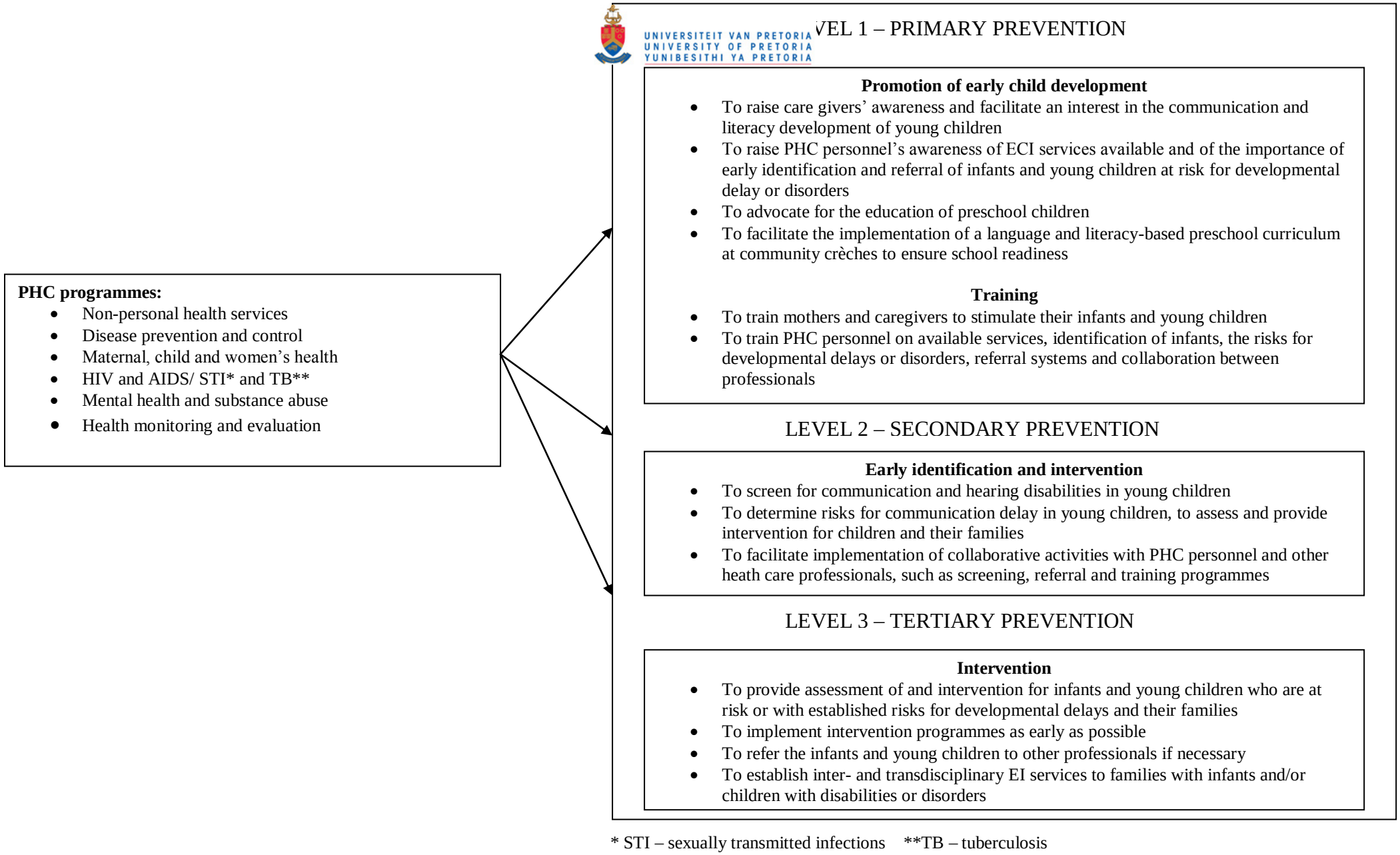



**Figure 2.1 ECI functions according to the levels of prevention in PHC (Fair & Louw, 1999; Feldman, 2004; Kritzinger & Louw, 2003)**

## 2.5 CONCLUSION

Integrating ECI services into the rural communities in South Africa has been explored in various studies (Fair & Louw, 1999; Kritzinger & Louw, 2003). The PHC context has been identified as a platform for the integration of ECI services (Fair & Louw, 1999). A transdisciplinary framework for public service delivery has been proposed by Kritzinger and Louw (2003), which may be successfully integrated into the PHC package. Integrating ECI services into six of the different PHC programmes would appear to be possible, and the wide-ranging ECI functions might improve service delivery in rural communities. Consequently case-finding may be improved of infants who are at risk for communication delays or communication disorders and appropriate ECI services may be rendered to them and their families at PHC facilities. The next step would be to investigate the perception of PHC personnel and PHC programme managers on the possible integration of ECI into the different PHC programmes.

## 2.6 SUMMARY

The importance of ECI in South Africa was discussed. A critical perspective was provided on the integration of ECI in the South African context. The PHC package was then described by looking at the considerations of the PHC package, the different programmes and what the package as a whole entails. An in-depth discussion of the integration of ECI into the PHC package followed in that each PHC programme was considered separately. It was concluded that the integration of ECI in the PHC package appears feasible, so that the PHC package can be used by early interventionists as a vehicle to reach rural communities effectively. The chapter provided the necessary theoretical basis so that the empirical study could be planned and executed.

# CHAPTER 3

# METHODOLOGY

**The aim of this chapter is to discuss how the research was conducted in order to best achieve the aims of the study.**

## 3.1 INTRODUCTION

The USA has always had a strong advocacy movement for children at risk for developmental delay (Guralnick, 2004). This advocacy tradition led to the development of neurobiologically based theories and data, which emphasized the importance of intervening in the first few years of life (Guralnick, 2004). Furthermore, the awareness of the significance of EI for children at risk or with established risks for developmental delay supported the introduction of legislation, which has led to a large number of early intervention programmes to be facilitated in every community in the USA (Guralnick, 2004).

In South Africa EI, including ECI, is not yet established in rural communities and consequently research needs in South Africa differs from those in the USA. In the past, first-generation research focused on determining the significance of *early* intervention for infants at risk or with developmental delays. Although there is a difference in the scope of research, South African researchers also focus on second-generation research, i.e. where the ECI practice – the how, where, when and to whom – can be established in the different communities. In South Africa researchers focus more on *establishing* ECI services in different communities, whereas the researchers in the USA seek ways to *improve* their ECI programmes within the different communities.

The primary goal of research is to improve one's understanding of a phenomenon (Leedy & Ormrod, 2005), and therefore the information produced by the research process should contribute to identifying problem areas and providing guidelines for identification and referral practices for ECI in the PHC context, which may influence

case finding in rural areas in South Africa. Furthermore, the information gathered through the research may support the facilitation of a transdisciplinary team approach to service delivery in ECI, where effective collaboration between the PHC nurses, speech-language therapists and audiologists, and PHC programme managers are established.

The main focus of second generation research in ECI is on specificity, where issues relevant to practice are addressed (Guralnick, 2004). In South Africa case finding in ECI in rural areas appears to be a significant challenge, which is influencing ECI practice. Since research is a process of collecting, analysing and interpreting data in order to better understand a phenomenon (Leedy & Ormrod, 2005), the investigation of practices used to identify and refer young children with communication disorders in the PHC context may lead to solutions that could improve case finding for ECI.

Consistent efforts by speech-language therapists and audiologists to improve management, research, service delivery to and training of the community and PHC personnel may ensure effective and accountable ECI service delivery for infants, toddlers and their families within the developing communities of South Africa (Fair & Louw, 1999). Effective collaboration will be possible when guidelines and support for the identification and referral of infants for ECI are established, as well as the integration of ECI in the PHC programmes by means of collaborative activities. In order to investigate existing identification and referral practices of infants in a specific rural health system, a carefully planned study was conducted.

## 3.2 AIMS

The following main aim and sub-aims were formulated for this study.

### 3.2.1 Main aim

To investigate the facilities and resources and to describe characteristics of identification methods and referral practices for ECI currently followed by PHC personnel, in order to determine the feasibility of implementation of ECI services within the PHC package in Ditsobotla sub-district.

### 3.2.2 Sub-aims

- To describe the features of the facilities in the PHC context in order to determine the capacity for implementing an early identification programme for infants with risks for disabilities.
- To describe the human resources available in the PHC context in order to determine the needs within the PHC context.
- To describe the early identification methods and resources currently used by the PHC personnel in order to detect health problems as well as developmental disabilities and delays in infants.
- To describe the referral systems, within both the inter- and intradepartmental and the inter-organizational networks, which are currently being used by PHC personnel for ECI services.
- To describe the PHC programme managers' views on how to implement an early identification and referral programme for infants with risks for disabilities and delays in an integrated PHC and ECI approach.

## 3.3 RESEARCH DESIGN

A study that aims to describe situations and events, where the researcher observes and then describes what has been observed, is descriptive in nature (Babbie, 2004; Leedy & Ormrod, 2005). Researchers usually do not only aim to describe the phenomenon but also to examine why the phenomenon exists and what the implications are (Babbie, 2004). Therefore, the careful description of identification and referral processes in the PHC context may bring to light new information which could be used to identify strengths and weaknesses for these processes. Consequently it appears that in order to achieve the aim of the study, the approaches to research need to be carefully combined.

Fouché and De Vos (2005) advocate the integration of research and practice, which includes the integration of quantitative and qualitative approaches. Although extensive social research was done over the years, very few improvements were made in social practice thus far, as the application of scientific findings to the scope of practice are insufficient (Fouché & De Vos, 2005). Research should therefore be

redirected, expanded and integrated (Fouché & De Vos, 2005) in order to attempt to bridge the gap between science and practice. In order to achieve research that is applicable in social practice, a combination of a quantitative and qualitative approach needs to be explored.

Although quantitative and qualitative methods are two different perspectives, they are inextricably entwined and therefore exist artificially when separated; consequently quantitative methods cannot exist without a qualitative knowledge of research conventions, theories, execution and analysis, and of creative ways to draw conclusions and make generalizations (Fouche & De Vos, 2005). Therefore the researcher always has to be aware of the complex relationship between the quantitative and qualitative approaches in order to be able to determine the appropriate research design for the study.

Many research studies are strengthened when a combination of a qualitative and a quantitative approach is used (Leedy & Ormrod, 2005). Therefore a dominant-less-dominant model was selected as the research design, which entails the inclusion of a quantitative approach, which is the dominant component, and a qualitative approach, which is a smaller or less-dominant component (Fouche & De Vos, 2005). The quantitative approach entails using a formalized approach and explicit control during data-collection (Fouche & De Vos, 2005), and therefore descriptive surveys and a rating scale were used in the current study.

In contrast, the qualitative approach produces descriptive data that cannot be reduced to figures, which is important in the current study where the understanding of a phenomenon is targeted on which little research has been conducted (De Vos, 2002; Fouché & Delport, 2002).

A combination of qualitative and quantitative evaluation methods provides a comprehensive view of human nature and social reality, which makes it possible to successfully describe a phenomenon in its full complexity. It would therefore be futile for the researcher to accept the one approach and reject the other approach entirely (Fouche & De Vos, 2005). The disadvantages of combining qualitative and quantitative research approaches include: the research is more time consuming,

greater resources are needed, and the researcher has to have the necessary expertise to be able to combine the approaches successfully (Leedy & Ormrod, 2005). Consequently the researcher consulted research experts in order to ascertain which combination of the approaches is applicable.

Data collection materials and procedures are constructed prior to the study and must be applied in a standardized manner. In this way the data analysis will be holistic, as all the relationships between elements and contexts have to be taken into account (Fouché & Delport, 2002). The research is cross-sectional as the processes are described once off, as perceived by the participants, and not over a period of time (Leedy & Ormrod, 2005). Since the research is cross-sectional it cannot be assumed that the findings are an accurate representation of the phenomenon over a period of time (Leedy & Ormrod, 2005), and this must therefore be taken into account when the phenomenon is described. The integrated use of qualitative and quantitative approaches during the research process is provided in Figure 3.1.

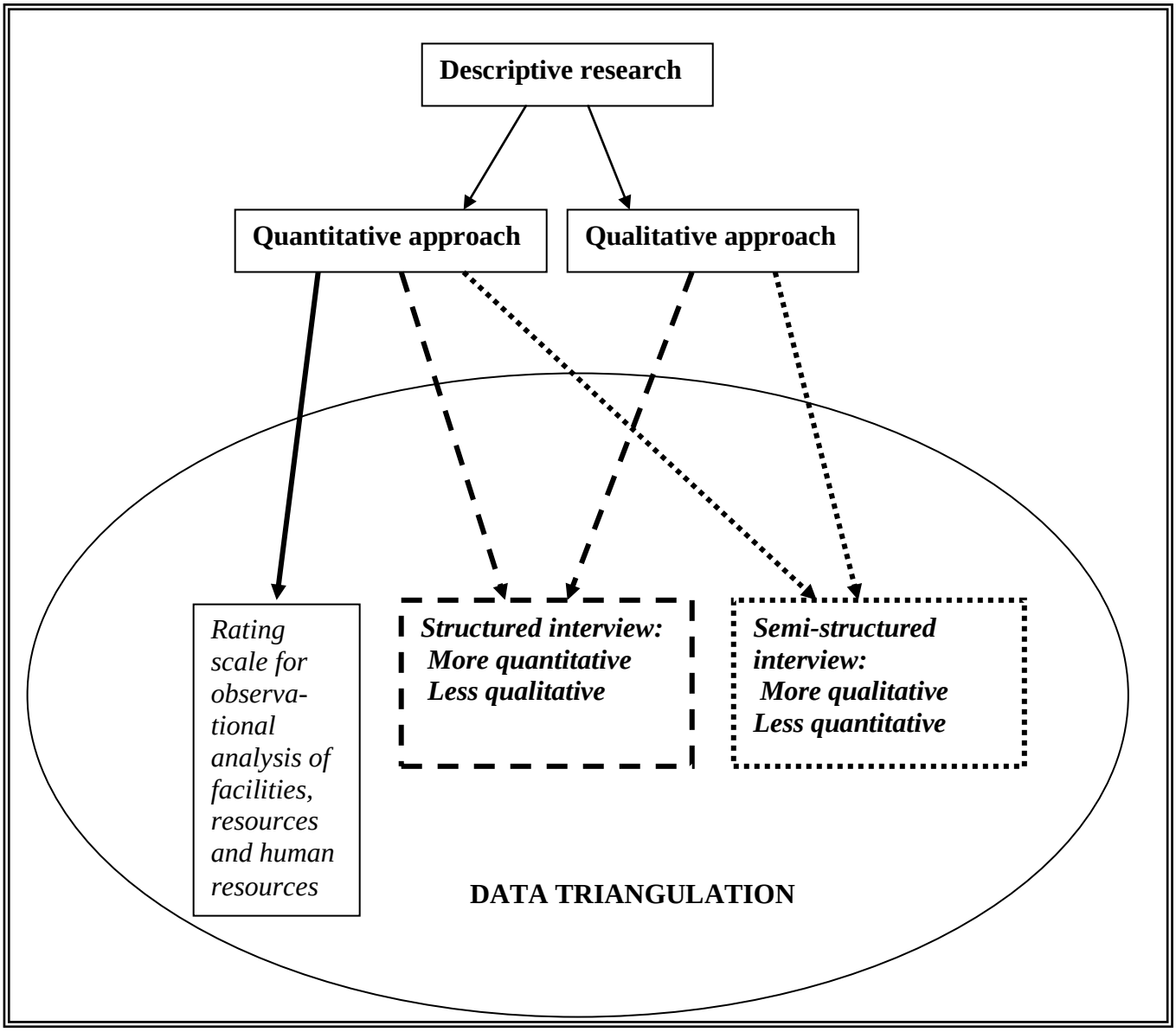



**Figure 3.1 The planned research study according to the dominant-less-dominant model of Creswell (Fouche & De Vos, 2005)**

The research methods, as seen in Figure 3.1, are discussed according to the sources used to obtain the results:

- A rating scale (Appendix E) was developed to describe the facilities, context and human resources at the PHC facilities. The features of the facilities, the human resources and the context were simplified and quantified by means of the rating scale (Leedy & Ormrod, 2005). Although valuable information may be lost when a rating scale is used (Leedy & Ormrod, 2005), in the current study the features of the facilities, context and human resources needed to be described as this was the

context in which the current identification methods and referral practices were used.

Descriptive surveys with a quantitative as well as qualitative component were used in the current study to gather information and to establish a thorough examination of a phenomenon and its implications, thus ultimately leading to an in-depth description of the phenomena (Fouché, 2005). The qualitative approach produced descriptive data that could not be reduced to figures, whereas the quantitative approach made numerical analysis of data possible. Descriptive surveys are one of the best ways to collect original data from respondents to describe a population too large to observe directly (Babbie, 2004; Leedy & Ormrod, 2005). The descriptive survey methods used in the current study include two face-to-face interviews:

- An interview schedule (Appendix F) was used to determine which identification and referral practices were used by PHC personnel.
- An interview schedule (Appendix G) was developed to investigate the views of the PHC programme managers on the implementation of identification methods and referral systems, as well as the integration of ECI and PHC programmes by means of collaborative activities.

A combined research approach was of great value when constructing interview schedules, as new viewpoints were produced (De Vos, 2005). Similar questions on the identification methods and referral practices were present in both interview schedules, so that the researcher could have confidence in the data that were obtained, as differences and similarities were determined between the responses of the two different groups of participants (De Vos, 2005).

The advantage of the dominant-less-dominant model is that it provides a consistent representation of the phenomenon and at the same time provides more detail on certain aspects of the study (De Vos, 2005). The identification methods and referral practices used in the PHC context were therefore not only described, but new information and different viewpoints were revealed.

To increase the reliability of the study, triangulation was used (De Vos, 2005). Triangulation is the result of the combination of qualitative and quantitative research approaches, and is based on the assumption that if a bias exists within a particular data source, investigator or method, it may be neutralized when it is used in combination with other data sources, investigators or methods (De Vos, 2005). In the current study both data triangulation, i.e. more than one data source – in this case the PHC personnel and the PHC programme managers, and methodological triangulation, i.e. multiple methods or approaches such as a rating scale and face-to-face interviews, were used (De Vos, 2005).

The main advantage of triangulation is the ability to describe a phenomenon from a new perspective as a result of using different methods of data collection (De Vos, 2005). Consequently, as a result of the triangulation, the results lead to an in-depth explanation of the research problem, and to the implications of the results (De Vos, 2005).

## 3.4 ETHICAL CONSIDERATIONS

As human beings are the objects of study in the social sciences, unique ethical problems become apparent that are not relevant in clinical laboratory settings of the natural sciences (Leedy & Ormrod, 2005). In the current study two groups of participants had to be interviewed by means of face-to-face interviews. The handling and recognition of ethical aspects are imperative, therefore, if successful research is the goal (Strydom, 2002). These aspects are pervasive and complex, since the data should never be obtained at the expense of human beings (Strydom, 2002). The researcher therefore has to look at the participants holistically in order to determine the complexity of, and the different aspects that need to be considered ethically. The researcher therefore planned and executed the research according to the following considerations:

- **Permission to conduct research**

  An internal review board aims to examine research proposals according to the rules and regulation of the institution (Leedy & Ormrod, 2005). Consequently the research proposal of the current study was firstly reviewed by the Research

Proposal and Ethics Committee of the Faculty of Humanities at the University of Pretoria. After permission was granted by the research committee, the proposal was submitted to the North West Department of Health, where it was reviewed and approved. Letters of approval were received from both committees (see Appendix A).

- **Voluntary participation**

  Often research represents an intrusion into people's lives. The study may require significant time and energy from the participant and can disrupt regular activities (Babbie, 2004). It is important to emphasize that participation is voluntary, and the participant gave his or her written consent before data collection. The information brochures (see Appendix B & C) contained all the relevant information so that the participants were able to make informed decisions about their participation.

- **No harm to the participants**

  Research should never harm the participants emotionally or otherwise, regardless of whether they volunteered for the study or not. When certain information is revealed that would embarrass the participants or endanger jobs, friendships and home life, it can be defined as harmful to the participants (Babbie, 2004). Positive and negative information was revealed with regard to the identification processes used for ECI, but by protecting the participants with confidentiality and anonymity their vocational status is not hampered. Information brochures were used to ensure that all the participants were aware of possible risks involved with the research project (Babbie, 2004) (see Appendix B & C). In the current study the participants were protected against risks by means of confidentiality of information, and therefore no harm could come to participants, which was so stated in the information brochure.

- **Confidentiality**

  In this research project confidentiality was guaranteed as the researcher could identify a given participant's response but promised not to do so publicly (Babbie, 2004). During the interviews, personal information was not discussed

and no personal information was made public in the final research report. Participant confidentiality was therefore maintained throughout the research project. The name of the sub-district where the research was conducted, was used, but data was used in such a way that information could not be traced to a certain employee working in the area.

- **A sensitive approach to cultural and language differences**

  Cultural and language differences are challenges posed by the South African context (Louw, 2005). The researcher's first language and culture differ from those of the participants. The participants were mainly from the same culture and mostly had the same first language. All the participants were professionals and proficient in English. Fortunately the researcher was familiar with the cultural context and she was known to the participants, as the researcher had worked with the participants within the PHC context in 2005. Furthermore, the researcher acted in a culturally sensitive manner throughout the study, in order to let the participants feel comfortable and to establish a relationship of trust. The researcher also used certain interview strategies to make sure that the interview situation was comfortable and that the participants did not feel pressured for answers (Babbie, 2004).

## 3.5 PARTICIPANTS

The importance of the participants and how they represent the population of PHC personnel in the Ditsobotla sub-district was taken into account because it influenced the reliability and validity of the results in the current study (Strydom & Venter, 2002). The target populations of the study were the PHC personnel who were working in Ditsobotla sub-district, as well as the programme managers of the PHC programmes. The criteria for the selection of participants, the selection procedure used and a description of the selected participants are discussed hereafter.

### 3.5.1 Criteria for the selection of participants

Two different groups of participants were selected in order to triangulate data and therefore provide more comprehensive results. The selection criteria were the same for both groups of participants, only the levels of employment differed. The

participants in Group 1 were PHC sisters or nurses, whereas the participants in Group 2 were PHC programme managers. The following criteria were established for the selection of participants:

- **Occupation**
  - Group 1- PHC sisters and nurses

    As one of the sub-aims of the study was to describe the referral systems used in the PHC context for referring patients to the speech-language therapist, the participants had to be PHC sisters and nurses working with infants in the hospitals or clinics. Sisters and nurses have early contact with high-risk infants and their mothers through the Maternal, Child and Women's health programme (Department of Health, 2000), and need to be able to identify infants in need of further intervention, and thus make the referrals to the speech-language therapist. The PHC sisters and nurses are the link between the public and health care services (Department of Health, 1997), and therefore they are also the entry level for infants and young children for ECI services. Many staff members may have little or no training, but need to be able to perform the basic services in the facilities, and should not undertake tasks in which they are not competent (Department of Health, 2000). Consequently the PHC sisters need to determine training needs of the personnel and arrange the appropriate training in the facilities (Department of Health, 2000). The PHC nurses usually perform basic health care functions, such as immunization, whereas the PHC sisters provide more comprehensive services in the rural clinics.

  - Group 2- Managers of PHC programmes

    The views of the programme managers on the implementation of an early identification and referral programme for infants with risks for developmental delay/ disorders are valuable for developing guidelines for the improvement of the identification process. The PHC programme managers work closely with the PHC sisters and nurses in the PHC facilities according to their PHC programmes, and many of the PHC programme managers have a nursing background. The PHC programme managers are responsible for the planning, implementation and monitoring of the PHC programmes, which

makes them experts in these functions and consequently may provide valuable information from a managerial perspective. The second participant group therefore consisted of the managers of some of the programmes. The managers usually have a professional background in nursing care in the PHC context.

- **Employer and work context**
  - Group 1- PHC sisters and nurses

    All the participants had to be employed as staff members of the Department of Health in North West Province. The study was limited to one sub-district in order to simplify the data collection procedure, as the physical distances between districts are substantial. The participants had to be working in the clinics or the two hospitals (primary health care centres) under the same management. It was important to collect data not only from the hospitals but from the clinics as well, as the information about the referral system might differ depending on the context. Although the hospitals and clinics in Ditsobotla sub-district are both primary health care facilities, their inter- and intradepartmental networks (i.e. services in the same facility) and their inter-organizational networks (i.e. services in other facilities) differ because certain services are available at the hospital through an intra-departmental network, while the same services are only available at the clinics through an inter-organizational network. An example of an interdepartmental network is when the PHC sisters in the clinics refer to the doctor at the clinic, whereas in the inter-organizational network the PHC sisters refer to the speech-language therapist at a provincial hospital. The differences between the network organizations in the PHC clinics and hospitals can be explained by way of the following example: dieticians and physiotherapists are regularly available at the hospital, but not at the clinics; thus the type of network (inter-departmental versus inter-organizational) that is used to refer patients differs in the clinics and hospitals.

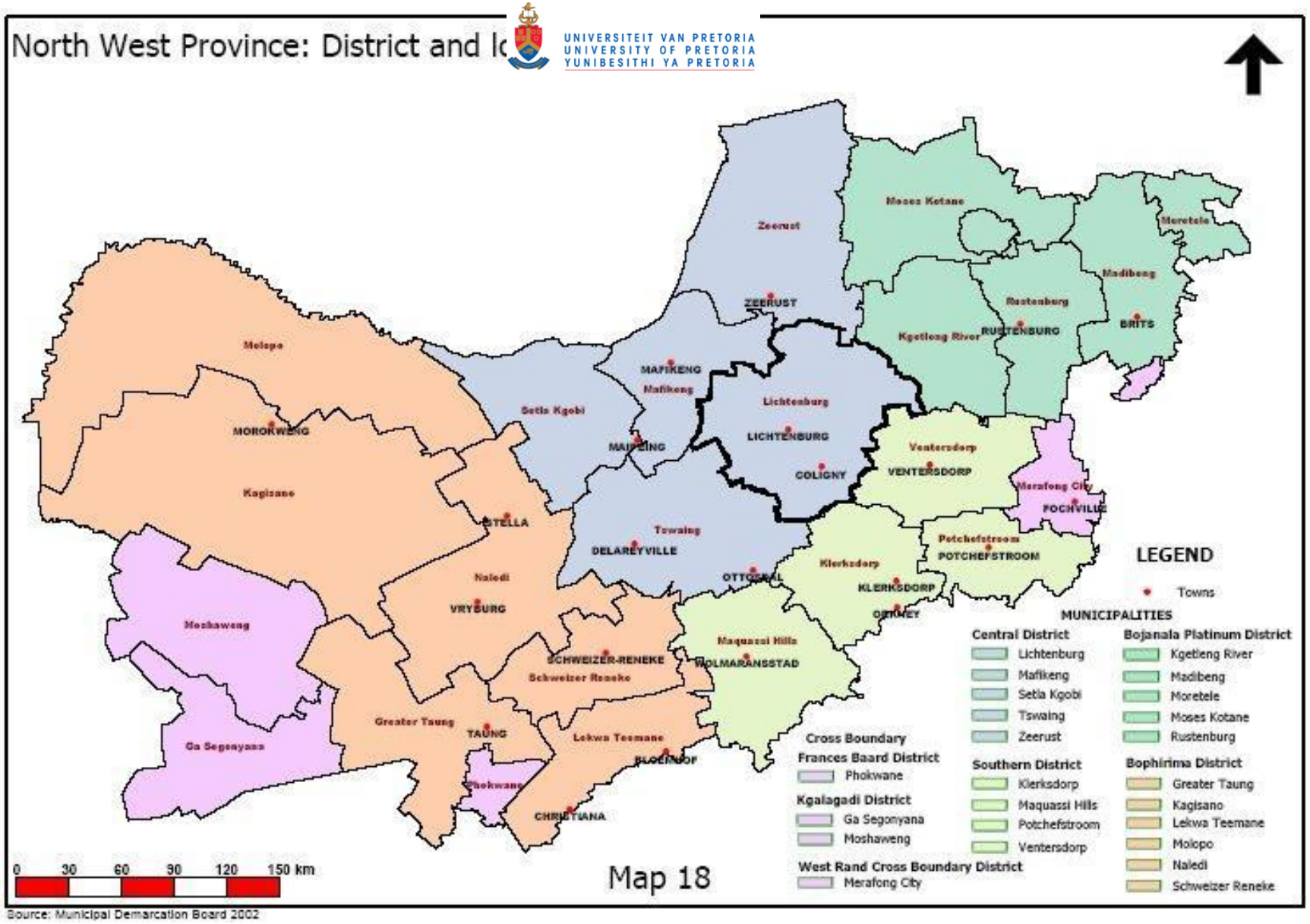
  - Group 2- Managers of PHC programmes

    All the participants had to be employed by the North West Department of Health and be in a managerial position for the PHC programmes, under the

direct management of the assistant director for community health services in Ditsobotla sub-district. These participants have experience with the implementation of programmes and could therefore provide important information for the development of guidelines for the early identification process. Many of the PHC programme managers had a basic nursing qualification and nursing experience in the PHC context, whereas a few of the PHC programme managers had a degree in nutrition or occupational therapy in Ditsobotla sub-district. The PHC programme managers therefore had extensive experience as a result of their previous employment status. The managerial perspective regarding the identification methods and referral practices could provide new insights as to what the strengths and limitations are and what should be done to improve service delivery.

- **Geographical area**

  All the participants had to be staff members in the Ditsobotla sub-district. By limiting the study to one sub-district, the distance between PHC centres where data was collected was decreased and travelling between these centres was possible. As each sub-district has its own guidelines for referral, the study was limited to one sub-district only. Ditsobotla sub-district, previously named Lichtenburg and still indicated as such on the map, sub-district is part of the central district in the North West Province (as seen in Figure 3.2).



Source: Municipal Demarcation Board 2002

**Figure 3.2 The districts and municipalities of North West Province (nwpg.gov.za/soer/fullreport/displaymap.asp?mapno=18)**

Speech-language therapy services were rendered at PHC clinics and hospitals during 2005, where the speech-language therapist/ audiologist travelled to the facility on fixed dates. The speech-language therapist/audiologist experienced disappointingly few referrals, despite the high prevalence of risk factors among infants in the sub-district (see statistics in Chapter 1). Furthermore the fact that the study was limited to one sub-district made it possible to obtain in-depth views from the participants and thus establish a comprehensive description of the identification methods and referral practices.

- **Language proficiency**

  The participants were required to understand spoken and written English, as the interviews were compiled and conducted in English. Language proficiency was not problematic as the participants received their training in English.

- **Informed consent**

  The participants of both groups had to sign a consent form after reading their information leaflets, giving permission to voluntary participate in the study.

### 3.5.2 Selection of participants

Stratified random sampling was used to obtain the participants in Group 1 (Strydom & Venter, 2002). Stratifications entail that the specific population is divided in strata, which are homogeneous with regard to some characteristics (Strydom & Venter, 2002). The entire PHC personnel of Ditsobotla sub-district were divided into two strata according to the size of the PHC facilities: all the clinics operating for 8 hours and 10 hours per day were part of stratum 1, while all the PHC hospitals and 24-hour clinics were part of stratum 2. The selection within the strata was random (Strydom & Venter, 2002) as the researcher randomly selected the facilities to be visited in each stratum. The facilities to be visited were drawn from a hat, by an individual not related to the study in any way. Consequently the random selection entails that each potential participant had an equal opportunity to have been selected as a participant in the study (Leedy & Ormrod, 2005). Thereafter, the facility managers of the selected facilities assisted the researcher in the selection of the participants at their respective facilities. Each potential participant received an information brochure on the current

research project. When the PHC personnel indicated that they would participate in the study, the informed consent letter was signed.

In Group 2 all the programme managers of Ditsobotla sub-district who complied with the selection criteria received information brochures and were asked to participate, as in this case the number of possible participants was limited. Thus non-random purposive sampling was used since a group of participants to represent the population did not have to be identified (Leedy & Ormrod, 2005), as all the PHC programme managers were asked to participate in the study. Those who agreed to participate signed the informed consent letter in the presence of a witness.

### 3.5.3 Description of the participants

- **Description of participants in Group 1**

  Approximately one third of the PHC personnel in the entire sub-district were included in the study, and each stratum was equally represented. Stratum 1 comprised clinics operating 8 hours and 10 hours per day, which represented the small PHC facilities in Ditsobotla sub-district. Stratum 2 represented the large facilities in Ditsobotla sub-district, namely the PHC hospitals and the 24-hour clinics. The characteristics of the participants are provided in Table 3.1.

**Table 3.1 Characteristics of the participants in Group 1 (n=20)**

| Characteristic | Strata 1 (n=10) | Strata 2 (n=10) |
|---|---|---|
| Qualification | B.Cur Degree: 2<br>Diploma: 6<br>No formal training: 2 | B.Cur Degree: 3<br>Diploma: 6<br>No formal training: 1 |
| Years of experience | 4 years – 25 years<br>Average: 12,5 years | 1 years – 26 years<br>Average: 8,4 years |
| First language | Setswana: 10 | Setswana: 9<br>Afrikaans: 1 |
| Employment status | Full-time: 10 | Full-time: 10 |
| Type of facility where employed | 8-hour clinic: 7<br>12-hour clinic: 3 | PHC hospital: 2<br>24-hour clinic: 8 |

According to Table 3.1 few differences in the characteristics of the participants in the two strata are evident. The majority (12 participants) have nursing diplomas. Only 5 participants had B.Cur degrees, whereas 3 participants received no formal training. The participants with the diplomas and B.Cur degrees are registered

with the South African nursing council, whereas the participants with no formal training cannot be registered with this council. The PHC personnel who received no formal training were working as PHC nurse or assistant nurse, performing basic health care functions such as measuring blood pressure, while the PHC sisters are consulted when a more complex condition or a disorder is identified.

All the participants were working on a full-time basis, resulting in the PHC personnel knowing their community and having a better understanding of the strengths and limitations experienced in the PHC context. The years of experience varied widely; the averages of strata 1 and 2 varied between 8 and 13 years, while differing by more than 4 years. The averages therefore indicate that the PHC personnel had ample experience, which improve their knowledge and may support the researcher in determining what is needed to improve case finding in South Africa.

The qualifications and years of experience appear to be denominators when employing PHC personnel. A further analysis of the participants' qualifications was done, to describe the distribution of qualifications between the two strata. The qualifications of the participants are shown in Figure 3.3.

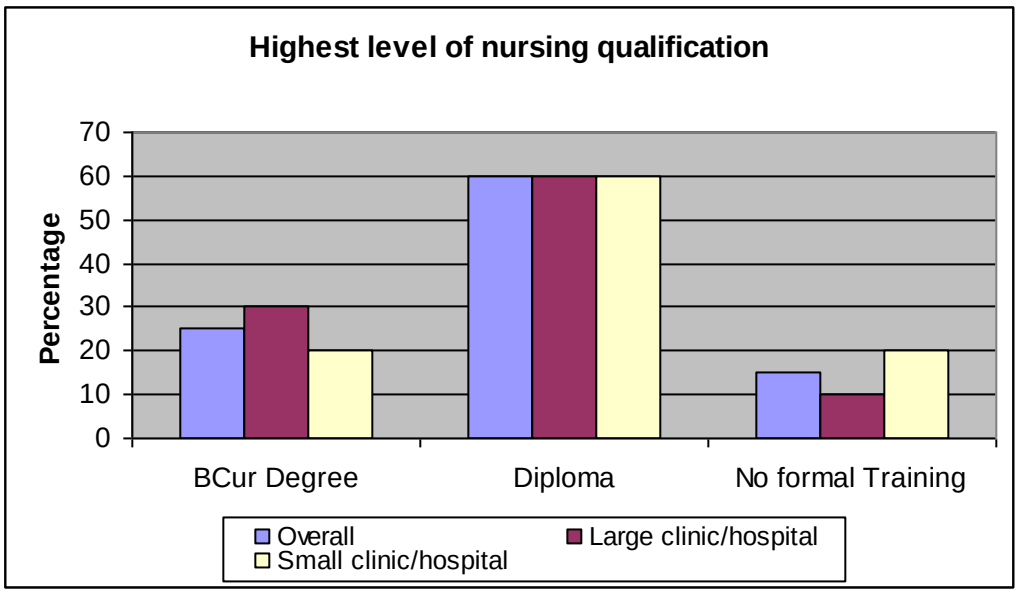



**Figure 3.3 The level of qualification of the participants in Group 1(n=20)**

According to Figure 3.3 a fairly equal distribution of the qualifications between the 2 strata is evident. It appears that the years of experience was significantly more with the participants from strata 1, i.e. the small facilities, than with the participants in strata 2. Although the participants with ample experience know their context well, they may not know the PHC package (Department of Health, 2000) well, as the PHC package was only implemented since 1994.

- **Description of participants in Group 2**

  The number of the participants in Group 2 was smaller than Group 1. A total of 12 PHC programme managers are working in Ditsobotla sub-district. All 12 PHC programme managers were asked to participate, and a pilot study was conducted with one of the programme managers prior to the data collection. That left eleven PHC programme managers, eight of which participated in the research. (The other potential participants were either on leave or were attending a course.) The participants in Group 2 therefore represented more than two thirds of the total of the PHC programme managers. The characteristics of the participants are provided in Table 3.2.

**Table 3.2 Characteristics of the participants in Group 2 (n=8)**

| Participant number | Qualification | Experience in programme managing | Facilities visited by PHC programme managers | First language | Employment status | PHC programme managed |
|---|---|---|---|---|---|---|
| 1 | Basic nursing diploma with additional diplomas | 8 years | Hospitals, clinics and frail care centres | Afrikaans | Full-time | Geriatrics, chronic diseases and rehabilitation |
| 2 | B.Cur degree | 4 years | Clinics | Setswana | Full-time | Nutrition |
| 3 | Basic nursing diploma with additional diplomas | 10 years | Hospitals, clinics and prisons | Setswana | Full-time | Communicable diseases |
| 4 | B.Cur degree | 2 years | Hospitals and clinics | Setswana | Full-time | Occupational therapy |
| 5 | No formal training | 1 year | Hospitals, clinics, hospices and schools | Setswana | Full-time | Health promotion |
| 6 | Postgraduate degree (master's degree in nutrition) | 2 years | Clinics | Afrikaans | Full-time | Nutrition |
| 7 | Basic nursing diploma | 2 years | Primary schools | Setswana | Full-time | School health |
| 8 | Basic nursing diploma | 3 years | Hospitals, schools, clinics, crèches, business premises | Setswana | Full-time | Environmental health |
| **Summary of characteristics** | **Masters: 1<br>BCur degree: 2<br>Nursing diploma & additional diplomas: 2<br>Nursing diploma: 2<br>No formal training: 1** | **Range: 1-10<br>Average: 4** | **Facilities:<br>- Hospitals<br>- Clinics<br>- Frail care centres<br>- Prisons<br>- Hospices<br>- Schools<br>- Crèches<br>- Business premises** | **Setswana: 6<br>Afrikaans: 2** | **All participants are employed full-time** | **Entire PHC package not covered by the participants (Maternal, child & women's health, mental health & HIV & AIDS are not included)** |

According to Table 3.2 the participants were well qualified; half of them had basic nursing diplomas and three PHC programme managers had degrees. Two PHC programme managers had ten years experience, while all the other PHC programme mangers had four years or less experience as PHC programme managers. In contrast with Group 1, the PHC programme managers had less experience in their managing status than Group 1 in their clinic work. Their limited experience as programme managers may be due to the fact that the initial implementation of these PHC programmes only commenced in 1996-1997. The whole PHC package was not represented by the participants, consequently this need to be taken into account during the analysis and interpretation of the results.

Various facilities were being visited by the participants, such as business premises – to determine health risks for workers under the environmental health programme, and frail care centres – under the geriatrics and chronic diseases programme – to assist the elderly with their health needs. The array of facilities visited by the PHC programme managers represents a significant network, which could be utilized to improve case finding in ECI. Conclusively, it appears that comprehensive PHC services are being provided in Ditsobotla sub-district.

## 3.6 MATERIAL AND APPARATUS

The following material and apparatus were used for data collection.

### 3.6.1 Material

- **Summated rating scale for environmental analysis**

  The overall intent of an environmental analysis was to position the hospitals and clinics within their environment (Ginter, Swayne & Duncan, 1998). It was important to view the PHC facilities within the context of the immediate environment and to determine whether the needs of the community were met, in order to investigate certain constraints and barriers as well as resources available to implement a successful early identification programme for infants at risk for and with disabilities.

  Summated rating scales are widely used for the description of environments where the phenomenon has to be evaluated on the continuum of, for example, excellent to inadequate (Leedy & Ormrod, 2005). A summated rating scale contains multiple items presented in statements, which can be measured quantitatively and which have no "right" or "wrong" answer (Leedy & Ormrod, 2005). In the current study the continuum adequate and good as well as limited, enough and spacious were used to rate the features of the facilities, context and human resources in the PHC context.

  In order to understand the identification methods and referral systems used for infants at risk of communication delays or disorders, the needs of the community with regard to services and finances have to be taken into account. Furthermore

the PHC context may have an effect on the effectiveness of the identification process. Important information had to be collected on the features of the facilities, human resources and other resources available. These characteristics were broad in scope and could not be assessed in one question. Owing to the complexity of the items, it was necessary to use several items in the summated rating scale to simplify and quantify the features (Leedy & Ormrod, 2005).

The rating scale was therefore processed in a numerical format and analysed accordingly, and the data was obtained systematically and in a standardized manner (Fouché & Delport, 2002). The rating scale was the important quantitative measure, and the researcher was the objective observer who filled in the rating scale (Fouché & Delport, 2002).

Structure of the rating scale:

The rating scale consisted of 7 evaluation areas, with a total of 13 items to be rated. A 3-point rating scale was used, with the following options: limited, adequate, good. Additional comments could be included at each item. (see Appendix E.) The content of the rating scale was developed to include aspects of the first three sub-aims of the study.

Content of the rating scale:

The number of PHC personnel in the clinic as well the weekly visits of other professionals to the clinic was included in the rating scale, which represented the human resources available at the PHC facilities. Seven evaluation areas were identified to evaluate the physical contexts and the services provided at the clinics and hospitals, namely:

- Water supply
- Electricity
- Average number of infants treated by a sister on a daily basis
- Developmental screening, with the help of toys and developmental rating scales
- Educational atmosphere in waiting rooms created by posters and brochures available to patients, and comfortable waiting area for the patients

- General appearance of the consulting rooms, including space for confidential interviews with mothers, suitable desk and chairs for PHC personnel, secure medicine cabinets, and the educational atmosphere created by posters and brochures on general health and the development of infants
- General appearance of the reception area, including secure filing cabinets to ensure confidentiality of patient files. If a well functioning filing system exists, it may be utilized for ECI services as well.

The rating scale provided not only the background for the study, but also relevant data which could point to causes of strengths and weaknesses in the identification methods and referral systems. These strengths and weaknesses need to be taken into account when the results are interpreted and discussed.

- **Face-to-face interviews by means of a structured interview schedule**

Interviews are described by Babbie (2004:263) as "a data-collection encounter in which one person (an interviewer) asks questions of another (a respondent)".

One of the advantages identified for using face-to-face interviews instead of questionnaires, is that higher response rates are attained with interviews than with mail surveys (Leedy & Ormrod, 2005). With a properly designed and executed interview survey, the completion rate is usually at least 80 to 85 percent (Babbie, 2004). Since the participants in the current study were within a certain geographical area, the researcher was able to collect data through interviews, which also ensured that the researcher had enough participants. During the interviews neutral answers such as "don't know" occurred less frequent than would have been the case with questionnaires. This could be due to the fact that the interviewer was able to probe for answers and to clarify vague answers by requesting follow-up information (Leedy & Ormrod, 2005). The interviewer was able to assist participants when the question was misunderstood, by clarifying matters. Clarifications had to be strictly controlled through formal specifications (Babbie, 2004) so that the interviewer was not leading the participants to a certain answer, which could have compromised the reliability of the data. The interviewer was also able to observe participants and to ask the questions. This

was important as it provided information on the participant's reactions to the study (Babbie, 2004).

Interviewers put questions to participants in order to obtain data for analysis and interpretation (Babbie, 2004), consequently guidelines were considered to assist the researcher in the development of the questions in order to elicit the appropriate data for the current study. The following guidelines described by Babbie (2004) were taken into consideration: Even though the researcher was careful to select the appropriate question forms, she was able to integrate both open- and closed-ended questions as a combined, i.e. qualitative and quantitative, research approach was used. Furthermore, the researcher was careful not to use negative or biased items as this could have influenced the reliability and validity of the results. The researcher used short and clear questions during the interview (Leedy & Ormrod, 2005), in order to avoid the use of profession-specific terminology and to make the PHC sisters and nurses as well as the PHC programme managers comfortable throughout the interviews. When the focus of the study is to investigate a process, in this case the identification process, structured interviews are especially suitable (Greeff, 2002).

***Structure of interview schedule for Group 1***

The structured interview schedule consisted of four sections with a total of 28 questions (See Appendix F). The interview schedule included aspects of sub-aims 2, 3, 4 and 5. Each section of the schedule included a different aspect in order to describe the nature of the process and how teamwork contributes to it:

- General information about the participant's education and employment history.
- Identification methods used by participants to identify infants with developmental disorders or infants at risk for developmental delay.
- The referral process used by participants to refer infants with developmental disorders or infants at risk for developmental delay.
- The nature of teamwork.

***Format of structured interview schedule for Group 1***

This interview schedule comprised a combination of the quantitative and qualitative approach, and therefore closed- and open-ended questions were included. The combination of a quantitative and qualitative approach provided a comprehensive view of all the dimensions of the identification methods and referral practices, as well as unique and different viewpoints (De Vos, 2005).

Structured closed-ended questions were used in combination with open-ended questions, as the completion of these questions is less time-consuming (Frazer & Lawley, 2000; Moodley et al., 2000). A great advantage of closed-ended questions is that coding is possible, which makes the scoring and analysis of the data easier (Babbie, 2004). A disadvantage of closed questions is the possibility that participants may guess the answers correctly, that misinterpretation of the questions may go unnoticed, and that there is a greater likelihood that the choice options may not represent what the participants would want to answer (Frazer & Lawley, 2000; Robertson, 2003). As the research approach has a qualitative component, open-ended questions were included to allow the participants to give their opinions and views on the current identification methods and referral systems used in the Ditsobotla sub-district, and therefore accurate and reliable results could be established.

Open-ended questions provide the opportunity to answer questions freely and to provide additional information, but can be time-consuming and difficult to analyse (Robertson, 2003). In terms of the research design the open-ended questions were limited in the interview schedule, which made the analysis of the data less time consuming.

***Content of structured interview schedule for Group 1***

The content of the structured interview was as described in Table 3.3.

**Table 3.3 Content of structured interview for Group 1**

| SECTION | THEMES | JUSTIFICATION FOR INCLUSION OF THEMES AND ITEMS |
|---|---|---|
| **A** | **Biographical data**<br>○ Level of qualification<br>○ Experience with infants in PHC<br>○ Employment status<br>○ Location of employment | **Biographical data of the participants in Group 1 may influence the identification methods and referral practices used by PHC sisters or nurses.** It was necessary to determine whether the nurses were qualified with degrees or diplomas (Moodley, 1999), if they were working in PHC hospitals or clinics, what their employment status was and their years of experience in the PHC context. |
| **B** | **Identification methods for ECI:**<br>○ Identification methods used<br>○ Effectiveness of methods and reasons<br>○ Professionals responsible for identification of infants<br>○ Participants' perception of their ability to screen infants and their reasons<br>○ Participants' perception of number of infants screened and their reasons<br>○ Participants' perception of parents' knowledge of infant development and their reasons<br>○ Participants' perception on universal screening for communication disorders<br>○ Stages at which screening for communication disorders will be appropriate/inappropriate<br>○ Participants' perception of how early infants at risk for communication delay can be identified<br>○ Participants' perception of the incidence of communication disorders | Many families and children do not have access to health care services, due to limitations in the health care systems (Msall et al., 2006); therefore **the nature of limitations in the identification methods needs to be determined.**<br>Identification of infants at risk needs to be as early as possible (Fair & Louw, 1999).<br>**PHC personnel may act as the platform from which ECI services can be provided** to all communities (Fair & Louw, 1999).<br>**Linguistic and cultural constraints exist in the diverse South African context** (Pickering et al., 1998) but PHC personnel focus on reaching the families and communities, which improves these constraints (Moodley et al., 2000).<br>PHC nurses need to feel confident in their knowledge of criteria in the screening tests, since this will influence the appropriate identification of at-risk children (Moodley et al., 2000; Rossetti, 1996). PHC contexts such as **maternal and child health clinics** were identified as suitable contexts for the screening of hearing loss in infants (Swanepoel et al., 2005). **Collaboration with the Maternal, child and Women's Health programme** may provide suitable context for screening of communication and hearing abilities (see Figure 2.2)<br>**Parents are a highly valuable source** of information on their infant's communication (Rossetti, 2001).<br>Many infants at risk for communication delay **can be identified from birth onwards** with the detection of risk factors presented by the infant (Rossetti, 2001).<br>Delayed communication development is the **most common developmental disability** in children under 3 years of age (Rossetti, 2001). |

| SECTION | THEMES | JUSTIFICATION FOR INCLUSION OF THEMES AND ITEMS |
|---|---|---|
| **C** | **Referral practices for ECI**<br>○ Referral process currently used for ECI<br>○ Participants' perception of effectiveness of referral process, and their reason<br>○ Recommendations for referral process<br>○ Feedback information from professionals<br>○ Time delays in referral process, reasons | After identification infants and young children need to be guided to ECI services (Fair & Louw, 1999), by means of an effective referral system **to decrease time lapse between identification and treatment**.<br>According to research **very few clinics receive back-referral information**, which leads to vital information being lost between levels of referral (Equity project, 2000; Kolapan, 2004).<br>Because the effectiveness of ECI and the age of identification are consistently linked (Rossetti, 2001), it is evident that **time delays may influence intervention** in a drastic manner. |
| **D** | **Teamwork in ECI**<br>○ Professionals currently working in the district<br>○ Participants' perception of the influence of teamwork on service delivery, reasons<br>○ Participants' perception of professionals needed in team that works with infants and young children<br>○ Participants' perception of service delivery level at which teamwork should occur<br>○ Efficiency of current teamwork<br>○ Recommendations to improve teamwork | This was asked to determine **which health care professionals are working in the PHC context**. This is important as it will influence referral and collaboration between health care professionals and how speech-language therapists and audiologists may play a role in the team.<br>Working in a **transdisciplinary team** will potentially contribute to EI services delivery in South Africa (Fair & Louw, 1999).<br>A transdisciplinary team approach is essential **to increase the accessibility of hearing screening services** (Swanepoel et al., 2005) as well as other ECI services.<br>**Collaboration** at different levels of the health care system is possible through a transdisciplinary team approach (Moodley et al., 2000).<br>**Collaborative partnerships** strengthened by consistent service delivery, open-channel communication and respect, facilitated effective infant hearing screening at two clinics (Swanepoel et al., 2005). |

- **Face-to-face interviews on the implementation of an early identification programme with the participants in Group 2**

  A second set of individual interviews with the participants in Group 2 was necessary in order to triangulate data, which brought different views on the current identification methods, referral systems and teamwork to the fore and therefore led to accurate descriptions of the same aspects. Semi-structured interviews are generally used to gain a detailed picture of the views of the participant on a specific topic, and differ from structured interviews as the researcher and participant may be much more flexible and the schedule exists as a guideline for the interview (Greeff, 2005). Since the current identification methods and referral systems as well as teamwork need to be described, the

participants had to have ample opportunity to provide their insights and suggestions, which was made possible by the use of semi-structured interviews.

The participants are managers and therefore experts on the subject and should be allowed maximum opportunity to give their input; consequently the interview schedule consisted mostly of open-ended questions (Greeff, 2005). This instrument is qualitative in nature, which should provide rich data about the participants' views on the implementation of an early identification programme for infants at risk for developmental delay/disorders. The semi-structured interview schedule was compiled after the interviews with the participants in Group 1. Findings that needed to be clarified or discussed further were included in the semi-structured interview for Group 2.

***Structure of semi-structured interview for Group 2***

The semi-structured interview comprised three sections with a total of 19 questions (See Appendix G). The interview schedule includes aspects of sub-aims 3, 4 and 5. The layout of the semi-structured interview included the following aspects:

- Providing reasons why topics were discussed before the interview was started
- Biographical information
- Identification methods and referral systems used for ECI services in Ditsobotla sub-district
- Teamwork through collaborative activities to integrate ECI in the PHC package

The semi-structured interview served the purpose of data triangulation, as another source was used to obtain a different perspective and/or similar information on the same topics.

***Format of semi-structured interview for Group 2***

The interview schedule was used to engage the participant and to designate the narrative terrain (Greeff, 2005). The researcher thus used the interview schedule as a guideline to ensure that all the areas to be discussed were covered during the interview. When drawing up the semi-structured interview schedule the

researcher had to think about what precisely the interview had to cover and anticipate possible difficulties that may be encountered (Leedy & Ormrod, 2005).

The areas of discussion had to be arranged in the most appropriate sequence. Greeff (2005) identified two questions that helped with the sequencing of the questions:

- What is the most logical order to address the areas?
- Which is the most sensitive area?

With the latter the sensitive area was addressed later in the semi-structured interview (Greeff, 2005). The questions were arranged from simple to complex and broad to more specific, which allowed the participants to become familiar with the pattern of the interview schedule (Babbie, 2004; Greeff, 2005).

Questions were limited to a few and were kept neutral. Jargon was limited in order to eliminate confusion (Greeff, 2005) and difficult topics were discussed prior to the interview. Not only did the participants feel more at ease with the terminology, but they were more relaxed as a result of the discussion prior to the interview. Open-ended questions were mostly asked so as to allow the participants to express themselves freely, and questions were focused so as to ensure that the data provided the required information (Greeff, 2005; Leedy & Ormrod, 2005). In contrast with the structured interviews, the semi-structured interviews consisted of more open-ended questions, which was necessary in order that the researcher could tap into the participants' experience and insight as managers.

Funnelling was used to get the participants' general views as well as their responses on more specific issues (Greeff, 2005). Funnelling is a technique where a broad line of questioning is "funnelled" into more specific lines of questioning. The researcher started, for instance, by asking whether the current identification methods are successful, and gradually moved to different aspects of the identification methods – such as the material used and the professionals responsible for identifying infants at risk for communication delay or disorders. This technique thus reinforces the same principles of the dominant-less-dominant

model. Funnelling made it possible to include a qualitative as well as quantitative approach in the semi-structured interview, although a few closed-ended questions were included alongside the open-ended ones (Greeff, 2005). Although funnelling is a specialized technique, the researcher practiced during the pilot of this interview and was therefore familiar with her research aims and context.

***Content of semi-structured interview for Group 2***

The questions were designed after having conducted a focused literature study, which helped the researcher to understand the construct at hand and to know which questions had to be asked to cover the construct (Babbie, 2004; Greeff, 2005). A preliminary framework for the integration of ECI in the PHC package (Figure 3.3) was outlined, based on the theory discussed in Chapter 2 and the results of phase 1 (interviews with participants in Group 1). The aim of the preliminary framework was to guide the researcher in determining the content of the semi-structured interviews for Group 2.

The preliminary framework and first draft of the semi-structured interview were discussed with the study leaders and recommendations were provided. The researcher altered the semi-structured interview schedule according to the recommendations, and after a few drafts the schedule was refined and ready to be pilot tested.

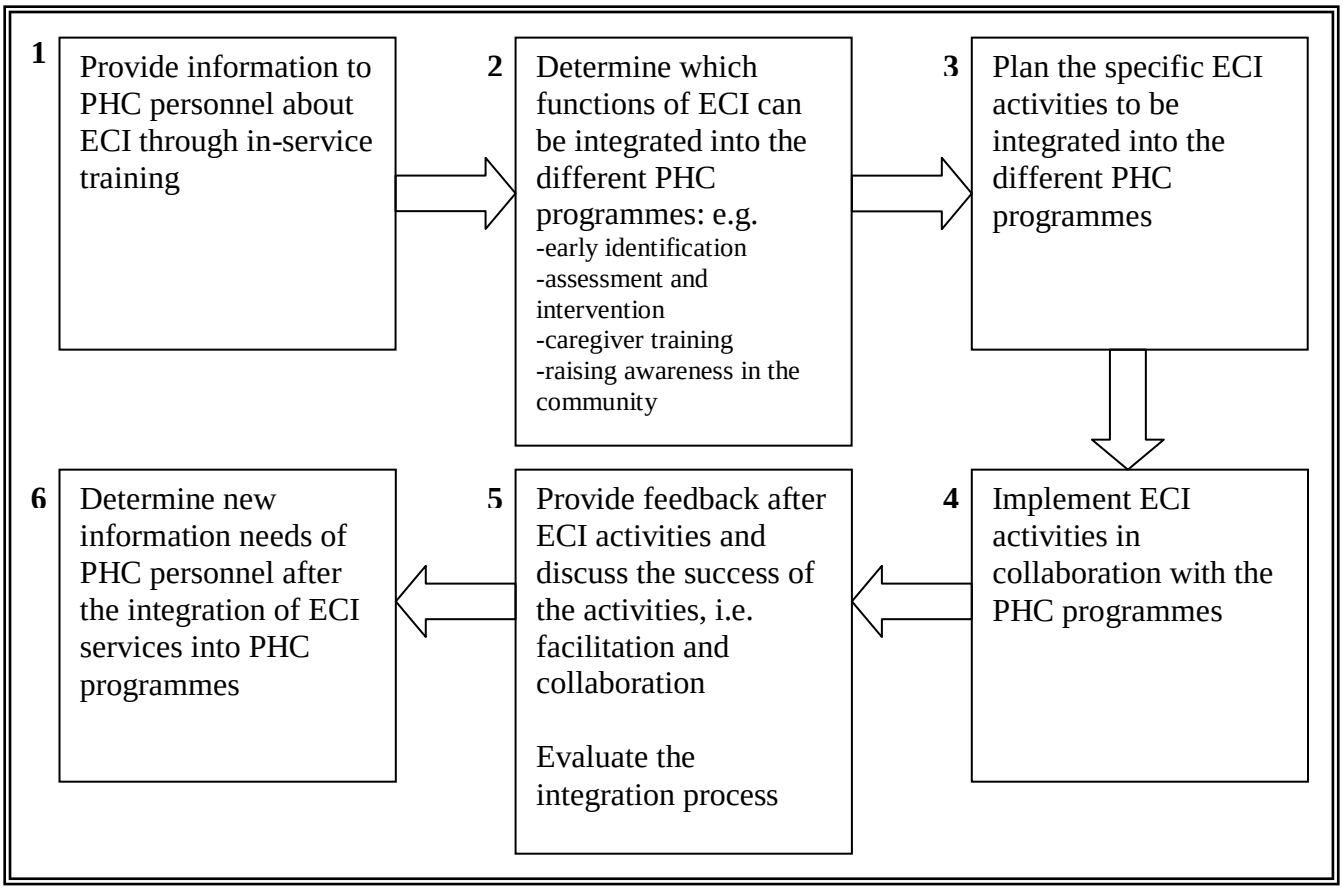



**Figure 3.4 A preliminary framework for the integration process of ECI into the PHC package used for determining questions for the semi-structured interviews.**

The questions were outlined according to the sequence of the process identified in the preliminary framework. As noted in the discussion on the semi-structured interview, the sequence of questions facilitated the participants' familiarity with the pattern of the interview schedule. Improved familiarity of the participants with the line of questions was due to the logical flow of the questions determined by the preliminary framework.

The following two topics were discussed with all the participants prior to the semi-structured interviews in order to explain the terminology used, which also served as justification for the necessity of the interview:

- A brief definition of ECI
- The importance of ECI and the difficulty of case finding in rural areas (Moodley et al., 2000)

The discussion was brief and the information provided was compiled from research findings of recent studies. The topics were outlined and presented in a

neutral fashion, which prevented leading of the participants (Greeff, 2005) and therefore contributed to the reliability of results.

Before each section in the interview schedule a brief explanation was provided. The researcher was specifically careful, during the construction of Section C, to assure the participants that the sub-aim of the research was to determine how ECI might be integrated through collaboration with other PHC programmes, instead of shifting responsibilities and creating more work for them. A brief outline of the contents of the semi-structured interview is provided in Table 3.4.

**Table 3.4 Brief outline of content of semi-structured interview for Group 2**

| Section | Themes | Justification for inclusion |
|---|---|---|
| **A** | **Biographical data**<br>○ Level of qualification<br>○ Experience as a PHC programme manager<br>○ Employment status<br>○ Facilities visited<br>○ PHC programme managed | Since PHC service delivery was only amended in 1997 (Department of Health, 1997) some programme managers have little experience of the implementation and management of PHC programmes. Knowledge of the PHC programmes may influence the participants' views on questions asked. |
| **B** | **Identification methods and referral systems used for ECI**<br>○ Suggestions to improve early identification of infants<br>○ Effectiveness of referrals on the different levels of health care<br>○ Suggestions to improve referral system | PHC programme managers may provide additional information and solutions for the problems, as the questions were focused on the problems identified in the results from the interviews with Group 1. |
| **C** | **Integration of ECI into the PHC package through collaborative activities**<br>○ Influence of teamwork on case finding<br>○ Information needs about ECI<br>○ Participants views on ECI functions to be integrated<br>○ Guidelines for the process of integrating collaborative activities<br>○ Monitor and evaluation of collaborative activities<br>○ Future of teamwork through collaborative activities<br>○ Advantages of the collaborative activities for PHC programmes | Collaboration between speech-language therapists, audiologists and PHC personnel is an imperative function that has the potential to improve ECI services in PHC clinics (Moodley et al., 2000).<br>Collaborative partnerships need to be developed with administrators at management level in order to gain entry into discipline-specific health services (Moodley et al., 2000). |

### 3.6.2 Apparatus

The apparatus used during the data collection and the different materials are subsequently described.

- **Rating scale**

  No specific apparatus was used when the rating scales were completed. A clipboard and pen were used to fill in the rating scale during on-site observations. This made the task of completing the rating scale easier.

- **Structured interviews for participants in Group 1**

  Digital audio recordings were made during the individual structured interviews, since audio recordings are less obtrusive than using video recordings. In order to improve credibility, digital recordings and extensive field notes were used during the interviews (Pottas, 2005). The credibility of the research is improved by means of the audio recordings (Pottas, 2005), while the analysis of the data was more accurate as well.

- **Semi-structured interview for participants in Group 2**

  Digital audio recordings were made during the individual semi-structured interview. As the majority of the questions were open-ended, the answers were elaborate. The researcher could therefore not solely rely on field notes, but voice recordings had to be made as well.

Owing to the reliance on digital audio recordings, the researcher was able to concentrate more on the proceedings of the interviews and what had to be done next (Greeff, 2002). The voice recorder was placed inconspicuously, in order to ensure that the participants do not feel unnerved with the recordings (Greeff, 2002).

An *Olympus VN-240PC* digital voice recorder was used during the interviews. This was a high-quality voice recorder (Greeff, 2002), which improved the clarity of the voice recordings. The digital voice files were transcribed and stored on a *Compaq EvoN1050v* laptop computer, where the data was protected with the necessary security measures. After the completion of the study the voice files were permanently deleted as no permission was obtained during the ethical approval process to keep raw data.

A pre-test was conducted with the voice recorder and the computer (Neuman, 2000) to ensure that the apparatus were in a working order and the voice recordings made were clear and audible. The software of the voice recorder which was loaded on the laptop computer was functioning well and the files of the pilot studies were stored securely.

## 3.7 PILOT STUDY

A researcher needs thorough background knowledge in order to undertake scientific research on a specific problem (Strydom, 2005). One of the most common errors in research is not doing pilot testing (Mouton, 2001). Strydom (2005) advises researchers not to start the main inquiry unless they feel confident that the procedures are suitable, valid, reliable and effective, and that all precautions have been taken to avoid problems that might arise during the study. The pilot study is the prerequisite for the successful completion of the research project, and therefore forms an integral part of the research process. For the current study the pilot data was important as it demonstrated the researcher's expertise in a specific area and served as a basis from which the proposed research was built (Strydom, 2005).

Bless and Higson-Smith (2000) refers to a pilot study as a small study conducted before the main study to determine whether the methodology, sampling, instruments and analysis are sufficient and appropriate. Alternatively Strydom (2005) differentiates between a pre-test and a pilot study. The pre-test includes the testing of one or more aspects of the subject, whereas the pilot study is much more comprehensive as it covers testing of the entire study design (Strydom, 2005). A pilot study was selected as the appropriate way of ensuring a valid and reliable study, as well as to achieve comprehensive results. The different aims of the pilot study (Strydom, 2005) included determining the feasibility of the study and the testing of the measurements.

- **Feasibility of the study**

  This aspect of the pilot study entails the overview of the actual and practical situation where the prospective investigation will be executed (Strydom, 2005). The researcher had to look closely at practical problems that can be encountered in the research (Leedy & Ormrod, 2005), and therefore the planning of the transport, finance and time factors are relevant aspects to keep in mind (Strydom, 2005). The researcher had an extensive overview of the situation in which the data collection had to be conducted as vocational experience had been gained in the Ditsobotla sub-district. This proved to be very useful during the planning of the data-collection procedures.

- **Testing of the measuring instruments**

  Although the various aspects of the pilot study contribute significantly to an improved main enquiry, there is no substitute to the feedback from the respondents themselves (Strydom, 2005). The measuring instruments should not constrain participants from saying what they want to say, consequently the pilot study had to be executed in the same manner planned for the main investigation (Strydom, 2005). By testing the actual programme difficulties in the procedure or materials may be identified and the accuracy, reliability and appropriateness of the instruments determined (Bless & Higson-Smith, 2000; Strydom, 2005). The results of each pilot test for the measurement instruments are subsequently described separately.

**Testing of the rating scale for the evaluation of the facilities**

As the researcher had to complete the rating scales at each facility, the pilot testing was more focused on the content of the rating scale being relevant to fulfilling the first three sub-aims. The researcher completed two rating scales evaluating the mobile clinics of the participants with whom the structured interview was conducted. Both mobile clinics were evaluated to ensure that the process of evaluation was effective. The sequence of the pilot testing was very important in determining whether these procedures were effective (Strydom, 2005).

The results indicated the following:

- The researcher had to ask permission and explain the reason for filling in the rating scale, which will reassure the participants that they that were not evaluated.
- The researcher had to remain inconspicuous during the completion of the rating scale, but was able to observe and document the features of the facility. The participants must be comfortable with the researcher in the facility.
- Limited space for additional comments was available on the rating scale. The researcher made alterations to improve the space allocation for additional comments in the layout of the rating scale.
- No changes had to be made regarding the content of the rating scale. As the researcher had first-hand knowledge of the facilities, the development of the rating scale and determining the aspects to be included did not require on-site observations. The relevance of the aspects included in the rating scale was confirmed during the pilot study, as topic-related information was received.

- **Testing the structured interview for Group 1**

Two PHC nurses who were working in the same area but in mobile clinics were asked to participate in the pilot study. The mobile clinics were not included in the random selection of the facilities as they can only accommodate 1 to 2 personnel and therefore do not have the capacity to accommodate a speech-language therapist in their visits. Therefore, since the integration of ECI in the facilities was explored as well, the random selection only included all the facilities. The

interviews with the PHC nurses from the mobile clinics provided valuable information with regard to the implementation of the interview schedule on the larger sample of participants. Through the pilot the researcher was able to test strategies to overcome language and cultural barriers which might be experienced during the interviews with the participants of Group 1 (See Table 3.1).

Two PHC personnel working in the mobile clinics of Ditsobotla sub-district participated in the pilot study. Valuable information regarding the clarity of the formulations came to light during the interviews, whether questions were comprehensible and the flow of questions logical. The following are important aspects that resulted from this pilot study:

- During the preliminary explanation the interviewer must clearly explain that the results will be used to determine in which way the Speech-Language Therapist and Audiologist can assist the PHC personnel, and not to determine what they are doing right or wrong.
- At the end of the interview the PHC personnel should be thanked for their time and input.
- Adding field notes during the interview, gave the PHC personnel some time to think and on many occasions these notes provided the researcher with more information on the particular participant.
- The influence of positive remarks and the correct body language was noted during the interviews. This is very important in order to allow the participants to feel at ease and to establish a relaxed relationship. One must refrain from giving too much positive remarks as this causes the remarks to become insignificant (Roth & Worthington, 2001).
- The layout of the interview schedule and the flow of the questions were effective. There was enough space for the field notes at each question. One question was changed to improve the capturing of the data.
- The clarity of the questions was relatively good, but a few syntactic and semantic changes were made to questions in order to communicate clearly what was asked.
- The importance of prompting was revealed, but the interviewer must be cautious not to lead the participants to a certain answer as this will influence the reliability of the study and lead to bias (Leedy & Ormrod, 2005).

- An environment where background noise is limited and where only the interviewer and participant are present was optimal during the interview. Limiting the noise levels was important as it is distracting for both parties and influences the clarity of the recordings. When other people are present during the interview it may influence the participants' answers and could act as a distraction.
- The physical layout of the room where the interview was done is important. Furniture rearranging is very difficult in the clinics, but the researcher must make sure that the positioning of the chairs is optimal to facilitate good eye contact (Roth & Worthington, 2001). The recorder must be placed out of sight in order to limit the participants' discomfort with the fact that the interview is being recorded.

It is evident that the pilot study was of great assistance to the researcher to improve the structured interview, which led to improvement of the reliability of the measuring instrument.

- **Testing of semi-structured interview for Group 2**

  Pilot testing was done to determine whether language and cultural differences were bridged, and whether the content of the semi-structured interview was sufficient. Owing to the limited number of possible participants in Group 2, only one participant was interviewed for the pilot testing. An advantage of the pilot testing was that the researcher had time to learn the interview schedule in advance and therefore the researcher was able to focus on what the participant was saying as well as to monitor how well the scheduled topics were covered (Greeff, 2005).

  During the pilot study the following procedures and techniques provided valuable information and changes made are indicated:

  - The importance of the explanatory discussion prior to the interview was noted. The participant visibly felt more comfortable and at ease after the discussion. This helped to guide the participants through the wide array of their experiences (Greeff, 2005), which was very necessary to get information- specific results during the interviews. Sufficient time should be

spent in this aspect of the interview. Greeff (2005) clearly explained that before the interviews started the participants' had to feel comfortable and at ease.

- The presentation of the written introductory paragraph at the beginning of each section was important. The researcher noted that the introduction should be presented as a guideline instead of as a dictation (Greeff, 2005). Therefore the researcher developed the written introductions carefully to ensure that they were relevant, understandable and not leading in any way.
- In Section A limited options were provided by the researcher when the participant was asked which facilities were visited at the time. The number of codes allowed for this question proved insufficient during the pilot study (Strydom, 2005). This was consequently changed to an open-ended question where the participant named all the relevant facilities. The researcher noted, when examining the field notes, that the initial closed-ended question limited the participant's answer as it might have been perceived that additional information was not relevant.
- The phrasing of the questions was very important (Babbie, 2004). The researcher noted that the participant listened for emphasized concepts. Emphasizing relevant words was used as a technique to make the questions more understandable, but at the same time the researcher was careful not to lead the participant to a certain answer as a result of the way in which the question was asked.
- In Section B the different levels of referral needed to be clarified by providing an example for each level. The researcher used neutral examples which were understandable and relevant to the participants' current scope of practice.
- The researcher noted that probing was a very important technique which had to be used during the questions in Section C. This was necessary as the questions required creative thinking from the participants. Probes and rephrasing of the participants' responses already provided were used to show the researcher's interest in what was said and to motivate the participants to continue (Babbie, 2004).
- Sufficient time had to be allowed for the participant to respond. Greeff (2005) explained that the participant requires time to finish what he/she is

saying and has to be able to proceed at his/her own rate of thinking and speaking.

- The participant asked on one occasion whether a question may be answered at a later stage. The interview was continued and the participant indicated at what stage she felt comfortable to answer the question concerned. The participants should be allowed a strong role in determining how the interviews proceed (Greeff, 2005), and therefore the order of questions has to be flexible.

The pilot study played an important role in the development of the interview schedules and rating scale. As noted already, valuable information was gathered through this process and the field notes, and as a result the necessary changes could be made. Therefore the reliability and validity of the interview schedules were improved significantly.

## 3.8 VALIDITY AND RELIABILITY

A valid measuring instrument assesses the concept that is in question – in this case the identification process used by PHC personnel to detect infants at risk – and must do so in an accurate manner (Delport, 2002). Strategies that were used to increase the validity of the instruments are as follows:

- **Face validity**

  Face validity means that what appears to be evaluated by the instruments is the same as what is actually going to be evaluated in the study (Delport, 2002). According to Babbie (2004), when a rating scale is developed, face validity is the first criterion during the selection of items. Face validity was ensured as the format of the instruments corresponded with the aims of the data collection.

- **Content validity**

  Each of the instruments used in the study should measure what it is supposed to measure (Delport, 2002). The rating scale is designed for the comprehensive evaluation of the environment and the human resources, and the interview schedule for Group 1 includes adequate representation of the identification

process, as it covers the identification methods as well as the referral systems. The content of the interview schedule was discussed with a statistician in order to be sure that all the questions were relevant and accurate for statistical purposes.

The semi-structured interview schedule consisted of specific issues that required deeper investigation, which were determined according to the results of the structured interviews with Group 1. Since the researcher interviewed the participants the validity was improved as observations and conceptualizations were made during the interviews (Babbie, 2004). The views of the PHC programme managers regarding the implementation of an early identification programme for infants at risk for developmental delays or disorders were explored in the semi-structured interview.

- **Construct validity**

  Construct validity determines the meaning of the instruments, by looking at what the instrument measures and how and why it operates the way it does (Delport, 2002). The instruments were developed in accordance with the study aims and relevant research findings in the field, and designed to be adaptable across cultural diversities, therefore using constructs that remain the same across cultures (Roth & Worthington, 2001).

The reliability of the instruments entails the accuracy and precision as well as the degree of consistency of the instruments (Delport, 2002). With triangulation the reliability of the instruments is increased, as the data is collected by means of different instruments and results can therefore be compared. Furthermore, two separate groups of participants were used to investigate the identification methods and referral systems, while the researcher's own field notes also supported the data obtained in the interviews. Data triangulation was therefore established.

The reliability of the rating scale was evident when test-retest reliability was taken into account, as the rating scale yielded consistent results, with little variance, over time (Babbie, 2004). Internal-consistency reliability indicated reliable measurement as the items designed to measure the same construct correlated with each other and

uni-dimensionality was established, i.e. the one dimensional representation of a concept per measure (Babbie, 2004).

The aim of the pilot testing of the instruments was to determine the reliability of the instruments. Each pilot testing made significant contributions, assisting the researcher in enhancing the reliability of the instruments. The reliability of the testing procedures was integrated in the discussion of the materials and apparatus used.

The random selection of the facilities that had to be visited, limited any bias in the selection process of the participants. The researcher asked an individual with no connection to perform the random selection of the facilities. The facilities were divided into the strata and five facilities were randomly selected from each group (the names of the facilities were put in two hats, which represented strata 1 and 2, and then the 5 names of the facilities to be visited were selected). Therefore the results obtained in the interviews with the participants in Group 1 need to be considered as representative of the PHC personnel in Ditsobotla sub-district.

The interviewer had to act as a neutral medium through which the answers and questions were transmitted, and therefore the interviewer's presence should not affect the participant's perception of a question or an answer given (Babbie, 2004). Although the researcher acted as a neutral medium, a relationship of trust was built with the participants.

Since the researcher interpreted the results achieved by means of qualitative measures, certain strategies were followed in order to limit the researcher's bias and values (Leedy & Ormrod, 2005):

- The researcher collected different forms of data by means of triangulation, which supported the interpretations of the researcher as similar trends were noticed in the data.
- Multiple and changing perspectives were obtained and the researcher explored alternative explanations as to why case finding in ECI is poor in the PHC context.
- The researcher acknowledged biases present in the interpretation of the results.

A second interpreter analysed the results obtained from the interviews with the participants in Group 1 and Group 2, which improved the reliability of interpretations. Furthermore the researcher aimed to improve the trustworthiness of the qualitative component in the study by improving the dependability, i.e. the extent to which results is repeatable (Pottas, 2005). The researcher used data triangulation as well as detailed descriptions in order to get repeatable results. The researcher also aimed to achieve transferability, i.e. the area to which the findings can be applied to other contexts or respondents (Pottas, 2005). The results are therefore representative of the sub-district only, and cannot be transferred to other contexts. The researcher used descriptions throughout the study in order to make it possible for the reader to determine the transferability of the data (Pottas, 2005).

## 3.9 PROCEDURES

### 3.9.1 General procedures

The nine different stages of the research process are described in Figure 3.5.

| | Description of procedure |
|---|---|
| Stage 1 | - Determining the viability of the research project<br>- Requesting permission to conduct the study |
| | ↓ |
| Stage 2 | - Developing the rating scale to collect data on facilities, human resources and other resources<br>- Developing the structured interview schedule for Group 1 |
| | ↓ |
| Stage 3 | - Pilot testing of the rating scale and the structured interview |
| | ↓ |
| Stage 4 | - Selecting participants and making arrangements for the main study<br>- Completing of the rating scales for the evaluation of the PHC centres |
| | ↓ |
| Stage 5 | - Conducting structured interviews with participants in Group 1<br>- Analysing data of structured interviews |
| | ↓ |
| Stage 6 | - Developing the semi-structured interview schedule based on data from structured interviews |
| | ↓ |
| Stage 7 | - Conducting semi-structured interviews with participants in Group 2 |
| | ↓ |
| Stage 8 | - Analysing data and conducting statistical procedures |
| | ↓ |
| Stage 9 | - Interpreting results and reaching conclusions |

**Figure 3.5 The nine stages of the research process**

The stages of the research process will be elaborated on, i.e. stages 1, 4, 5, 6, 7, 8 and 9. These stages need to be described in order to better understand the research process.

**Stage 1: Determining the viability of the research topic and the procedures followed to obtain permission to conduct the study**

The possibility of the research topic was discussed with lecturers at the University of Pretoria, with the clinical manager of the hospitals, and with the district manager of the clinics of Ditsobotla sub-district. The researcher determined that the study was supported by the sub-district, although ethical clearance had to be provided prior to conducting the study.

A letter with information on the study was sent to the clinical manager of the hospitals and the district manager of the clinics in Ditsobotla sub-district (see Appendix D), and permission was subsequently given to conduct the research (see Appendix A).

Since the study entailed interviews with PHC personnel it was essential to obtain permission also from the Department of Health of North West Province, as well as ethical clearance from the Research Proposal and Ethics Committee of the Faculty of Humanities at the University of Pretoria (See Appendix A).

**Stage 4: Completion of the rating scales for the environmental analysis of the PHC centres**

The researcher made arrangements with the management of the PHC facilities regarding the date the facilities had to be visited for data collection. The management made an announcement about the research project to the facility managers at their monthly meeting. The researcher then drew up a schedule for the different facilities to be visited for two days, taking account of the distance between the facilities and the time required at each facility.

When a facility was visited, permission was first obtained to complete the rating scale. The researcher then filled in the rating scale without being intrusive. After explaining the reason for the visit, the facility manager introduced the researcher to the potential participants.

The date for the next visit to the facility was then determined. A time schedule was developed to assist the researcher in planning the next visits. During the following visit the structured interviews were concluded.

**Stage 5: Executing the structured interviews and analysing the data**

After the researcher received informed consent from the participants, the structured interviews with PHC personnel were conducted according to the interview schedules.

A time schedule was developed during Stage 4, to guide the researcher on the sequence of facilities to be visited, the distances between them, and the time allocated for the interviews. The researcher conducted the interviews at the participants' working facilities, in order to ensure that the participants did not have to travel and that they would be as comfortable as possible. The interviews were conducted in a consultation room at the facilities.

The general guidelines that were compiled, from Babbie (2004) and Leedy and Ormrod (2005), for the manner in which the interviews should be conducted included the following:

- Appearance and demeanour – The interviewer dressed in similar fashion to the participants. Professional dress code is most likely to be accepted as a neutral appearance, and most likely acceptable to the majority of participants.
- Familiarity with interview schedule – The interviewer knew the interview schedule well, in order to keep the interview as short as possible as well as pleasant.
- The wording of the questions was followed exactly – If the wording of the questions is altered it may lead to an answer being "yes" instead of "no", which influences the end results.
- The responses were recorded on the voice recorder – Especially with open-ended questions the interviewer must record the exact responses from the participants, in order to make coding easier during the data analysis phase of the study. Therefore responses must not be altered or summarized and bad grammar must not be corrected.
- The researcher used probes in order to receive responses – Probes were used in closed- and open-ended questions. Usually probes were used to elicit responses from open-ended questions for analytical and informative purposes. Probes must always be neutral so as not to affect the nature of the responses that follow.

- It was sensible to prepare specifications for potentially difficult questions in the interview schedule, in order to eliminate making unplanned decisions in the course of the study. Drawing up an interview schedule beforehand forced the researcher to think clearly about what the interview had to cover and the possible difficulties that might be encountered, e.g. with the wording of the questions.

Conducting face-to-face interviews has a few disadvantages. Participants may feel pressed to answer what they perceive the interviewer expects from them. Before the interviews and during the interviews, prior to the different sections of the interview schedules, brief explanations were provided to ensure the participants understood that the limitations and barriers in the current identification methods and referral systems need to be identified and that they should feel free to speak their minds. Another disadvantage in face-to-face interviews is that standardized interview schedule items do not always represent the participants' orientations, circumstances or experiences, resulting in a superficial coverage of a complex topic (Babbie, 2004). The participants' orientations were included in the current study as combination of a quantitative and qualitative research approach was used. Open-ended questions were therefore included, where the participants had the opportunity to provide their ideas on the topics.

After the interviews were conducted with all the participants, the results of the interviews were analysed in order to plan the second interview. All the voice recordings were stored on the laptop computer. The manager of the PHC programme managers was visited at this stage, in order to make appointments for conducting the semi-structured interviews. The PHC programme manager assisted the researcher with the selection of the participants, and the research project was announced in the monthly meeting.

**Stage 6: The development and pilot study of the semi-structured interview schedule for participants in Group 2**

The researcher then visited Ditsobotla sub-district to execute the pilot study of the semi-structured interview for the participants in Group 2. After the participants in Group 2 received their information brochures on the research project, their informed consent letters had to be signed.

One of the participants was asked to participate in the pilot study. The pilot study gave valuable insight, which had to be taken into account. The researcher therefore made changes to the semi-structured interview schedule according to the results of the pilot study. The voice recording of the pilot study was stored on the laptop computer. Only after the changes to the semi-structured interview schedule were completed, did the researcher feel confident to continue with the research procedure.

**Stage 7: Execution of the semi-structured interviews with participants in Group 2**

Since the researcher had already made the arrangements and the participants had signed the informed consent form, the process of conducting the semi-structured interviews was fairly simple.

The researcher visited the participants at the district office of Ditsobotla sub-district. The semi-structured interviews were conducted in each participant's office. This made the participants feel comfortable and little interference was present due to the professional environment in which the interviews were conducted.

With active interviewing the researcher had to establish mutual attentiveness, monitoring and responsiveness (Greeff, 2005). Several communication techniques compiled from Greeff (2005) and Leedy and Ormrod (2005), were used during the semi-structured interviews, as follows:

- The researcher used minimal responses to show the participant that the researcher was listening.
- Paraphrasing was used to enhance the meaning of an answer by using another form but with the same meaning of what was said.
- Clarification was used to get clarity on unclear statements.
- The researcher used encouragement to motivate the participant to provide more information, but care was taken to encourage only once in order to maintain consistency of data collection.
- Reflective summaries were used to summarize the participants' thoughts in order to determine whether the answers were understood correctly.
- The researcher demonstrated good listening skills.

- The researcher used probes to motivate the participants to elaborate on their answers. Different probes were used during the semi-structured interviews, including linking the participant's comment with the information the researcher wanted to know, showing understanding, allowing time for elaboration, and acknowledging the participant's answer.

At the end of the interview the participant was thanked for participating in the research project. All the digital voice recordings that were made were stored on the laptop computer, and back-ups were made and stored on a memory stick. The researcher was now able to start with the data analysis of the semi-structured interviews, and after complete analysis the results were discussed.

**Stage 8: Data analysis and statistical procedures**

The standardized procedure simplified the data analysis as the environmental rating scale consisted of a fixed amount of variables (Fouché & Delport, 2002), according to which the facilities were described.

The data of the structured interviews were analysed first, in order to determine which aspects needed further investigation that had to be included in the semi-structured interview schedule (raw data – see Appendix H). As mentioned earlier, the structured and semi-structured interviews have quantitative as well as qualitative components. The majority of the structured interview is quantitative of nature, whereas a qualitative approach is dominant in the semi-structured interviews (see Figure 3.1).

Therefore the data obtained from the first interviews were mostly analysed quantitatively according to the SAS system version 9.1 statistical computer software. The quantitative analysis referred to the conversion of the data into machine-readable form, which made the manipulation of data possible through computers (Babbie, 2004). As the analysis was done in Microsoft Excel, the data were stored electronically (Babbie, 2004). Frequencies were calculated as data should be presented in a condensed form when the data consists of a large number of observations (Steyn, Smit, Du Toit & Strasheim, 1998). Frequency distribution entails a table with classes of values and accompanying frequencies, which presented the results with minimal loss of the original information (Steyn et al., 1998). Basic

graphical presentations were used to better understand the data and decide where further statistical analysis would be appropriate. The use of graphics was regarded as a data-exploring technique with which the researcher familiarized herself with the data (Du Toit, Steyn & Stumpf, 1986). Fisher's exact test of independence was used for data with two attribute variables. Fisher's test is used to determine whether proportions are the same in different groups, when the sample sizes are small (http://udel.edu/~mcdonald/statfishers.html, 2006; SAS/STAT User's Guide, 1990).

The researcher was well aware of the fact that the results may have practical significance (i.e. the usefulness of the results in the real world), although statistical significance (i.e. whether results are due to chance or sampling variability) were not noted (Kirk, 1996). It is therefore not always possible for statistical significant results to have practical significance as well (http://en.wikipedia.org/wiki/Statistical_significance). Therefore since the sample is statistically small, a practically significant result may not be indicated as a statistically significant one.

The rating scales were analysed numerically as the method was quantitative of nature (raw data – see Appendix H). Procedures similar to those used to analyse the data from the structured interviews were therefore used in the analysis of the rating scale.

The qualitative component in both interviews was integrated for purely descriptive purposes, so that a better understanding could be gained of the identification methods and the referral practices used, as well as of how services could be better integrated. Qualitative research depends on the presentation of definite descriptive data, in order to lead the readers to an understanding of the meaning of the phenomenon being studied (De Vos, 2002). In qualitative research the data analysis and interpretation are closely connected (Leedy & Ormrod, 2005), which had to be taken into account when the results and discussion were written (raw data – see Appendix H).

De Vos (2002) and Leedy and Ormrod (2005) suggested that qualitative data analysis should be represented in a data analysis spiral. This entails the movement of the researcher in analytic circles, instead of using a fixed linear approach (De Vos, 2002). The entry in the spiral is when the data in text is completed, after which the researcher

touches on several facets of analysis through circular movements towards the completion of the process (De Vos, 2002). The steps that should be integrated during the data analysis spiral are the following (De Vos, 2002; Leedy & Ormrod, 2005):

- Collecting and recording data
- Managing data
- Reading and writing memos
- Describing, classifying and interpreting
- Representing and visualising

Although data collection and recording was described earlier on in this chapter, it should be considered that it plays an intricate role in the analysis of qualitative data. Data management is therefore the first step of qualitative data analysis, which needs to be explored at this stage.

This was the first step of data analysis away from the field where data collection occurred. During this stage the researcher listened to voice recordings and the field notes were supplemented accordingly. By preserving the data and meaning of the recordings and undertaking the preliminary analysis and combined transcriptions, the efficiency of data analysis will be increased to a great extent (De Vos, 2002). In order to make data retrievable and manipulation simple for the researcher and second interpreter, the data was managed electronically.

The analysis then continues to the reading and writing of memos. The researcher had to read and reread the data in order to become more familiar with the data, and look at the transcripts in their entirety before breaking them down into detailed parts (De Vos, 2002; Leedy & Ormrod, 2005). Reflection and writing notes across questions were used to a great extent during this step of the analysis in the current study (De Vos, 2002). The researcher wrote memos in the margins of the field notes, in order to make the data more retrievable.

Describing, classifying and interpreting the data formed the next step in the analysis of the quantitative data. Category formation was the main goal during this step, which De Vos (2002) describes as the heart of qualitative data analysis. Here the researcher determined the context of the data, identified categories and made

comparisons accordingly. The researcher has to have a heightened and focused awareness of the data and subtle undercurrents during interviews have to be identified (Leedy & Ormrod, 2005). Regularities were noted during the analysis and categories of meaning emerged. The researcher searched for internal convergence and external divergence, which refers to the categories being internally consistent but at the same time distinct from one another (De Vos, 2002).

The data was classified in categories, themes or dimensions of information (Leedy & Ormrod, 2005). After the themes were recognized, sub themes were identified that were positioned under each theme, and significant segments of data were then put under each sub theme accordingly.

The interpretation involved making sense of the data (De Vos, 2002), and therefore the researcher had to engage in the critical act of challenging the pattern which emerged between categories. The researcher and second interpreter had to step back from personal views and social science constructs in order to form larger opinions of what is going on in the field. Therefore the researcher and second interpreter discussed results to establish patterns and determine conclusions.

Alternative explanations always exist and the researcher has to search for, identify and describe them, and thereafter demonstrate how and why the explanation presented is the most credible of all (De Vos, 2002). This leads to the representing and visualising of the data, which is described in the next stage (Stage 9).

The process described for qualitative data analysis was used to analyse the data of the structured interview as well as the semi-structured interviews.

**Stage 9: Interpretation of results and conclusions**

The conclusions of the qualitative research entail the presentation of the packaging of what has been found in the data, which is presented in text, tabular and figure form (De Vos, 2002).

## 3.10 CONCLUSION

The goal of this chapter is to provide a method to achieve the research aims. Research is when a systematic process of the collection, analysis and interpretation of information is used in order to better understand a phenomenon (Leedy & Ormrod; 2005). Consequently, in this descriptive study the current identification methods and referral systems used for ECI in Ditsobotla sub-district were determined through a systematic process in order to describe the case finding of infants and young children at risk from communication delays or disorders. A dominant-less-dominant model was selected as the research design, which made triangulation of data possible, and therefore sufficient data for the description of the identification methods and referral systems was obtained. The reliability and validity of the data was increased by means of pilot studies and the use of data triangulation. All the steps were followed and the results will now be presented.

## 3.11 SUMMARY

This chapter describes the methods utilized to investigate the characteristics of the identification process for ECI in the PHC context in order to develop guidelines that may be implemented in the sub-district. The objectives to achieve the aim were specified. Detailed descriptions of the research design, subject selection, as well as materials and apparatus were provided. Steps taken to ensure an ethical research study and to increase reliability and validity were discussed. The research procedure provided a precise description of the development of the two interview schedules and the environmental rating scale, the pilot tests of three instruments and the process utilized in the implementation of the main study. Finally, the procedures regarding the collection, recording and analysis of the data were discussed.

# CHAPTER 4

# RESULTS AND DISCUSSION

**The aim of this chapter is to present the results and to discuss them according to the sub-aims of the study in order to describe the identification methods and referral systems used in the PHC context in Ditsobotla sub-district, and to determine the feasibility of integrating ECI with the PHC package.**

## 4.1 INTRODUCTION

Although the PHC clinics are relatively new screening environments (Swanepoel et al., 2005) where the hearing ability and communication development of infants and young children can be screened, it is essential to make comprehensive ECI services accessible to rural communities within different existing PHC programmes. Case finding amongst infants and young children with communication delays or disabilities appears to be problematic in the rural communities of South Africa. As a possible guideline Kritzinger and Louw (2003) developed a conceptual framework for the implementation of ECI in public service delivery in South Africa. This framework described the different functions of ECI which may be integrated in the PHC package as a vehicle to effectively reach rural communities and provide adequate ECI services.

Against this theoretical background the current study aimed to describe facilities and resources as well as the actual identification methods and referral practices used by the PHC personnel in a specific rural PHC context, in order to determine the feasibility of the integration of ECI within the PHC package. In a dominant-less-dominant research approach (De Vos, 2005), which entails both quantitative and qualitative components, two interview schedules and a checklist were used to obtain data on the identification methods and referral practices currently used in the specific district. Data triangulation was thus used to acquire reliable data for descriptive purposes.

In accordance with the goal of this chapter, the results will be presented and discussed according to the aims of the study. Qualitative (text-based data) and quantitative (numerical data) measurements will be discussed and interpreted in an integrated

fashion according to each sub-aim, in order to acquire a holistic understanding of the aspect that is being discussed. By means of methodological triangulation the researcher integrated the results of the multiple methods in order to improve the reliability of the results and to provide detailed descriptions of the phenomenon (De Vos, 2005). Figure 4.1 was compiled to present the layout of the chapter and to indicate how the different data sources were integrated to achieve the sub-aims of the study.

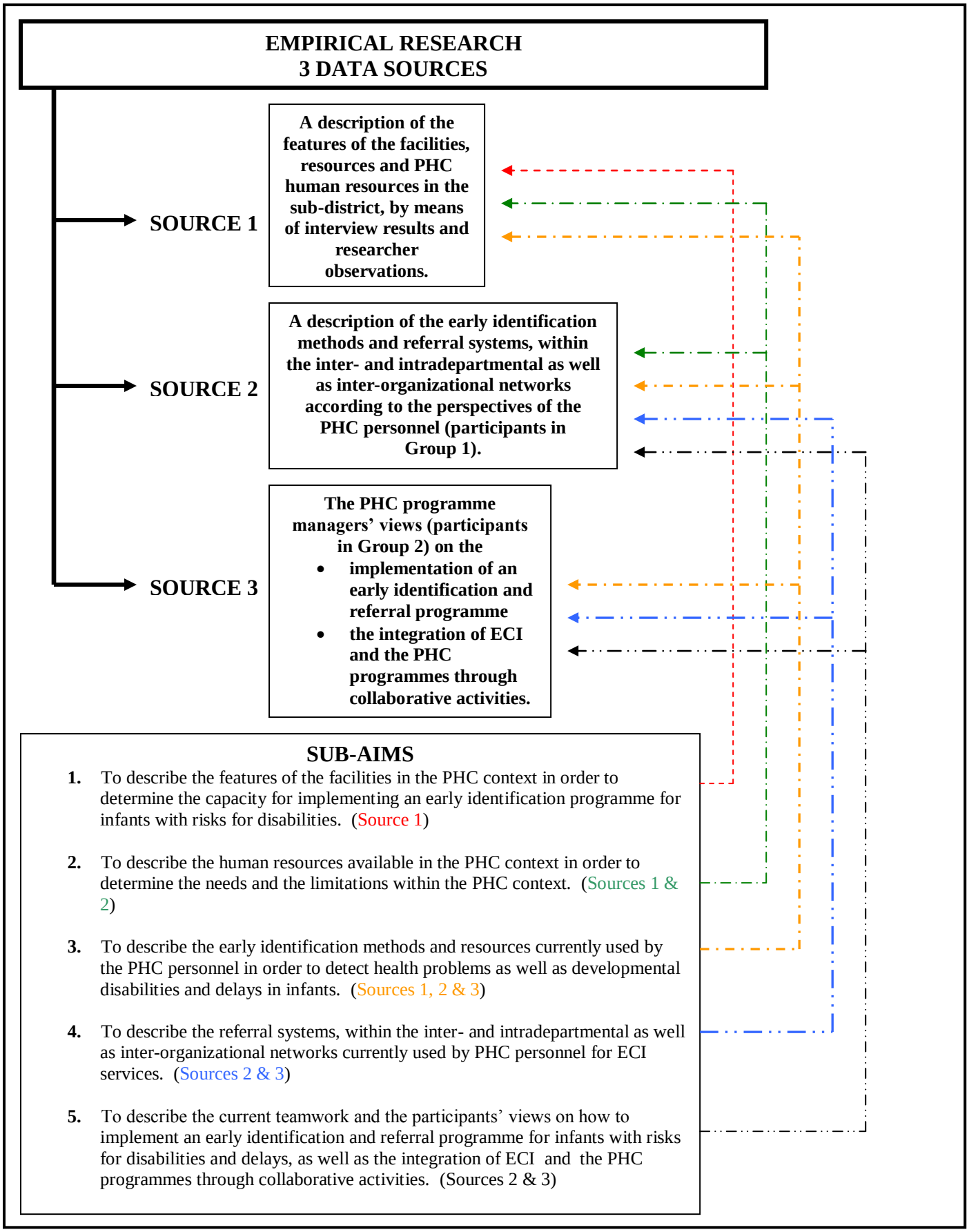



**Figure 4.1 Organization of the data sources to achieve the aims of the study.**

The results are presented according to the sub-aims and therefore the results regarding the features of the facilities are discussed next.

## 4.2 FEATURES OF THE FACILITIES IN THE PHC CONTEXT

A description of the features may provide valuable insight into resources and the needs the PHC personnel experience in the sub-district. Swanepoel et al. (2005) support the notion that a contextual analysis could provide an understanding of the strengths and weaknesses in the PHC facilities, so that the implications of these strengths and weaknesses for case finding of infants at risk for communication disorders may become clear. The results derived from the rating scale, acquired by means of researcher observations and results of the structured interviews with PHC personnel (as seen in Figure 4.1), are presented in tables.

### 4.2.1 Basic features of the facilities

The basic features of the facilities are presented in Table 4.1. The researcher differentiated between two strata: the small clinics (stratum 1) and the large clinics (stratum 2). Each stratum represents 5 clinics in Ditsobotla that were randomly selected. Basic requirements, i.e. running water and electricity supply, must be present at PHC facilities in order to operate effectively (Department of Health, 2000).

**Table 4.1 The basic features of the facilities**

| Clinic | Stratum | Type of facility | Location (approximately) | Building structure | Electricity | Water supply |
|---|---|---|---|---|---|---|
| 1. Bakerville | 1 | 8 hour | 35 km from Lichtenburg | Permanent building (old structure) | Yes | Yes |
| 2. Old Bodibe | 1 | 8 hour | 30 km from Lichtenburg | Permanent building (old structure) | Yes | Yes |
| 3. Itsoseng | 1 | 8 hour | 27 km from Lichtenburg | Permanent building (rebuilt) | Yes | Yes |
| 4. Blydeville | 1 | 8 hour | 3 km from Lichtenburg | Permanent building (old structure) | Yes | Yes |
| 5. Coligny Health Centre | 1 | 12 hour | 30 km from Lichtenburg | Permanent building (renovated recently) | Yes | Yes |
| 6. New Bodibe | 2 | 24 hour | 34 km from Lichtenburg | Permanent building (rebuilt) | Yes | Water shortages |
| 7. Poly | 2 | 24 hour | 27 km from Lichtenburg | Permanent building (old structure) | Yes | Yes |
| 8. Tlabologang | 2 | 24 hour | 29 km from Lichtenburg | Permanent building (old structure) | Regular power breaks | Water shortages |
| 9. Boikhutso | 2 | 24 hour | 4 km from Lichtenburg | Permanent building (old structure) | Yes | Yes |
| 10. General de la Rey hospital | 2 | 24 hour | In Lichtenburg | Permanent building (old structure) | Yes | Yes |

As can be seen in Table 4.1, the travelling distance between Lichtenburg and the various clinics is no more than 35 km. It is therefore possible for a speech-language therapist and audiologist to visit two clinics in close proximity on a daily basis. Poly and Itsoseng clinics can for instance be visited on the same day as they lie close to each other. All the facilities have a permanent building structure, and three clinics were rebuilt or renovated recently. Itsoseng clinic was rebuilt in 2004 and the new Bodibe clinic was built a few years ago. Coligny Health Centre was also renovated recently. The Clinic Upgrading and Building programme was initiated by the Department of Health (2001) to build new clinics and upgrade existing clinics nationally; furthermore the Department of Health (2001) provides guidelines to PHC clinics regarding water and sanitation. These programmes need to be taken into account when the integration of ECI is planned, as obstructions during renovations and building may hinder service delivery. Facilities that have been renovated or newly built may have a greater capacity in which an ECI programme can be implemented.

As indicated in Table 4.1, two facilities are experiencing limitations with regard to water supply, while one of them is also struggling with electricity. Since both these

clinics fall under stratum 2 and are 24-hour facilities, these limitations have a major impact as high numbers of patients are seen at these facilities.

### 4.2.2 Features of the waiting and consulting rooms at the facilities

The features of the waiting rooms and consulting rooms need to be considered in order to be able to describe the facilities effectively. Patient files need to be secured, i.e. there must be sufficient filing cabinets in order to ensure confidentiality of patient information. Table 4.2 summarizes the features of the waiting and consulting rooms.

**Table 4.2 Features of the waiting and consulting rooms at the facilities**

| Stratum | Waiting rooms | Seating in waiting rooms | Consulting rooms - quiet space for confidential interviews | Desks and chairs in consulting rooms | Additional space in clinic where SLT* and audiologist could work | Filing cabinets |
|---|---|---|---|---|---|---|
| 1 | Spacious | Limited | Good | Good | Yes, separate consulting room available | Adequate |
| 1 | Limited space | Limited | Good | Good | No | Adequate |
| 1 | Spacious | Adequate | Good | Good | No | Good |
| 1 | Limited space | Limited | Good | Good | No | Adequate |
| 1 | Spacious | Limited | Good | Good | Yes, extra rooms available | Good |
| 2 | Spacious | Adequate | Good | Good | No, the clinic is very full | Good |
| 2 | Spacious | Adequate | Good | Good | Yes, extra rooms available | Adequate |
| 2 | Limited space | Limited | Good | Good | No, the clinic is too small | Adequate |
| 2 | Spacious | Adequate | Adequate | Adequate | No, all the rooms constantly in use | Good |
| 2 | Limited space | Limited | Good | Good | Yes | Good |

* SLT – Speech-language therapist

As shown in Table 4.2, most of the facilities have only limited seating for patients. As the waiting rooms are targeted as an opportunity to provide information to mothers and caregivers on early communication development and how to stimulate young children for school readiness, there should be enough seating available for all the patients. If seating is limited, patients have to wait outside the facility and might therefore miss out on the talks, posters and leaflets provided so that they can acquire the required knowledge on the subject. Four of the ten facilities have spacious waiting rooms with sufficient seating for patients, so that the speech-language therapist and audiologist could present topics to the waiting parents and caregivers on, for instance, communication development in infants and young children. Although

many facilities have enough space in waiting rooms where caregivers can be educated on early communication development, few facilities have TV monitors through which educational programmes can be presented.

The results in Table 4.2 indicate that all the facilities have space to perform confidential interviews with patients, and that desks and chairs are readily available for PHC personnel in the consultation rooms. The case history of infants and young children can therefore be properly established because confidentiality of consultation can be ensured. The Department of Health (2001) stipulates that the consulting rooms need to have wash basins, diagnostic lights, medicine cupboards, tables and chairs. It would appear, however, that although the rooms are well equipped for counselling and treating adults, there is a need for equipment when working with mothers and infants with developmental difficulties. The speech-language therapist may for instance need a carpet on which evaluations can be done with infants. The results indicate that only four of the ten clinics have additional space which can be utilized to implement ECI functions, such as screening of infants' and young children's communication skills or providing intervention to caregivers of infants and young children at risk for communication delays.

The results indicate that patient confidentiality is adequately ensured by means of secured filing cabinets. Patients can therefore share confidential issues without reluctance as they know their files are being kept safe. The facilities therefore comply with the patient rights charter, in terms of patient confidentiality (Department of Health, 2000). It is important to establish trust with the patient in order to be able to obtain a credible case history from the patient, which is essential in ECI as all risks for communication delay need to be determined in order to develop the appropriate intervention plan. The secure filing cabinets can be of great use when records of ECI clients need to be kept in order to arrange effective follow-up sessions. Furthermore, the referral of ECI clients will be easier as the information is available in the clinics, thus simplifying the referral process. The secure storing of ECI files will furthermore assist the therapist in the monitoring of ECI services by means of internal audits. The personnel of the health monitoring and evaluation programme have access to the files and/or enquire from the personnel at the facilities to provide them with the needed statistics. It is essential for speech-language therapists and audiologists to work in

collaboration with the health monitoring and evaluation programme in order to determine whether ECI case finding is improving.

An option is that the different functions of ECI, such as the prevention and promotion of developmental skills for school readiness, could be integrated according to the capacity of the facility. A facility may be able to accommodate ECI services when presentations are done to the community in the waiting room, but might not have the capacity to provide the speech-language therapist and audiologist with a room for consultations with mothers of infants. It is therefore important to evaluate the facilities during the planning phase and prior to the implementation of ECI services so as to determine which functions can be implemented at the different facilities.

As only a few of the facilities have the capacity for all ECI services to be implemented, an incremental implementation of ECI services has to be established. It may be possible that one facility only has the capacity to support the implementation of the primary prevention level in ECI services, while all three levels of prevention can be implemented at another facility. Both Coligny health centre and Bodibe new clinic have the capacity for the speech-language therapist to implement ECI functions on primary, secondary and tertiary prevention levels. Whereas at Itsoseng and Boikhutso clinic only ECI functions on primary prevention level can be implemented as they do not have to capacity for ECI functions on the other prevention levels (see Table 4.1 and Table 4.2).

## 4.3 HUMAN RESOURCES AVAILABLE IN THE PHC CONTEXTS

PHC facilities are the entry level for infants and their families in rural communities for receiving health-care services. The human resources may form a valuable support and collaboration system when considering the incremental integration of ECI with the PHC package.

### 4.3.1 PHC personnel employed at the PHC facilities in the sub-district

The PHC personnel available at the clinics should be taken into account in order to determine limitations and resources. Table 4.3 provides a summary of the number of

PHC personnel working at each facility, the number of infants seen by the PHC personnel, and the number of visits from a medical doctor per week.

**Table 4.3 Number of PHC personnel at the selected facilities in the sub-district and the number of infants seen daily**

| Stratum | Permanent doctors at facility | Qualified nurses at facility | Nurses in training at facility | Average number of infants seen by PHC personnel daily | Number of visits by peripatetic doctor per week |
|---|---|---|---|---|---|
| 1 | 0 | 4 | 0 | 20 | 1 |
| 1 | 0 | 10 | 1 | 20 | 2 |
| 1 | 0 | 7 | 0 | 9 | 2 |
| 1 | 0 | 1 | 0 | 5 | 1 |
| 1 | 0 | 4 | 0 | 30 | 1 |
| 2 | 1 | 5 | 4 | 12 | 5 |
| 2 | 0 | 8 | 6 | 10 | 2 |
| 2 | 0 | 7 | 0 | 15 | 3 |
| 2 | 0 | 18 | 3 | 30 | 4 |
| 2 | 0 | 26 | 5 | 14 | 3 |
| **Total** | **1** | **90** | **19** | **165** | **24** |

According to the results in Table 4.3 it is evident that the number of PHC personnel working at the facilities differs widely between the two strata, ranging from 1 to 26 qualified PHC personnel. The majority of the facilities in stratum 2 have a greater number of PHC personnel than the facilities in stratum 1, but the average number of infants seen by the PHC personnel appears to be distributed evenly between the strata. The number of infants seen on a daily basis ranges from 5 to 30 at the different PHC facilities (an average provided by the PHC personnel working in the facilities). Infants visit the facilities daily, thus the speech-language therapist and audiologist can visit a clinic any day of the week. The total number of infants visiting the clinics daily (approximately 165 infants at 10 facilities) provides a window of opportunity for ECI case finding. Approximately 5-10% of the infant population may present with communication delay (Rossetti, 2001), which can be higher in poor communities and communities with a high prevalence of HIV and AIDS.

Although a shortage of health care personnel is experienced on all health care levels, the PHC level is experiencing the greatest shortage (Hall & Roberts, 2006). The PHC personnel therefore have to manage greater workloads in order to assist all the patients visiting the clinics. Hall and Roberts (2006) concluded in their research that PHC personnel experience negative feelings as a result of expanding workloads. Limited human resources and attitudes are important aspects to consider in the planning of a new programme such as ECI. The focus should therefore be on offering extended services that meet the needs of a community, and not on increasing the

workload of existing staff. In the USA a shortage of health care personnel in rural communities also has a negative effect on the maintenance of already existing early childhood services and early intervention programmes (Ryan & Wallstrom, 2001). Limited PHC personnel are another factor that will have an impact on the incremental implementation of ECI functions. Since the PHC personnel may not be able to assist the speech-language therapist and audiologist in some of the ECI functions, the capacity and support of the human resources at the facilities need to be determined in order to establish which ECI functions can be effectively implemented in the facilities.

According to Table 4.3 the number of visits from doctors at the facilities is limited due to the few doctors employed in the sub-district. The number of visits from doctors per week at the different clinics, as determined by the sub-district health department's management, ranges from 1 to 5 visits, and the doctor only consults patients referred by nurses. Doctors may play a significant role in case finding of infants and young children at risk for communication delays or disorders (Hess et al., 1997) and with their support many ECI functions can be effectively implemented at facilities.

### 4.3.2 PHC personnel's perception of the number of health care professionals currently working in the sub-district

Personal interviews were conducted with 20 PHC personnel and they were asked to indicate which professionals are currently working in Ditsobotla sub-district.

All the PHC personnel indicated that PHC sisters and nurses and doctors are working in the sub-district. Less than 50% of the PHC personnel were of opinion that paediatricians, speech-language therapists, occupational therapists and audiologists are working in the district. Furthermore, 65% of the PHC personnel indicated that physiotherapists and 90% indicated that dieticians are working in the sub-district. The PHC personnel therefore appear to be uncertain as to whether other professionals are working in the district. Speech-language therapists and audiologists were not employed in the sub-district in the last two years, and therefore it appears that the PHC personnel are uncertain of the services rendered. Another aspect which needs to be considered is the disruption in service delivery when speech-language therapists

and audiologists have completed their community service and leave the sub-district after one year. There is no certainty that another therapist will be allocated to the district in the following year. The PHC personnel may therefore be uncertain of whether such services are still being rendered in the sub-district.

According to the results it is evident that there is a void in the knowledge of the PHC personnel regarding the availability of allied health care professionals. The lack of knowledge of the different health care professionals working in the district may be related to an inadequate teamwork approach. Moodley (1999) established that the collaborative framework of a transdisciplinary team approach improves PHC personnel's knowledge and attitudes and facilitate communication between speech-language therapists and audiologist in order to achieve role expansion. Therefore poor communication and collaboration between PHC personnel and health care professionals, limited information on services available and no in-service training within the scope of practice of specialized services are indicators that a poor teamwork approach is present in Ditsobotla sub-district.

The importance of uninterrupted service delivery by speech-language therapists has been emphasized by the PHC personnel, as mentioned when early identification methods, referral systems and teamwork were discussed. Inconsistent visits lead to disrupted services and hinder the building of trust in teamwork relationships. Furthermore, inconsistency of ECI service delivery may lead to negativity towards these services and the therapists. Consequently it is necessary that formal arrangements, such as visiting days from speech-language therapists, must be officially integrated in PHC programmes. These arrangements need to be monitored to establish consistent visits by speech-language therapists and audiologists and to reinforce relationships and improve teamwork.

### 4.3.3 PHC personnel's opinion on the professionals responsible for screening of infants for communication disorders

Since the PHC personnel can provide valuable input on the subject of who should be responsible for screening of communication disorders in infants and young children, their opinion was asked on this matter. The PHC personnel were of the opinion that the following PHC professionals have a responsibility in the screening of speech,

feeding and hearing disorders in infants and young children. The results are presented in Figure 4.2.

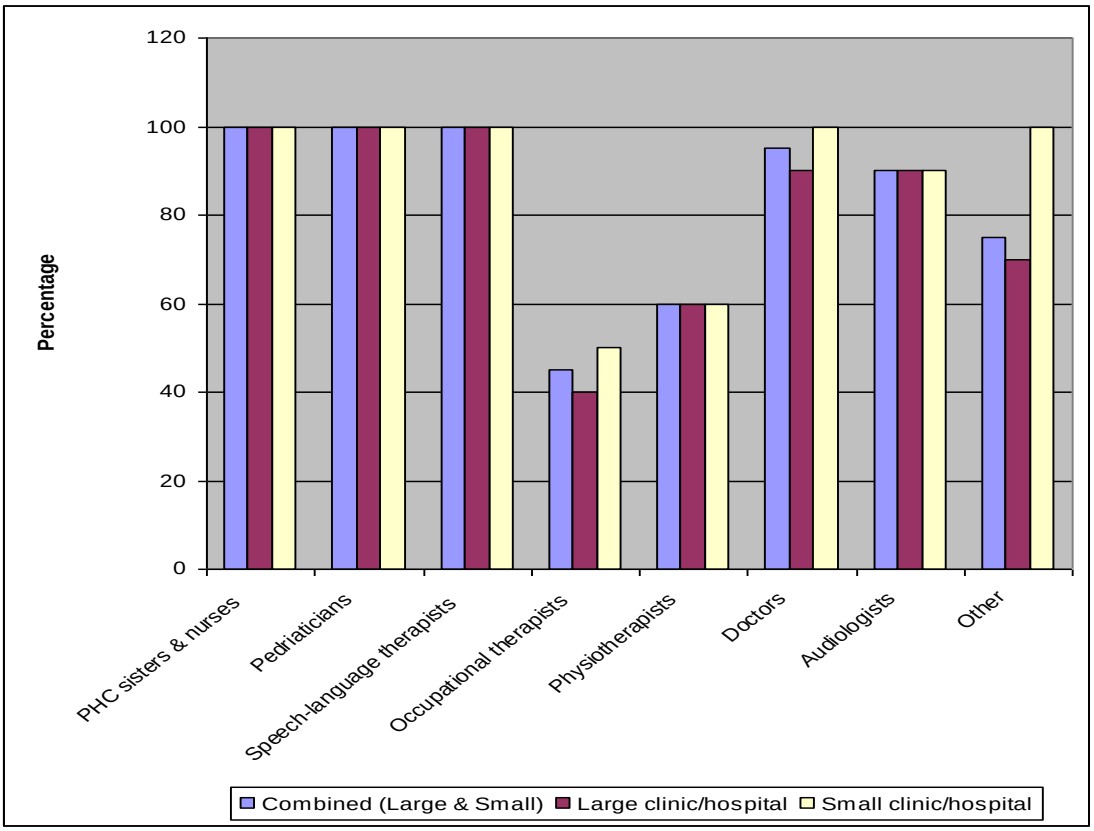



**Figure 4.2 Participants' perceptions of professionals responsible for the screening of communication in infants and young children (n=20)**

According to Figure 4.2 all the PHC personnel included themselves, paediatricians and speech-language therapists as health care professionals being responsible for the screening of infants and young children at risk of communication disorders. This is a very encouraging result, as it would appear that the PHC personnel see early identification as a team effort, which needs to be addressed by a number of professionals. According to the research study by Ntsukunyane (2003) the PHC nurses are part of the team of professionals which identifies developmental disabilities in infants and young children. The fact that the PHC personnel are aware of their role of being part of the team that identifies infants and young children at risk of developmental delays or disorders is of great significance and will positively influence the implementation of identification methods in ECI.

Although the team approach is preferred, sufficient expertise must be present to assess the infants and make a diagnosis. In Finland the paediatricians are responsible for evaluating the infants after birth and informing the parents if the infants are at risk for any developmental delays (Michelsson & Byring, 1997). In South Africa the responsibility of paediatricians is similar, but unfortunately paediatricians are not playing such a prominent role in the rural communities of South Africa, mostly due to the fact that very few paediatricians are employed in these rural areas – the total number of paediatricians are limited in comparison with the high demand in the public sector (http://www.doh.gov.za/mts/reports/neurology01.html). It is suggested that junior doctors in PHC receive training in the management of developmental problems (http://www.doh.gov.za/mts/reports/neurology01.html). Additional training for doctors regarding developmental problems may support case finding of infants and young children at risk for developmental delays or disorders. No specialist paediatric services are available in Ditsobotla sub-district other than a few visits from the paediatrician working at Mafikeng provincial hospital, i.e. on a secondary health care level.

A total of 90–95% of the PHC personnel indicated that doctors and audiologists should also be responsible for screening (see Figure 4.2). It is interesting that all the PHC personnel in smaller clinics identified the doctors as the ideal professionals responsible for screening the communication development of infants and children, whereas only 90% of the PHC personnel in the large clinics voiced the same opinion. Although doctors are not specialized in early childhood development, the PHC personnel perceive them as the only specialized professional with appropriate knowledge visiting the clinics. In the USA it was established that the doctors are the first professionals who parents contact with their concerns regarding their child's development (Hess et al., 1997). Therefore the doctors' responsibility in screening communication disorders in young children should be noted as they are trusted by caregivers. According to Hess et al. (1997) rural areas depend on doctors and PHC personnel to identify families in need of EI services.

Figure 4.2 shows that the opinion of PHC personnel differs when the perceived roles of the speech-language therapist and the audiologist in early identification are compared with each other. The PHC personnel appear to be uncertain of the

differences in the roles of speech-language therapists and audiologists. This may be due to the fact that speech-language therapists and audiologists are jointly or separately qualified, and often in rural contexts one person need to perform the role of both professions as a result of limited human resources. Consequently, the need for marketing the professions is evident, so as to improve the PHC personnel's knowledge of the professions.

Other professionals who were mentioned by the PHC personnel as possible implementers of ECI screening programmes, are the dieticians, social workers, midwifes, volunteers and teachers. These professionals may play a supportive role in the identification of infants and young children at risk of developmental delays or disorders. It appears that, according to the PHC personnel, many professionals share responsibility for the screening of communication in infants and young children. Although many professionals can assist the speech-language therapist and the audiologist with the identification of communication disorders in infants and young children, in reality few professionals providing specialized services are employed in the PHC context in South Africa (Hall & Roberts, 2006). An interesting perception of the PHC personnel is that the parents and family members share responsibility in identifying communication delays or disorders in the child's development. Therefore the role of the family members and caregivers needs to be scrutinized and reinforced, as parental involvement is an important principle of ECI (Louw, 1997). The perceptions of the PHC personnel reflect a positive attitude towards early identification of infants and young children at risk for communication delay or disorders, but contradict the current early identification practices that influence case finding in such a negative manner.

### 4.3.4 PHC personnel's opinion of the value of information gathering from parents and/or caregivers

The majority of PHC personnel (90%) value the information provided by the parents regarding the child's development.

**The following comments were made:**

- Mothers know their children as they observe them daily
- Mothers can provide the milestones of the child
- Sometimes parents provide incomplete information during case history taking, as if trying to hide disabilities
- Grandparents bring children for clinic visits as the mothers are working or have passed away, which leads to limited information on the child's development

**Figure 4.3 PHC personnel's comments on parents as sources of information (n=20)**

According to Figure 4.3 it is evident that although parents are considered to be valuable sources of information on their young children's development and may be utilized for early identification of risks or disabilities, certain factors may influence the flow of information. These factors include the parents' beliefs regarding disability, and when children are looked after by their grandparents. Many infants and young children are living with their extended family because their parents died of HIV and AIDS (Bolton, 2005). Therefore many infants and young children have their grandmothers or aunts as their caregivers (Bolton, 2005). These family members usually do not have the financial resources, space or community support to adequately care for these children, and are often not able to provide the adequate stimulation that these infants and children require (Bolton, 2005).

Taylor et al. (2000) indicate that in Maryland in the USA many infants and young children are referred to the local infants and toddler programme by concerned parents or caregivers. Although the parents or caregivers refer their infants, only 26% of the referrals for EI in the rural areas in Maryland, USA (Taylor et al., 2000) were made by them. It therefore appears that parents and caregivers struggle to identify developmental problems in their children, which has to be addressed by means of providing information and training to them. The fact that the PHC personnel in the current study value the information parents provide regarding the development of

infants and young children is significant. Parent involvement in ECI is of great importance and may be facilitated by the PHC personnel in collaboration with the speech-language therapist.

Upon further investigation it appeared that 75% of PHC personnel indicated that the parents should be responsible for initiating screening of the communication abilities of their infants and young children. However, as the majority of people in rural communities are living in poverty and are from multicultural backgrounds, the primary focus of parents and caregivers is on providing for the family's basic needs. Consequently the developmental milestones of their children may receive less attention. Zhang and Bennett (2001) explain that various aspects – such as education, religion, cultural customs and socio-economic status – influence the families' beliefs about disability and, therefore, their health-seeking behaviour. According to Zhang and Bennett (2001) families may focus on raising children with disabilities at home in a protective environment, and sometimes tend to hide the children from the public. Although it appears that many factors are influencing parents' health-seeking behaviour, parents and caregivers may play a significant role in identifying their children early. Providing information to parents and the public on ECI services and the communication development of infants and young children, may improve the parents' involvement in the screening of the communication abilities of infants and young children. Providing information to parents is part of primary prevention and forms an integral function in ECI service delivery (see Figure 2.1).

In the USA the Child Find Committee of First Steps developed a chart which lists developmental milestones according to certain age levels. This chart is distributed to the parents of newborn infants (Hess et al., 1997). This is an initiative which needs to be considered as a way of educating parents on the communication development of infants and young children. Therefore posters and brochures portraying developmental milestones and ways to stimulate infants and young children should be developed in the local languages and distributed at all PHC facilities.

Many parents in rural areas are dying of HIV and AIDS, leaving behind siblings who have to be cared for by family members (Bolton, 2005; Strasheim, 2004). Only limited knowledge of the infant's or young child's development is then available,

which influences the accuracy of the information gathered for the case history. This phenomenon was also emphasized by the participants in Figure 4.3. Furthermore, the family members may be focusing on providing the infants and young children with the basic needs, with the result that developmental aspects receive less attention. Since orphaned children have nowhere to go, many young children are being looked after by the eldest sibling, who has to fulfil the role of head of the household, which leads to traumatic experiences for these children (Maqoko, 2006). Although parents remain an important source of information about their children, their absence in the lives of their children severely influence information gathering in the process of case history taking. It therefore appears that a number of factors may impact on child-finding methods in Ditsobotla sub-district.

Human resources appear to be limited in Ditsobotla sub-district and it is evident that the PHC personnel are unsure which of the allied health professionals are employed. There appears to be only limited teamwork, as communication is lacking between the professionals. Consequently ECI functions on primary prevention level (see Figure 4.2) need to be implemented at all PHC facilities in order to introduce the profession, promote ECI services to both the PHC professionals and caregivers and to provide training on early identification, stimulation of infants and young children and developmental milestones. The results therefore indicated that basic ECI functions on the primary prevention level, such as promotion of services, need to be implemented according to the facilities capacity within Ditsobotla sub-district. This will provide the basis on which the incremental implementation of other ECI functions, such as developmental surveillance, can be achieved at PHC facilities that have the capacity to accommodate these ECI functions. ECI implementation may be established by coordinating the services with certain PHC programmes, i.e. non-personal health services, disease prevention and control, maternal, child and women's health, HIV and AIDS, sexually transmitted infections and tuberculosis, mental health and substance abuse, and health monitoring and evaluation (see Table 2.2).

## 4.4 EARLY IDENTIFICATION METHODS AND RESOURCES CURRENTLY USED BY THE PHC PERSONNEL

In order to achieve this sub-aim, multiple data sources were used to obtain the results needed. The data were triangulated by means of face-to-face interviews with the PHC personnel (participants in Group 1) and the PHC programme managers (participants in Group 2), as well as through observations made by the researcher (see Figure 4.1).

### 4.4.1 Resources available in the PHC facilities of Ditsobotla sub-district

According to McDermot and Albrecht (2002) the aim of mass media strategies is to educate the public, shape public behaviour and advocate services. Waiting rooms are an ideal area where information can be provided to families, caregivers and the public on health and development, since the patients have to wait for some time for their consultation. Posters, as a form of mass communication, are an effective way of portraying a message, as their exposure is fleeting but recurrent.

**Table 4.4 Information resources and screening material available at the PHC facilities in Ditsobotla sub-district**

| Strata | Posters on general health issues in waiting room | Posters on child development in waiting rooms | Posters on general health issues in consultation rooms | Posters on child development in consultation rooms | Developmental screening material |
|---|---|---|---|---|---|
| 1 | More than 10 | None | Between 5-10 | None | None |
| 1 | More than 10 | None | More than 10 | None | None |
| 1 | Between 5-10 | None | Between 5-10 | None | None |
| 1 | More than 10 | None | More than 10 | None | None |
| 1 | Between 5-10 | None | More than 10 | None | None |
| 2 | Less than 5 | None | Between 5-10 | None | None |
| 2 | Between 5-10 | None | Between 5-10 | None | None |
| 2 | Between 5-10 | None | Between 5-10 | None | None |
| 2 | Between 5-10 | None | More than 10 | None | None |
| 2 | More than 10 | None | Between 5-10 | None | None |

According to Table 4.4 the posters at the PHC facilities on general health issues, which were mostly directed at adults on adult health issues, were readily available in the clinics, while no posters on infant/child development were observed in any of the facilities. By utilizing the waiting rooms as opportunities to educate caregivers and the public (by means of talks, posters, brochures and handouts), case finding may be improved for ECI in Ditsobotla sub-district. Furthermore, space and screening material, such as checklists and case history forms, should be available at facilities for

the screening of communication abilities in young children, and posters on health and development need to be extensive.

Although the number of posters on general health issues is adequate, the absence of posters on infant and child development is inadequate. Information on the development of infants is not provided by means of posters, as service delivery does not focus on child development in Ditsobotla sub-district. The absence of information on infant development at facilities needs to be considered as an opportunity to educate parents and caregivers about developmental milestones, which will increase their awareness and may result in better case finding. The speech-language therapists and audiologists, as part of their professional functions, need to provide information to the public by means of posters and brochures. In collaboration with the PHC Health Promotion Programme (see Table 2.1) the use of consultation and waiting rooms to provide information on infant development to the caregivers and public need to be utilized.

The Department of Health (2001) recommended that clinics be creative in addressing information needs of patients regarding rehabilitation. In order to familiarize parents and caregivers with ECI service delivery, they need to receive guidance and information, as well as easy access to the services (Lequerica, 1997). Written information should be provided to families from different cultural and linguistical backgrounds in their home language (Rivers, 2000).

Posters and brochures in Setswana may therefore be utilized to make the community aware of ECI services, to educate the families on early communication development, on how to stimulate infants and young children, and to advocate the establishment of a preschool curriculum at crèches in order to ensure school readiness (Kritzinger & Louw, 2003). The speech-language therapist needs to work in collaboration with the school health nurse visiting crèches and preschool playgroups in order to advocate a comprehensive curriculum to ensure school readiness of the children. As illustrated in Figure 2.1, it is evident that the incremental implementation of Level 1 ECI functions, i.e. promotion and prevention, needs to start in the waiting and consultation rooms of the PHC facilities.

According to Central Statistics (1998) 20% of all African women and 15% of all African males have received no education. It is therefore necessary to keep low literacy levels of the patients in consideration when information is provided in the form of posters and brochures. Informational talks can also be presented and where there are television monitors and Video Cassette Recorder sets available in the waiting rooms these can be used for playing educational material in the patients' home language, namely Setswana. The barrier of low literacy of parents and caregivers can therefore be overcome by means of a combination of effective strategies to provide information to the community. There is a need for information material in Setswana on communication development in infants and young children, and such material will have to be developed.

The results clearly indicated that none of the facilities have developmental checklists to use and therefore it would appear that PHC professionals are not screening communication development of infants and young children. Appropriate checklists developed for South Africa and case history forms need to be developed so that children at risk for developmental delays can be successfully detected and referred in the PHC facilities (Department of Health, 2000). Swanepoel et al. (2005) concluded that PHC clinics could be the platform for hearing screening programmes that aim to identify infants and young children with hearing impairment as early as possible. Although barriers such as external noise levels influence hearing screening, the PHC clinics provide a means of reaching the entire population of infants when the six-week immunization screening is conducted at the clinics (Swanepoel et al., 2005), but there is a great need for instrumentation in order to be able to conduct hearing screening.

In summary, all the PHC facilities in Ditsobotla sub-district require regular visits from speech-language therapists and audiologists and information on child development in poster and brochure form for the waiting and consulting rooms. Furthermore developmental checklists and hearing testing equipment, to be used for screening individual infants, are needs that should to be addressed at all the PHC facilities in order to improve ECI case finding.

### 4.4.2 Current identification process used in PHC facilities in the sub-district

- **The identification methods used as described by the PHC personnel**

  The participants in Group 1 were asked how they identify infants and young children at risk for developmental delays or disorders, and whether they have specific identification methods to detect communication delays in infants and young children. The results are presented in Figure 4.4.

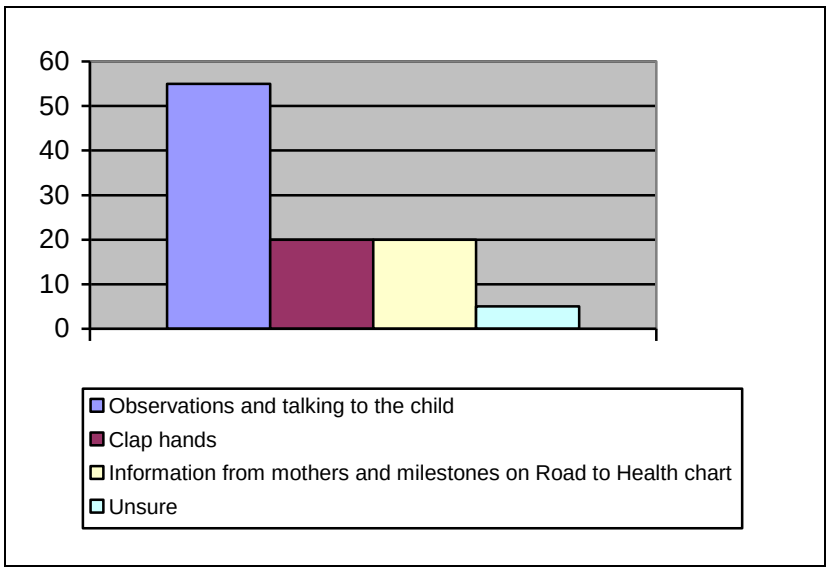



**Figure 4.4 Current methods of identification used by PHC personnel (n=20)**

According to Figure 4.4 the majority of the participants in Group 1 (55%) indicated that they use observation and that they talk to the child to determine if there is a problem with his/her communication development. Talking to the child to determine the level of communication development is a positive initiative, but the participants indicated that they do not have a guideline to assist them in identifying atypical development. Furthermore, it was mentioned that screening is only performed when the mother voices a complaint. The methods currently used in the sub-district do not appear to be valid and the PHC personnel are in need of locally developed, valid, reliable and easy to use identification methods.

According to Hess et al. (1997) it was determined that in rural areas in and surrounding Ford Wayne in the USA, the physician and other health care personnel have to identify infants and young children at risk for developmental

delays, since developmental assessment centres are not available in these areas. Hess et al. (1997) also found that the majority of health care personnel working in rural communities are using informal evaluation methods, such as observation and information provided by the parent, whereas a minority are using a formal evaluation method, i.e. the *Denver Developmental Scale-R* (Frankenburg, Dodds & Fandal, 1988 in Hess et al., 1997), to identify infants and young children at risk for communication delay. The Denver Developmental Scale-R, which appears to be a popular screening tool used by physicians in the USA (Hess et al., 1997), includes different aspects of development, such as gross and fine motor skills as well as communication skills (Samaraweera & Hurwitz, 2000). The scale is lengthy, however, and takes quite some time to complete.

Clear similarities emerge when the identification methods for atypical development used in rural areas in the USA and South Africa are compared. In both instances there is reliance on transdisciplinary work between allied health care workers. It also appears that personnel tend to rely more on informal observations and the opinion of the parents than on the use of formal identification methods.

The PHC personnel concluded that they do not have any additional methods of assessment other than the *Road to Health Chart*. Guidelines to determine atypical communication development therefore have to be provided to the PHC personnel by the speech-language therapist and audiologist. Furthermore, the speech-language therapist and audiologist need to play a supportive role in training the PHC personnel in the early identification of infants and young children with problems so that true transdisciplinary work can take place. Certain identification methods, such as the *Infant/Toddler Checklist for Communication and Language Development* (Wetherby & Prizant, 1998), should be considered for implementation in rural areas in South Africa.

The *Infant/Toddler Checklist for Communication and Language Development* (Wetherby & Prizant, 1998) is a checklist designed to be completed by the parents of infants and young children in order to determine whether referral for a communication assessment is needed. The Checklist is relatively short, which

makes it possible to implement in a PHC clinic context. It must be taken into account that many parents are illiterate, and therefore the checklist will need to be administered by the PHC personnel. The checklist is standardized in the USA and its applicability in South Africa must still be determined. Further research needs to be pursued to determine which identification methods are applicable in the South African rural context. Therefore a critical evaluation of the identification methods is required in order to determine valid identification methods to be implemented in PHC facilities in South Africa.

- **The needs of the PHC personnel with regard to the identification of infants and young children at risk for developmental delays or disorders**

  The understanding of the self-identified training needs of the personnel in EI contexts is critical in order to achieve significant developmental outcomes for young children and their families (Taylor et al., 2000). The increasing need to train personnel working in rural communities to provide support in the needs of young children with disabilities is evident (Ryan & Wallstrom, 2001). Since the PHC personnel are using informal and invalid identification methods to identify infants and young children at risk for communication delays or disorders, a need for formalized and valid identification methods and in-service training on how to identify these infants and young children exists. The PHC programme managers unanimously agreed that they require information on ECI services. Consequently training and information on ECI services should be provided to the PHC programme managers.

**Information that needs to be provided**:

- Booklets on ECI services
- Information on ECI to improve awareness in PHC personnel and PHC programme managers
- Information on the communication development of infants and young children
- Guidelines to improve collaboration between professionals
- Information on specific disorders or disabilities and brochures on development which the PHC personnel can distribute to parents.

**Figure 4.5 Information needed on ECI in the sub-district (n=28)**

According to Figure 4.5 the participants in Group 1 and Group 2 indicated that information on communication development, collaboration, ECI services, and specific disorders is required in the PHC context. Furthermore, the information has to be provided in brochure and booklet format. Speech-language therapists and audiologists are responsible for the development and distribution of the information to the PHC personnel and programme managers in the PHC context.

The PHC personnel expressed a dire need for in-service training with regard to ECI. This finding is in agreement with Ntsukunyane (2003) who found that certain limitations exist in the academic training of PHC nurses in South Africa with regard to risk factors and skills for the identification of hearing loss in infants and young children. In the USA, Ryan and Wallstrom (2001) found that personnel working in rural communities in the USA are inadequately trained to provide EI services to infants and their families. The training needs of the PHC personnel in rural communities in South Africa appears to be more extensive as they require training on what ECI services entail, whereas the personnel in USA need training on providing EI services (i.e. implementation of EI is already successful). Therefore the information needs of PHC personnel are wide-ranging since ECI are unfamiliar in rural communities in South Africa, and the implementation of ECI services has not been established. The focus of training programmes therefore differs widely between the two countries and it is therefore essential that unique training programmes be developed to address the needs of the PHC personnel working in rural areas in South Africa. By means of a research process the information required nationally by PHC personnel can be established and a comprehensive in-service training programme developed.

The limited availability of specialized resources, such as speech-language therapists and audiologists, is another obstacle identified in the USA which influences service delivery in rural communities (Ryan & Wallstrom, 2001). Limited speech-language therapists and audiologists working in rural communities are not only evident in the USA, but also in South Africa, and need to be addressed in order to improve service delivery. Consequently, an initiative where speech-language therapists and audiologists travel to rural areas to provide in-service training to PHC professionals may improve service-delivery in ECI,

even though speech-language therapists and audiologists are limited in these areas. In-service training of PHC personnel to improve awareness of EI services may facilitate community involvement (Taylor et al., 2000) through awareness and/or screening campaigns, and therefore improve case finding in ECI.

Robertson (2003) developed a framework of the knowledge antenatal nurses require to promote the prevention of communication disorders. Within this framework knowledge needs to be included of normal infant development, atypical infant development, the efficacy of ECI, a team model of service delivery and prenatal factors which place infants at the risk for communication disorders (Moodley et al., 2000; Robertson, 2003). The importance of communication in comparison with other developmental domains, the role of the speech-language therapist and audiologist, criteria for the identification of communication disorders and the available speech-language therapy and audiology resources in the community have to be included as well (Moodley et al., 2000; Robertson, 2003). Many of these aspects were mentioned by the participants in the current study. The necessity of developing an appropriate training programme by means of extensive research is evident. Rural on-site training, described by Squires (1996), needs to be explored as the effectiveness of this approach has been established in the USA as an economic way of training personnel throughout the country.

- **The effectiveness of the current identification process**

  The PHC personnel were asked whether they thought that the current identification methods are effective. The results are illustrated in Figure 4.6.

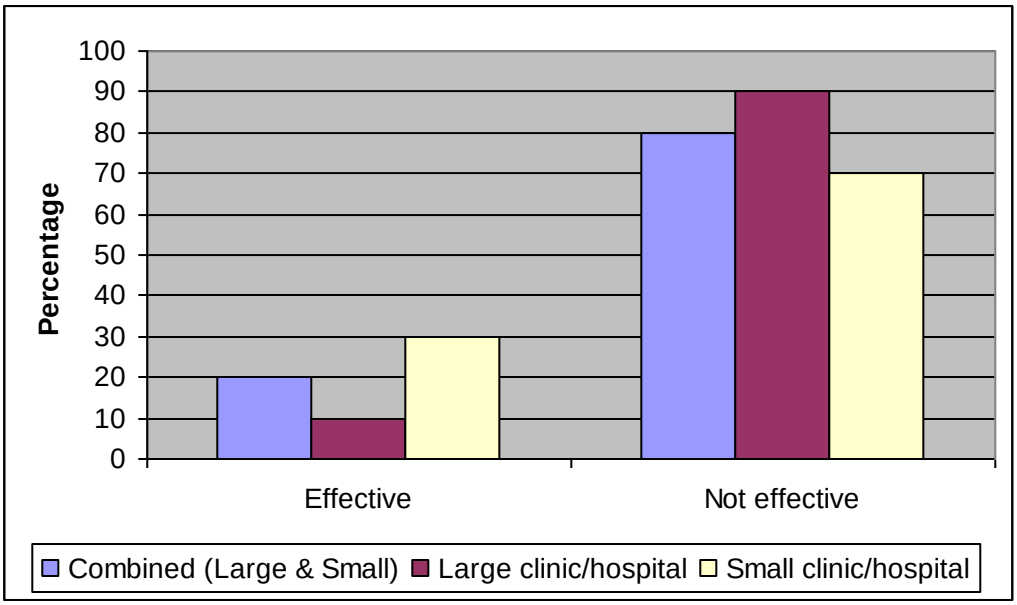



**Figure 4.6 Participants' perception of the effectiveness of the identification methods currently used for ECI in the PHC context (n=20)**

According to Figure 4.6 the majority of the PHC personnel (80%) indicated that the current identification methods are not effective in identifying infants and young children at risk for communication delay. Although the majority of participants at the small and large clinics indicated that the current identification methods are not effective, the small clinics had a larger percentage of participants indicating that the current identification methods are in fact effective. Therefore the PHC personnel view their identification methods as largely ineffective, and consequently do not rely on these methods. Furthermore, the identification methods being ineffective may influence their attitude towards ECI services and the implementation of early identification methods.

Possible reasons for the minor difference between the small and large facilities may include the level of education of the PHC personnel and time constraints. Since the participants at the small facilities have lower levels of education than the participants working in the large facilities, their opinion may differ due to their having received less training with regard to ECI services. The need for a

valid screening checklist to identify infants and young children who are at risk for communication delay or disorders has already been established in the previous results (see Figure 4.4). The other possibility is that PHC personnel in smaller facilities have more time to spend with the infants and their mothers, which makes it possible to conduct a screening of communication development and to take a full case history (see Table 4.3). Time management and employing more personnel may be part of the solution focused on improving the identification of infants and young children at risk for communication delay, but an appropriate identification method is essential.

**Reasons provided by the PHC personnel for the identification methods being ineffective include:**

- Limited training in the identification of infants at risk for communication delays or disorders
- The absence of a speech-language therapist in the sub-district
- No standardized guidelines for the screening of communication development
- Detecting young infants at risk for communication delays is difficult as parents only tend to bring infants when they are sick
- Lack of information to be provided to the mother on communication development in children

**Figure 4.7 Reasons for identification methods being ineffective (n=20)**

The need for information brochures and posters on the development of infants and young children was evident during the discussion of the facilities (see Table 4.2) and is therefore reinforced by the comments of the PHC personnel. At tertiary health care centres, such as the Facial Cleft Deformities (FCD) clinic in Pretoria, information sheets on communication development are provided to the parents (Louw, Shibambu & Roemer, 2006). The research findings documented by Moodley in Kwazulu Natal (1999) also mention the fact that speech-language therapists and audiologists should market their services. Having the same result eight years later in another province in South Africa implies that no progress has been made.

- **Guidelines to improve the current identification process identified by the PHC personnel and PHC programme managers**

  The PHC personnel and programme managers were asked what the best way would be to identify infants and young children at risk for communication delay as early as possible. The results are presented in a Figure 4.8.

**Suggestions on how to improve current identification methods:**

- Information and training must be provided to the PHC personnel on ECI services, as well as guidelines on how to identify infants and young children. The PHC personnel must therefore be made aware of and motivated to identify infants as early as possible.
- The caregivers must be motivated to visit clinics regularly and be educated on the communication development in infants and young children.
- More volunteers should be trained to do home visits in order to detect infants and young children earlier. Non-governmental organizations and churches should be involved as well.
- PHC programme managers can assist the ECI programme when communicating with caregivers, families and the public.
- A screening framework for the identification of infants and young children should be developed where milestones for communication development are indicated clearly.
- A permanent speech-language therapist must be allocated in the sub-district.
- A chart or checklist must be developed in order to improve the identification of infants during the six weeks' immunization consultations (to be used with the *Road to Health Chart*).

**Figure 4.8 Suggestions on how to improve the current identification methods as described by the PHC personnel and PHC programme managers (n=28)**

In Figure 4.8 it is evident that the self-identified role of PHC programme managers in ECI may be used to improve the identification of infants at risk for developmental delays or disorders. The PHC programme managers therefore show insight into the need for ECI service delivery and the importance of early identification, which may have a positive influence on case finding in Ditsobotla sub-district. The use of volunteers is another important resource which may be utilized with the integration of ECI services. After local community volunteers receive the necessary training, they may be able to fulfil a supportive role in the team; they may also identify possible communication or feeding problems and monitor the intervention process (Fair & Louw, 1999). Volunteer participation in health-related activities is supported by the Department of Health (1997) and implementation strategies to involve the community have been established.

Identifying and training local volunteers for ECI services should be a priority when ECI services are to be implemented in a rural community.

### 4.4.3 The ability to identify communication delays or disorders and developmental surveillance used by the PHC personnel in the sub-district

In order to be able to support the PHC personnel in the identification of infants and young children at risk for communication delays or disorders, a better understanding must be established of the current developmental screening practices.

- **The PHC personnel's confidence in their ability to identify risks for speech, language and hearing delays or disorders in infants and young children**

  Since it has been concluded that the PHC personnel regard their identification methods for ECI as invalid, their opinion regarding their ability to identify infants and young children at risk for communication delays or disorders still needs to be established.

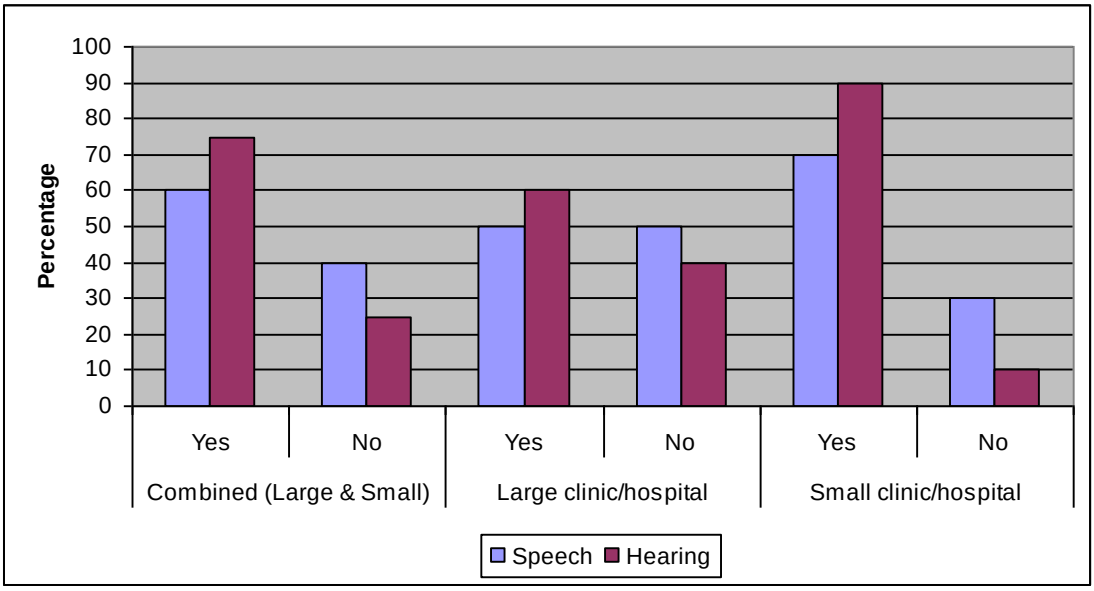



**Figure 4.9 The PHC personnel's opinion of their ability to identify communication delays or disorders in infants and young children (n=20)**

According to Figure 4.9 a total of 40% of the participants feel they are not able to identify speech and language delays or disorders infants and young children, whereas 25% of the participants feel unable to identify hearing disabilities in infants and young children.

The identification of speech and language delays or disorders appeared to be regarded as more complex than the identification of other developmental delays, such as gross motor delays. A clear discrepancy in the results of the small and large clinics was noted. It appeared that the PHC personnel from the smaller clinics feel more able to identify both speech and hearing disabilities and delays in young children. Therefore more PHC personnel in the small facilities were of the opinion that their identification methods (see Figure 4.6) are effective and that they were able to identify infants and young children at risk for communication delay or disorders. This may be due to the fact that the PHC personnel see fewer infants and young children per day and are able to spend more time with each infant (see Table 4.3). The PHC personnel were clearly divided on the matter of being able to identify speech and hearing disabilities and delays in infants and young children. The uncertainty of the PHC personnel regarding their ability to identify communication disorders further reinforces the extent of the training needs experienced with regard to ECI (see Figure 4.8). Therefore the need for in-service training in the screening of speech and hearing abilities in infants and young children appears to be extensive.

In the USA nurses and technicians mainly perform the screening of hearing in newborn infants, but there appears to be a lack of supervision by the audiologists (Ntsukunyane, 2003). Although the scope of service delivery differs between the USA and South Africa, the same lack of supervision in the identification of hearing disorders in infants in rural areas is experienced by the PHC personnel. Consequently the limited number of audiologists working in rural communities in South Africa has an effect on the case finding of infants with hearing loss.

The reasons the PHC personnel provided as to why they do not feel able to screen for speech and hearing disorders include invalid screening methods and limited knowledge, which translates into training and resources needs. The PHC personnel indicated that the milestones provided on the *Road to Health Chart* do not include milestones of speech and hearing abilities in infants and young children. When the PHC personnel who indicated they are able to screen for speech and hearing abilities were asked why they feel able, most of them replied that they do have knowledge in this regard but that they need more training. The

need for a developmental screening tool to use in family health care clinics was also identified by Moodley (1999), as the community nurses doubted the reliability and the validity of the tool that they were using in the clinics.

- **Current general developmental surveillance in the sub-district**

  The use of general developmental surveillance in the sub-district needs to be determined and described as this may provide a basis for the implementation of a communication surveillance programme. It is essential to determine whether all the infants and young children are monitored for general developmental disorders, and which surveillance procedures are used. The PHC personnel were asked to indicate whether they are monitoring the development of infants and young children at the PHC facilities and, if no, the reason for their answer.

  The results indicate that 60% of the PHC personnel commented that developmental surveillance is not being done at the PHC facilities.

- Time-constraints at the clinics
- Lack of specialized PHC personnel
- Parents not consulting with PHC personnel
- Lack of training
- Lack of developmental checklists and screening procedures
- Mothers consult PHC personnel on their child's health, therefore the focus is on the symptoms of the illness and not on the child's developmental milestones

**Figure 4.10 Reasons why developmental screening has not been established (n=20)**

According to Figure 4.10 the PHC personnel appear to rely on the parents providing information on the child's development and voicing a concern when the child's communication development is limited. Although the role of the parents and caregivers as resources needs to be utilized, the reliability of parental information may be limited at times as a result of factors limiting the flow of information. Figure 4.4 clearly indicated that sometimes parents feel guilty or try to protect their infant or young child with a disability by hiding them, while grandparents who are looking after the child usually do not have the information to provide to the PHC personnel. During a recent study it has been concluded

that PHC nurses who are working in rural communities are usually overworked and focus more on illnesses for which they provide medication. Consequently they provide less attention to other problems as a result of time constraints (Ntsukunyane, 2003).

- **The necessity of universal developmental surveillance of infants and young children in the PHC clinics**

  The PHC personnel were asked whether they feel it is necessary to monitor the communication abilities of every child visiting the clinics, and to provide a reason for their answer. The results are presented in Figure 4.11.

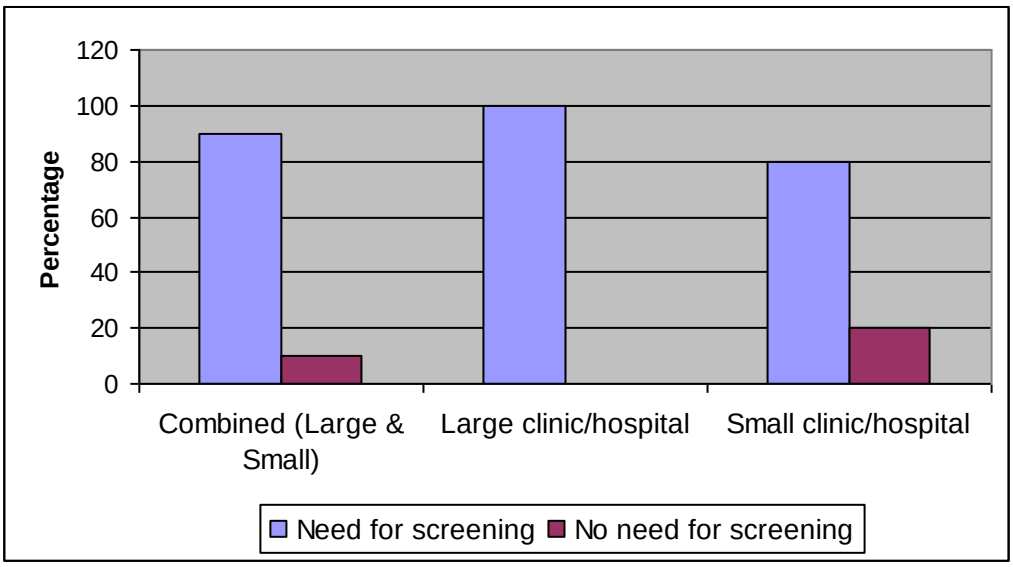



**Figure 4.11 Need for universal developmental surveillance of communication abilities on PHC level (n=20)**

According to Figure 4.11 it is evident that 90% of the PHC personnel confirmed that it is necessary to monitor all infants and young children's communication development. Since the PHC personnel indicated the need for universal developmental surveillance, it is evident that they are aware of the importance of these services, which may reinforce collaboration during the implementation of a transdisciplinary team approach. The PHC personnel appear to be positive towards universal developmental surveillance programmes, as they indicated that the monitoring of all children's communication abilities is necessary at the PHC facilities. They also explained that developmental delays and disorders are mainly detected in the PHC context as this is the entry level for the patients into

health care; and therefore the level on which developmental surveillance should be management.

The Maternal, Child and Women's Health (MCWH) programme is supposed to continuously monitor the health and development of infants and young children, and therefore developmental surveillance of communication abilities may be facilitated through collaborative activities. The Ministry of Social Health and Welfare in Finland supports the notion that developmental surveillance has to be part of regular well-baby checkups (Michelsson & Byring, 1997). In Finland regular developmental surveillance appears to be effective, as a lower incidence of developmental delay has resulted (Michelsson & Byring, 1997).

Developmental surveillance form part of regular well-baby check-ups, where the child's growth and development are monitored, vision and hearing are screened, and vaccinations and parental education are provided (Michelsson & Byring, 1997). The implementation of developmental surveillance, hearing screening and parental education at baby clinics, in collaboration with the MCWH programme, has to be considered as an opportunity to improve early identification of infants at risk for communication delays or disorders. Since communication delay is the most prevalent delay present in children under three years (Rossetti, 2001), a focus on communication surveillance may also reveal other developmental delays.

- **PHC personnel's opinion on the ideal stages at which screening should be implemented in the PHC facilities**

  The need for the screening of communication abilities of infants and young children has been established, but the stage at which the screening should be done still needs to be determined. Therefore the opinion of the PHC personnel on the stage at which screening should take place, may provide valuable input for the implementation of screening programmes in the MCWH programme. The PHC personnel's opinions are presented in Figure 4.12.

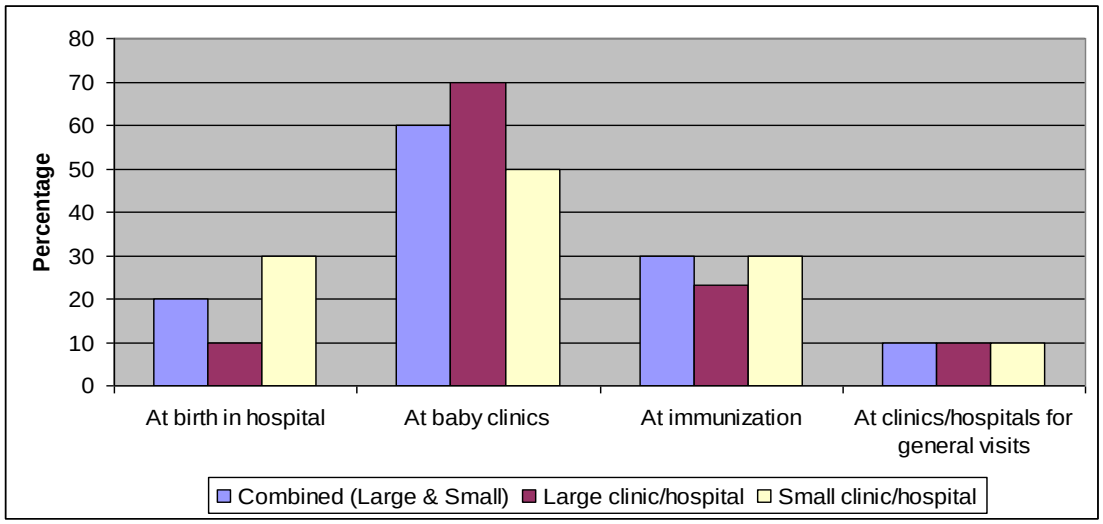



**Figure 4.12 PHC personnel's opinions of stages at which developmental surveillance of communication abilities may be implemented (n=20)**

Baby clinics, that form part of the MCWH programme, were identified by the majority (60%) of the PHC personnel as the best time to implement the developmental surveillance of communication abilities in infants. Only 30% of the PHC personnel indicated that the immunization stage is best for the surveillance of communication development. Baby clinics appear to be a daily occurrence at facilities, and immunization co-occurs with the baby clinics. Mothers and their infants visit baby clinics regularly to monitor growth, while with immunization mothers visit the clinics at the appropriate age level, e.g. 6-weeks immunization.

Opportunities at birth and during general visits were indicated as not being appropriate times to conduct screening. The MCWH programme is managing and monitoring the immunization of infants, baby clinics and births. The PHC personnel clearly indicated that developmental surveillance at birth may not be successful as disabilities cannot be detected so early, except for visible abnormalities. However, various studies have established that risk factors for communication delays or disorders, such as low birth weight and preterm birth, can be identified as early as before and at birth (Hess et al., 1997; Rossetti, 2001), which evidently contradicts the opinion that risk factors cannot be detected at birth. It appears that the PHC personnel are uncertain of the risk factors for communication delay that can be identified in infants before and at birth. They are well aware that physical anomalies and genetic disorders can be identified

early, but they feel uncertain about the risk factors for communication disorders. Consequently the PHC personnel are experiencing a need for information regarding the risk factors for communication disorders.

Risk registers, such as the guidelines provided by Rossetti (2001) or Joint Committee on Infant Hearing (JCIH, 2007), need to be available to the PHC personnel as a guide to identifying infants at risk for communication delay or disorders, but should be used in combination with other developmental surveillance methods. Since risk registers were found to be ineffective in detecting hearing loss of unknown origin, it should not be the only screening method used in ECI (Kritzinger, 2000). Swanepoel et al. (2005) identified the 6-weeks immunization clinics at PHC facilities as an appropriate time to screen infants' hearing abilities. The results are therefore similar to the findings, to a certain extent, although baby clinics were identified as the best time to screen for communication delays. Consequently it appears that well-baby clinics and 6-weeks immunizations were mentioned as an ideal time for development screening.

Communication developmental surveillance could therefore be an ongoing regular activity at the PHC facilities as visits need to be determined by each child's age. Parents and caregivers know when to bring their infants for immunization as the ages are set out on the *Road to Health chart.* Consequently it is necessary to develop a schedule for communication developmental surveillance so that the infants and young children's communication development can be monitored at regular intervals, and so that parents know when to bring their infants and children for these services.

- **PHC personnel's opinion on the prevalence of communication disorders in relation to other developmental problems in infants and young children**

  The PHC personnel's opinion on the prevalence of communication disorders was also obtained. A total of 80% of the PHC personnel indicated that communication disorders are rare when compared to other developmental problems, while in fact delayed communication development is the most common

symptom of developmental disability in infants and young children (Rossetti, 2001).

In the USA ECI programmes are the most common EI programmes in rural areas due to the high demand for these services (Taylor et al., 2000). The results of this study therefore not only indicate that the nursing sisters are identifying other developmental problems more than communication delays, but also that the statistics of infants and young children identified with communication delay and disorders in the sub-district are inaccurate. The current identification methods are thus ineffective as case finding of infants with communication delays is either extremely limited or non-existent. The PHC personnel confirm that identification methods are not available, which makes detection even more difficult.

The fact that parents do not bring the child as soon as the problem is noticed, is another reason PHC personnel cite for feeling that communication delays are rare. Parents sometimes feel guilty or try to protect the child by hiding the child (Zhang & Bennett, 2001). It has been established that grandparents look after infants and young children when parents are deceased (Bolton, 2005; Strasheim, 2004) or working far away from home. ECI services are largely unknown to parents and caregivers and they may not know that they can request assistance from speech-language therapists and audiologists if they suspect delayed communication developmental milestones. All these factors influence the identification of infants and young children when visits to the PHC facilities are limited and irregular.

The limitations in the identification methods have been described but the practices used to refer patients for ECI are still unclear.

## 4.5 REFERRAL SYSTEMS USED BY PHC PERSONNEL

Although the PHC personnel indicated that it is difficult to identify infants and young children at risk of communication delay, it is essential to determine whether the existing referral framework is efficient. Furthermore it has to be determined whether the referral framework is able to support ECI services when implemented.

### 4.5.1 Current referral process used to refer patients to speech-language therapy and audiology services in the sub-district

Although no referrals are made for ECI services in Ditsobotla sub-district, the referral system used to refer patients for other speech-language therapy and audiology services may provide insight on how to develop or improve the referral system in order to accommodate ECI services as well. The PHC personnel were asked whether they are currently referring patients to the speech-language therapist and audiologist, and to describe the referral process. Even though no speech-language therapist and audiologist were employed in the sub-district, referrals need to be made for these services to the respective referral centres.

A total of 90% of the PHC personnel commented that they refer patients to speech-language therapists and audiologists. It therefore appears that the PHC personnel are supportive of the services rendered by the speech-language therapists and audiologists and that they do refer children when a communication problem is identified. Their referral practices may have a significant influence on the outcome of the implementation of ECI in the rural community.

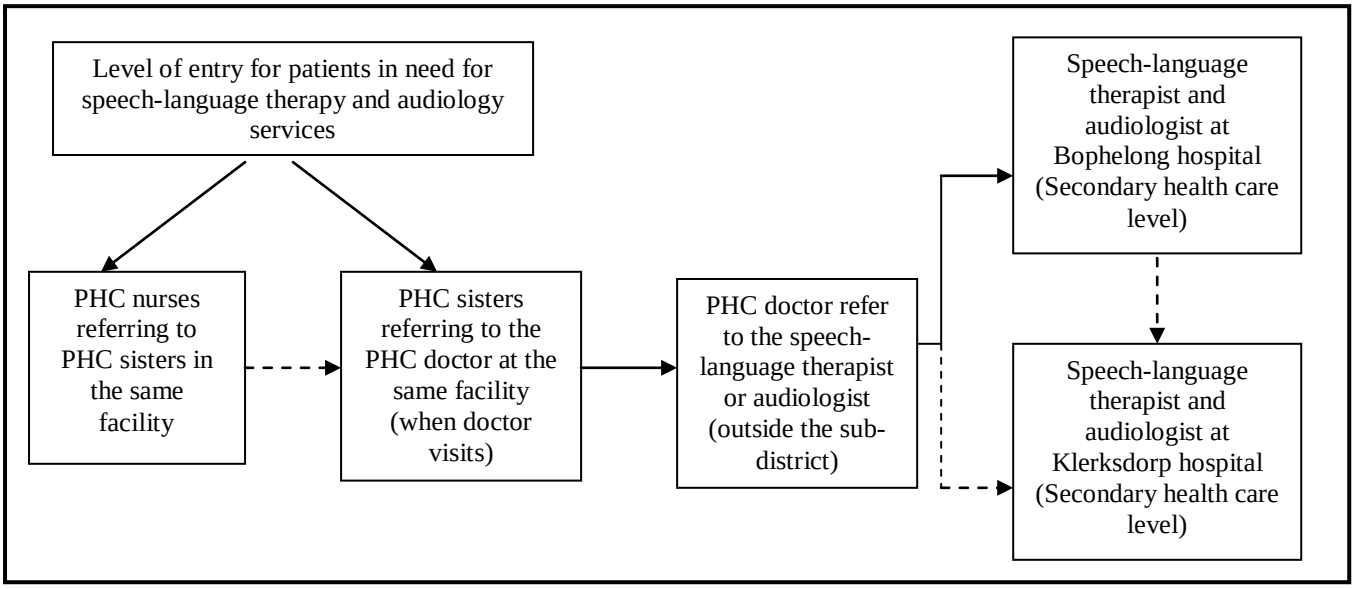



**Figure 4.13 The current referral process used to refer patients for speech-language therapy and audiology services as described by the PHC personnel (n=20)**

The referral process described by the PHC personnel, as seen in Figure 4.13, is as follows: The patient is identified by the PHC nurse or sister. The patient is referred

to the PHC sister in the same facility (if the PHC nurse identified the patient), who then makes the referral to the PHC doctor when he visits the clinic or hospital, within the intradepartmental network. The doctor then examines the patient and makes the referral to the speech-language therapist at Bophelong Hospital in Mafikeng or to Klerksdorp Hospital.

The referral route is therefore clear, but upon further investigation, some barriers that prevent the smooth running of the process have been identified. As the doctor visits the clinics on certain days of a week only, there is a large case load, which limits the time the doctor can spend with each patient. When a doctor sees an infant, therefore, the consultation time may well be so limited that the doctor cannot enquire in depth about the infant's communication development. Children often get lost at this stage of the referral process, or a time lapse occurs before the referral is made to the speech-language therapist and audiologist.

Time delays occur, since patients have to wait for the next doctor's visit before they can be referred. Patients with complex health or developmental problems are referred to the doctor as the PHC personnel are not able to address these problems. A few of the PHC personnel of Coligny Health Centre, Bakerville, Old Bodibe and Poly clinics indicated that they make direct referrals to the speech-language therapist or audiologist, instead of referring the patient to the doctor first, which accelerates the referral process to some extent. It appears that the participants who are making direct referrals to the speech-language therapists or audiologists are in general more educated and experienced sisters (see Table 3.1). Consequently the level of education and experience of the PHC personnel may be in direct relation to their knowledge and understanding of speech-language therapy and audiology services.

A few PHC personnel mentioned that infants and young children with suspected hearing loss or chronic conditions such as otitis media are monitored (3-4 follow-up visits) over a period of time before being referred to the doctor. Thus time delays occur by this process. Furthermore, parents and caregivers are discouraged when they have to visit the clinics or hospitals with the same condition and the outcome appears to be unchanged. The importance of *early* identification, referral, the start of intervention and providing family support forms part of the foundation of ECI

(Feldman, 2004), therefore the PHC personnel may need further training in ECI services in order to improve *early* referral and intervention of infants and young children at risk for communication delay.

Bophelong Hospital in Mafikeng is the primary referral centre for Ditsobotla sub-district, as it is the only secondary health care centre allocated in the central district of North West Province. All the patients must be referred to the speech-language therapist and audiologist at this secondary health care centre as there were no speech-language therapists and audiologists allocated in Ditsobotla sub-district at the time of data collection. The patients need to be transported to Bophelong Hospital for their appointments and transport has to be arranged in advance. When no speech-language therapists and audiologists are available at Bophelong Hospital, the next referral centre for Ditsobotla sub-district is Klerksdorp Hospital. Patients have to travel far, approximately 242 km, when they are referred to Klerksdorp Hospital; as the transport takes them to Bophelong Hospital where they have to stay overnight before being taken to Klerksdorp Hospital early the next morning. The North West Department of Health Referral Framework (2003) stipulates that the referral pattern (i.e. starting at PHC, then to secondary health care and thereafter to tertiary health care) has to be followed when making referrals. The success of the current referral framework has not yet been determined but has to be scrutinized as this may be influencing speech-language therapy and audiology service delivery.

Guralnick (2004) advocates establishing a developmental systems model for EI, in which an array of EI programmes need to be run, to be utilized by vulnerable children and their families in the USA. In this model the patients' entry to service delivery start with a screening programme or referrals, which determine the intervention programmes to be accessed from there on (Guralnick, 2004). The developmental systems model supposes less transport difficulties and greater availability of ECI services in an area. Therefore the developmental systems model appears to be simple, with easy access to service delivery, whereas the referral system in Ditsobotla sub-district is lengthy and indirect, which influences the patient's access to services. The referral systems may need to be revised and a greater availability of ECI services need to be considered. The availability of services and efficient referral systems will

improve the patients' access to the services as well as the effectiveness of service delivery.

Hess et al. (1997) found that doctors in the USA do not refer infants at risk for developmental delays early enough to other health care professionals for assessment and intervention. According to Hess et al. (1997) doctors need to receive regular in-service training on early identification of communication disorders, parents need to receive information so that they are able to report any questionable behaviour, and that screening of communication behaviours should be integrated into general developmental assessments. It is possible that in rural communities in South Africa, similar to the USA, doctors may not be referring all communication delays or disorders in time to the speech-language therapist. It furthermore appears that only serious cases are referred to the speech-language therapist and audiologist, while the less severe cases remain unidentified and are therefore not referred. The necessity of the doctors' involvement in the current referral process needs to be determined, as some of the PHC personnel are informed and may be able to make referrals directly to the speech-language therapist and audiologist.

According to the referral guidelines provided by the North West Department of Health (2003), the referral pattern for facilities or districts in particular has to be communicated to the PHC personnel in order to ensure the effective referral of patients. A total of 80% of the PHC personnel indicated that they experience time delays when patients are referred. A disturbing finding was that the infants and young children are being reviewed a number of times before the referral to the speech-language therapist is made. Valuable time is lost when reviews are scheduled by the personnel over a period of time, whereas if the referral had been made immediately the child could have been receiving ECI services thus far. The distances between patients' homes and the hospitals need to be taken into consideration, as patients are not usually able to travel far on a regular basis. The patients have to make use of public transport to get to the hospital where the arranged transport departs. Due to the large number of patients to be seen by speech-language therapists and audiologists and the transport problems, scheduled follow-up visits by patients are irregular. Therefore it would be best for the patient to receive ECI services at the local clinic, instead of far away at the secondary health care hospital. The speech-language

therapist and audiologist must rather visit the PHC clinics and therefore make services more accessible and affordable to patients according to the principles of PHC. If ECI services were to be incorporated into PHC programmes, adherence to the principles of PHC is imperative.

### 4.5.2 Effectiveness of the current referral process according to the opinions of the PHC personnel and PHC programme managers

The PHC personnel's opinions were requested on the effectiveness of the current referral process. The personnel were also asked to provide reasons for the referral process being effective or ineffective. The programme managers were asked to indicate the effectiveness of the inter- and intradepartmental as well as inter-organizational referral frameworks in the sub-district. The results are presented in Figure 4.14 and Figure 4.16.

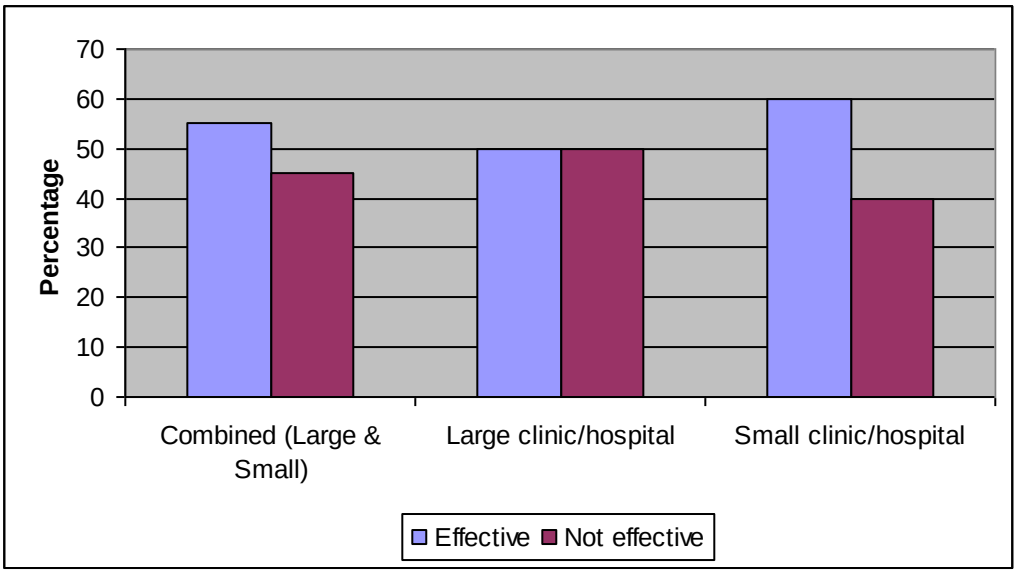



**Figure 4.14 The participants' views on the effectiveness of the current referral system in Ditsobotla sub-district (n=20)**

According to Figure 4.14 a relatively equal distribution of the PHC personnel indicated that the current referral system is either effective or ineffective. The difference between the results from the small clinics and the large clinics indicates uncertainty as to whether the current referral system is effective. The PHC personnel, who indicated that the referral system is successful, commented that the doctors know what they are doing and that PHC personnel are aware of cases where the children received the required services.

**Factors identified by the PHC personnel that are interfering with the effectiveness of the referral system, include:**

- The far distances to the hospitals.
- The patients struggle with transport as they have little or no money for their trip.
- The PHC personnel receive little or no feedback from the speech-language therapists on their referrals.
- The doctors visit clinics only a few times every week, which delays the referral process as the patient is referred to the doctor for an appointment.

**Figure 4.15 Reasons for the referral process being ineffective as perceived by the PHC programme managers (n=20)**

As seen in Figure 4.15, many factors appear to be influencing the referral system used to refer children for speech-language therapy and audiology services. Kolapan (2004) found that referral criteria of an urban PHC clinic in the Gauteng province are inadequate and that the limited knowledge of the PHC professionals regarding the role of speech-language therapists and audiologists as well as the referral practices may influence the referral process negatively. It appears that referral systems in rural areas have many obstacles to overcome, for instance transport and travelling distances, whereas the referral systems in urban areas have fewer obstacles. Kolapan (2004) also found that PHC personnel who make referrals receive no feedback on the outcome of referrals, which hinder effective teamwork and may discourage personnel to participate in ECI functions. Clear similarities exist between the results obtained by Kolopan (2004) at an urban PHC clinic in the Gauteng province and the current study in Ditsobotla sub-district, North West porvince. Therefore it appears that limited feedback from professionals may not be a problem limited to a certain area or sub-district and needs to be addressed accordingly.

The factors influencing the referral process as indicated by the PHC personnel are similar to the factors identified by Enderby and Petheram (2000) in the UK. The factors identified include limited knowledge, amongst others, of the risk factors for communication delay and of the personnel making the referral, waiting periods for appointments, and epidemiological and demographic factors, i.e. travelling distances between clinics (Enderby & Petheram, 2000). According to Taylor et al. (2000) the allocation and the utilization of resources as well as funding are other factors that negatively influence the referral process in the USA. It appears that professionals

tend to be allocated to urban areas where resources are readily available, whereas rural areas are continuing to receive little or no support in terms of funding and human resources. In South Africa many speech-language therapists and audiologists are allocated to rural communities by way of the community service programme (Hugo, 2004), but the utilization of these professionals still needs to be improved. Another disadvantage in South Africa are the high turnover of community service speech-language therapists and audiologists as annual placing entails that the same person is not retained the following year.

South Africa as a developing country has limited resources and funding available in rural areas for establishing an ECI programme, which evidently has a significant influence on the current referral process. According to Lequerica (1997) the traditional referral system in the USA resulted in patients visiting different facilities for rehabilitative services, which led to slow service delivery with little communication between professionals. It appears that the current referral process for ECI in South Africa is similar to the out-dated referral process used in the USA. Currently a one-stop model is used in the USA, where comprehensive services are available at one facility, which makes a transdisciplinary team approach possible (Lequerica, 1997). Although the one-stop model approach appears to be successful in the USA, in South Africa in rural communities this may not be possible for various reasons, such as lack of funding and the limited presence of speech-language therapists and audiologists. Still, the implementation of the one-stop model approach needs to be considered as this will improve the travelling distances for patients, solve transport problems, and improve feedback between professionals. Therefore the one-stop model should be considered as the ideal, but alternatively service delivery has to be improved in the existing referral system.

The effectiveness of the different levels of the referral process needs to be determined as perceived by the PHC programme managers, in order to establish whether there are problem areas in the process. Since the PHC programme managers are managing programmes as a whole, they have a holistic view of the referral process and therefore may identify certain shortcomings and obstacles present in the current referral process. Furthermore, they may provide valuable insight into how these obstacles can be overcome. The PHC programme managers' opinions are presented in Figure 4.16.

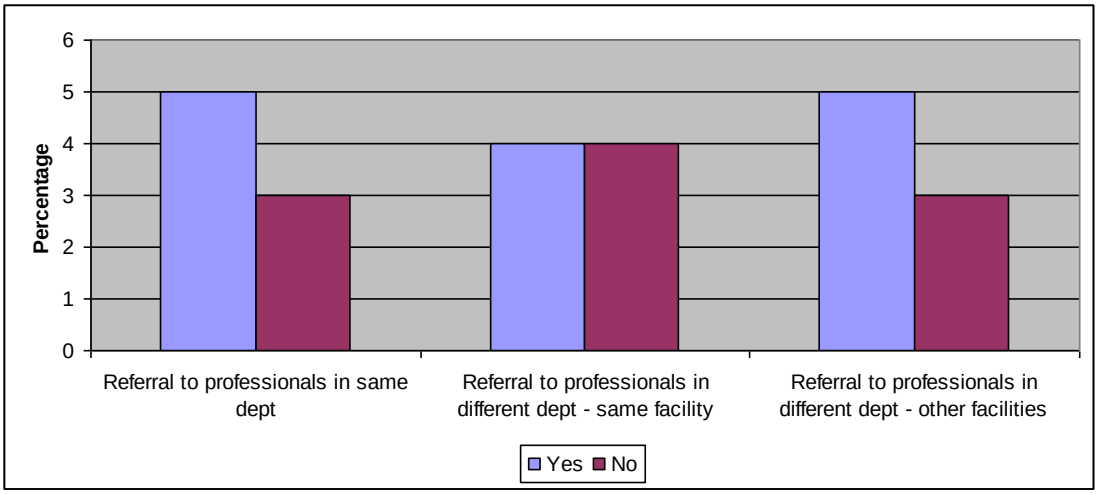



**Figure 4.16 Programme managers' views on the success of the referral framework in Ditsobotla sub-district (n=8)**

According to Figure 4.16 it is clear that there is an equal distribution, as perceived by the PHC programme managers, of the effectiveness of the three different organizational networks. It therefore reflects the PHC programme managers' mixed views regarding the effectiveness of these networks, which indicates that certain limitations appear to exist within these networks. The success of all the referral frameworks is very important as services must be accessible to all people. The inefficiency of the current referral frameworks in Ditsobotla sub-district as perceived by the PHC programme managers is similar to the results provided by the PHC personnel with regard to the referral frameworks (see Figure 4.14).

The reasons provided by the PHC programme managers for the referral frameworks not being successful include the following:

- Lack of communication between professionals, which hinders the referral process
- The referral information is limited, resulting in the professional asking for the case history from the clinic
- Few professionals, such as speech-language therapists, are currently working in the sub-district; thus only limited services are available in the district, and PHC personnel are uncertain of whether services are available
- Referral books are not available for ECI and the PHC personnel do not get feedback after the referral has been made

**Figure 4.17 Reasons for the ineffectiveness of referral frameworks (n=8)**

According to Figure 4.17 it is evident that the reasons provided by the PHC programme managers differ from the views of the PHC personnel (see Figure 4.15)

and therefore provide further insight from a management perspective, i.e. a holistic view instead of focusing only on the implementation of the referral system. The PHC programme managers mentioned that referral books are not available and that the PHC personnel are uncertain of services available. The results are very similar to what Kolapan (2004) described in an urban PHC clinic, which indicates that these limitations are present in both rural, i.e. Ditsobotla sub-district, and urban communities and have not been addressed as yet.

The PHC programme managers also indicated that the referral framework appears to be successful when the speech-language therapist is able to visit the clinics and follow up on patients. Therefore some form of ECI services have to be provided at the PHC facilities in the district. The presence of a speech-language therapist on PHC level appears to be a necessity. Furthermore, the referral framework seems to be successful when the PHC personnel are able to communicate clearly with the referral facilities and when the referral process can be monitored regularly to determine whether problems arise. Moodley (1999) concluded that the speech-language therapist and audiologist have to establish effective collaborative partnerships with personnel at the different health care levels in order to improve ECI service delivery. Therefore collaboration and teamwork play a significant role in the referral process.

### 4.5.3 Suggestions to improve the current referral systems, according to the PHC personnel and PHC programme managers

The results obtained from the participants in Group 1 and 2 are similar, and suggestions were made on how to improve referral systems by eradicating the limitations listed in Figure 4.15 and Figure 4.17. The comments of the PHC personnel and PHC programme managers include the following:

Suggestions of PHC personnel and programme managers for improving referral systems

**Administrative:**

- Improving back-referral system by implementing referral letters where back-referral is mandatory
- Devising a simple and easy-to-use referral form on which patient information can be written with space provided for back-referral to the referring sister (in addition to the Road to Health Chart).
- Employment of a full-time speech-language therapist in the sub-district
- Provide feedback to the sub-district management on the referral process and schedule regular meetings with provincial and national coordinator in order to develop a new referral process

**Teamwork:**

- Better communication and cooperation between professionals
- Developing a team to address the needs of the infants and young children and their families in the community

**Information and training:**

- Improving the awareness of the PHC personnel and training them how to identify and refer infants and young children at risk for communication delay, instead of waiting for the doctor to make the referrals
- Educate the public regarding the services and initiate workshops for parents and teachers

**Figure 4.18 Suggestions of PHC personnel and PHC programme managers on how to improve the current referral systems (n=28)**

The PHC programme managers' comments included the management aspect of the referral process and therefore reinforce and supplement the ideas provided by the PHC personnel. PHC programme managers moreover have experience in addressing structural issues within PHC programmes, and they have a broader perspective of the development and implementation of new services within the PHC context.

The results of the current study supported the findings of Moodley (1999), which emphasized that speech-language therapy and audiology services need to be more accessible to communities by means of regular visits from the speech-language therapist and audiologist to clinics at PHC level. The referral framework provided by the North West Department of Health (2003) stipulates that monthly meetings must be held at district level and that these meetings must be attended by all the stakeholders in a specific referral system in order to create an effective referral system. The Equity Project of the Department of Health (2000) strives to *support equitable access to quality health services for all South Africans.* It has been indicated by the Equity Project (2000) that past referrals have to be reviewed during

district team meetings to determine problems in the following areas: out of region referrals, back referrals, transport, equipment, communication, and training. The suggestion of the PHC personnel to improve communication and collaboration between professionals indicates that the justification as well as structure, i.e. during monthly meetings, is already in place to address referral problems.

The suggestion that an interdisciplinary ECI team should be appointed to address the needs of the infants, young children and their families within the community is an unsuspected recommendation as it is also one of the primary functions in ECI. The participants views on teamwork are not inconsistent with PHC principles, as all the different programmes, within the PHC package, operate and rely on a team approach. It appears that the PHC personnel and programme managers are positive about ECI and that they understand the importance of offering ECI on a PHC level. The fact that the PHC personnel and PHC programme managers understand the necessity of addressing both the infant and young child's, as well as the family's needs within the community by means of an ECI team, indicates valuable support in establishing such a team within the community.

Lequerica (1997) explains that instead of referring parents to other facilities, a team approach of professionals addressing the needs of the infants and families at the same facility is more effective. Although the one-stop model of Lequerica (1997) may be applicable in South Africa, the limited health care personnel in the South African context hinder the implementation of such a model in rural contexts. The PHC programme managers provided guidelines to speech-language therapists and audiologists on how to incorporate ECI within the PHC package. Therefore it appears that although a one-stop model (Lequerica, 1997) may not be feasible in South Africa, a vehicle, i.e. the PHC package, already exist which may be utilized to reach rural communities.

The regional and tertiary health care institutions are responsible for the development of the referral criteria to be provided to the PHC facilities, in order to make sure that appropriate referrals are made (North West Department of Health, 2003). Providing referral criteria to the facilities may assist PHC personnel in the referral process, and therefore the information should be requested from Klerksdorp Hospital. The PHC

personnel and PHC programme managers provided insightful recommendations in this study, which are invaluable in developing an effective referral system for ECI.

### 4.5.4 Feedback information on referrals from speech-language therapists, audiologists or doctors

As indicated in Figure 4.15, many of the PHC personnel indicated that they do not receive feedback from the professionals to whom they referred patients to. However, the number of PHC personnel experiencing poor feedback needs to be determined so that it can be established whether it is a common limitation within the current referral system. The PHC personnel were therefore asked if they receive feedback information when a referral has been made. The results are presented in Figure 4.19.

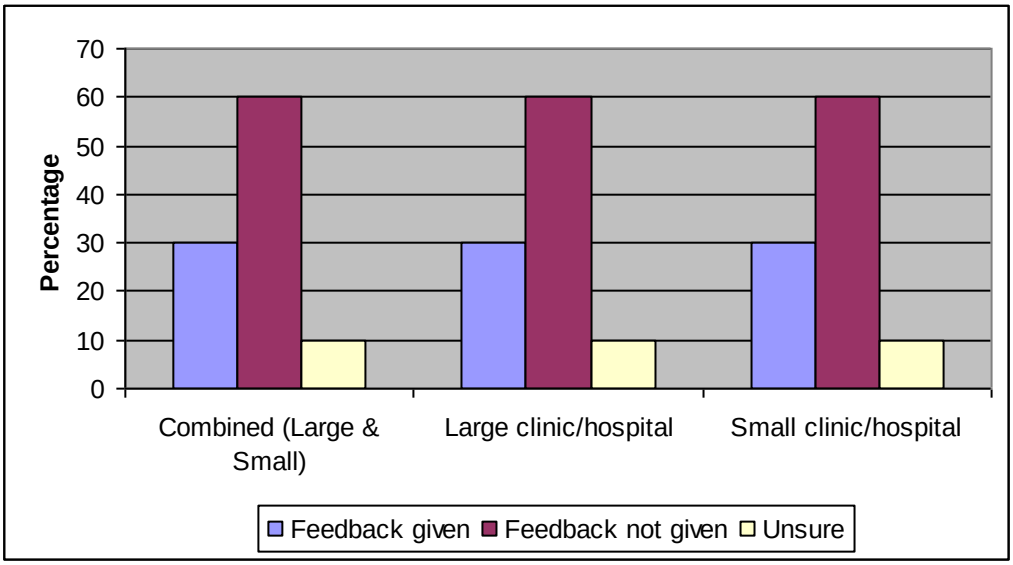



**Figure 4.19 Feedback rate to PHC personnel after a referral has been made (n=20)**

According to Figure 4.19, 60% of the PHC personnel indicated that they do not receive feedback information from the speech-language therapists, audiologists and doctors. As a result of the lack of information the PHC personnel do not know whether the doctor made the referral to the speech-language therapist or audiologist, whether the patient showed up for the appointment, or whether follow-up appointments need to be scheduled. The PHC personnel are not able to follow up on the services rendered, creating a lack of communication and collaboration between professionals, neglecting an important component of teamwork. Poor feedback may lead to negative attitudes towards speech-language therapy and audiology services, as

the PHC personnel are less motivated to refer because of poor communication (Kolapan, 2004). The PHC personnel noted that they sometimes hear about services rendered from the patients themselves or from family members.

The importance of feedback information provided by the professionals to the referring doctor has been established and has led to the development of a referral feedback form by the First Step office in the USA (Hess et al., 1997). The First Step personnel make contact with the family of the child referred, and after first contact the personnel complete the feedback form and send it back to the doctor who made the referral (Hess et al., 1997).

The Equity Project (2000) reported that a standard referral form supports the use of back referral letters and that referrals have to be discussed on a regular basis at District Health Management meetings. Therefore the need for implementing an effective back-referral system is extremely important in order to establish ECI services in the community and facilitate collaborative partnerships with the PHC personnel. PHC personnel need to be aware of the results of the referrals they made, which may reinforce a positive attitude as higher visibility of the services and, consequently, their efforts is established. It appears that a straightforward feedback form can contribute to more effective services.

The solution to address poor feedback is already in place as the PHC system enables PHC personnel, speech-language therapists and audiologists to develop the needed feedback form collaboratively during a scheduled meeting. The importance of the already established PHC network needs to be understood and utilized by the speech-language therapists and audiologists allocated in rural communities. By means of in-service training the PHC network can be explained to the speech-language therapists and audiologists and collaboration can be improved by means of such an introduction to PHC services.

### 4.5.5 Time delays in the current referral process

The PHC personnel provided two main reasons for the time delays they are currently experiencing when referring to the speech-language therapist and audiologist:

- The waiting lists for appointments at the secondary and tertiary referral levels are long and consequently patients can get appointments after a 2-3 months waiting time (or even longer).
- Patients often do not have the finances to travel to the referral centres; they therefore miss their appointment and a new appointment has to be made, which implies another delay.

The reasons provided by the PHC personnel for the time delays experienced are similar to those documented by Taylor et al. (2000). Finances and limited human resources are the two components that are clearly emphasized in both studies' research findings.

### 4.5.6 PHC personnel's opinion on being informed of the role and functions of the available speech-language therapy and audiology services in the sub-district

The results are indicated in Figure 4.20.

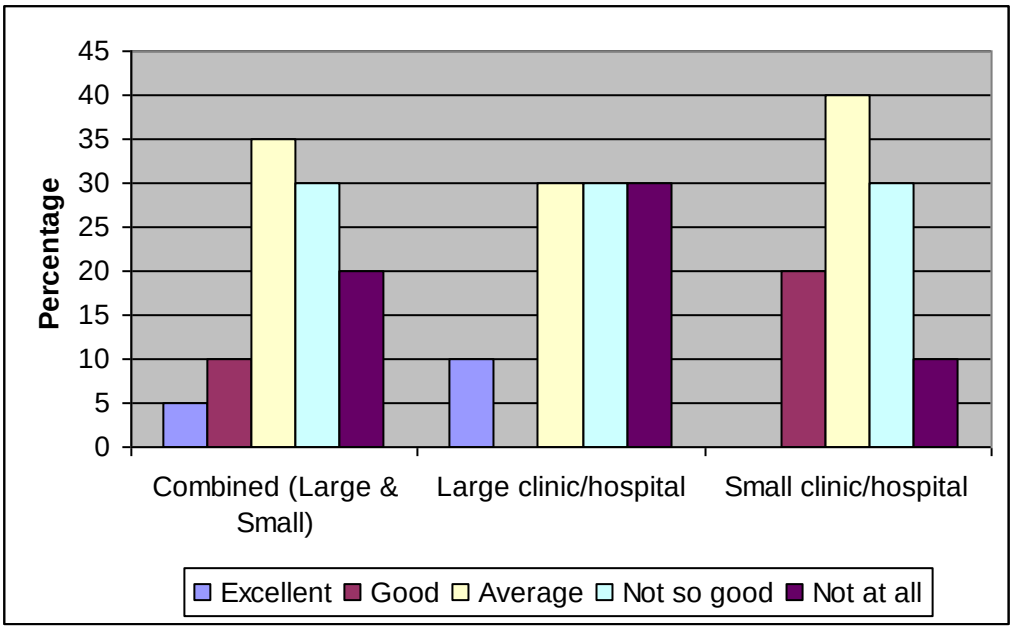



**Figure 4.20 PHC personnel's opinion on being informed of available speech-language therapy and audiology services (n=20)**

According to Figure 4.20, the majority of the PHC personnel are uncertain of the role and functions of speech-language therapy and audiology services. It appears that the

large facilities are more informed, which may be due to community speech-language therapists and audiologists visiting the larger facilities more regularly when they were employed in the sub-district. A small percentage of the PHC personnel indicated that they have a good or excellent idea of the role and functions offered in speech-language therapy and audiology services. These results clearly indicate that the PHC personnel need information on the role and functions offered in the sub-district, as well as on the services provided at the secondary and tertiary health care levels. The referral criteria for speech-language therapy and audiology services have to be provided to the PHC personnel by the secondary and tertiary health care levels (North West Department of Health, 2003). The PHC personnel need to be informed which functions are available at the various health care levels in order to be able to refer the patient to the correct institution.

Furthermore, referral criteria should include high-risk registers, such as the JCIH (2007) or guidelines provided by Rossetti (2001), which forms part of identifying the infants at risk for communication disorders or delays and may provide a guideline as to whom the infant has to be referred to. Further research is necessary on determining which high-risk registers, other identification methods and referral practices need to be integrated for the use of PHC personnel. The Health Professions Council of South Africa published a "Year 2002 Hearing Screening Position Statement", in which the screening of infants' hearing is advocated (Swanepoel et al., 2005). According to Swanepoel et al. (2005) a high risk register for hearing loss need to be used in combination with electrophysiological measures such as Oto-Acoustic Emission (OAE) and Automated Auditory Brainstem Responses (AABR) in order to screen hearing abilities in infants. Furthermore, the Maternal Child and Women's Health Clinics are targeted as a platform for implementing the screening programmes (Swanepoel et al., 2005).

PHC personnel therefore need to receive information on and support with hearing screening of infants and young children, as the Year 2002 Hearing Screening Position Statement (Health Professions Council of South Africa, 2002) recommend nurses and volunteers to conduct the hearing screening of infants and young children. Moodley (1999) used an interdisciplinary training programme to improve the community nurses' knowledge of early identification and the referral of children at risk for

developmental delay or disorders, which proved to have a significant influence on the knowledge of community nurses on ECI services. Utilizing the interdisciplinary training programme developed by Moodley (1999) in Ditsobotla sub-district may provide the needed support to the PHC personnel to improve the identification and referral of infants at risk for developmental delay.

### 4.5.7 The estimated percentage of the caseload of the PHC personnel referred for speech-language therapy or audiology services

Since it has already been established that PHC personnel are not referring for ECI services as they struggle to identify infants and young children at risk for developmental delays or disorders, their referral rate for other speech-language therapy and audiology services may provide insight as to their information needs and the success of their current identification and referral systems. The PHC personnel were asked to indicate what estimated percentage of their caseload was referred to speech-language therapy or audiology services during the last few months. The results are presented in Figure 4.21.

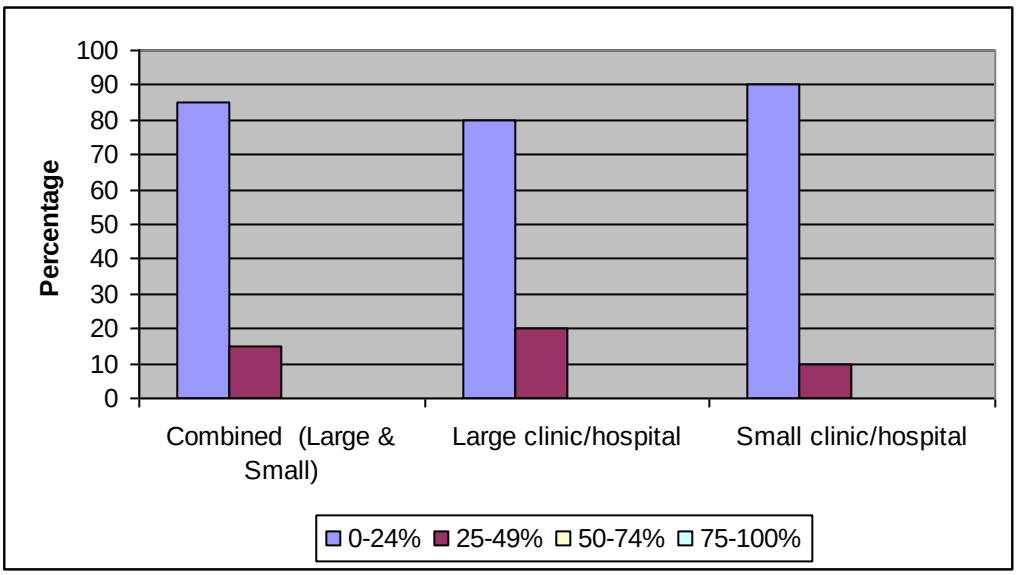



**Figure 4.21 Percentage of referrals made by PHC personnel to speech-language and audiology services (n=20)**

According to Figure 4.21 the percentages of referrals made to speech-language therapy and audiology services are limited, which reflects the poor case finding of patients in need of these services. The referral rate for general speech-language therapy and audiology services appears to be poor in Ditsobotla sub-district. These

services therefore need to be established by providing information to PHC personnel and establishing identification and referral forms for speech-language therapy services. By improving general speech-language therapy and audiology services within Ditsobotla sub-district, ECI services may be implemented effectively as a result of established relationships formed with the PHC personnel.

In other countries, such as the UK, a steady rise in the number of referrals to the speech-language therapist has been documented (Enderby & Petheram, 2000), which may be due to effective identification of communication delays or disorders and health care personnel being more aware of available speech-language therapy services. The results from the current study indicate that few referrals are made to speech-language therapy and audiology services, which appears to differ from what was found in the UK, as identification and referral practices are inadequate. The PHC personnel have limited access to referral centres in rural communities, which makes it difficult for them to implement their role as referral agents (Moodley, 1999). Defining the role of the PHC personnel as referral agents, providing information and developing an efficient referral letter for ECI services may influence case finding in rural areas of infants at risk for communication delays or disorders (Moodley, 1999). Therefore speech-language therapy and audiology services as a whole need to be established in Ditsobotla sub-district in order to improve service delivery and provide a platform from which ECI can be integrated.

## 4.6 TEAMWORK AND THE INTEGRATION OF ECI AND THE PHC PROGRAMMES

### 4.6.1 Current teamwork and the implementation of an early identification and referral programme for infants at risk for communication disabilities and delays

The opinions of the PHC personnel and PHC programme managers regarding teamwork within the PHC context needed to be established, in order to develop guidelines to improve case finding in ECI in the sub-district.

- **Contribution of collaboration on case finding for ECI**

  All the PHC personnel and PHC programme managers indicated that collaboration with other professionals would have a positive influence on case finding in ECI. The PHC personnel indicated that collaboration will positively influence the identification and referral of infants and young children at risk for communication delay, as infants and young children can be identified earlier and time-delays can be limited in the referral process. Collaboration between transdisciplinary team members implies that the different professionals have a good knowledge of their own areas and those of other's, in order to integrate their knowledge and skills with those of the other team members and caregivers (Straka & Bricker, 1996). Collaborative teamwork addresses the need for closer co-operation between different team members in order to provide effective services to the increasing health care needs in rural communities (King, 1999). The PHC personnel recommended an interdisciplinary team approach where the speech-language therapist and audiologist work in close collaboration with the PHC personnel during the identification and referral of infants and young children at risk for communication delay or disorders. Similar findings were documented by Moodley (1999), as all the participants of that study also indicated that a team approach will have a positive influence on the identification and referral of infants and young children at risk for communication delay. The reasons provided by the PHC personnel and PHC programme managers were similar and therefore the results are presented collectively in Figure 4.22.

**Benefits of collaboration on case finding:**

- Collaboration motivates the PHC personnel
- Better knowledge of ECI services
- Improved communication between professionals
- Learn new skills from the different professionals
- Assistance from existing PHC programmes in the integration of new programmes in rural communities
- Holistic service delivery to infants and young children and their families
- Successful back-referral and follow-up on patients
- Screening of all infants and young children (universal screening programme)

**Figure 4.22 Benefits of collaboration on case finding, according to the PHC personnel and the PHC programme managers (n=28)**

According to Figure 4.22 it is evident that collaboration may have a positive influence on case finding in Ditsobotla sub-district. The inclusion of volunteers in collaboration with the PHC personnel in order to improve identification of infants at risk for communication delays needs to be explored further as the volunteers can make regular home visits in the community to support families with special needs. Improved communication between professionals as a result of collaboration is an important aspect to take into account, as better communication may build working relationships and therefore influence the professionals' attitude and motivation towards speech-language therapy and audiology services. The reasons provided by the PHC personnel and PHC programme managers include many of the functions of ECI services, such as universal hearing screening and a holistic approach to service delivery. Consequently it appears that collaboration may support the implementation of ECI services and improve ECI service delivery.

- **PHC personnel's views on the ideal team for infants and young children**

  The PHC personnel's opinion was asked on the professionals to be included in their choice of the ideal team composition to work with infants and young children. The results are indicated in Figure 4.23.

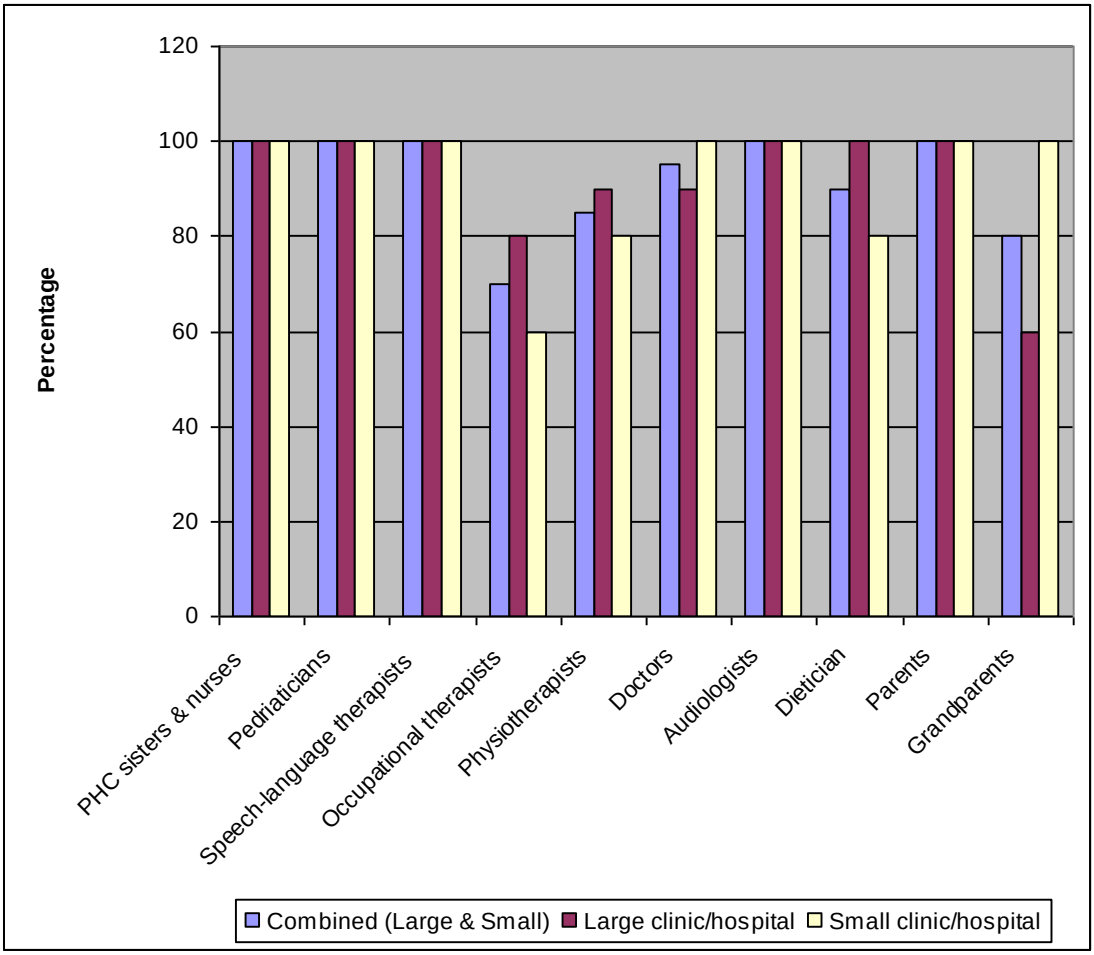



**Figure 4.23 The ideal team composition according to PHC personnel to work with infants and young children (n=20)**

According to Figure 4.23 it is clear that all the PHC personnel feel that they, paediatricians, speech-language therapists, audiologists and parents should be included in the team. The inclusion of the doctors, dieticians, physiotherapists, grandparents and occupational therapists are highly valued as well. It appears that the PHC personnel recommend a comprehensive multidisciplinary team to work with infants and young children, and that they have an understanding of the importance of teamwork.

The inclusion of a large number of professionals may indicate that the PHC personnel are experiencing problems in various facets of infants' and young children's development that they do not feel comfortable managing on their own, and that they understand the supportive role of such a team. The PHC personnel from the smaller clinics included more professionals in their ideal team, which could indicate that they need more support than the PHC personnel at the larger

clinics. Another aspect that needs to be taken into account is the feasibility of having a large team, as many of the professionals are not currently allocated to Ditsobotla sub-district.

The one-stop model developed by Lequerica (1997) includes a paediatrician, a psychologist, a speech-language therapist and a community worker in the EI team. Other team members can be included according to the needs of the young child and family (Lequerica, 1997). ECI services can therefore be implemented effectively with a small core team of professionals, but with the possibility of consulting any other professional as needed at times. Furthermore, the team members might differ according to the needs of the specific patient, e.g. the dietician may be part of the team when an infant with feeding problems is receiving ECI.

- **Aspects of case finding and intervention in which teamwork should occur**
  This question was posed to determine the aspects of case finding and intervention where teamwork should occur. The majority of PHC personnel indicated that teamwork should occur during identification, referral and intervention of infants and young children at risk for communication disorders or delays. PHC personnel also indicated that crèches and preschool teachers should be included in the team, and that the whole team should be present at board reviews where the progress of the clients is discussed. An interdepartmental organizational network therefore needs to be strengthened in order to support the collaboration between the professionals regarding the identification, referral and intervention of infants at risk of communication delays or disorders. The PHC personnel appeared to have a comprehensive view of what is required to introduce ECI on a sustainable basis in the sub-district.

The roles of each professional in screening need to be discussed collaboratively in order to improve the outcomes of ECI case finding (Moodley, 1999). Therefore improving collaboration regarding identification, referral and intervention, information needs to be provided on the role of each professional within the ECI team. Ongoing training and staff development are fundamental in addressing the many challenges posed by the transdisciplinary team approach

(Straka & Bricker, 1996). A transdisciplinary team approach may be feasible within the PHC context of Ditsobotla sub-district, but training and staff development are imperative as role expansion and release regarding ECI functions needs to be established. The PHC personnel indicated that teamwork with speech-language therapists and audiologists is important as role release can take place in the screening of infants and young children at risk for communication delays or disorders.

When a collaborative team model is considered, the development of competencies and a commitment to build an environment that supports collaborative interactions between team members are crucial (Straka & Bricker, 1996). Consequently it appears essential to establish the commitment and competencies of ECI team members, as well as a supportive work environment in order to ensure effective collaborative teamwork. Accordingly effective collaborative teamwork may positively reinforce the implementation of ECI services in Ditsobotla sub-district.

- **The success of current teamwork and suggestions to improve teamwork**

  The PHC personnel were asked whether they think current teamwork is successful, and what they think has to be done to improve the teamwork.

  A total of 65% of the personnel indicated that teamwork is currently insufficient. These results are similar to what was found with regard to the identification methods and the referral practices. The fact that such a large percentage of PHC personnel felt that the teamwork is insufficient indicates a need to determine why this is the case and what should be done to improve teamwork. An inefficient referral framework may influence teamwork as relationships are not being established and the PHC personnel have limited knowledge of the ECI services rendered in the PHC context.

**The PHC personnel provided the following suggestions to improve teamwork in Ditsobotla sub-district:**

- Professionals, such as speech-language therapists, not currently working in the district should be employed
- Regular meetings as a team (providing information and workshops)
- Establish a referral system for ECI
- Regular visits by the team members to the PHC facilities
- Provide support and build relationships between team members

**Figure 4.24 Suggestions on how to improve teamwork in the sub-district (n=20)**

According to Figure 4.24 the PHC personnel provided relevant comments on how to improve teamwork in the rural community. It appeared that the PHC personnel were interested in improving the teamwork and their motivation may support the implementation of an ECI team. In the USA the Office of Special Education Programmes in the Department of Education developed and implemented the *Specialized Training of Associates in Rural Settings (STARS)*, which is an early intervention programme developed to assist health care workers in rural communities (Ryan & Wallstrom, 2001). According to the findings of Ryan and Wallstrom (2001), the training programme appears to be successful as trainees acquired many new skills and knowledge.

The Comprehensive System of Personnel Development plan is now implemented in every state in the USA, in order to ensure that the health care workers are ready to assist infants and young children with disabilities, as well as their families (Taylor et al., 2000). Since such a programme has already been developed in the USA it can be used as an example to develop a similar programme for implementation in South Africa, based on local needs. Consequently the PHC personnel's need for in-service training within the collaborative team may be addressed through a personnel development plan.

The speech-language therapists and audiologists also need to learn how the PHC system works, and therefore joint in-service training is required, i.e. role enrichment in the transdisciplinary process. The suggestions made by the PHC personnel should receive attention as they reflect the needs the PHC personnel are currently experiencing within the team approach.

### 4.6.2 Integration of ECI within the PHC package through collaborative activities

The PHC package has proved to be the ideal vehicle to reach rural communities in South Africa (Van Rensburg, 2004), and thus the integration of ECI in the PHC package should be explored. The PHC programme managers are responsible for the implementation, coordination and monitoring of their programmes and are therefore experts in these areas. The PHC programme managers are also collaborative partners in the PHC package, since teamwork is essential in order to address issues in the South African context holistically.

- **The functions of ECI that can be integrated into the PHC package**

  The functions of ECI were presented to the PHC programme managers who then had to indicate which functions can be integrated into the existing PHC programmes. Figure 4.25 is a visual presentation of the data.

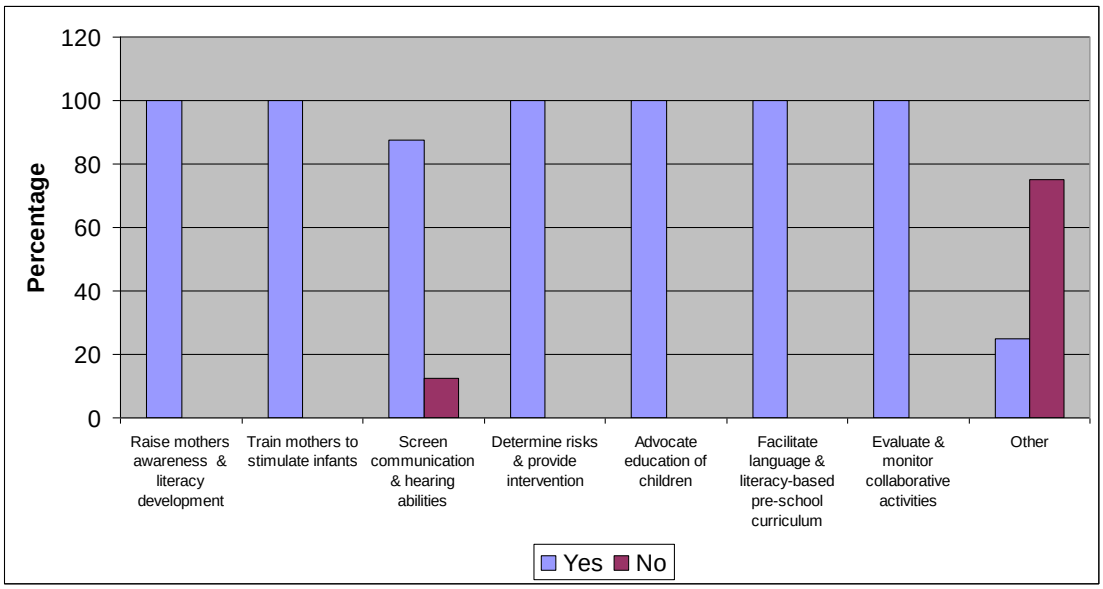



**Figure 4.25 PHC managers' views on functions of ECI that can be integrated into the PHC programmes through collaborative activities (n=8)**

The results clearly indicate that all the ECI functions can be integrated in the PHC programmes and that a few other functions should be included as well. The additional functions recommended were: community awareness campaigns on ECI services, and participation in health calendar day activities. The functions indicated have been identified by Kritzinger and Louw (2003) as ECI functions to be implemented in public service delivery. Since the PHC programme managers

are of opinion that all the functions can in fact be integrated within the other PHC programmes through collaborative activities, a justification for the need of these services within the PHC context of Ditsobotla sub-district was provided. The feasibility of the implementation of collaborative activities with other PHC programmes therefore appears to be good. Furthermore, the PHC programme managers' suggestions for the implementation of ECI functions may provide background information regarding the justification, needs and support systems within the PHC programmes. The reasons provided by the PHC programme managers for the functions to be integrated are discussed according to each function:

- *To raise the caregivers' and the public's awareness of and to facilitate an interest in the communication and literacy development of young children* – All the PHC programme managers indicated that this function should be integrated in the Health Promotion programme and the MCWH programme. The reasons provided include the fact that the mothers spend most of their time with their infants, and if the mothers are empowered problems can be detected early and appropriate referrals can be made in order to improve the developmental outcomes. All programmes should work together, as promotion is an important aspect in improving PHC services in rural communities. This function of ECI needs to be integrated in the MCWH programme as well as in the School Health programme. All the PHC programme managers need to work together to inform mothers and identify infants and young children who are at risk for communication delay.

- *To train mothers or caregivers to stimulate their infants and children* – The PHC programme managers indicated that this function will be beneficial to the infants as well as the mothers. The mothers need to be trained as they are part of the team providing health care and intervention to the infants and young children. This function can be integrated in all the PHC programmes. Breastfeeding groups already start in the antenatal period which may be the ideal time to provide the mothers with information on early childhood development. When mothers are trained by the MCWH coordinator, the communication development of infants and young children may be targeted as well.

- *To screen the communication and hearing abilities in young children* – The majority of the PHC programme managers indicated that this function can be integrated in the programmes. The School Health programme was specified as a programme in which screening campaigns should be launched in order to identify young children in the following contexts: preschool playgroups, crèches and in primary school. It was the opinion that the Health Promotion programme does not need to be included in the screening of infants and young children. This function needs to be implemented at facility level and

the speech-language therapist should work in collaboration with the facility managers.

- *To determine risks for communication delay in young children and to provide intervention* – The PHC programme managers indicated that this is an important function to be integrated as communication delays or disorders in infants and young children can be prevented or decreased. The programmes should be included in the implementation of ECI in the rural community as their resources are invaluable. Infants and young children in need of special services have to be referred as soon as possible. MCWH and the School Health programmes are implemented in contexts, such as preschools where it is feasible to monitor the communication development of infants and young children.

- *To advocate the education of children* – The PHC programme managers indicated that communities should be made aware of the importance of education. This ECI function may improve the future of many children. The School Health programme needs to operate in collaboration with the schools in order to promote the importance of education. All programmes should be involved in promotional initiatives and the Departments of Health and Education need to collaborate.

- *To facilitate the implementation of a language and literacy-based preschool curriculum to ensure school readiness* - All the PHC programme managers supported the integration of this function into the PHC programmes. The Departments of Health and Education need to collaborate on school readiness. The educators should be trained to stimulate the communication development of young children and facilitate the skills to be acquired at preschool level. Early learning centres and crèches should be visited in collaboration with the School Health programme. The training of the preschool personnel may also assist in identifying infants and young children at risk for communication delays.

- *To evaluate and monitor the ECI collaborative activities* - The PHC programme managers explained that it is very important to demonstrate progress and to identify the problem areas which may exist. Statistics need to be monitored and the goals of the activities have to be kept in mind. The effectiveness of teamwork has to be evaluated and the PHC programme managers have to have regular meetings in order to monitor progress in a collaborative way.

- *Community awareness campaigns on ECI services and participation in health calendar day activities* – The ECI programme should be integrated in the community by collaboration with the other PHC programme initiatives. The importance of community campaigns as a way to provide focused information and to introduce new programmes to people was emphasized by the PHC programme managers.

**Figure 4.26 Reasons why the ECI functions can be integrated through collaborative activities (n=8)**

The PHC programme managers did not only provide relevant reasons for including the functions, but also indicated areas where collaboration should be implemented. It appears that the PHC programme managers have a clear understanding of ECI and the importance of these services. Therefore their knowledge of ECI may positively influence the implementation of ECI functions by means of collaborative activities in the district. Since they understand the importance of ECI services and early identification, the PHC programme managers appeared to be motivated and ready to assist in the implementation of such activities. Consequently it is important to build on the participants' interest for ECI, which were created by the current research project.

- **The process of integrating ECI in the PHC package as described by the PHC programme managers**

  The PHC programme managers were asked to describe the process they would follow to successfully integrate a "new" programme into the existing PHC package.

1. The PHC programme manager has to meet with the Assistant Directorate for Community Health Services (ADCHS) to discuss the plan of action.
2. Other PHC programmes have to be made aware of the services through regular meetings, as teamwork is very important. Establishing effective communication between the professionals may improve the stability and continuity of the integration process. In-service training should be provided to the PHC programme managers and the programmes need to plan collaborative activities in order to improve the integration of the programmes. PHC programme managers from the different programmes can also provide information to communities.
3. Services have to be promoted at health awareness days. Information should be provided to the community by means of posters and brochures in the clinics and health facilities.
4. The PHC personnel at the clinics also need information and a screening checklist for the identification of infants and young children as part of the process. A referral format should be provided where back-referral information is included in order to improve the referral process as well as communication between professionals. The PHC facility managers need to be part of the team implementing ECI services.
5. All stakeholders should be part of the planning of activities. For each activity a specific set of goals should be established.

**Figure 4.27 Guidelines on the process of integration of ECI in the PHC package (n=8)**

The district management team is responsible for the strategic and day-to-day management of health services in the district (van Rensburg & Pelser, 2004), and therefore meetings with the district management team are important in order to obtain the approval and support for new services to be implemented, such as ECI. Since it is clear that ECI services have to be incorporated in a formal way, ECI may need to be adopted as a formal PHC programme that forms part of the PHC package. Figure 4.28 is a graphical representation of the process of integrating ECI services into the PHC package, as described by the PHC programme managers and insights gained during the research study.

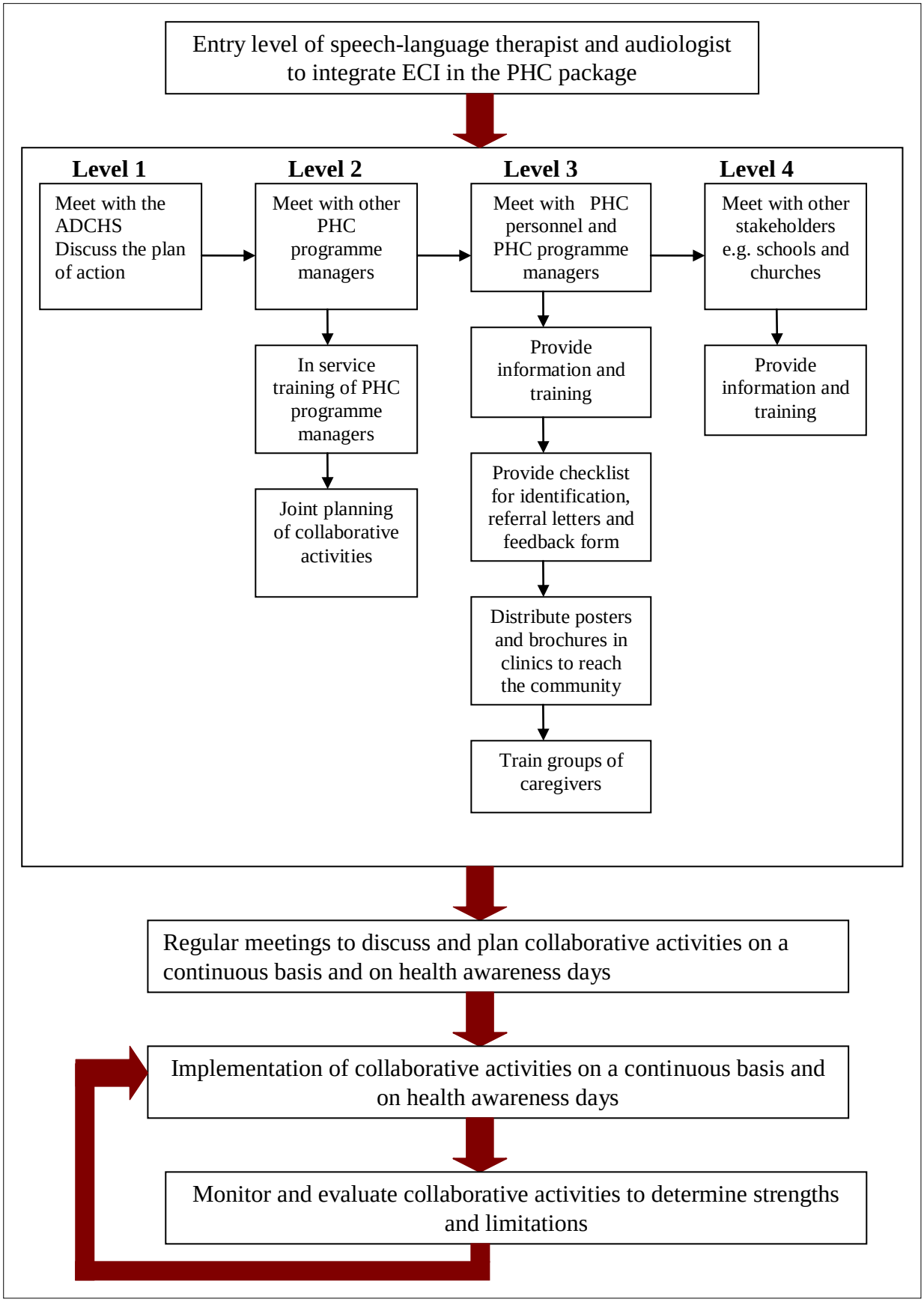



**Figure 4.28 The process of integrating ECI services into the PHC package**

Figure 4.28 illustrates the formal implementation of ECI within the PHC package as the different levels of the heath system, i.e. management, PHC programme managers, PHC personnel and other stakeholders should be included in the planning, implementation and monitoring of the ECI programme. An incremental implementation of ECI services is essential, as basic ECI functions need to be implemented first, so that subsequent ECI functions can be implemented successfully. For example the promotion and advocacy for ECI services should be targeted first; thereafter the implementation of a developmental surveillance programme may be considered. Furthermore the incremental implementation of ECI functions is determined according to the needs of the PHC personnel, parents and caregivers as well as the public. Therefore during the meetings a needs assessment has to be conducted in order to determine which ECI functions should be implemented according to the incremental implementation strategy. The process of implementation and management of a PHC programme entails extensive work that cannot be handled by a single person. Therefore a team approach is paramount i.e. a permanent multidisciplinary ECI team should be established.

- **Monitoring and evaluation of collaborative ECI activities**

  The PHC programme managers were asked how collaborative activities should be monitored and evaluated. According to them the activities can be monitored with regular audits where the differences between the children identified, referred and diagnosed are compared. The PHC programme managers also indicated that the referral process should be monitored constantly through statistics, i.e. referral rates, and that it is very important to keep records of all the patients. Communication must be effective so that the achievements and constraints of each activity can be discussed collaboratively. Meetings should be scheduled on a regular basis. A monthly report on the achievements and constraints has to be compiled for each facility and presented to the ADCHS. Investigations into the number of cases identified and the outcomes of referrals are important.

  It was clear from their responses that the PHC programme managers are experts on monitoring and evaluation of PHC programmes as this is an integral part of their role as managers. Their suggestions were realistic and should form part of

the implementation procedure of ECI services, which could ensure sustainability of the ECI programme.

- **The future of collaborative ECI-PHC activities as perceived by the PHC programme managers**

  The PHC programme managers were asked how they see the future of working together in collaborative activities. All the PHC personnel were positive with regard to the possibilities of the implementation of collaborative ECI activities. The successful implementation of ECI activities can lead to well-informed community members, PHC personnel and volunteers. Progress in the implementation of ECI and the referral process should improve as a result of the collaboration between the PHC programmes and ECI. Working relationships may improve and PHC personnel may identify infants and young children at risk for communication delay or disorders at an early age, so that ECI may still be effective.

  The PHC programme managers felt that the implementation of ECI through collaborative activities could have a positive influence on PHC service delivery in rural communities. Their responses were therefore optimistic and may indicate a positive attitude towards collaborative activities.

- **The advantages of collaborative activities**

  All the PHC programme managers were of opinion that collaboration with ECI could be advantageous to the PHC programmes as these services promote a healthier community, where infant care and development is enhanced. The inclusion of all PHC programme managers, on a team, should ensure comprehensive service delivery to the community. All programmes should promote available PHC services, and resources such as transport can be shared. The PHC programme managers can assist each other in cultural diverse contexts. The collaborative process may be more effective over time, and timely case finding of infants and young children at risk for communication delay may be achieved.

The programme managers identified a number of advantages of collaborative activities, which implies that they had good insight into the benefits of a successful team approach. A transdisciplinary team approach provides the structure for team meetings where information can be shared and discussed in order to develop a joint action plan (Bailey, 1996). A shared commitment to the goals should be established between team members as one professional does not have enough time to achieve the goals alone (Bailey, 1996). The results from the interviews with the PHC personnel and programme managers indicated that they support the development of a team approach in order to manage infants and young children at risk for developmental delays.

## 4.7 CONCLUSION

The analysis and discussion of the results led to the following conclusions. Firstly, the features of the facilities, context and human resources indicated needs that must be addressed in order to prepare a context where ECI can be successfully implemented. Secondly, the current identification methods, referral system and teamwork in ECI are inadequate, resulting in poor case finding. The PHC personnel did, however, provide valuable insight into how the identification methods and referral system can be adapted. Thirdly, it has been established that ECI can be formally integrated in the PHC package by means of collaborative activities. An incremental implementation strategy is suggested as a means to implement the ECI functions according to the needs of the community and the capacity of the facilities and human resources. The PHC package is therefore the vehicle for establishing ECI in Ditsobotla sub-district. The PHC personnel's and PHC programme managers' enthusiasm signals a valuable opportunity to implement ECI in the sub-district, and their guidelines and suggestions will be of great value in planning the implementation of ECI services.

## 4.8 SUMMARY

In Chapter 4 the results were provided and discussed according to the sub-aims of the research study. The layout of Chapter 4 was discussed for orientation purposes. The results from the checklist of facilities were discussed, providing the background of the PHC context in which the study has been conducted. The results from the structured

interview schedule with the PHC personnel were then discussed, which indicated that the current identification methods, referral system and teamwork are inadequate for effective ECI services. The results provided by the semi-structured interview schedule with the PHC programme managers indicated that the integration of ECI in the existing PHC package through collaborative activities is possible and has potential to be successful. The chapter concludes with the finding that identification methods, the referral system and teamwork are inadequate in ECI, but also that the formal integration of ECI in the PHC package is possible.

# CHAPTER 5

# CONCLUSION AND IMPLICATIONS

The aim of this chapter is to set out conclusions of the results, discuss the theoretical and clinical implications, provide a critical review of the research, and put forward recommendations with regard to future research.

## 5.1 INTRODUCTION

The final and essential step of a research study has to include a conclusion where a final interpretation of the results is provided (Leedy & Ormrod, 2005). Since the implementation of the PHC package (Department of Health, 1997), PHC services have improved to a certain extent in South Africa (Van Rensburg & Pelser, 2004). Knowing that the results of PHC programme implementation is promising, the current research study explored the possibility of integrating ECI into the PHC package.

ECI services were introduced in South Africa approximately the same time as the *White Paper for the Transformation of Public Health Care Service Delivery in South Africa* (1997) was published and implemented in the PHC context (Louw, 1997). ECI services were consequently not included in the PHC package, and as a result these services are still largely unknown to health care professionals in PHC contexts. In response to the call to develop ECI nationwide (Louw, 1997), Kritzinger and Louw (2003) developed a conceptual framework of the functions of ECI service delivery within the public health sector according to the different stages of child development. The conceptual framework appears to be comprehensive, with the potential of successful implementation in the public sector in South Africa. A means of implementing such a framework within the PHC context was explored in this research study.

Although ECI is not yet included in the PHC package, the results of the study have indicated that the PHC package could be the appropriate vehicle to reach rural communities with the aim of improving ECI case finding. Since case finding of infants and young children at risk for communication delays or disorders is limited in the Ditsobotla sub-district, the current study set out to describe facilities and resources as well as the identification methods and referral systems used in this sub-district in

order to determine limitations and provide guidelines for improving these methods and systems. Furthermore the feasibility of the integration of ECI within the existing PHC package was determined by means of the current study. Addressing the limitations of the current identification methods and referral systems and implementing ECI within the current PHC package, may lead to improved case finding in Ditsobotla sub-district.

## 5.2 CLINICAL AND THEORETICAL IMPLICATIONS FOR ECI SERVICE DELIVERY IN SOUTH AFRICA

Current literature advocates the *early* identification and intervention of infants and young children at risk for communication delays or disorders (Kolapan, 2004; Kritzinger & Louw, 2003; Moodley et al., 2000; Rossetti, 2001).

The results of the study identified certain limitations in the identification methods, referral systems and current team approach. Useful suggestions to address these limitations were made by the participants. Furthermore, the results clearly indicated that the implementation of ECI functions within the PHC package is considered feasible and relevant. The implications of the study are discussed according to the objectives of the study.

### 5.2.1 The capacity to implement ECI functions within the PHC facilities of Ditsobotla sub-district

The results demonstrated that all the PHC facilities in Ditsobotla sub-district provide the opportunity and location to implement some ECI functions as a means to reach infants at-risk for communication delay or disorder in a rural community. The implementation of ECI at PHC facilities may improve accessibility and affordability of services to community members, thus complying with the PHC principles as described in the *White Paper for the Transformation of the Health System in South Africa* (Department of Health, 1997).

The results clearly indicated the importance of an environmental analysis of the rural facilities in which ECI services may be integrated. Before introducing ECI services, the capacity of the facilities needs to be determined.

The facilities' waiting rooms, consulting rooms and administration areas need to be assessed by the speech-language therapist and audiologist to determine which ECI functions can be implemented at the different facilities. The speech-language therapist and audiologist also need to use the filing cabinets in order to establish accurate patient records and for administration purposes, such as implementing regular audits. Through collaboration with the Health Monitoring and Evaluation Programme, which initiates and supports the implementation of regular audits, case finding of and ECI functions with regard to infants and young children at risk for communication delays or disorders can be monitored effectively.

Since the capacity of the facilities to support the implementation of ECI functions varies, an incremental implementation of ECI functions is suggested. Few PHC facilities in Ditsobotla sub-district have the capacity to support the full implementation of *all* ECI functions. The ECI functions to be implemented at each individual PHC facility should therefore be selected according to the capacity of the facility concerned. As a result of such an incremental implementation, ECI functions provided at the different facilities will vary according to capacity and needs. Some clinics may provide ECI screening services only, while others may offer assessment and intervention services as well. The speech-language therapist and audiologist, in collaboration with the PHC personnel, management and other PHC programme managers, should determine which functions should be implemented at the various facilities. The decision of implementation should therefore be made by an ECI task team.

It is essential that a needs assessment is conducted at each facility in order to prioritize the ECI functions that have been selected according to the capacity of the facility. Furthermore, such a needs assessment and environmental analysis should be conducted at regular intervals at each facility as the needs and capacity can change over time as PHC develops. The needs assessment would also provide the speech-language therapist with insight into recurrent needs, the improvement of service delivery, and the demand for ECI services. When a facility is upgraded or rebuilt, and more space becomes available, more ECI functions may be implemented. During the planning of the construction or renovation of facilities, the speech-language therapist and audiologist could provide valuable input regarding requirements for

intervention such as space, a soundproof environment, and furnishings e.g. carpets, cupboards or VCR sets.

According to the results of the study, few facilities in Ditsobotla sub-district will currently be able to accommodate the speech-language therapist and audiologist for activities to promote normal communication and literacy development and intervention purposes. Promotional ECI functions should include: to raise caregivers' awareness of the importance of normal communication and literacy development in infants and young children, to raise public awareness of available ECI services, to advocate education, and to facilitate the implementation of a language and literacy-based preschool curriculum in nursery schools (Kritzinger & Louw, 2003). It was found that many clinics in Ditsobotla sub-district have enough space and seating in the waiting rooms to enable the speech-language therapist and audiologist to provide educational presentations in collaboration with the Health Promotion Programme of the PHC package.

No posters and pamphlets on child development or communication disorders were found in the facilities of Ditsobotla sub-district. Appropriate information should be provided to the community by means of these and other mass communication media. Speech-language therapists and audiologists should therefore develop posters and pamphlets on child development in Setswana, for distribution to all the PHC facilities. Popich, Louw and Eloff (2007) describe the development of an educational video for caregivers, as a strategy for primary prevention of communication disorders in a specific community in South Africa. The speech-language therapist involved in ECI should develop linguistically and culturally relevant informational tools in audiovisual format, such as DVDs or videos, that can be used in rural communities such as Ditsobotla sub-district. It is suggested that parents and other stakeholders from the community should be involved in the planning of such an informational tool in order to ensure that their needs and values are reflected in the final programme (Popich et al., 2007).

The environmental analysis of facilities and needs analysis in the communities may provide the speech-language therapist in ECI with the opportunity to get to know the PHC personnel and to start building relationships, which forms the basis of

collaboration between the professionals (Naudé, 2000). Consequently teamwork may be improved, which will positively influence the implementation of additional ECI functions at the facilities.

***In conclusion***, the capacity of each facility plays an integral part in the planning of ECI functions to be implemented at these facilities. However, environmental and needs analyses are not the only factors to be considered in the incremental implementation of ECI at a PHC facility. Human resources at a specific PHC facility should be considered as well.

### 5.2.2 The human resources in Ditsobotla sub-district and their needs regarding ECI, as perceived by the PHC personnel and PHC programme managers

In order to establish successful identification methods, referral systems and collaborative partnerships through teamwork, the human resources and their needs were determined. It was found that an information sheet should be developed in order to address the need for information on specialized services available in Ditsobotla sub-district. When a new aspect of service delivery, such as ECI, is to be implemented in the sub-district, relationships between the speech-language therapist and PHC personnel should be developed in order to establish positive attitudes towards ECI services and to facilitate collaboration between team members.

Accurate knowledge of all the different levels of professionals in the sub-district will improve collaboration and teamwork (Moodley, 1999). A prerequisite to sustained ECI services, identified in the results, is the permanent employment of a speech-language therapist and audiologist within the sub-district who can commence introducing the profession to the PHC facilities and start the process of developing and implementing ECI services. The speech-language therapist and audiologist is therefore the leading professional in the process of implementation.

It has been determined that it is essential to implement ECI formally, and that the process commence with meetings and negotiations with the management of the sub-district. Therefore collaboration should be the vehicle throughout the process of implementation, starting at entry level (see Figure 4.28). Establishing amiable relations with the PHC management is vital (Van Rensburg, 2004). Other

stakeholders, such as the churches, crèches and youth centres in the community, were also identified to be part of the planning and implementation of collaborative ECI functions. Being part of the planning and implementation may increase involvement and support for the ECI programme.

The involvement of other health care professionals in the ECI team, such as occupational therapists, physiotherapists and dieticians, was also emphasized in the results. Similar to the speech-language therapist, many of these professionals are also community workers, and their services may also be disrupted when the therapists are replaced or discontinued after a year. Collaboration between these professionals could therefore simplify the process of establishing a transdisciplinary EI team, as they have similar objectives to accomplish.

The results emphasised that a resourceful group of professionals who can assist the speech-language therapist and audiologist in the implementation of ECI services in the rural community, are the PHC programme managers who are responsible for managing the different PHC programmes. The PHC programme managers should be regarded as invaluable collaborative partners who can support the speech-language therapist in planning and implementing collaborative activities in ECI and integrating ECI into the different PHC programmes. Furthermore, the PHC programme managers can assist speech-language therapists to reach the public, as they have already established a relationship of trust with the people in the community. Language and cultural barriers can be overcome with the support of the PHC programme managers as they are from the same cultural background and speak the same language, namely Setswana. The PHC programme managers' knowledge and status in the community can be regarded as an asset, and collaborative partnerships should be established in order to formalize ECI in PHC.

Equally important, another group of health care workers is also invaluable in the implementation of all the PHC programmes within the facility. The PHC personnel play an important role in the case finding of infants and young children at risk for developmental delays or disorders. The level of entry for all patients into the health system is at the PHC facilities. PHC personnel address health problems directly or make referrals to a doctor or a specialized professional. As the PHC personnel act as

gatekeepers for the health care system (Kekki, 2003), they need effective support to identify and refer infants and young children at risk for communication delays or disorders.

The results also confirmed the findings of previous research (Fair & Louw, 1999; Lequerica, 1997; Moodley, 1999), namely that PHC personnel play an integral part in the collaborative process of implementing ECI functions.

Despite their heavy workload, the PHC personnel and the PHC programme managers responded positively to the concept of ECI and wished to be part of the ECI team. It therefore appeared that the participants in the study were agreeable to incremental implementation of ECI functions at the facilities. However, the PHC personnel should be consulted when selecting the ECI functions (see Figure 2.1) that are to be implemented at each facility, as they are aware of the needs and the capacity of the human and physical resources at the different facilities.

As speech-language therapists and audiologists are also burdened with large caseloads, it may be impossible for the therapists to successfully fulfil all the functions included in the scope of practice. The PHC programme managers recommended that the speech-language therapist recruit volunteers who can play a supportive role and who can assist the therapist in overcoming language and cultural barriers. It has already been described in the literature that volunteers can play a supportive role during the implementation and management of ECI services in communities. However, volunteers need to be trained with regard to the functions that they have to fulfil (Fair & Louw, 1999). Training programmes for volunteers need to be developed and implemented so as to ensure that they have the necessary knowledge of ECI and know how to support families who need services.

The information needs regarding ECI expressed by the majority of the participants in the study, and their willingness to receive information, imply that an ECI information package must also be developed for professional collaborators. Training is required to assist in the identification and referral of infants and young children at risk for developmental delays and disorders. Training has to be provided to all PHC

personnel, programme managers and the facilities' management. Components of such a training programme should include:

- Ideas on how to achieve collaboration with professionals
- Normal communication and literacy development
- How to use referral systems effectively
- How to use the suggested identification methods effectively

Since health care personnel in rural areas are unaware of ECI and what it entails, community speech-language therapists and audiologists have an ideal opportunity to develop and present in-service training programmes to PHC personnel, PHC programme managers and other professionals such as doctors. Doctors were identified in the results as crucial role players in the identification and referral of infants at risk for communication delay or disorders and therefore need to be part of the ECI team.

***To conclude***, the human resources in Ditsobotla sub-district are currently adequate if ECI functions are implemented incrementally. Establishing collaborative partnerships with the PHC personnel, PHC programme managers, management and volunteers, is imperative. The training needs of the professionals and volunteers should be addressed. The results of the study indicated that the PHC personnel had a positive attitude towards ECI services, yet case finding was found to be poor in Ditsobotla sub-district. Current identification methods and resources were therefore described in order to establish the limitations and develop guidelines for improvement.

### 5.2.3 The early identification methods and resources currently used by the PHC personnel

The results of the study clearly indicated that the PHC personnel were not being successful in identifying infants and young children at risk for developmental delays. No reliable and valid identification methods for hearing and communication abilities in infants and children were being used. A screening instrument should be developed. It is imperative that the sensitivity and specificity of the instrument is established for the specific population of infants and young children by means of comprehensive research. The long-term effect of the implementation of such an instrument in the PHC context should also be determined.

The results of the current study indicated that parents, grandparents and other caregivers were identified as either barriers or helpful resources when the developmental history of infants and young children has to be collected. Information on children's disabilities may not be shared, or grandparents and caregivers may not know the case histories. Despite these challenges, caregivers remain a valuable source of information on their children and should be used. Research at Clinic for High Risk Babies (CHRIB) found that parents consistently identified their children's communication difficulties earlier than professionals (Kritzinger, 2000). Parents from all cultures strive to help their children to develop maximally, but they require knowledge to assist in their children's development (Popich et al., 2007). Consequently, parents and caregivers also need training, and it is essential to develop a training package for parents and caregivers in Ditsobotla sub-district.

The PHC personnel indicated that screening programmes for communication delay can be implemented successfully during well baby clinics and the immunization of infants and young children. These clinics form part of the MCWH programme. It therefore appeared that the identification of infants and young children at risk for communication delays or disorders may be successfully conducted in collaboration with the MCWH programme in the PHC package.

Further research is required to determine the effectiveness of developmental surveillance versus screening programmes in the PHC context in South Africa. Since developmental screening is a once-off identification method in a child's life, it may be necessary to rather implement developmental surveillance, where the development of each infant and young child is monitored individually and regularly. Appropriate identification methods must be developed by means of a formal research process. Moreover, it is necessary to develop a budget to be submitted to the North West Department of Health for the purchase of equipment and development of instruments to identify communication delays and hearing disabilities in infants and young children.

***In conclusion***, it was established that no formal identification methods have been implemented in Ditsobotla sub-district. The *Road to Health* chart, currently used to document development of infants and children, is limited and unreliable in terms of

communication development and hearing abilities of infants and young children. A training package should be developed for parents and caregivers on normal communication and literacy development of infants and young children. A dedicated early communication screening instrument should be developed. The consistent use of such an instrument may lead to early referrals to the speech-language therapist.

### 5.2.4 The current referral systems used by the PHC personnel

The results of the study indicated that the PHC personnel were unable to successfully identify infants and young children at risk communication delays of disorders. Kritzinger (2000) illustrated that limited knowledge of ECI and limited referral systems, among others, cause a barrier to the early identification and treatment of infants who require ECI, and causes ECI to remain an unknown entity in the South African health system.

It was evident from the results that the current referral system in Ditsobotla sub-district is not effective and involves a lengthy procedure. The referral system currently used by the PHC personnel requires three operational organizational networks, since speech-language therapy and audiology services are located at facilities outside the sub-district. The PHC personnel are uncertain when and to whom they should refer mothers with concerns regarding their child's hearing or communication development. Instead of referring directly to the speech-language therapist or audiologist, referrals are made through the doctor, who then has to refer to the speech-language therapist or audiologist. It is within the interdepartmental organizational network that the referral system has to be addressed to improve service delivery.

An effective inter-organizational network has to be established to refer patients for ECI services or specialized testing, i.e. ABR, when a speech-language therapist is not available in the sub-district. Speech-language therapists and audiologists should support and meet with the PHC personnel to address the factors that are negatively influencing the referral system, such as transport problems and time delays. By means of meetings and planning sessions collaborative partnerships may be established and reinforced. The ideal, however, is that the speech-language therapist located in the sub-district establishes an effective inter-departmental network.

Therefore a prerequisite for consistent ECI service delivery in Ditsobotla sub-district is the employment of a permanent speech-language therapist and with a speech-language therapist employed the facilities can be visited regularly, follow-up visits can be scheduled at regular intervals and services can be sustained.

It is imperative that a referral framework be developed specifically for Ditsobotla sub-district, to address issues such as transport and distance from the facilities in the area. The PHC personnel should be part of the planning of such a framework as they are knowledgeable on referrals, and the limitations they experience have to be taken into account. Furthermore, it is essential to provide in-service training when a referral framework is implemented in the sub-district, as training should enable the PHC personnel to use the referral system successfully. The speech-language therapist and audiologist should manage ECI referral systems in the PHC facilities.

The organizational network for ECI *within* the sub-district should be planned and managed carefully. Since an incremental implementation of ECI functions entails that the intensity of services will differ at the facilities, and as not all facilities (as there are many) can be visited weekly, a referral framework of the PHC facilities should be developed. When the speech-language therapist cannot visit a specific clinic regularly, or when certain ECI functions cannot be implemented at the facility due to lack of capacity, a referral has to be made to a nearby PHC facility. It is therefore necessary that effective communication is established between collaborators and that a fixed schedule for ECI functions is developed in order to simplify logistics.

Collaboration between health care professionals and knowledge of the referral networks are necessary when planning an effective referral framework for ECI. The results of the study indicated that the intradepartmental organizational networks were sufficient, as referrals within the same department or clinic are efficient. Since the interdepartmental organizational network was ineffective, a successful collaborative team approach, where the PHC personnel work closely with the speech-language therapist, has not yet been developed.

It would appear that the main reason for the poor referral system was the lack of a referral framework where the procedure and a referral letter are provided. A

comprehensive referral letter should be developed and used so that back referral information can be recorded and sent to the referring health care professional. Not only does the feedback help to establish a relationship of trust and collaboration between the professionals, but it also helps to monitor patients on return visits to the therapist.

***In conclusion***, the lack of a permanent speech-language therapist in the sub-district, resulting in poor collaboration, has influenced the referral systems as an inter-organizational network must be used. The current referral system is ineffective and has to be improved. Establishing collaborative partnerships will improve the referral system as back-referral is improved.

### 5.2.5 Feasibility of the integration of ECI within the PHC programmes

The current teamwork approach in Ditsobotla sub-district is mainly multidisciplinary in nature and collaboration between the speech-language therapists, audiologists and PHC personnel is limited. The PHC personnel only consult with doctors during their visits. Limited collaboration is evident as a result of the multidisciplinary team approach.

The need to establish successful teamwork within Ditsobotla sub-district was clearly indicated in the results. Speech-language therapists and audiologists should address the teamwork in the sub-district, by implementing and establishing a transdisciplinary ECI team approach where collaboration is essential.

Continued and once-off collaborative activities should be planned in partnership with the PHC programme managers as this will improve the accessibility of services in the rural communities of Ditsobotla sub-district. The functions identified by Kritzinger and Louw (2003) can be implemented successfully by means of collaborative activities within the PHC package. The speech-language therapist and audiologist should manage ECI as a PHC programme. The speech-language therapist should therefore play a promotional as well as an educational role in the developmental phase of ECI services and thereafter.

The implementation of ECI - PHC collaborative activities appears to be feasible, but the implementation of the programme as a whole will be a lengthy process as the professionals are few and have limited resources. Consequently, it is suggested that an incremental rollout of the implementation of collaborative ECI activities is employed. In Figure 5.1 the incremental rollout of collaborative activities according to the different levels of prevention in ECI are explained. It is suggested that during the planning phase of collaborative activities the facilities need to be evaluated to determine whether there is capacity for successful implementation of the activities. Various activities may therefore be implemented at different facilities, according to capacity and needs. The increments of ECI functions at facilities should not be considered rigid, as once-off ECI collaborative activities can be implemented at facilities with a limited capacity for all ECI functions. The necessary arrangements should be made, such as allocation of space and training of volunteers to help with the implementation of the collaborative activities.

Figure 5.1 illustrates that certain programmes, such as Maternal, Child and Women's Health in primary prevention in ECI, play a significant part as many ECI functions can be integrated in collaboration with this programme. Furthermore, within each level of prevention it is clear that the PHC programmes, non-personal health services and disease prevention and control, play a significant role as the main functions of prevention levels fall within the scope of these programmes. The speech-language therapist and audiologist in ECI therefore need to work in collaboration with these programmes in order to successfully plan which other PHC programmes still need to be included in incremental steps.

The implementation of ECI functions within the PHC package appears to be a feasible solution for case finding and reaching rural communities where ECI services have not yet been introduced. The PHC personnel and PHC programme managers were positive about the outcome of such an implementation, and recommended collaboration between PHC personnel, PHC programme managers, speech-language therapists and audiologists. The incremental rollout of ECI functions within the PHC package is illustrated in Figure 5.1.

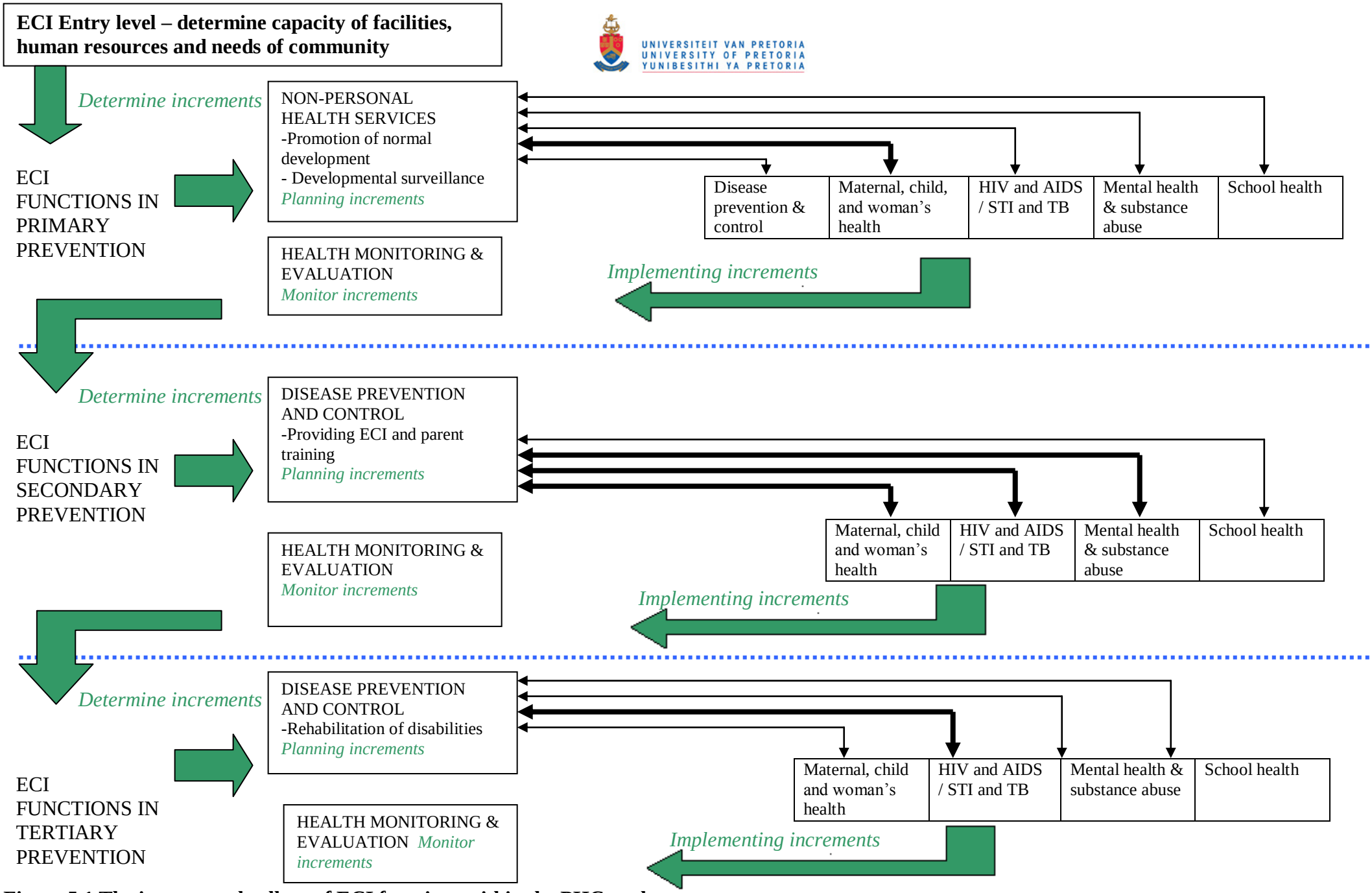



**Figure 5.1 The incremental rollout of ECI functions within the PHC package**

From Figure 5.1 it is evident that the management of the incremental rollout will require in-depth planning and support within the team, and therefore essentially the transdisciplinary team approach should be implemented. The collaboration between the PHC programmes and ECI is illustrated by the arrows. It is clear that the ECI functions to be implemented will differ at each facility, and therefore the intensity of programmes will differ accordingly. The rollout starts with ECI primary prevention functions, then progresses to ECI secondary prevention functions, and lastly to ECI tertiary prevention functions.

As mentioned already, ECI must to be implemented formally, and therefore in comprehensive future research the ECI programme needs to be defined, justified and described. The scope of the programme has to be formulated clearly and guidelines for implementation have to be developed. The ideal is to establish such a programme as part of the PHC package, which can facilitate national implementation of the programme and furthermore provide the necessary support for the initiative.

***To summarize***, the feasibility of the integration of ECI within the PHC package of Ditsobotla has been established. An incremental rollout is suggested to address limitations in the sub-district. A transdisciplinary team approach is essential if ECI collaborative activities are to be implemented successfully.

## 5.3 CRITICAL EVALUATION OF THE RESEARCH PROCESS

Many strengths and limitations were identified retrospectively when the research process was placed under investigation. These strengths and limitations will be discussed in order to critically evaluate the success of the research process.

- The researcher made use of triangulation in order to improve the reliability and validity of the study. Data triangulation also assisted the researcher in the quest to acquire sufficient data to effectively describe the identification methods and referral process used in Ditsobotla sub-district by the PHC personnel.
- The researcher used a dominant-less-dominant model as research design (De Vos, 2002). Consequently quantitative as well as qualitative components were included in the data collection methods. The research design made it possible to

determine the feasibility of the implementation of ECI in the PHC package of Ditsobotla sub-district holistically.

- A limitation with regard to the research process was that the researcher was the only data-collector. It is argued that the researcher can be biased when involved in the data-collection procedures, but the advantages of involvement also need to be considered (Greeff, 2002). The participants were familiar with the researcher as she worked as their colleague a few years previously. The participants may have felt more at home with the researcher than with a complete stranger.
- The data collection was limited to Ditsobotla sub-district in the North West Province, which is area specific and therefore the results cannot be generalized to all PHC contexts in South Africa. However, the sub-district was adequately represented, as 58% of the facilities were included in the study, with an equal distribution of large and small facilities.
- A second interpreter was consulted with the data analysis of the results obtained in the interviews. Since the data was interpreted by the researcher and the second interpreter, the reliability of results was enhanced.

## 5.4 RECOMMENDATION FOR FUTURE RESEARCH

ECI services integrated in PHC within the South African context should be explored further as PHC service delivery is changing continually and as ECI has not yet been successfully implemented in rural communities nationwide.

Consequently the following recommendations are made with regard to future research:

- The study was limited to a sub-district in North West Province. It is necessary to conduct further research in more provinces in order to determine whether the same limitations are being experienced and to establish ECI as a PHC programme nationally.
- A longitudinal study should be conducted where case finding is measured before and after the identification methods and referral systems are implemented. The purpose of such a study will be to determine whether case finding improved when identification methods and referrals systems were addressed.

- A community engagement undergraduate training programme for speech-language therapists and audiologists should be developed. Additional ECI functions should be included, i.e. development of training programmes for professionals, caregivers and volunteers, and management of integrative collaborative activities.
- The implementation of the incremental rollout of ECI functions should be evaluated and critically discussed.
- Development of an ECI screening tool or developmental surveillance tool should be implemented in Ditsobotla sub-district.

## 5.5 CONCLUSION

Since case finding is poor and ECI services have not yet been established in Ditsobotla sub-district, certain limitations can be expected. It has been established that the identification methods for communication delay or disorders are limited and unreliable, and that the referral system appears to be ineffective. Against the background of the problem areas with regard to ECI service delivery in South Africa, identified by Kritzinger (2000), it appears that identification and referral are but two aspects of many influencing ECI service delivery in South Africa. Poor access to ECI facilities and the scarcity of facilities are other aspects influencing ECI services in South Africa (Kritzinger, 2000). In order to improve service delivery in rural areas and therefore make services more accessible to the communities, it has been determined that the integration of ECI functions within the PHC package is feasible. A formal approach to implementation has been suggested, and collaborative partnerships between management, PHC programme managers and PHC personnel are imperative. The incremental rollout of ECI functions at PHC facilities may also improve teamwork, as collaboration is essential.

Kritzinger (2000) also described limited teamwork and limited knowledge of ECI as problem areas in service delivery. The implementation of collaborative activities necessitates effective teamwork. Training in ECI services and normal communication and literacy development forms part of the ECI primary prevention functions to be phased in at facilities with sufficient capacity and human resources. Furthermore,

training packages must be developed to address the information needs experienced by PHC professionals, volunteers, parents and caregivers.

The implementation of ECI functions within the PHC package appears to address multiple problem areas in ECI service delivery in South Africa. Consequently the implementation of ECI services in rural areas in South Africa needs to be considered holistically, and the PHC package should be used as a means to reach these communities.

Since the introduction of ECI in South Africa (Louw, 1997), a theoretical framework for service delivery in the public sector has been described (Kritzinger & Louw, 2003), which provides a basis to assist in the planning of implementation of these services. However, ECI remains an undervalued entity in the South African health care system, which can be addressed by means of integrating ECI functions into the PHC package and therefore the health care system. The speech-language therapist and/or audiologist is the leading role player to initiate the process of ECI-PHC collaboration.

## 5.6 SUMMARY

Chapter 5 presents the conclusions drawn from the present descriptive study where interviews were conducted with the participants and an environmental analysis was completed. Important theoretical, practical and research implications with regard to the capacity of PHC facilities and human resources, the current identification methods and referral systems, teamwork and the implementation of collaborative activities were discussed. The conclusion reached is that generally the limited identification methods and referral systems should be addressed by means of a formal approach to the incremental rollout of ECI functions within the PHC package at PHC facilities in rural communities.

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UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

# APPENDIX A

## Permission to conduct the study:

Research Proposal and Ethics Committee, Faculty of Humanities, University of Pretoria;
Knowledge management, North West Department of Health



University of Pretoria
**Research Proposal and Ethics Committee**
**Faculty of Humanities**

4 April 2006

Dear Doctor Kritzinger

| | |
|---|---|
| **Project:** | ***The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district*** |
| **Researcher:** | **J Muller** |
| **Supervisor:** | **Dr AM Kritzinger** |
| **Department:** | **Communication Pathology** |
| **Reference number:** | **21060038** |

Thank you for the application you submitted to the Research Proposal and Ethics Committee, Faculty of Humanities. The student is commended for the excellent proposal, which was judged to be of a very high standard.

I have pleasure in informing you that the Research Proposal and Ethics Committee formally approved the above study on 30 March 2006. The approval is subject to the candidate abiding by the principles and parameters set out in her application and research proposal in the actual execution of the research.

The Committee requests you to convey this approval to Ms Muller.

We wish you success with the project.

Sincerely

**Prof Brenda Louw**
**Chair: Research Proposal and Ethics Committee**
**Faculty of Humanities**
**UNIVERSITY OF PRETORIA**

NORTH WEST DEPARTMENT OF HEALTH
Healthy Living for All
North West Province
Republic of South Africa

1st Floor SABC Building, Left Wing
Mafikeng, 2745
Private Bag X2068
MMABATHO, 2735

KNOWLEDGE MANAGEMENT

Tel: (018) 387 6747
Tel: (018) 387 6774
Tel: (018) 387 6773
Fax: (018) 384 7960

28 Aug 2006

Ms J Muller
Dept of Communication, pathology, speech& Hearing Clinic
University of Pretoria
0002

Subject: Approval for Research Project: **The identification process in early communication intervention followed by Primary Health Care personnel in Ditsobotla Sub District**

Approval is granted to conduct the above study in the North West Province, kindly make relevant arrangements with the management for suitable dates and times. The NWDoH will be furnished with final research report before publication by

.....

**J.Muller**

During 2007

**Submission date for the final report**

Regards

2006/08/30

H.Metsileng
Director: Knowledge Management Directorate

**APPENDIX B**
**Information brochure for participants in Group 1**

University of Pretoria

Pretoria 0002 Republic of South Africa Tel 012-420-2357 / 012-420-2816 Fax 012-420-3517 http://www.up.ac.za

Department of Communication Pathology
Speech, Voice and Hearing Clinic

16 March 2006

Researcher: Jeannie Muller
Tel: 084 443 338 8

**Information brochure for research participants in Group 1**

Dear Colleague

**You are asked to participate in a study on the identification process of infants at risk for developmental disorders or –delays in Ditsobotla sub-district.**

Study title: The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district.

As a member of the primary health care team in Ditsobotla sub-district, you may be faced with the challenging task of identifying and referring children who are at risk for developmental delays or disorders. Since the infants are so young the impact of risks on their development may not yet be clear, and the families may also be unaware of the risks.

It is therefore not easy to identify and refer those infants who require early intervention services. However, research has shown that the earlier infants are identified and referred for services, the better their developmental outcomes are. With your participation I would like to describe the currently used identification methods and referral systems so that guidelines may be developed to assist the identification process.

Permission has been obtained from the district manager and clinical manager of Ditsobotla sub-district for the study to take place during working hours. Participation in the study will involve a structured interview with the researcher at your workplace. Confidentiality will be maintained as no personal information will be asked or made public in the study. A tape recording will be made of the interview, and after the data is processed, the tape will be destroyed. The reliability of the data collection will be increased with the tape recordings.

Participation in the study involves no risks.

Participation in the study is voluntary and you will not be paid. You may withdraw from the study at any time without any negative consequences.

Through participation in this study, you may benefit by becoming more familiar with issues related to the early identification and referral of children at risk for developmental delays or disorders.

Your participation will be highly appreciated. Please complete the informed consent form and return it to the researcher.

Yours sincerely

Jeannie Muller
Researcher

Dr. A Kritzinger
Study Leader

Prof. B. Louw
Head: Department of Communication Pathology
University of Pretoria

**Consent form for research participants in Group 1**

I have read the information letter and I give my consent to participate in this research project: The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district. I am aware that the participation is voluntary and that I may withdraw from the study at any time.

| | |
|---|---|
| Signature of participant | Date |
| Signature of witness | Date |
| Signature of researcher | Date |

**APPENDIX C**
**Information brochure for participants in Group 2**

University of Pretoria

Pretoria 0002 Republic of South Africa Tel 012-420-2357
/ 012-420-2816 Fax 012-420-3517 http://www.up.ac.za

Department of Communication Pathology
Speech, Voice and Hearing Clinic

16 March 2006

Researcher: Jeannie Muller
Tel: 084 443 338 8

**Information brochure for research participants of Group 2**

Dear Colleague

**You are asked to participate in a study on the identification process of infants at risk for developmental disorders or –delays in Ditsobotla sub-district.**

Study title: The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district.

As a member of the primary health care team in Ditsobotla sub-district, you may be aware of the challenges in the identification and referral of children who are at risk for developmental delays or disorders. Since the infants are so young the impact of risks on their development may not yet be clear, and the families may also be unaware of the risks.

It is therefore not easy to identify and refer those infants who require early intervention services. However, research has shown that the earlier infants are identified and referred for services, the better their developmental outcomes are. Since you are responsible for the management of a primary health care programme and therefore an expert on the subject, I would like to describe your views on the establishment of an early identification and referral programme for infants at risk for developmental delay or disorders.

Permission has been obtained from the district manager and clinical manager of Ditsobotla sub-district for the study to take place during working hours. Participation in the study will involve a semi-structured interview with the researcher at your workplace. Confidentiality will be maintained as no personal information will be asked or made public in the study. A tape recording will be made of the interview, and after the data is

processed, the tape will be destroyed. The reliability of the data collection will be increased with the tape recordings.

Participation in the study involves no risks.

Participation in the study is voluntary and you will not be paid. You may withdraw from the study at any time without any negative consequences.

Through participation in this study, you may benefit by becoming more familiar with issues related to the early identification and referral of children at risk for developmental delays or disorders.

Your participation will be highly appreciated. Please complete the informed consent form and return it to the researcher.

Yours sincerely

Jeannie Muller
Researcher

Dr. A Kritzinger
Study Leader

Prof. B. Louw
Head: Department of Communication Pathology
University of Pretoria

**Consent form for research participants in Group 2**

I have read the letter of information and I give my consent to participate in this research project: The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district. I am aware that the participation is voluntary and that I may withdraw from the study at any time.

| | |
|---|---|
| Signature of participant | Date |
| Signature of witness | Date |
| Signature of researcher | Date |

**APPENDIX D**
**Informational letters to request permission to conduct research in Ditsobotla sub-district**

Fax number: (018) 632 4930

University of Pretoria

Pretoria 0002 Republic of South Africa Tel 012-420-2357
/ 012-420-2816 Fax 012-420-3517 http://www.up.ac.za

Department of Communication Pathology
Speech, Voice and Hearing Clinic

16 March 2006

Mr Mogapi
District Manager
Ditsobotla sub-district
**Lichtenburg**

Dear Mr. Mogapi

**Request to permit primary health care personnel to participate in research in early communication intervention at the hospitals and clinics in the Ditsobotla sub-district**

With reference to our conversation at the District office, I hereby submit my request to conduct a research project in the hospital complex and clinics.

As a masters student at the Department of Communication Pathology, University of Pretoria, I am conducting a research project concerning Early Communication Intervention. Early Communication Intervention is services provided by speech-language therapists to families of infants who may have risks for delayed communication development. The title of the study is: The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district. I would like to include all the primary health care personnel that are working in the clinics in the research. Their participation will be greatly appreciated.

Although there is a high incidence of infants with risk factors for communication delay, they are mostly identified when they enter primary school, which is much too late for effective intervention. There is a lack of speech-language therapists in rural areas and therefore referral systems to secondary health care must be effective. The study may contribute to a better understanding of current referral practices and how it may be improved to identify infants at risk earlier.

The research will be subject to ethical clearance from the Research proposal and Ethics committee of Faculty of Humanities, University of Pretoria as well as from your

department. The study will involve structured interviews with the primary health care personnel as well as with the programme managers. In the interviews with PHC personnel data with regard to the identification methods and referral systems that are currently being used will be collected. During the interviews with the managers their views on the implementation of an early intervention programme for infants at risk for developmental delay and disorders will be explored.

I would like to request to do the interviews with staff members during working hours, which will not take more than 30 minutes for each interview. A tape recording will be made of the interviews, which will be used for research purposes only and will be destroyed after the project has been completed.

The names of the hospitals and clinics will not be made public, therefore there will only be referred to the clinics and/or hospitals of Ditsobotla sub-district.

I hope my request that the primary health care personnel working in the clinics of Ditsobotla sub-district to participate in the study will meet your approval.

Yours sincerely

Jeannie Muller
M.Communication Pathology

Dr. A. Kritzinger
Study Leader

Prof. B. Louw
Head: Department of Communication Pathology
University of Pretoria

Fax number: (018) 338 2921

University of Pretoria

Pretoria 0002 Republic of South Africa Tel 012-420-2357
/ 012-420-2816 Fax 012-420-3517 http://www.up.ac.za

Department of Communication Pathology
Speech, Voice and Hearing Clinic

16 March 2006

Dr. J Musonda
Clinical Manager
General de la Rey/Thusong Hospital Complex
**Lichtenburg**

Dear Dr. Musonda

**Request to permit primary health care personnel to participate in research in early communication intervention at the hospitals and clinics in the Ditsobotla sub-district**

With reference to our conversation at Thusong hospital, I hereby submit my request to conduct a research project in the hospital complex and clinics.

As a masters student at the Department of Communication Pathology, University of Pretoria, I am conducting a research project in Early Communication Intervention. Early Communication Intervention is services provided by speech-language therapists to families of infants who may have risks for delayed communication development. The title of the study is: The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district. I would like to include all the primary health care personnel who are working in the maternity and paediatric wards as well as in the follow-up baby clinics in the out patient department in the research. Their participation will be greatly appreciated.

Although there is a high incidence of infants with risk factors for communication delay, they are mostly identified when they enter primary school, which is much too late for effective intervention. There is a lack of speech-language therapists in rural areas and therefore referral systems to secondary health care must be effective. The study may contribute to a better understanding of current referral practices and how it may be improved to identify infants at risk earlier.

The research will be subject to ethical clearance from the Research proposal and Ethics committee of Faculty of Humanities, University of Pretoria as well as from your department. The study will involve structured interviews with the primary health care personnel as well as with the programme managers. In the interviews with PHC personnel data with regard to the identification methods and referral systems that are currently being used will be collected. During the interviews with the managers their views on the implementation of an early intervention programme for infants at risk for developmental delay and disorders will be explored.

I would like to request to do the interviews with staff members during working hours, which will not take more than 30 minutes for each interview. A tape recording will be made of the interviews, which will be used for research purposes only and will be destroyed after the project has been completed.

The names of the hospitals and clinics will not be made public, therefore there will only be referred to the clinics and/or hospitals of Ditsobotla sub-district.

I hope my request that the primary health care personnel of General de la Rey and Thusong hospital complex to participate in the study will meet your approval.

Yours sincerely

Jeannie Muller
M.Communication Pathology student

Dr. A. Kritzinger
Study Leader

Prof. B. Louw
Head: Department of Communication Pathology
University of Pretoria

# APPENDIX E
## Rating scale for the description of human and physical resources at clinics/hospitals

Name of clinic/ hospital ward _____
Population of children under 5 years served by this clinic/ward: _____
Doctors: Number_____
Nursing staff: Number_____
Nurses in training: Number_____
Number of visits per week by: Doctors_____
Speech-language therapist & Audiologist_____
Occupational therapist _____
Dietician_____
Physiotherapist_____
Paediatrician_____
Other health care workers_____

| **Areas of evaluation** | **Limited** | **Adequate** | **Good** | **Comments** |
|---|---|---|---|---|
| Water supply- water supply at facility | | | | |
| Electricity- provision of electricity | | | | |
| The average number of infants the sister sees daily | | | | |
| Toys available for developmental screening | | | | |
| General impression of waiting rooms | | | | |
| 1. Seating for patients | | | | |
| 2. Posters on general health issues | | | | |
| 3. Posters on the development of infants | | | | |
| General impression of consulting rooms | | | | |
| 1. Space for confidential interviews with parents/mothers | | | | |
| 2. Desk and chairs for PHC personnel | | | | |
| 3. Medicine cabinets | | | | |
| 4. Posters on general health issues | | | | |
| 5. Posters on the development of infants | | | | |
| General impression of reception area | | | | |
| 1. Filing cabinets to ensure confidentiality of patient files | | | | |

**APPENDIX F**
**Interview schedule for participants in Group 1**

| | |
|---|---|
| | |

# *Structured interview about the identification process used for communication disorders in the primary health care context*

The interview is about how you identify and refer young children or babies who may have problems with feeding, hearing, talking or problems in school at a later stage. The aim is to determine what is and isn't working in the Primary Health Care context. Therefore this interview isn't looking at what you are doing right or wrong, but rather at what speech therapists can do to assist you. Keeping this in mind please feel free to give me your honest opinion.

First, I would like to ask you a few questions about your work.

## Section A

**1. What is your highest level of nursing qualification?**

| | | |
|---|---|---|
| **B.Cur Degree** | | **1** |
| **Diploma** | | **2** |
| **No formal training** | | **3** |

**2. How long have you worked with infants and their mothers in the hospital or clinic?**

**_____ years _____ months**

**3. What is your employment status in the ward or clinic?**

| | | |
|---|---|---|
| **Part-time** | | **1** |
| **Full-time** | | **2** |
| **Volunteer** | | **3** |

**4. Are you currently working in a primary health care hospital or clinic?**

| | | |
|---|---|---|
| **Hospital** | | **1** |
| **Clinic** | | **2** |

The next few questions are about the methods that you use to identify infants and young children who may have problems with feeding, hearing, talking or problems in school at a later stage.

## Section B

**1. What do you do to identify babies and children who need speech and hearing services?**

_____
_____
_____
_____

**2. Do you have specific methods to identify babies and children who need speech and hearing services?**

_____
_____
_____
_____

**3. Can you expand on these methods?**

_____
_____
_____
_____

**4. Do you think that it is effective?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**5. Why do you think it is effective/ineffective?**

_____
_____
_____
_____

**6. What do you think would be the best way to identify babies and young children as early as possible?**

_____
_____
_____
_____

**7. Who do you think are responsible for the screening of speech-, feeding- and hearing disorders in babies and children? You may provide more than one answer.**

| | Yes | | No | |
|---|---|---|---|---|
| 1. PHC sisters and nurses | | 1 | | 2 |
| 2. Pediatrician | | 1 | | 2 |
| 3. Speech-language therapist | | 1 | | 2 |
| 4. Occupational therapist | | 1 | | 2 |
| 5. Physiotherapist | | 1 | | 2 |
| 6. Doctors | | 1 | | 2 |
| 7. Audiologist | | 1 | | 2 |
| 8. Other: specify | | 1 | | 2 |

**8. Do you think that you are able to screen babies and children for speech and hearing disorders?**

| | Speech | | Hearing | |
|---|---|---|---|---|
| Yes | | 1 | | 2 |
| No | | 1 | | 2 |

**9. Why?**

**Speech:**_____

_____

**Hearing:**_____

_____

**10. Is developmental screening being used for all the infants and children, regardless of age, at the clinic or hospital?**

| | | |
|---|---|---|
| Yes | | 1 |
| No | | 2 |

**11. If no, why?**

_____

_____

_____

_____

**12. Do you think that parents can give valuable information about their child's development?**

| | | |
|---|---|---|
| Yes | | 1 |
| No | | 2 |

**13. Why?**

_____
_____
_____
_____

**14. Do you think all children should be screened for communication disorders at the clinic or hospital?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**15. Why?**

_____
_____
_____
_____

**16. At what stage would it be best to screen infant development? I will give a few options and then you indicate what stage is best and at what stage it is not a good time to screen babies.**

| | **Best** | | **Not so good** | |
|---|---|---|---|---|
| **At birth in hospital** | | **1** | | **2** |
| **At baby clinics** | | **1** | | **2** |
| **At immunization** | | **1** | | **2** |
| **At clinics/hospitals for general visits** | | **1** | | **2** |

**17. When do you think is the earliest possible time that risk factors for speech and hearing disorders can be identified in children?**

_____
_____
_____

**18. Do you think that communication disorders are common or rare in comparison to other developmental problems?**

| | | |
|---|---|---|
| **Common** | | **1** |
| **Rare** | | **2** |

**Comments:**_____
_____

The next few questions are about how you refer infants and young children who have problems with feeding, hearing, talking or problems in school at a later stage.

## Section C

**1. Do you refer infants to the speech-language therapist and audiologist?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**2. If yes, how do you refer infants to the speech-language therapist and audiologist? Please describe the referral process. If your answer was no, why?**

_____
_____
_____

**3. Do you think this referral process is effective?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**4. Why do you think the referral process is effective/ineffective?**

_____
_____
_____
_____

**5. What would you recommend as the best strategy to do a referral?**

_____
_____
_____
_____

**6. Do you get feedback information about the referrals that you made?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**7. Do you experience a time delay when you refer patients?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**8. If yes, what are the causes of the time delay?**

_____
_____
_____

**9. In your opinion how well are you informed about the available speech-language therapy and audiology services?**

| | | |
|---|---|---|
| **Excellent** | | **1** |
| **Good** | | **2** |
| **Average** | | **3** |
| **Not so good** | | **4** |
| **Not at all** | | **5** |

**10. In the past six months what estimated percentage of your caseload did you refer for speech-language therapy and audiology services?**

| | | |
|---|---|---|
| **0-24%** | | **1** |
| **25-49%** | | **2** |
| **50-74%** | | **3** |
| **75-100%** | | **4** |

The following questions are about working in a team with other health professionals.

## Section D

**1. Which professionals are currently working in your district?**

| | Yes | | No | |
|---|---|---|---|---|
| 1. PHC sisters and nurses | | 1 | | 2 |
| 2. Pediatrician | | 1 | | 2 |
| 3. Speech-language therapist | | 1 | | 2 |
| 4. Occupational therapist | | 1 | | 2 |
| 5. Physiotherapist | | 1 | | 2 |
| 6. Doctors | | 1 | | 2 |
| 7. Audiologist | | 1 | | 2 |
| 8. Dietician | | 1 | | 2 |

**2. Do you think working as a team with other professionals will have a positive influence on the early identification and referral of infants with developmental delays?**

| | | |
|---|---|---|
| Yes | | 1 |
| No | | 2 |

**3. Why do you think teamwork will/ will not influence early identification and referral of infants in a positive way?**

_____
_____
_____
_____

**4. If you could choose your ideal team of health care professionals and members of the community, who should be involved in the team that works with infants and young children? Please answer yes or no to the following options.**

| | Yes | | No | |
|---|---|---|---|---|
| 1. PHC sisters and nurses | | 1 | | 2 |
| 2. Pediatrician | | 1 | | 2 |
| 3. Speech-language therapist | | 1 | | 2 |
| 4. Occupational therapist | | 1 | | 2 |
| 5. Physiotherapist | | 1 | | 2 |
| 6. Doctors | | 1 | | 2 |
| 7. Audiologist | | 1 | | 2 |
| 8. Dietician | | 1 | | 2 |
| 9. Parents | | 1 | | 2 |
| 10. Grandparents | | 1 | | 2 |

**5. On which level/s should teamwork occur, for instance at the early identification, referral or intervention level?**

| | Yes | | No | |
|---|---|---|---|---|
| **1. Early Identification** | | **1** | | **2** |
| **2. Referral** | | **1** | | **2** |
| **3. Early Intervention** | | **1** | | **2** |
| **4. Other: Specify** | | **1** | | **2** |

**6. Do you think teamwork with other professionals is currently sufficient?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**7. What do you think can be done to improve the teamwork?**

_____
_____
_____
_____
_____

Thank you for participating in this interview. Your input will be of great value.

**Sources:**

Moodley, L. 1999. An in-service training programme for community nurses in the identification of at risk infants and toddlers. Unpublished M.Communication Pathology thesis. Pretoria: University of Pretoria.

**APPENDIX G**
**Interview schedule for participants in Group 2**

## INTERVIEW SCHEDULE FOR PARTICIPANTS IN GROUP 2

**The following topics will be discussed before each interview:**

- Early Communication Intervention refers to the speech-language therapy services rendered for families and their young children. When intervention is started earlier there are more benefits for the family and young child than with later intervention. Speech and language skills are very important for academic performance.

- The importance of Early Communication Intervention has been established through various studies. Currently we are experiencing difficulty in case finding in rural areas. The PHC personnel from Ditsobotla sub-district confirmed that problems exist in the identification methods and referral practices used for ECI. We want to determine how the speech-language therapist can work together with the PHC personnel and programme managers to address these issues.

## Section A

**1. What is your highest level of qualification?**

| | | |
|---|---|---|
| **Postgraduate degree** | | **1** |
| **Nursing degree** | | **2** |
| **Basic nursing diploma** | | **3** |
| **No formal training** | | **4** |
| **Additional diplomas** | | **5** |

**2. How long have you worked in the PHC context as a programme manager?**

**_____ years _____ months**

**3. What is your employment status at the district office of Ditsobotla sub-district?**

| | | |
|---|---|---|
| **Part-time** | | **1** |
| **Full-time** | | **2** |
| **Volunteer** | | **3** |

**4. Are you currently visiting primary health care hospitals and/or clinics?**

| | | |
|---|---|---|
| **Hospitals** | | **1** |
| **Clinics** | | **2** |
| **Both** | | **3** |

**5. In which PHC programme are you working currently?**

**_____**

## Section B

The next section is about the identification methods and referral system used to identify children with communication disorders in the PHC context. Please feel free to give me your thoughts on this matter.

**1. The personnel feel it is difficult to identify the children with communication disorders at early ages. What do you think can be done to assist the PHC sister in this regard?**

_____
_____
_____
_____

**2. Different levels of referral exist in the PHC context. Do you think referral on the following levels is successful?**

| | Yes | | No | |
|---|---|---|---|---|
| **1. Referral to professionals in the same department** | | **1** | | **2** |
| **2. Referral to professionals in a different department, in the same facility** | | **1** | | **2** |
| **3. Referral to professionals in different departments in other facilities** | | **1** | | **2** |

**3. Why do you feel it is/is not successful?**

_____
_____
_____
_____

**4. Many of the personnel reflected that the current referral system for ECI is not effective. What do you think can be done to improve the referral system and therefore make services more accessible?**

_____
_____
_____
_____

## Section C

A team approach between professionals is very important as it improves the services provided to the community. The next section is about what we as speech-language therapists and audiologists can do to assist you in your programmes with regard to functions provided by our profession. This may be integrated through collaborative activities where the speech-language therapist and audiologist work together with the PHC programs for a common purpose.

**1. Do you think that working as a team with professionals from other PHC programmes will influence case finding in rural areas for ECI?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**2. Why?**

_____
_____
_____
_____

**3. Do you experience information needs about ECI in the PHC context?**

| | | |
|---|---|---|
| **Yes** | | **1** |
| **No** | | **2** |

**4. If yes, can you please mention the information you need.**

_____
_____
_____
_____

**5. Which of the following functions of ECI do you think can be integrated through collaborative activities in your programmes? Please indicate in which programmes.**

| | Yes | | No | |
|---|---|---|---|---|
| 1. To raise mothers' awareness and facilitate an interest in the communication and literacy development of young children | | 1 | | 2 |
| 2. To train mothers to stimulate their infants and children | | 1 | | 2 |
| 3. To screen the communication and hearing abilities in young children | | 1 | | 2 |
| 4. To determine risks for communication delay in young children and to provide intervention | | 1 | | 2 |
| 5. To advocate the education of children | | 1 | | 2 |
| 6. To facilitate the implementation of language and literacy-based pre-school curriculum to ensure school readiness | | 1 | | 2 |
| 7. To evaluate and monitor the collaborative activities | | 1 | | 2 |
| 8. Other | | 1 | | 2 |

**6. Why do you think the functions can or cannot be integrated?**

| | Reason |
|---|---|
| 1. To raise mothers' awareness and facilitate an interest in the communication and literacy development of young children | |
| 2. To train mothers to stimulate their infants and children | |
| 3. To screen the communication and hearing abilities in young children | |
| 4. To determine risks for communication delay in young children and to provide intervention | |
| 5. To advocate the education of children | |
| 6. To facilitate the implementation of language and literacy-based pre-school curriculum to ensure school readiness | |
| 7. To evaluate and monitor the collaborative activities | |
| 8. Other | |

**7. Can you give me guidelines on how to go about the process of integrating these collaborative activities?**

_____
_____
_____
_____

**8. How do you think we can monitor and evaluate the collaborative activities?**

_____
_____
_____
_____

**9. How do you see the future of working together in collaborative activities?**

_____
_____
_____
_____

**10. What do you think are the advantages of the collaborative activities for the PHC programmes in Ditsobotla sub-district?**

_____
_____
_____
_____

Thank you for participating in this interview. Your input will be of great value.

**Sources:**

Kritzinger, A. & Louw, B. 2003. Clinical training of undergraduate communication pathology students in neonatal assessment and neonate-caregiver interaction in South Africa, *In: The South African Journal of communication Disorders,* Vol 50, pp 5-14.

# APPENDIX H
## Raw data spread sheets of the rating scale and interviews