

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

Jeannie van der Linde, Alta Kritzinger, Aniel Redelinghuys
University of Pretoria

Contact:

Prof. Alta Kritzinger

Department of Communication Pathology

University of Pretoria

Pretoria

e-mail: alta.kritzinger@up.ac.za

ABSTRACT

Based on clinical observations, case finding for early communication intervention service delivery in rural areas, such as Ditsobotla sub-district, is limited. The study described the identification process used for infants and young children at risk for communication delay and disorders as part of a proposed incremental implementation of early communication intervention services within the existing primary health care package. A descriptive survey design was followed. A rating scale was utilized and interviews were conducted with 20 randomly selected primary health care personnel and eight primary health care programme managers in Ditsobotla sub-district in North West province. The aims were to describe the early identification methods/processes, resources and limitations and provide guidelines to introduce early communication intervention services in a rural community. The results indicated that the identification process was limited. An incremental implementation of the different early communication intervention functions within the primary health care package appears feasible. Implications of the findings may be applied to initiate early communication intervention services, based on integrated teamwork, in a rural district 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

INTRODUCTION

Rural communities in South Africa particularly bear a high risk of disability, which may be both the cause and the consequence of poverty (Emmett, 2005). Infants at risk of developmental delay and their families who live in poverty therefore face additional constraints that place them at increased risk for developmental disabilities (Moodley, 1999). Due to a worldwide increase of developmental disabilities in children under three years (Rossetti, 2001), it can be expected that the number of young children presenting with communication delay and disorders will also increase.

Multiple risks of communication delay and disorders in young children occur in the rural sub-district of Ditsobotla in the North West province. From January to March 2005, 511 infants were born in the local hospitals and approximately 18% of them weighed less than 2500g (Monthly Hospital Statistics, North West Province, 2005), which indicates low birth weight and a concomitant risk of developmental delay and disability (Rossetti, 2001). According to the same hospital statistics, 5% of the mothers were adolescents, which poses a risk for maladaptive parenting and poverty if they are not supported other women (Werner, 2000) and 2.5% of the mothers had

syphilis, a risk of bilateral sensorineural hearing loss of sudden onset and progression in their infants (Plante & Beeson, 2004). Approximately 5% of the infants were born to mothers with HIV/AIDS (Monthly Hospital Statistics, North West Province, 2005), with a risk of mother-to-child transmission of the virus, and further risks of health and developmental difficulties, congenital hearing loss or the development of hearing impairment shortly after birth (Swanepoel, 2004). Despite the different risk conditions and the clear indication to establish a sustainable early communication intervention (ECI) programme in the sub-district, very few infants at risk were identified and referred to the first author during a year of community service employment.

Based on the one example of ECI services in South Africa not sufficiently meeting the needs of the mother and infant risk population, and a call from various authors to expand service delivery to include community-based ECI services (Kritzinger & Louw, 2003; Moodley, 1999; Pickering et al., 1998), a research project was launched (van der Linde, 2008). The aim was to investigate the existing identification and referral practices used in primary health care (PHC) services of the specific sub-district in order to determine needs and resources that should be considered when developing ECI services.

The underpinnings for the research study were based on evidence that emerged over time in the field of early intervention. The efficacy of early intervention was shown to be linked to the child's age of identification (Rossetti, 2001), and if under three years of age, the window of opportunity may be enhanced by neurodevelopmental plasticity (Dennis, 2000). Early identification of risk conditions in infants should therefore be the primary function of ECI (Kritzinger, Louw & Rossetti, 2001). Developing and implementing effective identification strategies, especially in rural areas, is one of the biggest challenges in ECI as a lack of identification will compromise the efficiency of the services (Kritzinger, 2000). Consequently, the efficacy of early identification of an infant at risk of developmental delay depends on a

reliable referral system so that time delays between the detection of a problem and intervention services to the family may be minimised.

Furthermore, the efficacy of a referral system is in direct relation to the outcomes that the system achieves (Equity Project, 2000). By means of a smoothly functioning referral system the ECI client and family, for example, receives diagnostic and therapeutic services from a specialised team of medical and rehabilitative professionals, ensuring that PHC is more unified and financially sustainable (Equity Project, 2000; North West Department of Health, 2003). It appears that limited referrals and improper coordination of referral systems are partially responsible for ECI and its benefits being unknown in the South African health care system (Kritzinger, 2000).

Integrating ECI services into PHC in rural communities in South Africa has been recommended in various studies (Fair & Louw, 1999; Kritzinger & Louw, 2003; Moodley, 1999). Formalised by Rossetti in 1996, the concept of communication-based services to the population of children birth to three years of age, is based on the finding that communication delay is the most prevalent characteristic of delayed development in children in this age group (Rossetti, 2001). Enhancing communication development should therefore be the main focus of any effective early intervention programme (Rossetti, 2001) – hence the term early communication intervention.

In the planning and management of ECI services the focus should be to develop strategies to prevent communication disorders in all people, including rural and disadvantaged communities (Kritzinger, 2000). As prevention of disability and communication disorders is the ultimate goal in ECI, primary prevention programmes could be implemented at PHC clinics.

A transdisciplinary framework for ECI public service delivery has been proposed by Kritzinger and Louw (2003), which may be integrated into the PHC package of the Department of Health (2000). The PHC package was designed to provide comprehensive and integrated health services and not to be implemented

through separate, vertical programmes where services are split according to disciplines, resulting in barriers to teamwork (van Rensburg, 2004). Consisting of eight different programmes, the package entails a standardised and comprehensive 'basket' of preventative, promotive, basic curative, rehabilitative and palliative services delivered at district level (Department of Health, 2000). Linked together as a service delivery model for health care, the eight programmes i.e., 1) Non-personal health services (occupational and environmental health); 2) Disease prevention and control; 3) Maternal, child and women's health; 4) HIV/AIDS, sexually transmitted infections and tuberculosis; 5) Health monitoring and evaluation; 6) Mental health and substance abuse; 7) Gender issues, and 8) School health services should be mutually supported by the health care professionals delivering these services (Department of Health, 2000; van Rensburg, 2004). Since teamwork is an essential approach in the implementation of the PHC package, the opportunity for collaboration should be utilised by therapists to introduce ECI services in communities.

The transdisciplinary conceptual framework for ECI describes collaborative partnerships with parents and caregivers, community health nurses and doctors, speech-language therapists, audiologists at PHC clinics, and secondary caregivers at crèches and day-care facilities (Kritzinger & Louw, 2003). According to Kritzinger and Louw (2003) ECI service delivery may be introduced to be consistent with the developmental stages of young children and the contexts where caregivers can be reached, i.e. services to the mother before the infant is born, at antenatal clinics (providing preventative information on normal hearing and communication development); during the neonatal period in the postnatal ward (promote mother-infant attachment and interaction, hearing screening and identifying risks for communication delay); during the postnatal period at immunization clinics (follow-up hearing screening, identify further risks and provide ECI, advocacy for education); and during the toddler years at day-care centres and nursery schools (provide ECI, train parents,

facilitate a language and emergent literacy-rich preschool curriculum to facilitate school readiness) (Kritzinger & Louw, 2003).

With the exception of non-personal health services, integrating direct ECI services into seven of the different PHC programmes appears to be possible. The wide-ranging ECI functions such as promotion of normal development, prevention of feeding difficulties, hearing loss and communication disorders, parent training, screening, early identification and providing assessment and intervention correspond with the different services provided within the variety of programmes in the PHC package. If certain ECI functions are shared among professionals in PHC, case-finding of infants at risk for communication delays or disorders may be improved and appropriate ECI services may be rendered to families at PHC facilities. Examples of successful integration of paediatric health and developmental services in PHC can be found (Lequerica, 1997). According to Lequerica (1997) it appears that such a one-stop PHC service delivery model is preferred by families, and increases family participation. It is therefore important to investigate the feasibility of the integration of PHC and ECI programmes in a South African context where ECI services are lacking.

Since the primary goal of research is to improve understanding of a phenomenon (Leedy & Ormrod, 2005), information produced by the current research study aims to identify certain problem areas. The research may also provide guidelines for identification and referral practices for ECI in the PHC context, which may be used to improve case finding in rural areas in South Africa. The information gathered through the research may also support the facilitation of a transdisciplinary team approach to service delivery in ECI in Ditsobotla sub-district, where effective collaboration between the PHC nurses, speech-language therapists, audiologists, and PHC programme managers may be established.

METHOD

Aims and Objectives

The purpose of the study was to describe the characteristics of identification methods and referral practices for ECI currently followed by PHC personnel in the Ditsobotla sub-district. The following objectives were formulated:

- To describe the features of the facilities in the PHC context in order to determine the capacity for implementing an ECI programme for infants with risks for disabilities.
- To describe the human resources available in order to determine the needs within the PHC context.
- To describe the early identification methods and resources currently used by the PHC personnel and managers to detect health problems as well as developmental delay and disabilities in infants.
- To describe the referral systems, within the inter-departmental (between different organizational departments in one facility) and the inter-organizational networks (between different institutions), 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.

Research Design

A descriptive research study was conducted. A dominant-less-dominant research design was selected, which entailed the use of a quantitative approach, the dominant component, and a qualitative approach, the smaller or less-dominant component (Fouché & de Vos, 2005). The quantitative approach implied a formalized approach with explicit control during data-collection (Fouché & de Vos, 2005). A questionnaire and a rating scale were used as methods of data collection. The qualitative component

consisted of semi-structured interviews with programme managers to obtain an in-depth understanding of data already collected and that may have needed further clarification (Leedy & Ormrod, 2005).

To increase the reliability of the study, triangulation was used (de Vos, 2005). Triangulation results from a combination of qualitative and quantitative research approaches. It is based on the assumption that bias in a particular data source, investigator or method may be neutralized when 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 sisters 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).

Research Ethics

The research proposal was approved by the Research Ethics and Proposal Committee of the Faculty of Humanities, University of Pretoria. Permission to conduct the research was granted by the North West Department of Health.

All participants gave voluntary informed consent to participate in the study. Information obtained from the participants was treated confidentially and reported anonymously. All efforts were directed to conduct the research according to the ethical principles of no harm to participants, veracity, non-discrimination and sensitivity to cultural and language differences between participants and the researcher.

Participants

The two target populations were PHC personnel and PHC programme managers who were employed by Ditsobotla sub-district, part of the central district of North West Department of Health. Both groups had to be proficient in English in order to participate in the study. Although Setswana is the most commonly used language in

the sub-district, it was found that the participants were sufficiently proficient in English to understand and answer the interview questions.

Selection of participants

Stratified random sampling was used to obtain the participants in group 1, the PHC personnel (Strydom & Venter, 2002). Stratifications entailed that the specific population was divided in strata, which were 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 included in each stratum.

In group 2 all the programme managers of Ditsobotla sub-district who complied with the selection criteria received information brochures and were requested to participate. In this case the number of possible participants was limited. Non-random purposive sampling was used since a group of participants to represent the population did not have to be identified (Leedy & Ormrod, 2005). All the PHC programme managers were asked to participate in the study.

Description of participants

- Description of participants in Group 1

Approximately one third (20) of the PHC personnel in the entire sub-district were included in the study, with each stratum equally represented. The characteristics of the participants in group 1 are provided in Table 1.

Table 1

According to Table 1 there were only a few differences between the participants of the two strata. The majority of the participants had nursing diplomas, all were working on a full-time basis, with an average of eight to 12 years working experience. The participants therefore had work experience which rendered them as informed research participants, although three participants had no formal training.

- Description of participants in Group 2

The participants in Group 2 represented more than two thirds of the total of the PHC programme managers. A total of 12 PHC programme managers were working in Ditsobotla sub-district. All the 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 11 PHC programme managers, eight of which participated in the research. The other three potential participants were either on leave or were attending a course. The characteristics of the participants are provided in Table 2.

Table 2

According to Table 2 most of the programme managers had qualifications and work experience. A variety of programmes in the PHC package were represented by the managers, but those who managed the Maternal, child and women's health, Mental health and the HIV/AIDS programmes could not be included as participants as they were attending a course during the time allocated for data collection.

Material and Apparatus

The following material was exclusively developed for the data collection of the study:

A summated rating scale for the description of the facilities (See Appendix A).

Summated rating scales are widely used for the description of environments where phenomena have to be evaluated on a continuum of, for example, excellent to inadequate (Leedy & Ormrod, 2005). The rating scale used was a means to analyse facilities and describe the available human resources. The rating scale provided not only the background to the study, but also relevant data which could point to strengths and weaknesses in the identification methods and referral systems of the PHC system in the Ditsobotla sub-district. The rating scale was also used to determine the capacity of the facilities to implement the different ECI functions.

The content of the rating scale included the following physical characteristics: water and electricity supply, the educational atmosphere of the waiting rooms, developmental screening materials available, space for interviews and screening assessments, filing cabinets and filing system.

The human resources and services to infants were also recorded for each study site.

- Face-to-face interviews to investigate the identification processes used by the participants in Group 1

A structured interview was used to collect data on the identification processes, which included questions on the identification methods and the referral systems used by PHC personnel to identify and refer infants with developmental disorders or who are at risk for developmental delay. When the focus of a study is to investigate a process, in this case the identification process, structured interviews are especially suitable (Greeff, 2002). Although participants may not be as truthful in their responses as in the case of self-administered questionnaires, face-to-face interviews have the advantage of the highest response rate in survey research (Leedy & Ormrod, 2005).

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

A 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 more accurate descriptions of the same aspects. Furthermore the PHC programme managers' opinion on the implementation of the different ECI functions within the PHC package was obtained.

The apparatus used during all the interviews was an *Olympus VN-240 PC* digital voice recorder. The digital voice files were transcribed and securely stored on a laptop computer. The first author was the only person to have access to the data.

Procedures

Reliability and validity

With triangulation the reliability of the data was increased, as it was collected by means of different instruments and results could 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.

A second reviewer was utilized to verify the interview recordings of both groups of participants. The reviewer listened to the recordings while reading the transcriptions. Discrepancies between the text and voice recordings were discussed until agreement was found between the researcher and second reviewer.

Face validity of the instruments was ensured as the format of the measuring instruments corresponded with the objectives of the research. All questions of the interview schedules were relevant and clearly formulated to ensure content validity. A senior speech-language therapist with working experience in primary health care reviewed the questionnaire and made suggestions to improve the relevancy of the questions.

Pilot studies of the rating scale and interview schedules

Pilot studies were conducted to test the rating scale and the two interview schedules in order to increase the accuracy and reliability of the data. According to the selection criteria, two PHC nurses and one PHC programme manager were selected to be part of the pilot studies. The rating scale and interview schedules were adapted according to the results obtained in the pilot studies.

Procedures of the main study

Based on the two strata, the different facilities to be included in the study were randomly selected from a total of 17 PHC sites in the sub-district. Ditsobotla sub-district, previously named Lichtenburg is part of the Greater Taung local municipality and forms the central district in the North West Province. The district is largely rural and has an unemployment rate of over 50%. The main industries are mining and quarrying, but agriculture is the focus (ESCOM, 2007).

During the first visit to a facility, permission was obtained to complete the rating scale. The researcher then filled in the rating scale without being intrusive. The completed rating scale was verified by one of the participants at each site so that a true report of the facility was stored for data analysis. After explaining the reason for the visit, the facility manager introduced the researcher to the potential participants in Group 1. Informed consent was obtained from the participants in Group 1 and the structured interviews were conducted according to the interview schedules. The interviews were conducted 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.

Thereafter the researcher visited the participants of Group 2 at the district office of Ditsobotla sub-district. Informed consent was obtained and the semi-structured interviews were conducted in each participant's office. This made the

participants feel comfortable and little hindrance was present due to the professional environment in which the interviews were conducted.

Data analysis

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 with participants of Group 2. The data obtained from the first interviews were analysed quantitatively according to the SAS system version 9.1 statistical computer software. 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 consisted of a large number of observations (Steyn, Smit, Du Toit, & Strasheim, 1998). Basic graphical presentations were used to better understand the data and decide where further statistical analysis would be appropriate. Fisher's exact test of independence was used for data with two attribute variables (Leedy & Ormrod, 2005).

The rating scales were analysed numerically as the data collection method was quantitative. Procedures similar to those used to analyse the data from the structured interviews were therefore used for the analysis of the rating scale.

In qualitative research the data analysis and interpretation are closely connected (Leedy & Ormrod, 2005), which had to be taken into account when the results of the semi-structured interviews were analysed and interpreted. The researcher listened to the voice recordings and supplemented the transcriptions with field notes. Data were holistically read and re-read before the corpus was categorised according to themes. According to Leedy and Ormrod (2005) the researcher has to have a heightened and focused awareness of the data and subtle undercurrents during interviews have to be identified. Regularities were noted during the data analysis and categories of meaning emerged that could be presented as descriptive results.

RESULTS AND DISCUSSION

The results are presented and discussed in accordance with the objectives of the study.

The capacity of the facilities in the PHC context for implementing an early identification programme for infants at risk of disabilities

The basic features of the facility, the waiting rooms and consulting rooms were evaluated according to the rating scale (See Appendix A) and described to determine the possibility of implementing ECI functions in these facilities. Primary prevention functions, such as talks to caregivers to promote normal communication and emergent literacy development, can possibly be implemented in the waiting rooms of the facilities, while identification and intervention of infants and young children, i.e. primary and secondary prevention, may be implemented in the consultation rooms.

The results indicated that all PHC facilities which were investigated had electricity and water supply, although some water shortages and power breaks occur. All buildings were permanent structures and three clinics were recently renovated. The travelling distance from Lichtenburg, the town in the centre of the sub-district, is not more than 35 km. Most of the roads are not tarred and the public transport is by minibus taxis. The implication is that a speech-language therapist or an audiologist may be able to visit two clinics in close approximation on one day.

The results also indicated that not all facilities have the capacity to implement ECI functions in waiting rooms and/or consultation rooms, but patient information was adequately protected by means of secured filing cabinets. Six of the ten clinics had limited seating space in the waiting rooms, which means that educational talks may not be possible. None of the waiting rooms had posters or brochures on child development. Only five clinics had television monitors for educational videos.

As only a few of the facilities have the capacity for all ECI functions to be implemented, an incremental implementation of ECI services could be introduced. Speech-language therapists and audiologists therefore need to determine which levels of prevention can be implemented at which facilities in the sub-district. 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. Since the waiting room capacity in the majority of the clinics was limited, it may imply that educational talks cannot be given and that only individual screening, assessment and intervention can be offered at the clinic. Promotion of communication development and other information may be given to caregivers in the form of brochures in the local language.

The availability, needs and limitations of human resources with-in the PHC context

A shortage of PHC personnel 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 the results there were community health nurses present at all the PHC facilities investigated, but not all were qualified at the time of the investigation. There were limited health care professionals such as doctors, speech-language therapists, audiologists and paediatricians working in the sub-district. Although an inadequate arrangement, a peripatetic doctor visited nine different PHC clinics at least once a week. The tenth PHC facility is a hospital where a permanent doctor was employed at the time of data collection.

The PHC personnel had limited knowledge regarding the availability of allied health care professionals at their facilities. The lack of knowledge of the different health care professionals working in the district may reflect an inadequate teamwork

approach. Ineffective communication and collaboration between PHC nurses and other health care professionals, limited information regarding available services and no in-service training regarding the scope of practice of specialized services were further indicators that an inadequate teamwork approach is present in Ditsobotla sub-district.

It was estimated by the participants that, on average, approximately 165 infants were seen at the ten different PHC facilities on a daily basis. It is clear that the infant population of the sub-district may be accessed through the PHC facilities. Limited human resources appear to be one of the reasons why screening for communication and hearing disorders was not carried out in Ditsobotla sub-district. The participants felt that it was the doctors' responsibility to screen for hearing and communication disorders in young children as they are trusted by caregivers. An interesting finding was that the participants felt that parents and family members share responsibility in identifying communication delays or disorders in the child's development.

Human resources and an adequate team approach appear to be limited in Ditsobotla sub-district. By implementing ECI functions on a primary prevention level at all PHC facilities the following may be achieved: introduction of speech-language therapy and audiology, promotion of ECI services to both the PHC professionals and the caregivers and provision of information on early identification, stimulation of infants and young children and communication developmental milestones. The introduction of ECI to the PHC professionals and caregivers may 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 such 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/AIDS, sexually transmitted infections and tuberculosis, Mental health and substance abuse, and Health monitoring and evaluation.

The early identification methods and resources currently used by the PHC personnel in order to detect health problems and developmental delay or disabilities in infants

Posters on general health issues were numerous in the facilities, but posters on infant and child development were absent. There is a great need to develop mass communication material in Setswana and English for ECI in this sub-district which has to be addressed by speech-language therapists and audiologists. The results clearly indicated that none of the facilities had checklists to use for developmental surveillance and therefore it appeared that PHC professionals were not conducting any formal developmental screening of infants and young children. Appropriate checklists and case history forms for different South African contexts need to be developed so that children at risk of developmental delays can be successfully detected and referred within the PHC facilities (Department of Health, 2000).

The results indicated that PHC personnel use observation and that they talk to the child to determine if there is a problem in 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. The informal method of talking to the child which is 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. The participants clearly indicated a need for formalized and valid identification methods and in-service training on how to identify infants and young children with communication delay or hearing impairment. The participants viewed their identification method as largely ineffective and unreliable.

Baby clinics, that form part of the Mother, child and women's health programme, were identified by the majority of the PHC personnel as the best PHC

programme to implement the developmental surveillance of communication abilities in infants.

The referral systems used by PHC personnel to refer patients suspected of any kind of communication disorder to speech-language therapists and audiologists, within the inter-departmental and the inter-organizational networks are displayed in Figure 1.

Figure 1

According to Figure 1 the referral route is clear, but some difficulties in making referrals are experienced. A total of 80% of the participants indicated that they experienced time delays when patients had been referred. A disturbing finding was that caregivers of infants and young children were asked to come back a number of times before the referral to the speech-language therapist was made. The distances between patients' homes and the hospitals need to be taken into consideration, as patients usually cannot afford to travel far on a regular basis. Due to the large number of patients to be seen by speech-language therapists and audiologists and the transport problems, scheduled follow-up visits are irregular in the sub-district. Therefore it would be best for the patient to receive ECI services at the local clinic, instead of at the secondary health care hospital which may require further, more costly travel.

Both participants in Group 1 and 2 felt that the referral process was not effective and their reasons were as follows:

- 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
- Long 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

The results from the current study indicated that few referrals were made to speech-language therapy and audiology services, which differs from developed contexts, such as the UK (Enderby & Petheram, 2000). In the UK many patients are referred to local speech-language therapy and audiology services, but the referral process also faces certain challenges. Factors influencing the referral process in the UK include limited knowledge of the risk factors for communication delay, long waiting periods for appointments, epidemiological and demographic factors, such as long travelling distances (Enderby & Petheram, 2000). The lack of human resources, financial constraints on families who need ECI services and limited teamwork as reasons for poor referrals may be specific to rural communities in developing contexts.

The suggestions for improvement of the referral process clearly indicate that the participants were concerned about the difficulties and are positive about the implementation of an effective referral system:

Administrative suggestions:

- 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 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 in 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

The suggestions for improvement are useful to establish ECI services in the sub-district. Practical aspects as well as managerial and planning issues were included

in the recommendations. It is clear that it was valuable to include the programme managers as participants in the research.

The current teamwork approach and the participants' views on how to implement an early identification and referral programme for infants with risks for disabilities and delays, as well as the integration of ECI and the PHC programmes through collaborative activities

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 would 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 decreased in the referral process. The inclusion of volunteers in collaboration with the PHC personnel in order to improve identification of infants at risk of communication delays needs to be explored further as volunteers can make regular home visits in the community to support families with special needs.

The majority of the PHC nurses indicated that teamwork should occur during early identification, referral and the early intervention phases of ECI service delivery. Consequently it is essential to establish commitment, competencies and a supportive environment to ensure an effective collaborative teamwork model, so as to positively reinforce the implementation of ECI services in Ditsobotla sub-district.

The PHC programme managers did not only provide relevant reasons for including the specific ECI function but also indicated the areas where collaboration should be implemented. The results indicated that the PHC programme managers have a clear understanding of ECI and of the importance of these services. Their knowledge of ECI may therefore positively influence the implementation of ECI functions by means of collaborative activities in the district. Since they understand the importance

of early identification and ECI, 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 in ECI, which were stimulated by the current research project. The programme managers discussed how and why the different ECI functions should be implemented in Ditsobotla sub-district:

- *To train mothers 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. *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. 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. The Mother, child and women's 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 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.

CONCLUSION AND IMPLICATIONS

Since case finding and referrals are inadequate and ECI services have not yet been established in Ditsobotla sub-district, certain limitations can be expected. The study found that the identification methods for infants at risk of communication delay or disorders are limited and unreliable, and that the referral system appears to be ineffective in this poor rural district. Against the background of difficulties to establish ECI services in South Africa, identified by Kritzinger (2000), it appears that identification and referral are but two aspects of many influencing ECI service delivery. Inadequate access to ECI facilities, the scarcity of facilities, limited knowledge about the benefits of ECI among caregivers and health care professionals, and limited employment of early communication interventionists (Kritzinger, 2000) are other aspects which impact negatively on the professional obligation to expand ECI services in South Africa.

In order to improve service delivery in rural areas and therefore make services more accessible to the communities, the findings indicated that the integration of ECI functions within the PHC package is feasible. The results of the study found an interest in ECI among primary health care personnel and managers and a positive attitude to improve services. A formal approach to implementation was suggested, and collaborative partnerships between management, PHC programme managers and PHC personnel are feasible in the sub-district. The incremental rollout of ECI functions at PHC facilities may also improve teamwork, as collaboration is essential to improve the efficacy of early identification and referrals.

Kritzinger (2000) also described limited teamwork and limited knowledge of ECI as problem areas in service delivery. The implementation of collaborative activities necessitates a commitment to integrated teamwork by all involved. The results of the current study showed a remarkable motivation by the participants for the implementation of ECI. Training of PHC personnel in ECI services and promotion of normal communication and literacy development among young children form part of the different ECI primary prevention functions. These functions may be phased in at PHC 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 may address some of the multiple problem areas in ECI service delivery in South Africa. The implementation of ECI services in rural areas in South Africa needs to be considered holistically, and the different programmes within the PHC package should be used as a means to reach the communities.

Since the introduction of ECI guidelines for speech-language therapists and audiologists in South Africa by Louw (1997), a theoretical framework for service delivery in the public sector has been described (Kritzinger & Louw, 2003). This framework provides a basis to assist in the planning of ECI implementation. However, the potential of ECI to prevent and minimise communication disabilities is not yet impacting on the South African health care system, especially in a rural district such as Ditsobotla. The current research study indicated that difficulties may be addressed by means of integrating ECI functions into the PHC package. A diagrammatic representation of the proposed integration is provided in Figure 2.

Figure 2

REFERENCES

- Babbie, E. (2004). *The practice of social research*. (10th ed.). Belmont: Wadsworth.
- De Vos, A.S. (2005). Combined quantitative and qualitative approach. In A.S. de Vos (Ed.). *Research at grass roots. For the social sciences and human service professions*. (3rd ed.). Pretoria: Van Schaik.
- Department of Health (2000). *The primary health care package for South Africa – a set of norms and standards*. Pretoria: Department of Health.
- Dennis, M. (2000). Developmental plasticity in children: the role of biological risk, development, time and reserve. *Journal of Communication Disorders*, 33:321-332.
- Emmett, T. (2005). Disability and poverty. In E. Alant & L.L. Lloyd (Eds.). *Augmentative and alternative communication and severe disabilities. Beyond poverty*. London and Philadelphia: Whurr Publishers.
- Enderby, P., & Petheram, B. (2000). An analysis of referrals to speech and language therapy in 11 centres, 1987-1995. *International Journal of Language and Communication Disorders*, 35(2):137-146.
- Equity project, (2000). *Case study series: Referrals from primary health care clinics in the Eastern Cape Province*.
<http://www.doh.gov.za/docs/factsheets/guidelines/dhp/part4g.pdf>
 obtained from the Internet April, 2005.
- ESCOM. (2007) Social impact assessment report.
http://www.escom.co.za/content/Appendix%201_10%/20social%20Assessment%20Report.pdf. Obtained from the Internet August 2009.
- Fair, L., & Louw, B. (1999). Early communication intervention within a community-based intervention model in South Africa. *The South African Journal of Communication Disorders*, 46: 13-23.
- Fouché, C.B., & De Vos, A.S. (2005). Quantitative research designs. In A.S. de Vos (Ed.). *Research at grass roots. For the social sciences and human service professions*. (3rd ed.). Pretoria: Van Schaik.
- Greeff, M. (2002). Information collection: interviewing. In A.S. de Vos (Ed.). *Research at grass roots. For the social sciences and human service professions*. (2nd ed.). Pretoria: Van Schaik.
- Kritzinger, A.M. (2000). *Establishing a computer-based data system for early communication intervention in South Africa*. Unpublished doctoral thesis. Department of Communication Pathology, Pretoria: University of Pretoria.
- Kritzinger, A.M., & Louw, L. (2003). Clinical training of undergraduate Communication Pathology students in neonatal assessment and neonate-

- caregiver interaction in South Africa. *The South African Journal of Communication Disorders*, 50: 5-14.
- Kritzinger, A., Louw, B., & Rossetti, L.M. (2001). A transdisciplinary conceptual framework for the early identification of risks for communication disorders in young children. *The South African Journal of Communication Disorders*, 48, 33-44.
- Leedy, P.D., & Ormrod, J.E. (2005). *Practical research: Planning and design*. (8th ed.). New Jersey: Pearson Merrill Prentice Hall.
- Lequerica, M. (1997). Toward a One-Stop Model of Service for Low-Income Preschoolers: Insights from Clinical Practice and Research. *Infant-Toddler Intervention. The Transdisciplinary Journal*, 7(4): 285-300.
- Louw, B. (1997). Early communication intervention: Guidelines for speech-language therapists and audiologists. *SASLHA: Ethics and Standards Committee*.
- Moodley, L. (1999). *An in-service training programme for community nurses in the identification of at risk infants and toddlers*. Unpublished M Communication Pathology dissertation. Pretoria: University of Pretoria.
- North West Department of Health. (2003). *Referral framework document*. Mafikeng.
- Pickering, M., McAllister, L., Hagler, P., Whitehill, T.L., Penn, C., Robertson, S.J., & McCready, V. (1998). External factors influencing the profession in six societies. *American Journal of Speech-Language Pathology*, 7, 4: 5-17.
- Plante, E., & Beeson, P. M. (2004). *Communication and communication disorders. A clinical introduction*. (2nd ed.). Boston: Pearson.
- Rossetti, L.M. (2001). *Communication intervention. Birth to three*. (2nd ed.). Canada: Singular Thomson Learning.
- Steyn, A.G.W., Smit, C.F., Du Toit, S.H.C., & Strasheim, C. (1998). *Moderne statistiek vir die praktyk*. (6th ed.). Pretoria: Van Schaik.
- Strydom, H., & Venter, L. (2002). Sampling and sampling methods. In A.S. de Vos (Ed.). *Research at grass roots. For the social sciences and human service professions*. (2nd ed.). Pretoria: Van Schaik.
- Swanepoel, D.C.D. (2004). *Infant hearing screening at maternal and child health clinics in a developing South African community*. Unpublished doctoral thesis. Department of Communication Pathology, Pretoria: University of Pretoria.
- Van der Linde, J. (2008). *The identification process in early communication intervention followed by primary health care personnel in Ditsobotla sub-district*. Unpublished M Communication Pathology dissertation. Pretoria: University of Pretoria.

- Van Rensburg, H.C.J. (2004). National health care systems: Structure, types and dynamics. In H.C.J. van Rensburg (Ed.). *Health care in South Africa*. Pretoria: Van Schaik.
- Werner, E. E. (2000). Protective factors and individual resilience. In J. P. Shonkoff, & S. J. Meisels (Eds.). *Handbook of early childhood intervention* (2nd ed.). London: Cambridge University Press.

Table 1. Characteristics of the participants in group 1 (n=20)

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

Table 2. Characteristics of the participants in group 2 (n=8)

Qualifications	Experience in programme managing	PHC facilities visited	First language	Employment status	PHC programme managed
Masters degree, B Cur degree, nursing diploma to no formal training	Range: 1-10y Average: 4y	Hospitals Clinics Frail care centres Prisons Hospices Schools Crèches Business premises	2: Afrikaans 6: Setswana	All Full-time	Geriatrics, Chronic diseases Rehabilitation Nutrition Communicable diseases Occupational therapy Health promotion Nutrition School health Environmental health

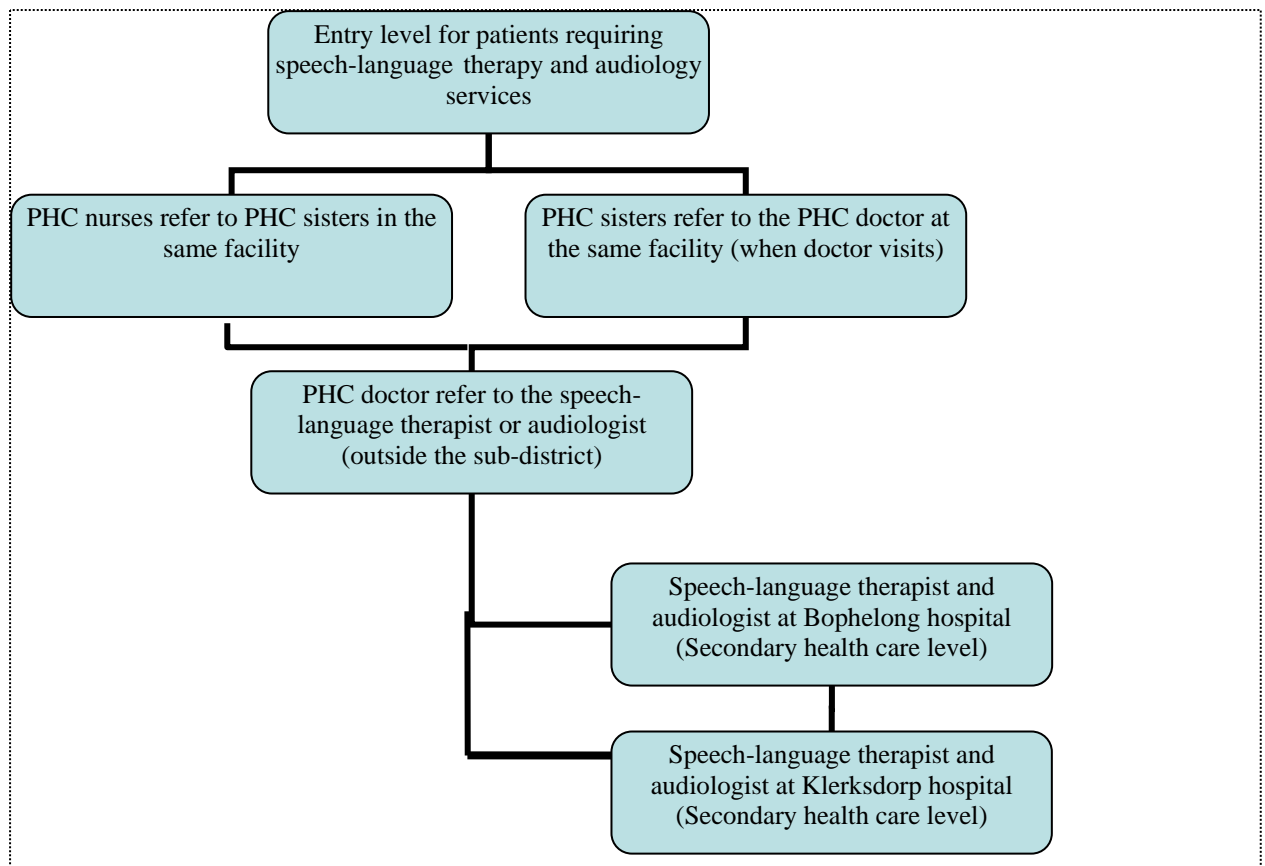


Figure 1. The referral process used by participants to refer patients for speech-language therapy and audiology services

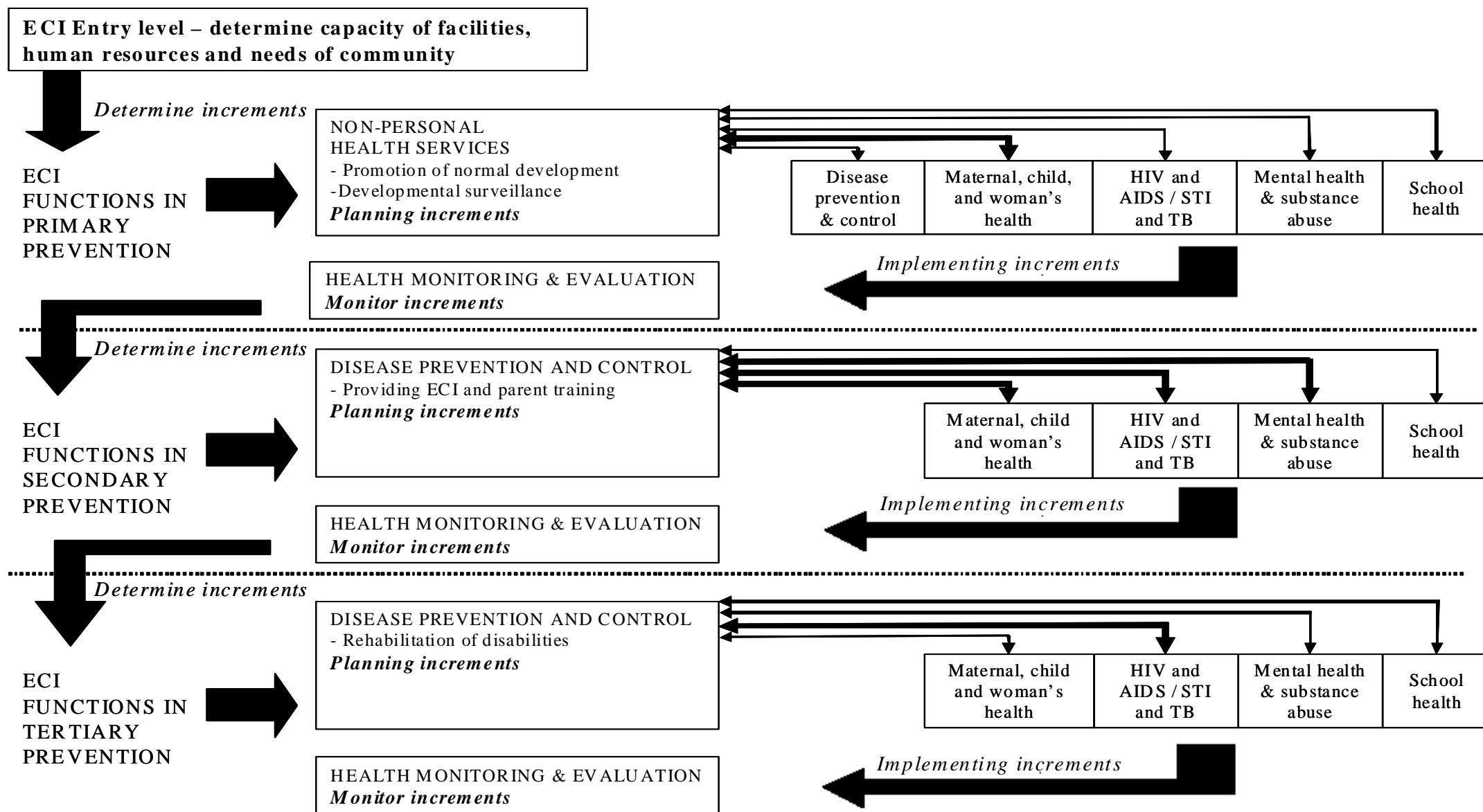


Figure 2. The incremental rollout of ECI functions within the PHC package

APPENDIX A
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				