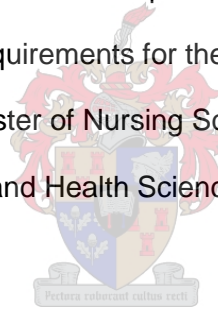


FACTORS INFLUENCING COMMUNITY INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS IN RURAL AREAS

MARJORIE ALICE VAN ZYL

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of the requirements for the degree of
Master of Nursing Science
in the Faculty of Medicine and Health Sciences at Stellenbosch University



Supervisor: Mrs. J.E. Eygelaar

Co-supervisor: Dr. E.L. Stellenberg

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DECLARATION

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ABSTRACT

Child mortality is a worldwide problem and, according to the World Health Organization (WHO), 8,1 million children under the age of five years die each year. The Millennium Development Goals focus on the worldwide reduction in child mortality by two-thirds between 2000 and 2015. Several studies show that worldwide Community Integrated Management of Childhood Illness (CIMCI) interventions by community care workers (CCWs) have a positive effect on child health.

The goal of this study was to determine the factors influencing CIMCI in the rural areas of the West Coast District in the Western Cape of South Africa.

The objectives for this study were to determine the factors influencing CIMCI carried out in rural areas by the CCWs, which were identified as:

- having working hours that are adequate for such a comprehensive service package;
- being adequately trained;
- having adequate knowledge of the “16 Key Family Practices” of CIMCI;
- having equipment that is adequate for the execution of their daily duties;
- being able to cope with the challenges of working in rural and remote areas; and
- receiving adequate supervision and support related to CIMCI.

A descriptive, non-experimental exploratory research design with a quantitative approach was applied. The target population (N = 270) consisted of CCWs who are funded by the Provincial Government of the Western Cape (PGWC) in the West Coast District. For this study a response rate of 257 (95,18%) was obtained.

Data was collected personally by the researcher with a self-administered questionnaire.

The data was analysed with the assistance of a statistician and are presented in histograms and frequency tables. The participants were tested on their knowledge of CIMCI, and more than half of them achieved an average score that was not satisfactory. Statistically significant correlations were found between the participants' total score achieved and highest school grade passed ($p < 0.01$); their level of Expanded Public Works Programme (EPWP) training ($p < 0.01$); their attendance of the CIMCI five-day course ($p < 0.00$); and if they had done a refresher course on CIMCI ($p < 0.00$). The total score was also shown by the Mann-Whitney U test ($p < 0.01$) to have a direct relationship with whether they had received any health-related training after school. The conclusion that can be drawn is that the higher the

level of education of the CCWs, the better their knowledge of CIMCI. This could also improve their work performance.

The recommendations arising from this study include that CIMCI training should be standardised to ensure that the CCWs have adequate knowledge. The current policy on community-based services (CBS) of the Provincial Government Western Cape Department of Health should also be standardised to ensure adequate working hours, training, equipment and supervision, and to take into consideration the challenges of working in rural areas.

In conclusion, should these recommendations be implemented, CIMCI will have a huge, positive impact on child morbidity and mortality. CCWs will be ensured adequate working hours in relation to their workload, and will receive adequate training, equipment and supervision. This will reduce the challenges CCWs face and strengthen their services in rural areas.

OPSOMMING

Kindersterftes is wêreldwyd 'n probleem en volgens die Wêreldgesondheidsorganisasie sterf 8,1 miljoen kinders onder die ouderdom van vyf jaar elke jaar. Die Millenniumontwikkelingsdoelwitte fokus daarop om kindersterftes tussen 2000 en 2015 met twee-derdes te verminder. Verskeie studies toon dat intervensies deur middel van Gemeenskapsgeïntegreerde Bestuur van Kindersiektes deur gemeenskapsorgwerkers die wêreld oor 'n positiewe effek op kindergesondheid het.

Die doel van hierdie studie was om die faktore te bepaal wat Gemeenskapsgeïntegreerde Bestuur van Kindersiektes in die landelike gebiede van die Weskusdistrik in die Wes-Kaap van Suid-Afrika beïnvloed.

Die doelwitte vir hierdie studie was om die faktore te bepaal wat beïnvloed hoe Gemeenskapsgeïntegreerde Bestuur van Kindersiektes in die landelike gebiede deur gemeenskapsorgwerkers uitgevoer word, wat soos volg uiteengesit is:

- werksure wat voldoende is vir die omvattende pakket dienste wat aangebied word;
- dat hulle voldoende opgelei is;
- dat hulle voldoende kennis het van die “16 Sleutel Familiepraktyke” van Gemeenskapsgeïntegreerde Bestuur van Kindersiektes;
- dat hulle die nodige toerusting besit wat voldoende is vir die uitvoer van hulle daaglikse pligte;
- dat hulle raad weet met die uitdagings van werk in landelike en afgeleë gebiede; en
- dat hulle voldoende toesig en ondersteuning met betrekking tot Gemeenskapsgeïntegreerde Bestuur van Kindersiektes ontvang.

'n Beskrywende, nie-eksperimentele verkennende navorsingsontwerp met 'n kwantitatiewe benadering is gebruik. Die teikenbevolking (N = 270) het bestaan uit gemeenskapsorgwerkers wat deur die Provinsiale Regering van die Wes-Kaap in die Weskusdistrik befonds word. Vir hierdie studie is 'n responstempo van 257 (95,18%) verkry.

Die data is persoonlik deur die navorser deur middel van 'n selftoepastoets ingesamel.

Die data is met behulp van 'n statistikus geanaliseer en word deur middel van histogramme en frekwensietabelle voorgestel. Die deelnemers is getoets op grond van hulle kennis van Gemeenskapsgeïntegreerde Bestuur van Kindersiektes, en meer as die helfte het 'n gemiddelde telling behaal wat nie bevredigend is nie. Statisties beduidende korrelasies is

verkry tussen die deelnemers se totale telling en die hoogste skoolgraad behaal ($p < 0.01$); hulle vlak van *Expanded Public Works Programme (EPWP)* opleiding ($p < 0.01$); hulle bywoning van die vyfdaagse Gemeenskapsgeïntegreerde Bestuur van Kindersiektes kursus ($p < 0.00$); en of hulle 'n opknappingskursus oor Gemeenskapsgeïntegreerde Bestuur van Kindersiektes gedoen het ($p < 0.00$). Die totale telling is deur die Mann-Whitney U-toets ($p < 0.01$) gewys om 'n direkte verwantskap te hê met of hulle enige gesondheidsverwante opleiding ná skool ondergaan het. Die gevolgtrekking is dat hoe hoër die gemeenskapsorgwerkers se vlak van opvoeding, hoe beter hulle kennis van Gemeenskapsgeïntegreerde Bestuur van Kindersiektes. Dit sou ook hulle werkverrigting kon verbeter.

Die aanbevelings wat uit hierdie studie spruit, sluit in dat Gemeenskapsgeïntegreerde Bestuur van Kindersiektes-opleiding gestandaardiseer moet word om te verseker dat gemeenskapsorgwerkers voldoende kennis het. Die huidige beleid van die Provinsiale Regering van die Wes-Kaap oor gemeenskapsgebaseerde dienste moet ook gestandaardiseer word om te verseker dat hulle toereikende werksure, opleiding, toerusting en toesig het, en om die uitdagings van werk in landelike gebiede in ag te neem.

Ter afsluiting: sou hierdie aanbevelings geïmplementeer word, sal Gemeenskapsgeïntegreerde Bestuur van Kindersiektes 'n groot, positiewe impak op kindermorbiditeit en kindersterftes hê. Gemeenskapsorgwerkers sal van voldoende werksure met betrekking tot hulle werkklas verseker wees, en sal voldoende opleiding, toerusting en toesig ontvang. Dit sal die uitdagings verminder waarvoor hulle te staan kom en hulle dienste in landelike gebiede versterk.

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ARV	Antiretroviral Therapy
CBS	Community Based Services
CCWs	Community Care Workers
CIMCI	Community Integrated Management of Childhood Illness
EPWP	Expanded Public Works Programme
HIV	Human Immunodeficiency Virus
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency syndrome
IMCI	Integrated Management of Childhood Illness
MDG	Millennium Development Goal
NPO	Non-Profitable Organisation
ORT	Oral rehydration therapy
PGWC	Provincial Government of the Western Cape
PHC	Primary Health Care
SSS	Sugar-Salt Solution
TB	Tuberculosis
TB DOTS	Tuberculosis Directly Observed Treatment Short-course
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

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CHAPTER 1: SCIENTIFIC FOUNDATION OF THE STUDY

1.1 INTRODUCTION

Chapter 1 of this study starts with the rationale for the study, followed by the problem statement, which explains the need for this study. The research question, aim and objectives flow from the problem statement. An outline of the research methodology, as well as the conceptual framework, operational definitions, duration of the study and chapter outline conclude Chapter 1.

1.2 RATIONALE

According to the Constitution of the Republic of South Africa Second Amendment, Act No. 3 of 2003 (Republic of South Africa, 2003a:1255), the best interests of the child shall be the primary consideration in all actions concerning the child. Therefore, children have rights, of which survival is the most basic right – including food, shelter, safety and health care (Republic of South Africa, 2003a:1255). The CIMCI is a programme focusing on children in the age group zero to five in the community.

According to You, Jones, Hill, Wardlaw and Chopra (2010a:931), child mortality is a worldwide problem. The World Health Organization (WHO) reports that 8,1 million children under the age of five years die worldwide each year. Almost 90% of all child deaths are attributed to neonatal causes, pneumonia, diarrhoea, malaria, measles and HIV/AIDS (World Health Organisation, 2011:1).

Worldwide studies by Winch, Gilroy, Wolfheim, Starbuck, Young, Walker and Black (2005:199) and Edward, Ernst, Taylor, Becker, Mazive and Perry (2007:814-822) show that CIMCI with interventions by CCWs reduces child morbidity and child mortality in children under the age of five.

Therefore, in 1997, the WHO and the United Nations Children's Fund (UNICEF) identified "16 Key Family Practices" as the strengths of the CIMCI strategy in preventing child morbidity and mortality. These practices are breastfeeding, complementary feeding, micronutrients, psychosocial and physical development, sanitation, malaria, child abuse, human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS), feeding and fluids in sick children, home treatment of sick children, child injuries and accidents, immunisations, treatment outside the home, following the recommendations of health workers, pregnancy and the participation of men (Winch, Leban, Casazza, Walker & Percy, 2002:345-346).

In addition, the United Nations Millennium Development Goals are eight goals that all 191 United Nations member states have agreed to try to achieve by the year 2015. The United Nations Millennium Declaration, signed in September 2000 commits world leaders to combat poverty, hunger, illiteracy, diseases, environmental degradation, and discrimination against women (WHO, 2012:1). Therefore, the fourth Millennium Development Goal (MDG) focuses on the worldwide reduction of child mortality by two-thirds between 2000 and 2015 (You, Wardlaw, Salama & Jones, 2010b:100)

South Africa is one of only 12 countries in which the mortality rate for children is higher than the baseline of 1990 (Chopra, Daviaud, Pattinson, Fonn & Lawn, 2009:835) . According to Friend-du Preez, Cameron and Griffiths (2009:343), the major portion of childhood deaths in South Africa is from preventable causes (HIV/AIDS, low birth weight, diarrhoeal diseases, lower respiratory infections and malnutrition). Furthermore, studies that have been conducted internationally and in South Africa have shown that CIMCI that has been delivered by CCWs reduces child morbidity and child mortality (Friend-du Preez et al., 2009:343; Bryce, Arifeen, Pariyo, Lanata, Gwatkin & Habicht, 2003:159; Edward et al., 2007:815). Currently studies show that South Africa is not on track to reach the MDG 4 target (Chopra, Lawn, Sanders, Barron, Karim, Bradshaw, Jewkes, Karim, Flisher, Mayosi, Tollman, Churchyard & Coovadia, 2009:1023).

According to Sanders, Reynolds, Eley, Kroon, Zar, Davies, Westwood, Nongena and Van Heerden (2007:1), over half of the deaths of young children in the Western Cape Province are due to diseases of underdevelopment and poverty. Furthermore, the proportion due to HIV/AIDS is approximately 16% in infants and 38% in children between the ages of one and five, with HIV/AIDS accounting for 20% of all deaths of children under the age of five in the province. In addition, the three conditions that cause the death mainly of children are lower respiratory tract infection, diarrhoea and low birth weight, accounting for 6.4% of the total premature mortality burden of the province in terms of years of life lost. Lower respiratory tract infections were responsible for 2.4% of the premature mortality in the Western Cape in 2000, while diarrhoea and low birth weight accounted for a further 2.3% and almost 2% respectively (Sanders et al., 2007:1).

The West Coast rural district was the focus of this study. This is where the researcher is employed as a CBS Coordinator. The researcher is part of the CBS team that delivers the package of health services in the communities of this district, including CIMCI. Furthermore, the researcher is involved in CIMCI training and also in the implementation of initiatives to support CIMCI. Currently there is no standard operating procedure or a standardised training

course for the CIMCI programme. As a result, the researcher had certain concerns about the factors that could influence the implementation of the CIMCI in the rural areas.

According to selected indicators for the Western Cape for 2009, the top five causes for the infant mortality rate (32,3/1 000 live births) and under-five mortality rate (52,4/1 000 live births) on the West Coast are the following (Department of Health, 2011:82):

- diarrhoeal diseases;
- neonatal lung disease;
- pneumonia;
- prematurity; and
- perinatal problems.

The West Coast District is divided into five sub-districts, namely Swartland, Bergrivier, Saldanha, Cederberg and Matzikama. Table 1.1 shows the population of children aged 0 to 59 months, as stated in Circular H13/2010a of the Provincial Government of the Western Cape (PGWC).

Table 1.1: The West Coast population data per sub-district for children 0-59 months:

Sub-district	Population data 0-59 months
Matzikama	5 549
Cederberg	3 986
Bergrivier	4 099
Saldanha	8 477
Swartland	6 913
Total West Coast	29 024

According to the Department of Health CBS service delivery framework (PGWC, Department of Health, 2010b:10-11), CBS are currently rendered in all sub-districts across the province. The CBS programme was implemented in 2003 with funding from the European Union Partnership for the Delivery for Primary Health Care programme. However, the European Union exited in March 2010 and further funding for the non-profit organisations (NPOs) now comes from the Expanded Public Works Programme (EPWP).

On the West Coast, CBS are rendered by 17 NPOs, which have 270 CCWs and a total of 12 000 clients. CCWs are supervised by NPO coordinators, who have to be professional

nurses (Provincial Government of the Western Cape, 2010b:26). Currently, NPO coordinators and CCWs work only 4.5 hours per day (Provincial Government of the Western Cape, 2010b:22).

According to the PGWC (2010b:16-17) there is a rural and an urban model for CBS. On the West Coast, which is a rural district, the CCWs deliver community-based services. These services form part of an integrated model that includes home visits to render basic nursing care, CIMCI, Tuberculosis Directly Observed Treatment short-course (TB DOTS), adherence support for clients on antiretroviral therapy (ARV), and services for mental illness and chronic diseases of lifestyle. This means that the same CCW renders the full package of care. In the urban model, on the other hand, there are CCWs for each programme separately (PGWC, 2010b:16).

Currently, CCWs have to see six to 10 clients per day (PGWC, 2010b:21-22). CIMCI clients could be referrals from a hospital, or prevention or promotion cases resulting from a household visit. Consequently, the total number of clients seen by CCWs per day could be more than six to 10.

The researcher, a CBS coordinator, has observed in her practice that various limitations exist in the delivery of the services as required. These limitations can be summarised as follows:

- inadequate time to deliver quality of care within working hours;
- NPO coordinator needs to be a professional nurse, which is a scarce skill in rural areas; consequently, recruiting qualified personnel is a problem (Eygelaar, 2009:106);
- rural areas cover vast distances, resulting in minimum support from NPO coordinators, who are not always available to support and supervise CCWs on a daily basis;
- NPO Coordinator cannot adhere to referral turnaround times of 72 hours, develop a care plan and allocate a CCW to the client;
- CIMCI training and refresher courses currently are not standardised, therefore the knowledge of CCWs about CIMCI could be inadequate; and
- equipment and guidelines are insufficient to implement the CIMCI programme.

Currently there are limited studies to show the effect of CIMCI on child health as part of the integrated CBS delivered by CCWs in the rural areas of South Africa. No studies could be found on the West Coast District, where the researcher works as the CBS Coordinator.

1.3 PROBLEM STATEMENT

As described above, various problems exist that aggravate the successful implementation of CIMCI that is delivered by CCWs in the West Coast District. It therefore was critical to investigate scientifically the factors influencing CIMCI in rural areas which, if successfully implemented, would make a difference in child health and contribute to reaching the Millennium Development Goal 4 goal by 2015.

1.4 RESEARCH QUESTION

The research question that guided this study was: “What are the factors influencing CIMCI in the rural areas of the West Coast District in the Western Cape, South Africa?”

1.5 RESEARCH AIM

The aim of this study was to determine the factors influencing CIMCI in the rural areas of the West Coast District in the Western Cape of South Africa.

1.6 RESEARCH OBJECTIVES

The objectives for this study were to determine whether the CCWs:

- working hours were adequate for such a comprehensive service package;
- were adequately trained;
- have adequate knowledge regarding the “16 Key Family Practices” of CIMCI;
- have equipment that is adequate for the execution of their daily duties;
- are able to cope with the challenges of working in rural and remote areas; and
- received adequate supervision and support related to CIMCI.

1.7 RESEARCH METHODOLOGY

A brief overview of the methodology applied in this study is given below, followed by a more comprehensive discussion in Chapter 3.

1.7.1 Research design

A descriptive, non-experimental exploratory design with a quantitative approach was used to determine the factors influencing CIMCI in the rural areas of the West Coast District in the Western Cape of South Africa.

1.7.2 Population and sampling

The target population (N = 270) included the CCWs, who are funded by the PGWC according to the five sub-districts of the West Coast District. All the CCWs were included in the study.

1.7.2.1 Inclusion criteria

CCWs in the West Coast District who are funded by the PGWC were included in the study.

1.7.2.2 Exclusion criteria

CCWs who were on leave, sick leave or not willing to participate in the research were excluded from the study.

1.7.3 Instrumentation

A self-administered questionnaire was developed and was completed by the participants (Annexure C). The questionnaire was based on the literature and the working experience of the researcher. Closed and open-ended, as well as multiple choice questions were used in the questionnaire.

1.7.4 Pilot study

A pilot study was conducted in the Bergrivier sub-district to test the feasibility of the study, including the methodology. The results of the pilot study were included in the main study.

1.7.5 Reliability and validity

The researcher collected the data personally within a single session during the NPO visits according to the scheduled dates. Each CCW was informed about the goal and objectives of the study and how to complete the questionnaire. The questionnaire (Annexure C) was available in Afrikaans and in English.

The validity and reliability were supported by the pilot study. The pilot study was done under similar conditions as the actual study. Therefore the content and face validity were established prior to data collection, while construct validity was used after data collection. This is discussed in detail in Chapter 3.

Experts in research methodology, statistics and nursing were consulted to determine the feasibility and content of the study, and to evaluate the research process and outcome.

1.7.6 Data collection

The researcher collected the data personally in the five sub-districts of the West Coast District from 18 July 2012 to 31 July 2012. The self-administered questionnaires (Annexure C) were completed by 257 participants at the NPO offices in the sub-districts. A response rate of $n = 257$ (95,18%) was obtained.

1.7.7 Data analysis

The analysis and interpretation of the data were conducted with the help of a statistician from Stellenbosch University. The data was captured on an Excel worksheet and analysed with STATISTICA (10 of 2012), a computer software program.

1.7.8 Ethical consideration

The study was conducted according to the ethical principles of respect for human dignity, beneficence and justice relevant to the conduct of research (Burns & Grove, 2009:699).

1.7.8.1 Respect for human dignity

Polit and Beck (2008:171) state that respect for human dignity is the right to self-determination and the right to full disclosure. The following were applied to ensure human dignity:

The researcher obtained approval from the Human Research Ethics Committee, Faculty of Health Sciences, Stellenbosch University (Annexure A), the PGWC, as well as from the West Coast District Department of Health (Annexure D).

A clear statement of the purpose, procedures, risks and benefits of the research project, as well as the obligations and commitments of both the participants and the researcher, were discussed and contained in the consent form (Annexure B).

Participation was entirely voluntary and the participants were free to decline to participate without any negative effect whatsoever. The participants were free to drop out of the study at any point, even after having agreed to take part.

Informed written consent was obtained from individual participants (Annexure B). To ensure confidentiality and anonymity, the consent document was handed in separately from the questionnaire (Pera & van Tonder, 2005:152). The names of the participants were treated anonymously. All data obtained were managed by the researcher and the supervisors only.

1.7.8.2 Beneficence

The right to protection from discomfort and harm is based on the ethical principle of beneficence, which dictates that one do good and that the most important is to do no harm (Burns & Grove, 2009:198). As the information is not sensitive by nature, no known risks were foreseen during the study. The participants were protected from psychological harm, but should psychological harm be identified, they would be referred to appropriate psychological services.

1.7.8.3 Justice

According to Polit and Beck (2008:173), justice is the participant's right to fair treatment and to privacy. There was a fair selection of the general population, as all of the CCWs were invited to take part in the study. The participants were chosen to participate in the study because they were connected to the research problem.

The researcher did not choose the participants specifically because they would benefit from the research; however, benefits deriving from participating in the study will be communicated to the participants and to the relevant authorities.

1.7.9 Limitations

A limitation identified in this study was that the research was done in only one district of the Western Cape Province, where CIMCI is a key part of CBS.

Currently there were no studies found on this topic in the West Coast or the Western Cape Province for any comparison of literature or findings to be done.

1.8 CONCEPTUAL FRAMEWORK

The Health Belief Model is one of the most widely recognised conceptual frameworks of health behaviour. According to this model, an individual conducts an internal assessment of the net benefits of changing his or her behaviour and decides whether to act, which is the cornerstone of results being achieved from CIMCI by CCWs (Murphy, 2005:6-7).

CIMCI needs to be taught to mothers and caregivers in order to understand and change unhealthy behaviour that influences child health. The social learning theory emphasises behavioural capability, thus the mother or caregiver needs to know what to do and how to do it (Campbell, 2004:3-4).

The Participative Leadership Style is the involvement in decision making that improves the understanding of the issues involved by those who must carry out the decisions (Mohamad, Silong & Hassan, 2009:139). The leadership style is very important to ensure a multisectoral team working to ensure healthy children in our communities through CIMCI.

1.9 OPERATIONAL DEFINITIONS

Community Integrated Management of Childhood Illness: Is an integrated childcare approach that aims at improving key household practices that are likely to have the greatest impact on child survival, growth and development (SA National Department of Health & UNICEF, 2001:4).

Community Care Worker: Is according to the PGWC (2010b:16) a person who does home visits to render basic nursing care, CIMCI, TB DOTS, adherence support for clients on ARV, mental illness and chronic diseases of lifestyle medication. This means that the same CCW renders the full package. This is because of the long distances and it would not be cost effective to have vertical CBS programmes. All caregivers will be comprehensively trained to render this integrated package of services.

Non-Profit Organisations: Are defined in terms of Section 1 of the Non-Profit Organisations Act, Act 71 of 1997. They are organisations that are a trust, a company or other association of persons (Department of Health and Department of Social Development, 2009:6-7):

- a) Established for a public purpose; and
- b) The income and property of which are not distributable to the members or office bearers except as reasonable compensation for service rendered.

1.10 CHAPTER OUTLINE

Chapter 1: This chapter gave a brief introduction, the rationale for the study, the problem statement, the research question, the goal and the objectives, including a synopsis of the methodology applied and ethical considerations.

Chapter 2: A literature review related to CIMCI and the conceptual theoretical framework are discussed in this chapter.

Chapter 3: A more in-depth description of the research methodology is given in this chapter.

Chapter 4: The data analysis, interpretation and discussion applicable to the analyses are included in this chapter.

Chapter 5: This chapter will provide the conclusions and the recommendations based on the scientific evidence obtained in the study.

1.11 CONCLUSION

In Chapter 1 the factors influencing CIMCI in rural areas were discussed, with specific reference to the rationale for the study, the problem statement, the aim, the objectives and the research methodology applied.

The literature review is discussed in Chapter 2.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews the relevant literature on factors influencing CIMCI in rural areas. According to Burns and Grove (2009:135), the literature review is a summary of the current theoretical and empirical sources to generate a picture of what is known and not known about a particular problem.

2.2 REVIEWING AND PRESENTING THE LITERATURE

Literature published between 2001 and 2012 was reviewed. The researcher explored relevant studies that have been conducted internationally and in South Africa regarding CIMCI in rural areas. However, the researcher could not find any studies conducted in the Western Cape to support this study.

The theoretical component includes a conceptual framework according to the participative leadership style, social learning theory and the health belief model, which promote change regarding behaviour in the communities where the CCWs and multidisciplinary team are role players in order to promote child health (Murphy, 2005:19).

The empirical component includes relevant studies in journals and books, as well as theses, which were sourced from Pub Med, Science Direct and Cinahl (Burns & Grove (2007:93).

2.3 FINDINGS FROM THE LITERATURE

The findings from the literature review will be discussed under the following headings:

- 2.3.1 Millennium Development Goals;
- 2.3.2 Integrated Management of Childhood Illness;
- 2.3.3 Community Integrated Management of Childhood Illness;
- 2.3.4 Community Care Workers;
- 2.3.5 Working hours;
- 2.3.6 Training;
- 2.3.7 Challenges of working in rural and remote areas;
- 2.3.8 Knowledge of Community Integrated Management of Childhood Illness.

2.3.1 Millennium Development Goals

The Millennium Development Goals focus on the eradication of extreme poverty and hunger, universal primary education, gender equality, empowering of women, child mortality,

maternal health, HIV/AIDS, malaria and other diseases, environmental sustainability and a global partnership for development (World Health Organization, 2012:1).

The focus for this study was on MDG 4, which is to reduce child mortality by two-thirds in children younger than five years between 1990 and 2015 (Rajaratnam, Marcus, Flaxman, Wang, Levin-Rector, Dwyer, Costa, Lopez & Murray, 2010:1988).

According to Black, Cousens, Johnson, Lawn, Rudan, Bassani, Jha, Campbell, Walker, Cibulskis, Eisele, Liu & Mathers (2010:1969), a systematic analysis done in 193 countries showed that pneumonia (18%) in neonates and older children, diarrhoea (15%) and malaria (8%) were the most prevalent infectious diseases that have an impact on child mortality.

The MDG 4 target for South Africa is 20 deaths per thousand live births or lower by 2015, in comparison to the current level of 104 (Statistics South Africa, 2010:60). However, the HIV/AIDS epidemic has been overwhelming, therefore the comprehensive primary healthcare system has to focus on community health programmes (Chopra et al., 2009b:1023-1029).

2.3.2 Integrated Management of Childhood Illness (IMCI)

Currently the emphasis is on community participation, multidisciplinary collaboration and primary healthcare services, which have to be strengthened by the communities they serve (Walley, Lawn, Tinker, de Francisco, Chopra, Rudan, Bhutta & Black, 2008:1002).

IMCI is an integrated approach focusing on the holistic well-being of the child. The goal is to improve care at first-level health facilities through the introduction of standard treatment guidelines and training of health workers (Ahmed, Mitchell & Hedt, 2010:129). According to UNICEF (2012:2), more than 80 countries have successfully introduced the IMCI strategy and more than 40 countries are giving special attention to CIMCI.

The community component of the IMCI strategy was introduced in Tanzania to contribute to the reaching of the MDGs (Winch et al., 2002:345-346). Furthermore, CIMCI is the third component of the IMCI strategy developed by WHO and UNICEF in 1995 (Winch et al., 2002:346).

The findings of Khan, Saha and Ahmen (2002:43-45) show that IMCI is more efficient in identifying severe cases and helps speed up referrals of severely ill children for better care. In rural Kenya and Ethiopia, studies show that health workers using the IMCI guideline could correctly identify over 90% of cases of pneumonia, malaria, malnutrition and anaemia that had been diagnosed by an expert paediatrician with the help of a number of diagnostic tests.

Furthermore in the West Coast District of South Africa the IMCI guideline is implemented in all Primary Health Care facilities and executed by IMCI-trained registered nurses. The West Coast District is divided in 5 Subdistricts (Matzikama, Cederberg, Bergriver, Swartland and Saldanha). According to the Regional Development Profile of the West Coast District (Western Cape Government Provincial Treasury, 2011:17) the West Coast District has performed remarkably well with the implementation of IMCI and therefore achieving an immunisation rate of 101,2%. This is the highest in the province and well above the 90% benchmark set by the National Department of Health. However, at the municipal level, Cederberg has an immunisation rate of 88,1% and the district-managed area, a part of Matzikama, has an immunisation rate of 38,9%. Swartland and the district-managed area are above the prevailing rate for severe malnutrition cases which is part of CIMCI.

2.3.3 Community Integrated Management of Childhood Illness

Several studies worldwide show that CIMCI with interventions by CCWs has a positive effect on child health (Edward et al., 2007:814-822; Fujino, Sasaki, Igarashi, Tanabe, Muleya, Tambatamba & Suzuki, 2009:73-85; Winch et al., 2005:199).

The third component of IMCI is improving household and community practices related to child health nutrition and development (Ahmed et al., 2010:129).

From the literature it is clear that, in 10 Latin American countries, CIMCI has decreased child morbidity and child mortality after training in the "16 Key Family Practices". The success was attributed to exclusive breastfeeding, adherence to immunisation programmes and the provision of a clean and safe environment (United Nations Foundation & Pan American Health Organizations, 2007:20-23).

The success of the above was due to an increase in the number of skilled community workers and expanding coverage and outreach promoting key family practices. The key was to involve the Red Cross Movement, ministries of health, and national and local governments, and to gain the participation of communities and support from local inter-sector coalitions to sustain local actions (United Nations Foundation and Pan American Health Organization, 2007:15).

According to a study conducted in Ile-Ife, South-West Nigeria, IMCI and CIMCI interventions that are well implemented are an effective and low-cost intervention that is useful in achieving the optimal growth, development and survival of Nigerian children (Ebuehi & Adebajo, 2010:226-228).

2.3.4 Community Care Workers

CCWs represent the communities they serve, are involved in outreach in a variety of community settings, and are most often female (Ingram, Reinschmidt, Schachter, Davidson, Sabo, De Zapien & Carvajal, 2012:535-536). This is similar to the situation in the West Coast District, where the study was conducted, as the CCWs are predominantly female as well. In the United States, CCWs work across the United States in different types of agencies, both inside and outside of the clinical environment. CCWs use their skills to assure that individuals and families get the services they need by bridging, connecting, navigating, capacity-building and advocating to ensure their health (Ingram et al., 2012:529).

Two of the more important health-promoting interventions by CCWs are oral rehydration therapy and exclusive breastfeeding, which could lower the mortality of children under the age of five by 10% (Boschi-Pinto, Bahl & Marines, 2009:755-760). This is similar to the Western Cape, where the “Four Seasons” health promotion and prevention model is implemented, with exclusive breastfeeding and ORT as two important interventions by CCWs at community level (PGWC, 2010b:19).

Rowe, Kelly, Olewe, Kleinbaum, McGowan, McFarland, RoCHAT and Deming (2007:189) report that CCWs in Kenya commonly make errors due to the inappropriate interpretation of signs and symptoms, resulting in improper drug management. Therefore in Kenya one of the CIMCI interventions is that CCWs are provided with drugs to use according to the guidelines to treat pneumonia and malaria in remote areas (Rowe., et al. 2007:189). However, diagnosing and the provision of drugs are not part of the CCWs' job description in the West Coast District, or in the Western Province (PGWC, 2010b:16).

According to Schneider, Hlophe and Van Rensburg (2008:179-182), strengthened systems are needed for the appropriate support and management of CCWs and the barriers they encounter in their daily duties. According to these authors, the age and sex profiles of CCWs in the Free State, South Africa indicate that 92% were female and that they were aged predominantly between 30 and 50 years. Recruitment and selection is done through CBS organisations, volunteers and local health facility staff. The CCWs receive training in various programmes, resulting in more responsibilities as well as a shift of tasks from professionals to CCWs, particularly in the context of HIV/AIDS.

In the Siaya district, Kenya, the minimum selection criteria for CCWs are: (1) being able to read at school level 'standard 7' or above, (2) to volunteer and (3) live in the community, and (4) preferably be women. The selection process is done by health committees that are established in some communities. The motivation for these selected CCWs to adhere to their

work is the money they are paid, the respect they receive from the community, feeling happy for helping the community, and receiving gifts for help with tasks from people as appreciation for their duties (Rowe et al., 2007:189-190).

According to Rosenthal, Wiggins, Ingram, Mayfield-Johnson and De Zapien (2011:250), 91% of CCWs in the United States are women and 37,6% are younger than 50 years. However, men have started to enter the CCW workforce. The most common work sites for CCWs are homes, community centres, clinics and hospitals. The most common health issues addressed by CCWs are HIV/AIDS, women's health, pre- and postnatal care, child health and cancer. The services that the CCWs render include assisting in accessing medical services (84%), providing culturally appropriate health education and information (82%), assisting in accessing nonmedical services (72%), community advocacy (53%) and social support (46%) (Rosenthal et al., 2011:251).

In a study by Alam, Tasneem and Oliveras (2012:513), it was found that, in Bangladesh, female volunteer CCWs were the core workers in the health programmes for mother, newborn and child health interventions. However, the CCWs had become "inactive" due to the fact that they did not receive financial incentives. The CCWs who were dependent on CCW income to run their families were much more active in their work. Therefore a fixed income is critical to improve the level of activity of CCWs.

According to Alfaro-Trujillo, Valles-Medina and Vargas-Ojeda (2012:585), CCWs in the USA and Mexico work with NPOs, are like "family" and get appreciation for what they do. Compensation differs and is not sufficient. CCWs receive a stipend, but it is insufficient and sometimes only covers their transport cost to the communities where they work. Other CCWs receive payment in the form of food, medical consultation or medication. For some of the CCWs it is voluntary work and they are satisfied with the client results, but for some of them it is problematic to do the work because they need economic compensation, which means they have to find other work (Alfaro-Trujillo et al., 2012:588).

2.3.5 Working hours

The study by Ingram, Sabo, Rothers, Wennerstrom and de Zapien (2008:419) shows that 87% of CCWs in Arizona are employed by a non-profit organisation and work full time, 69.7% reported having flexible working hours, 58,3% reported they have flexibility to start new projects, and 63,3% have the autonomy to start new projects. The CCWs advocate at local, state and federal political levels, as well as within health and social service agencies and businesses.

2.3.6 Training

Ebuehi and Adebajo (2010:231) revealed in their study that the caregivers (78,5%) from compliant local government areas obtained information about the home management of childhood illnesses from trained community-based workers. About two-thirds, or 67,9%, of caregivers from non-compliant local government areas get information about the home management of childhood illnesses from relatives.

Ebuehi and Adebajo (2010:230) further state that, in a study comparing a CIMCI-compliant Local government areas and a CIMCI non-compliant Local government areas, the use of oral rehydration solution for the management of childhood diarrhoea in the latter was found to be a very low 18,4% compared with 90,8% of caregivers who used it in the CIMCI-compliant Local government areas. The treatments used for diarrhoea reported in the CIMCI-compliant areas were a salt-sugar solution and the use of antibiotics with referral to primary healthcare centres for the care of children with diarrhoea. In the non-CIMCI Local government areas, the caregivers used home remedies such as water, garri water, salt water and no referral to a PHC centre.

In addition, in 10 Latin American countries the communities using training materials developed by the Red Cross action and partnerships developed new instructional brochures and guides to promote key family practices tailored to their own languages and customs. The results show that there were changes in practice in selected community sites, with 29% more families recognising the warning signs of diarrhoea; 31% more knew the risk of danger signs in a child; and 12% more could cite the danger signs of pneumonia. Most importantly, 6% more children with a cough and rapid breathing were taken to health services (United Nations Foundation & Pan American Health Organizations, 2007:11-12).

In the Siaya district in Kenya, CCWs received training on how to use the management of the sick child guideline (Rowe et al., 2007:189). The initial training was 10 days of lectures, reviewing case scenarios and role-playing, and five days of clinical practice at Siaya District Hospital. Refresher training sessions for targeted weaknesses in CHW clinical skills were given for six to 15 days. The CCWs were divided into groups of eight to 10 and, besides for lectures and role-playing, their training involved reviewing videotaped consultations and clinical practice at local pharmacies or health facilities. The CCWs received medicine kits to treat children with malaria, diarrhoea, fever, pneumonia and malnutrition. Overall adherence to clinical guidelines was fairly acceptable. On average per child, 80% of all guideline-recommended procedures were performed correctly. Rowe et al. (2007:199) and Friend-du Preez et al. (2009:343) state that traditional healers are an important provider of health care

in South Africa. It is suggested that traditional healers are recruited as agents for the CBS. They could assist in providing information, education and communication to the community. However, they need to be part of training to do IMCI interventions or referrals from the community to the health facility. PHC for children under six years is free in many African countries, whereas a traditional healer could cost as much as a week's wages (Lidell, Barrett & Bydawell, 2005:696). The main reasons for using traditional medicine are for supernatural or abantu illnesses, the caregivers' culture, family influences and shortfalls in the PHC services. One belief is that breast milk is dirty milk and that it gives the child a bloated stomach and green veins, referred to as "masebela". As a result, the child is regularly given a purgative to clean his or her stomach after birth. It is an unsafe practice to give a child an enema with ingredients like dagga, cannabis or milk in a syringe (Friend-du Preez et al., 2009:343). The belief is that Western medicine is not effective for these illnesses.

According to Rosenthal et al. (2011:256), the most common training for CCWs in the United States of America entails cultural awareness, knowledge of health issues, knowledge of social services, interpersonal communication skills, being a CCW and client advocacy; the least common topic is leadership.

In the United States of America and Mexico, CCWs obtain a diploma of education and training that is offered by a prestigious local university. According to Alfaro-Trujillo et al. (2012:585), the CCWs of Mexico do not have specific training and attend educational workshop once or twice per month to develop their skills.

Mannan, Rahman, Sania, Seraji, Arifen, Winch, Darmstadt and Baqui (2008:3) found that, in the rural districts of Sylhet, Bangladesh, CCWs received 21-day newborn and breastfeeding training and a practical session on the observation and assessment of breastfeeding. Training methods included lectures, hands-on demonstration and practical exercises with real-life postpartum breastfeeding mothers and video-guided lessons with support from a supervisor.

On the other hand, women in Nepal with basic school education and semi-literate or illiterate women are trained as community health volunteers to diagnose and assess disease severity and danger signs, treat children and refer children with acute respiratory infection and diarrhoea to health facilities. The IMCI training curriculum of the WHO was adapted and simplified to ensure that it meets the needs of these community health volunteers (Ghimire, Pradhan & Maskey, 2010:218).

2.3.7 Challenges of working in rural and remote areas

2.3.7.1 Supervision and support

In South Africa, good leadership and supervision, even though not always achieved, are essential to the success of programmes (Van Ginneken, Lewin & Berridge, 2010:1117).

In the Sylhet district of Bangladesh, a female field supervisor monitored and supported the work of eight CCWs who worked with mothers and babies pre- and postpartum. The supervisor accompanied and observed the activities of each CCW for two days in a month. Furthermore, CCWs were observed using a structured supervisory checklist and scores and written feedback were provided at the end of each day's observation. These findings were discussed at monthly CCW refresher training sessions (Mannan et al., 2008:3).

According to Brenner, Kabakyenha, Kyomuhangi, Wotton, Pim, Ntaro, Bagenda, Gad, Godel, Kayizzi, McMillan, Mulogo, Nettel-Aguirre and Singhal (2011:4), the supervision of volunteer CCWs in Uganda is done by medical managers selected from local health centre staff who represent a variety of health backgrounds (i.e. midwives, nurses). They attend 15-day training in curriculum content and leadership, conducted at Mbarara University by Canadian faculty. Their function was to train and supervise the volunteer CCWs.

2.3.7.2 Equipment

Rowe et al. (2007:189) reported that CCWs in Siaya district, Kenya received job aids to support their work. These aids included Management of the Sick Child guideline flipcharts, treatment and counselling cards (which summarise drug dosages and counselling messages) and clinical registers.

2.3.8 Knowledge of CIMCI

In a study by Byrne and Gregory (2007:S85) on the Okhahlamba municipality in South Africa, they discovered that there was a need to understand the local meanings and ways of communication regarding childhood illness. The focus needs to shift from curative health centre-based service delivery to client-focused health service. The focus must be on the targets that have not yet been reached, for example the 20% of children who still need immunisations to reach the 100% target, and not on the 80% that have already been done. The community will take action if the emphasis is on the target that needs to be attained.

2.3.8.1 Breastfeeding

The risk of death due to pneumonia and diarrhoea are five and seven times greater respectively among infants who are not breastfed during the first five months of life (Mannan et al., 2008:1). Exclusive breastfeeding in the first six months and continuation from six to 11

months has been identified as the single most effective preventive intervention in reducing child mortality. Breastfeeding therefore is fundamental to child survival and development. Furthermore, the nutritional value of breast milk provides immunity against common infections (Mannan et al., 2008:1).

According to Mannan et al. (2008:3), inappropriate breastfeeding position and attachment were the main problems of newborns who received home visit by CCWs within three days. CCWs therefore were trained to help mothers to correct positioning or attachment, and to provide counselling to encourage exclusive breastfeeding. These interventions by CCWs should be part of community-based postpartum interventions.

Well-structured, intensive breastfeeding support, counselling and follow-up postnatal visits provided by community-based services in Ghana and Latina are effective in improving exclusive breastfeeding (Aidam, Pe'rez-Escamilla & Lartey, 2005:1691; Anderson, Damio, Young, Chapman & Perez-Escamilla, 2005:836-837).

Byrne and Gregory (2007:S84) found in Uthukela, KwaZulu-Natal that it was important to incorporate traditional beliefs and standard methods promoted by health facilities to benefit child health. Communication in the correct way was used with mothers who needed to express milk when they were separated from their children and still wanted to breastfeed. Some of the acceptable reasons given for expressing milk are that if the breasts are too full, the baby may be choked by the milk, and that expressing milk prevents the child from getting evil spirits (habula). As a result there was general agreement that the expressing of milk was fine, although the ways to express it may differ. Some mothers express milk outside the gate of the home and others express milk onto a hot hoe.

Qualitative data from in-depth interviews with traditional birth attendants and grandmothers in tribal villages in India showed that there still are strong traditional beliefs and practices that are harmful to the mother and child. The initiation of breastfeeding between 24 hours and three days is done by 47.6%, and initiation within three hours is done by 23,4%. The reasons given are that the mother and baby are dirty and need to be washed first; the newborn baby must be given a pre-lacteal feed of castor oil or sugar water to clean out his or her insides; and the first milk (colostrum) is removed because it is yellow and it should be white. The Indian government therefore included traditional birth attendants as essential partners in newborn care (Kesterton & Cleland, 2009:10).

2.3.8.2 *Diarrhoea*

It is necessary to understand the mothers' and caregivers' understanding of the treatment of a child with diarrhoea. Byrne and Gregory (2007:S84) report that the traditional belief in KwaZulu-Natal is that a child with diarrhoea has "inyoni", which means that the mother has been in contact with lightning strikes and evil spirits. It is also associated with thrush and teething. Therefore the traditional healer treats the child with an enema "imbiza" (herb mixture) to drink that is very dangerous for the child. It is important that health staff understand the local knowledge and practices and find communication methods that are acceptable for the community and the culture (Byrne & Gregory 2007: S84).

Winch, Doumbia, Kante, Male, Swedberg, Gilroy, Ellis, Cisse and Sidibe (2008:643-644) reported that, in southern Mali, CCWs have drug kits that include oral rehydration solution and antimalarial drugs to treat children with diarrhoea. Care for diarrhoea (oral rehydration solution) was rarely sought from the drug kits because parents felt that it was not an effective treatment. The treatment for diarrhoea begins in the home with traditional medicines or antibiotics from markets. Tetracycline (kunbleni) is the most common antibiotic available from market vendors. The study showed that only 11% of children received any oral rehydration solution therapy during diarrhoea (50% from health centre, 24% from drug kit), and more than 60% were treated with an antibiotic (25% from health centre, 75% from market).

Findings by Dippenaar, Joubert, Nel, Banobetse, Opawole and Roshen (2005:1-3) show that oral rehydration therapy is a simple and cheap lifesaver, but that it is not used optimally. Three descriptive cross-sectional studies indicate that in 78 to 90% of diarrhoea cases the correct use of the sugar-salt solution for oral rehydration is not guaranteed. In a study in Zimbabwe, 72% of mothers had been taught about oral rehydration therapy, but only 21% could give the correct recipe. The incorrect measurement of the sugar-salt solution is dangerous and could worsen the dehydration and lead to hypernatremia or osmotic dehydration. This is one of the main reasons why this researcher is concerned about the knowledge of the CCWs on CIMCI. Although it is a basic recipe, the CCWs could not remember the recipe, which means that it is not always communicated correctly (Dippenaar et al., 2005:1-3).

In India, a contingent valuation study (Amin & Khondoker, 2004:1-2) indicated that parents were willing to pay more to protect their male child compared to their female child suffering from a diarrhoeal episode. Parents will pay 51% more for their male child's health.

Akhter and Larson (2010:230), Bhandari, Mazumder, Taneja, Dube, Agarwal, Mahalanabis, Fontaine, Black and Bhan (2008:e1279) and Winch, Gilroy, Doumbia, Patterson, Daou, Coulibaly, Swedberg, Black and Fontaine (2006:880) confirm that zinc has been proved to be an effective treatment for diarrhoea. Zinc reduces the duration, severity and incidence of diarrhoea. The cost of zinc treatment for childhood diarrhoea management in a rural community of Bangladesh was shown to be high. Parents are willing to pay from 0.34 up to 2.6 US Dollars for zinc treatment per diarrhoea episode (Akhter & Larson, 2010:233).

2.3.8.3 *Pneumonia*

According to Winch et al. (2005:206), CCW interventions in pneumonia have a positive impact on child mortality in Bangladesh. The CCWs did the following:

- assess the child for chest in-drawing and respiratory rate using a watch or stopwatch;
- prescribe and dispense antibiotics like amoxicillin or cotrimoxazole, with follow-up of child's response to treatment;
- referral (verbally or on card) of a child with severe pneumonia to a health facility;
- training for five days in detecting, classifying, treating and referring childhood pneumonia in 150 to 250 households.

Winch et al. (2005:206) report that, in Nepal, CCWs are trained for seven days; they count the respiratory rate and refer infants younger than two months to facilities for pneumonia. The traditional healers should also be included in the programme so that they can refer children with suspected pneumonia to health facilities.

Winch et al. (2005:206) further state that, in India, CCWs, traditional birth attendants and paramedics were trained in six 1.5-hour sessions to assess the signs of pneumonia. Innovative approaches were developed so that illiterate traditional birth attendants could assess the signs of pneumonia; a one-minute sand timer with an abacus assists with counting.

CCWs in Uganda receive two days of training in the physiology of respiratory organs, the classification of acute respiratory infection, the analysis of causes and factors contributing to acute respiratory infection the signs and symptoms of pneumonia, and the counting of respiratory rates in children. This is shown on video and in real life. of the CCWs, 58% were female, 45% had attended only primary school and 52% had four or more children. The assessment shows that CCWs will over-diagnose pneumonia when the prevalence is low and miss cases when the prevalence is high (Källander, Tomson, Nsabagasani, Sabiiti, Pariyo & Peterson, 2005:958).

Parimi, Pereira and Prabhakar (2004:2) describe how caregivers in Trinidad and Tobago score low on antibiotic knowledge, have invalid beliefs and use antibiotics inappropriately. Antibiotics are the most commonly prescribed and abused drug for upper respiratory tract infections in children. In both developed and developing countries, resistance to first-line antibiotics is a problem (Parimi et al., 2004:2).

2.3.8.4 Danger signs in children

A study conducted in Lusaka, Zambia found a large number of child deaths are associated with delays in care seeking by families. CCWs underwent a six-week growth-monitoring programme plus a training programme that covers basic health issues in families and communities. These include the identification of danger signs in children, i.e. looking weak or sleepy, refusing breastfeeding or drinking, vomiting, convulsing and abnormal breathing. Health staff reviewed their performance and updated their knowledge at monthly refresher workshops to assure the quality of their services. A video (with a runtime of 24 minutes and 30 seconds) was developed with motion pictures and narrations, using local terminology and settings to maintain consistency in the knowledge of the CCWs. The growth-monitoring programme, along with education on danger signs, can improve mothers' care-seeking for severely sick children (Fujino et al., 2009:73).

Baqui, Arifeen, Rosen, Mannan, Rahman, Al-Mahmud, Hossain, Das, Begum, Ahmed, Santosham, Black, Darmstadt & The Projahnmo Study Group (2009:1450) report that CCWs in Bangladesh use a 20-sign clinical algorithm adapted from the country's IMCI algorithm to classify sick neonates with very severe disease or possible very severe disease. This formed part of their postnatal home visits to check the health of the newborn on day one, day three and day seven of life. CCWs offered home antibiotic treatment to very severe disease cases and possible very severe disease cases with more than one sign according to the assessment. Referral was very important; if the family was unable to take the child to hospital, a follow-up visit was done within 24 hours to monitor the infant and reinforce referral. Home treatment of severe illness in neonates by CCWs was found to be as effective as treatment by medically qualified providers (Baqui et al., 2009:1450).

According to Khan et al. (2002:45), a study in Bangladesh found that 77% of children seeking care from CCWs were referred to higher facilities for further treatment, whereas 3% were referred by paramedics. The estimated number of referral cases should have been about 8% if the IMCI guidelines were followed.

2.3.8.5 *Immunisations*

A target of 95% immunisation coverage is necessary for the sustained control of vaccine-preventable diseases in Nigeria. Reasons for partial immunisations and factors responsible for missed opportunities for immunisations in children younger than one year are the parents' objections, disagreement or concern about immunisation safety, and long walking distance and long waiting time at the health facility (Abdulraheem, Onajole, Jimoh & Oladipo, 2011:194-195).

In rural India, CCWs can play an integral and dynamic role in overcoming community-specific barriers to expanding immunisation coverage. CCWs are selected as trusted members of the community and can therefore reach vulnerable individuals in rural populations. As members of the local community, the CCWs are good in identification, tracking and outreach services to provide information, education and communication to community members about immunisations. CCW interventions and door-to-door canvassing strategies were found to have the highest impact in terms of increase in the proportion of fully vaccinated children (Patel & Nowalk, 2010:612).

2.3.8.6 *HIV/AIDS*

Worldwide the total number of people living with HIV or AIDS stood at 34 million in 2010. Sub-Saharan Africa is comprised of only 10% of the world's population, yet it is home to 69% of all people living with HIV, namely 23,5 million (United Nations (UN) AIDS, 2008:7). According to Chopra, Daviaud, Pattinson, Fonn and Lawn (2009a:836), HIV/AIDS is a leading cause of death for both mothers and children younger than five years in South Africa.

A longitudinal study was done in Uganda for which 500 respondents received facility-based voluntary counselling and testing and 494 received home-based voluntary counselling and testing during the baseline visit. Clients who received facility-based voluntary counselling and testing were less likely to be residents of the more rural households. The clients who received home-based voluntary counselling and testing were less likely to report having an sexually transmitted infection symptom and were afraid of discrimination if they contracted AIDS. Therefore voluntary counselling and testing should be provided to potential clients in both facility- and home-based voluntary counselling and testing options (Mulogo, Abdulaziz, Guerra & Baine, 2011:1-2).

According to Hanh, Gammeltoft and Rasch (2011:1-2), HIV counselling and testing for pregnant women are a key factor for the successful prevention of mother-to-child transmission of HIV. A community-based study was conducted and the results suggest that

antenatal HIV counselling and testing can be scaled up to primary health facilities. On the other hand, HIV counselling and testing at community level may increase access to the service for vulnerable rural women and place them in a position where they can access and benefit from prevention of mother-to-child transmission programmes.

The researcher agrees with the earlier HIV counselling and testing for pregnant women to prevent mother-to-child transmission of HIV. As stated by President Jacob Zuma on World AIDS Day, 2009, prophylaxis acute respiratory infection will be started earlier, at 14 weeks' pregnancy for women eligible for lifelong acute respiratory infection. In addition, HIV-positive women can safely breastfeed their children, provided the child is taking ARVs during the breastfeeding period (National Department of Health, South Africa; South African National AIDS Council (2010:1).

A study by Uwimana, Zarowsky, Hausler and Jackson (2012:3-4) shows that CCWs can help bridge significant gaps in integrated tuberculosis (TB)/HIV/prevention of mother-to-child transmission service delivery at community level. In KwaZulu-Natal, South Africa there is limited involvement by NGOs and CCWs in the provision of TB/HIV/prevention of mother-to-child transmission services. Limited provision of community-level TB/HIV/prevention of mother-to-child transmission integrated services can be explained by health system barriers and contextual issues, such as the denial of the HIV epidemic by Mbeki's government (Uwimana et al., 2012:3-4).

According to a cross-sectional study in Uganda, the disclosure of HIV status was a challenge to optimal feeding for a child. Mothers cannot give replacement feeds because the man will know her HIV status, therefore she breastfeeds when seen by others, while avoiding breastfeeding when alone (Fadnes, Engebretsen, Moland, Nankunda, Tumwine & Tylleskar, 2010:6).

Doherty, Chopra, Nkonki, Jackson and Greiner (2006:90) and Sibeko, Coutsoodis, Nzuzwa and Gray-Donald (2009:1983) confirm that mixed feeding has also increased in South Africa because women do not want to disclose their HIV status.

2.4 CONCEPTUAL FRAMEWORK

According to Jabareen (2009:51), a conceptual framework is a network of interlinked concepts that together provide a comprehensive understanding of the phenomena under discussion. This framework also helps to identify what should be monitored, measured and/or compared in the evaluation of the programme (Trifiletti, Gielen, Sleet & Hopkins, 2005:299).

The framework below is the core of this study and shows that, through the participative leadership style, the health belief model and social learning theory, CIMCI can reduce child morbidity and child mortality.

The health belief model is a framework for motivating people to take positive health actions, using the desire to avoid a negative health consequence as motivator. According to Winch et al. (2002:345), CIMCI serves as a reference tool for improving behaviour change strategies in communities to promote health and nutrition for a child aged 0 to 5 years. CIMCI has three elements, namely to improve partnerships between health facilities and the communities they serve; to increase appropriate and accessible care and information from community-based providers; and thirdly, to integrate the promotion of key family practices critical for child health and nutrition. These are discussed in Section 2.4.3.

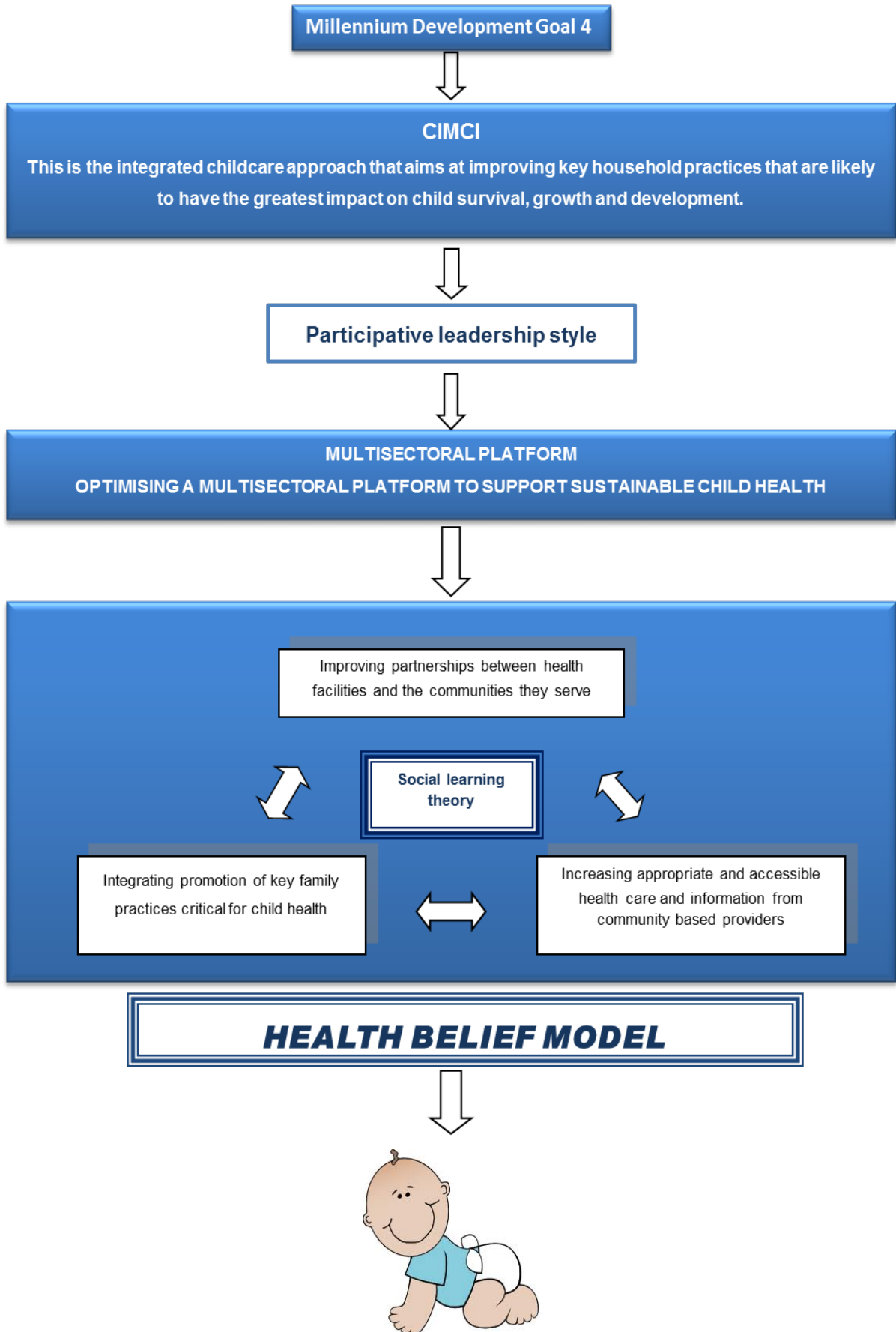


Figure 2.1: A conceptual framework for CIMCI

2.4.1 Participative leadership style

Eduardo, Ochoa and Nash (2009:S241) say that community collaboration is necessary from the earliest possible moment, as it is a key to building sustainable partnerships, establishing trust, and ensuring the appropriateness of interventions and strategies. Partnerships must be diverse, therefore the community and all partners can benefit from the assets that each group brings to the effort. In Armenia, for example, community leaders and local health authorities are particularly supportive of health promotion campaigns that focus on children, because this is important for their community (Thompson & Harutyunyan, 2009:106).

CCWs are valuable in eliminating health disparities and can serve as referral sources, advocates, recruiters, connectors, coaches or data collectors. CCW involvement in health promotion or disease prevention interventions produces statistically significant, positive community outcomes.

Brownstein, Hirsch, Rosenthal and Rush (2011:211) and Lewin, Munabi-Babigumira, Glenton, Daniels, Bosch-Capblanch, Van Wyk, Odgaard-Jensen, Johansen, Aja, Zwarenstein and Scheel (2010:6) state that community health workers are key liaisons between professional care providers and patients in primary healthcare settings worldwide.

According to Ingram et al. (2008:417-418), CCWs are associated with advocacy, the belief that they can influence community decisions, and that they have the knowledge of their community structures to ensure change in health disparities. CCWs are also characterised as community leaders who share the language, socioeconomic status and life experiences of the community members they serve.

In south-western Uganda, volunteer retention was high, at 86%, because the community took leadership to identify the volunteers. The community members identified their own criteria for selection, such as desirable personal qualities, experience, marital status, age and education level. The medical managers of health sub-districts selected local health centre staff from a variety of health backgrounds (i.e. midwives, nurses) to train and supervise the volunteer community health workers. These types of programmes show a reduction in child morbidity and may serve as a successful example for other communities with similar limited health and healthcare provider resources and high child health needs (Brenner et al., 2011:4).

According to Rosato, Mwansambo, Lewycka, Kazembe, Phiri, Malamba, Newell, Osrin and Costello (2010:112-114), it is necessary to build the capacities of communities to take control of mother and child health issues that affect them. The community therefore is the agent of change. In rural Malawi, a group of women did a four-phase community mobilisation action

cycle, holding several meetings with women and men in the community. In these groups it is important that they identify and prioritise the mother and child health problems they feel are most important and look to finding ways to solve the problems.

2.4.2 Social learning theory

In social learning theory, human behaviour is explained in terms of a three-way dynamic – a reciprocal theory in which personal factors, environmental influences and behaviour continually interact (Murphy, 2005:7). Observational learning can occur in relation to three models, discussed below with special emphasis on diarrhoea in India (Pahwa, Kumar & Toteja, 2010:559).

- live model in which the CCW can demonstrate the use of the sugar-salt solution (SSS) to bring change in the attitude of mothers;
- verbal instruction, in which an individual describes the desired behaviour in detail and instructs the participant on how to engage in the behaviour. Educational material, in the form of posters, flip charts and flash cards, was used for educating the community; and
- symbolic, in which modelling occurs by means of a bottle filled with water with a small hole at the bottom, to explain the concept of dehydration in diarrhoea. A simple home-made sugar-salt solution could thus be demonstrated by a CCW.

The environment shapes, maintains and constrains behaviour, but people are not passive in the process, as they can create and change their environments.

2.4.3 Health belief model

The health belief model concept is that health behaviour is determined by personal beliefs or perceptions about a disease and the strategies available to decrease its occurrence. Therefore it is the most commonly used theory in health education and health promotion (Glanz & Bishop, 2010:402). The following perceptions serve as the main constructs of the model:

- perceived susceptibility is an individual's assessment of his or her chances of getting the disease;
- perceived benefits are an individual's conclusion about whether the new behaviour is better than what he or she is already doing;
- perceived barriers are an individual's opinion as to what will stop him or her from adopting the new behaviour;
- perceived seriousness is an individual's judgement as to the severity of the disease;

- modifying variables are the individual's personal factors that affect whether the new behaviour is adopted;
- cues to action are those factors that will start a person on the way to changing behaviour; and
- self-efficacy is a person's belief in his or her own ability to do something.

According to Trifiletti et al. (2005:126), the health belief model is one of the models followed most frequently.

A study was conducted in rural Karnataka, India, where many harmful newborn care practices were carried out, such as unhygienic cord cutting, delayed breastfeeding and early bathing. A quantitative and qualitative study conducted with mothers, grandmothers and birth attendants showed that there is movement away from traditional practices through the implementation of IMCI, although mostly amongst more educated and better-off women. Government outreach workers can help to change beliefs with the correct behaviour-change messages (Kesterton & Cleland, 2009:1-3).

In Nepal, health is indirectly but powerfully affected by the social environment, therefore one-to-one basic information sessions on infant care showed a significant change in behaviour. Community involvement and partnerships bring about a change in behaviour because the community take responsibility for their children's health (Lewycka, Mwansambo, Kazembe, Phiri, Mganga, Rosato, Chapota, Malamba, Vergnano, Newell, Osrin & Costello, 2010:3).

A sustained change in health behaviour involves many actions and adaptations over time. One central issue that has gained wide acceptance in recent years is that behaviour change is a process, not an event (Glanz & Bishop, 2010:402).

2.5 CONCLUSION

In this chapter, a literature review of factors influencing CIMCI in rural areas showed that CIMCI interventions by CCWs could help to reach the MDG 4 target by 2015. Therefore it is important for CIMCI to be part of households and communities. The gap in the literature currently is the limited studies on CIMCI done in South Africa. The majority of studies were done internationally. The conceptual theoretical framework that guides this study was described. The research methodology applied in this study will be described in the next chapter.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The preceding chapters have described the background of and rationale for, as well as the literature review for the study. The purpose of this chapter is to describe the research methodology that was applied to determine the factors influencing CIMCI in rural areas. According to Burns and Grove (2009:719), the research methodology is the process or plan for conducting the specific steps of the study. In this chapter the following will be discussed: the research design, population and sampling, instrumentation, the pilot study, reliability and validity, data collection, data analysis and the conclusion.

3.2 RESEARCH DESIGN

The research design is the plan for collecting and utilising data so that the required information can be obtained (De Vos, Strydom, Fouche & Delport, 2001:142-143). Burns and Grove (2007:237) describe the research design as a blueprint for the researcher to conduct the study. Furthermore, Mouton (2001:56) focuses on the end product and what is the logic of the research. This is a descriptive, non-experimental, exploratory study with a quantitative approach.

3.2.1 Quantitative research

Quantitative research is a formal, objective, systematic process in which numerical data are used to obtain information about the factors influencing CIMCI in rural areas of the West Coast District in the Western Cape of South Africa (Burns & Grove, 2007:23).

This research method is used:

- to describe variables;
- to examine relationships among variables; and
- to determine cause-and-effect interaction between variables (Burns & Grove 2007:23).

3.2.2 Non-experimental research

According to Polit and Beck (2008:759), non-experimental research comprises studies in which the researcher collects data without introducing an intervention. Therefore variables cannot be manipulated by the researcher because they are studies as they exist.

3.2.3 Descriptive study

A descriptive study was designed to gain more information about factors influencing CIMCI in rural areas. The purpose was to provide a picture of the situation as it naturally happens in the West Coast District. A descriptive design therefore may be used to identify problems with current practices, justify current practice, make judgements, or determine what other practitioners in similar situations are doing. In addition, no manipulation of variables is involved in a descriptive design (Burns & Grove, 2007:240).

3.2.4 Exploratory study

According to Burns and Grove (2009:359), an exploratory study is designed to increase the knowledge of the field. Therefore an exploratory study was applied to explore and describe the factors influencing CIMCI in the rural areas of the West Coast District of the Western Cape. .

3.3 POPULATION AND SAMPLING

A population, according to Polit and Beck (2008:761), is all the individuals having some common characteristics that meet the criteria for inclusion in a study, sometimes referred to as a target population (Burns & Grove, 2009:713).

The West Coast District is a rural district that is divided into five sub-districts, namely Swartland, Bergrivier, Saldanha, Cederberg and Matzikama.

The target population (N = 270) for this study included all the CCWs who are working for the NPOs that currently are funded by the PGWC in the West Coast District.

Sampling is the process of selecting a portion of the population to represent the entire population (Polit & Beck, 2008:765). According to De Vos et al. (2001:232) and Polit and Beck (2008:232), purposive sampling, or judgemental sampling, is based on the belief that the researcher's knowledge about the population can be used to hand-pick sample members, which in this case was the CCWs who deliver CIMCI. However, for the purpose of this study, a sampling method was not applied; rather, the total population was invited to take part in the study. The population for the study is set out in Table 3.3.

Table 3.1: Total number of the CCWs according to the sub-districts in the West Coast District

Sub-districts in West Coast District	Total number of CCWs working in sub-districts
Sub-district Matzikama	90
Sub-district Cederberg	54
Sub-district Swartland	50
Sub-district Bergriver	33
Sub-district Saldanha	43
TOTAL	270

3.3.1 Inclusion criteria

Burns and Grove (2009:703) state that inclusion sampling criteria are sampling requirements identified by the researcher that must be present for the subject to be included in the sample.

The target population for this study was all the CCWs (N=270) who are funded by the PGWC in the West Coast District.

3.3.2 Exclusion criteria

According to Burns and Grove (2009:699), exclusion sampling criteria are sampling requirements identified by the researcher that eliminate or exclude an element or subject from being in a sample.

The following CCWs were excluded from the sample:

- CCWs on leave or sick leave;
- CCWs who did not want to participate in the research; and
- CCWs who were not available during the two weeks of data collection.

According to these criteria, a total of 13 CCWs were excluded from the study.

3.4 INSTRUMENTATION

Instrumentation is a component of measurement that involves the application of specific rules to develop a measurement instrument (Burns & Grove, 2009:704).

Data were collected by utilising a self-developed, self-administrated questionnaire (Annexure C). The questionnaire consisted of a variety of question types, namely open questions, closed questions and multiple choice questions (De Vos et al., 2001:196-199). The

questionnaire could be completed within 30 minutes and was available in English and Afrikaans.

The questionnaire was divided into the following three sections:

3.4.1 Section A: Demographic data

The questions were related to the participants' demographic data (questions 1-7). The questions were aimed at collecting data regarding the participant's age, highest grade, sex, work experience, working hours and stipend.

3.4.2 Section B: Factors related to CIMCI practice

The questions were aimed at determining the factors influencing CIMCI in the working practice (question 8-13). Therefore data were collected regarding the working hours, training, challenges of working in rural areas, supervision, and support and equipment.

3.4.3 Section C: Training and CCWs' knowledge of CIMCI

These questions were aimed at collecting data regarding the knowledge of the CCWs on CIMCI (questions 14-35). The CCWs' knowledge was evaluated on breastfeeding, HIV, malnutrition, pneumonia, dehydration, danger signs and immunisations.

3.5 PILOT STUDY

According to De Vos et al. (2001:237), a pilot study is a measuring instrument that consists of carrying out all aspects of the total data collection process on a small scale. Burns and Grove (2009:44) and De Vos et al. (2001:237) further define a pilot study as:

- a procedure for testing and validating an instrument by administering it to a small group of participants from the intended test population;
- being used to test the feasibility of the study;
- an instrument to determine whether the sample is representative of the population or whether the sampling technique is effective;
- helping the researcher to fine tune and debug the process for a smooth main inquiry; and
- giving the researcher experience with the subjects, setting, methodology and methods of measurement.

The pilot study was done in the Bergriver sub-district of the West Coast District and was executed in the same manner as the main investigation. The reason for selecting the Bergriver sub-district was due to the fact that it was the sub-district with a population nearest to 10%, as is required for a pilot study. The instrument was tested specifically for any

ambiguous statements and to ensure that the objectives were covered adequately, thus ensuring that the instrument was sufficient. The pilot study included 33 CCWs, thus 12.22% of the actual main study.

The pilot study showed that it was necessary for the researcher to be present to give structure and guidance to the CCWs with the completion of the questionnaire. This was to ensure that all the questions were completed. The content of the questionnaire was sufficient and the time was adequate for everyone to complete it. The findings of the pilot study were included in the main study. The researcher aimed to provide an overall view of the current situation in relation to the entire West Coast District.

3.6 RELIABILITY AND VALIDITY

3.6.1 Reliability

De Vos et al. (2001:178) describes reliability as when the same instrument is used at different times or administered to different subjects from the same population, resulting in the same findings. De Vos et al. (2001:178) further states that the primary concern of reliability is not with what is being measured, but with how well it is being measured. The following procedures increased the reliability of the study of the factors influencing CIMCI in rural areas:

- the researcher personally collected and captured the data, ensuring a consistent process;
- the reliability was supported by the pilot study. The pilot study was done under similar conditions as the actual study; and
- experts in research methodology, statistics and nursing were consulted to determine the reliability and content of the study, and to evaluate the research process and outcome.

3.6.2 Validity

Polit and Beck (2008:768), as well as Burns and Grove (2009:726), have stated that validity is the degree to which an instrument measures what it is intended to measure, and therefore validity is an important concern throughout the research process. According to De Vos et al. (2001:173), validity has two aspects:

- that the instrument actually measures the concept in question; and
- that the concept is measured accurately.

Content and face validity may be established prior to data collection, while construct validity is established once the instrument has been used to collect data.

3.6.2.1 *Content validity*

Content validity is an assessment of how well the instrument represents all the components of CIMCI to be measured (Brink, 2006:160). The researcher ensured that the questions on CIMCI were representative. The instrument was presented to experts in the field (supervisor which is the primary health care manager, research methodology statistician, Dr Stellenberg with lectures from Stellenbosch University and ethical committee), who found it suitable for use.

3.6.2.2 *Face validity*

Face validity shows if the researcher is really measuring what was intended to be measured and if the questionnaire was clear to the CCWs (Brink, 2006:160). The questionnaire was compiled according to the CCWs' training in the CIMCI course. The questionnaires were understood and completed easily by all the CCWs in the pilot study, as well as in the main study. Therefore the face validity was in line with the goals of the research document.

3.6.2.3 *Construct validity*

According to De Vos et al. (2001:174), construct validity involves determining the degree to which an instrument successfully measures a theoretical construct. This study focused on factors influencing CIMCI in rural areas. A national and international literature review guided the research and the development of the questionnaire. The statistician of Stellenbosch University was involved with the development of the questionnaire and the processing of the data. After the pilot study, the conclusion was drawn that the instrument for this study was well constructed and that the conclusions was clear, and therefore valid.

The researcher collected the data personally from 18 July until 31 July 2012 to ensure the validity of the study. Each of the 17 NPOs was visited at a scheduled date and time, as organised by the five CBS sub-district coordinators, so that the questionnaires could be completed by the CCWs in a single session. The questionnaire was available in Afrikaans and English.

3.7 DATA COLLECTION

Data collection was the process of collecting the data from the CCWs of the West Coast District (Brink, 2006:141-143). The process of data collection commenced after permission was obtained from the Human Research Ethics Committee, Faculty of Health Sciences, Stellenbosch University (Annexure A), the PGWC (Annexure D), the West Coast District Department of Health and the 17 NPOs in the West Coast District.

The data collection procedure was as follows (Brink, 2006:141-143):

3.7.1 Type of data collected

The researcher implemented a quantitative study to determine the factors influencing CIMCI in rural areas. For this study, the CCWs of the West Coast District completed a questionnaire that was divided into three sections, namely demographic data, factors related to CIMCI practice, and training and CCWs' knowledge of CIMCI.

3.7.2 Procedure of data collection

The researcher first introduced herself and then discussed the consent form, which reflects the purpose, procedures, risks and benefits of the research project, as well as the obligations and commitments of both the participants and the researcher (Burns & Grove, 2007:217).

After the completion of the consent form, the researcher distributed a self-administrated questionnaire that had to be completed by each of the CCWs in each sub-district of the West Coast District. The completed questionnaires were collected and stored in a lockable cupboard at the home of the researcher. The average time used by the CCWs to complete a questionnaire was 30 to 40 minutes. The questionnaire was available in Afrikaans and English.

The researcher distributed and collected the consent forms and questionnaires from the CCWs in each sub-district personally. The CCWs completed the questionnaire on their own, but the researcher was available for when problems were experienced. The researcher made herself available to answer any queries related to the completion of the questionnaire, but not to assist with the questions themselves.

3.7.3 The setting of the data collection

The researcher obtained permission from the sub-district CBS coordinators to collect data at the 18NPO offices. The following NPO offices were visited for the research:

Piketberg, Porterville, Aurora, Velddrift, Langebaan, Saldanha, Darling, Malmesbury, Riebeeck-Wes, Riebeeck Kasteel, Citrusdal, Clanwilliam, Lambertsbaai, Klawer, Vanrhynsdorp, Ebenhaeser, Nuwerus and Bitterfontein.

3.7.4 Time period of data collection

The researcher planned and conducted the data collection over a period of two weeks, which commenced on 26 July 2012. The CCWs' working hours are from 08h00 to 13h30, therefore the researcher planned the programme to take place within the abovementioned working hours. Seventeen NPOs were visited and the data collection was completed by 7 August

2012. The 257 CCWs completed the self-administered questionnaire at the NPO offices in the sub-districts. A 95,2% (n = 257) response rate was obtained.

3.8 DATA ANALYSIS

According to Burns and Grove (2009:695), data analysis is conducted to reduce, organise and give meaning to data.

Data were captured on an Excel Worksheet, and organised per NPO in the West Coast District. The captured data were sent to Dr Justin Harvey, a statistician at Stellenbosch University, for analysis according the STATISTICA (10 of 2012) computer software program. Data were expressed in frequency tables and histograms. Descriptive statistics were used to describe numerical data to assist in organising, summarising and interpreting the collected data. Descriptive data are most commonly used in quantitative research studies (De Vos et al., 2011:251).

The following statistical tests were applied to analyse the data:

3.8.1 Standard deviation

Standard deviation shows how much variation there is from the “average”. It therefore is a measure of the amount by which each value deviates from the mean, equal to the square root of the variance (De Vos et al., 2011:264).

3.8.2 Mean

The mean is the measurement that reflects the middle of all the scores. The mean is calculated by adding all the scores and dividing the answer by the total number of scores (Burns & Grove, 2007:417).

3.8.3 Median

A median is defined as a score at the exact centre of the ungrouped frequency distribution (Burns & Grove, 2009:708).

3.8.4 Spearman rank order correlation

According to Burns and Grove (2009:723), this is a nonparametric analysis technique for ordinal data that is an adaptation of the Pearson’s product-moment correlation used to examine relationships among variables in a study.

3.8.5 Mann-Whitney U test

According to Burns and Grove (2009:707), the Mann-Whitney U test is used to analyse ordinal data with 95% of the power of the t-test to detect differences between groups of normally distributed populations.

3.8.6 Probability theory (p-value)

As stated by Burns and Grove (2009:451), probability theory addresses statistical analysis as the likelihood of accurately predicting an event or the extent of a relationship. Probability is expressed as a lowercase p, with values expressed as a decimal value ranging from 0 to 1.

3.9 CONCLUSION

This chapter has provided a discussion of the research methodology, which includes the research design, population and sampling, inclusion and exclusion criteria, instrumentation, the pilot study, reliability and validity, data collection and data analysis.

In the next chapter (Chapter 4), the interpretation of the collected data will be discussed and illustrated graphically to show the factors that influence CIMCI in rural areas as performed by CCWs on the West Coast.

CHAPTER 4: DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 INTRODUCTION

In this chapter the results of the research study are presented, interpreted and discussed. The data have been presented in three sections according to the questionnaire, namely the demographic data, factors related to CIMCI practice and the knowledge of CIMCI.

4.2 DESCRIPTION OF STATISTICAL ANALYSIS

The results of the research are presented and interpreted in tables, frequencies and histograms. Various tests were done during the data analysis, as described in Section 3.8.

4.3 SECTION A: DEMOGRAPHIC DATA

This section includes all the participants' personal information. The participants answered seven questions to obtain demographic data, which included data on their age, highest school grade, gender, work experience, working hours and stipend earned.

4.3.1 Question 1: Age (n = 257)

Most of the participants (n = 55/21%) were between the ages of 36 and 40 years, with the minimum age being 19 and the maximum age 61 (Table 4.1). The mean age was 35 and the median age was 35. This finding correlates with the findings of studies conducted worldwide. According to Gopalan, Mohanty and Das (2012:3), a study in India showed that CCWs should be aged between 25 and 45 years. Furthermore, Standing, Mushtaque and Chowdhury (2008:2096) report that the criteria for the age of CCWs are between 25 and 35.

Table 4.1: Age

Age	n = 257	%
19 to 25 years	43	17
26 to 30 years	50	20
31 to 35 years	39	15
36 to 40 years	55	21
41 to 45 years	31	12
>45 years	39	15

4.3.2 Question 2: Highest school grade passed (n = 255)

The response rate to this question was high (n = 255/99%), with a mean highest school grade passed of grade 10 and a median of grade 12. The lowest school grade passed was grade 4 (n = 1/1%) and the highest school grade passed was grade 12 (n = 116/45%). As stated in this study, the West Coast utilises candidates who are in possession of a grade 12 school qualification, although this is not the norm in rural areas worldwide, as substantiated by Nyirandutiye, Iknane, Fofana and Brown (2011:3) that CCWs in Mali are uneducated and receive training to help with the screening of acute childhood malnutrition.

Standing et al. (2008:2096) report that, in Bangladesh, community care workers are people who are illiterate or have relatively little formal education. They lead campaigns and provide simple medical care. Rowe et al. (2007:189) reports that CCWs in Kenya need to read at “standard 7” school level or above to work as CCWs. The figure below illustrates the highest school grade passed by the CCWs in the present study.

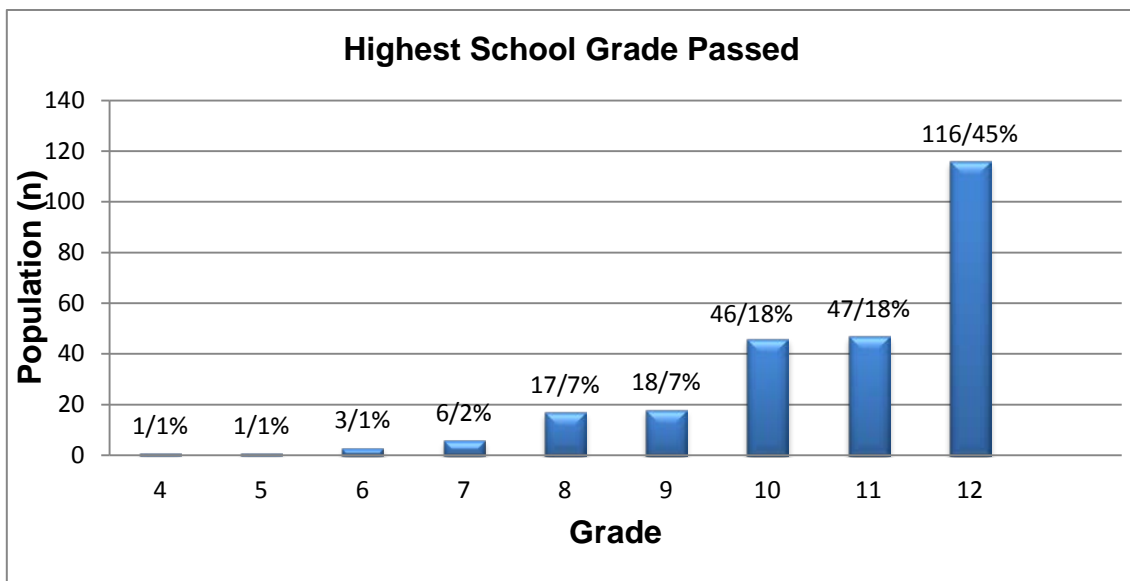


Figure 4.1: Highest school grade passed

4.3.3 Question 3: Gender (n = 257)

The majority of the participants were females (n = 252/98%), with only a few males (n = 5/2%) who participated in the study (Table 4.2). This is in line with the worldwide phenomenon that women are the most accepted gender to do healthcare work in the community. According to Olang'o, Nyamongo and Aagaard-Hansen (2010:233-234), the findings in Nepal could be attributed to the fact that female CCWs see it as their “actual duty” to do nursing care. The few men who were part of this study would have been breadwinners

and needed money to provide for the family. It generally also is uncomfortable for men to help sick women because of their cultural beliefs.

Standing et al. (2008:2098) report that, in Bangladesh, it is women who are more likely to be trusted by the community. Furthermore, according to a study in Arizona, 87% of CCWs are female and only 10,5% are male (Ingram et al., 2008:419).

Table 4.2: Gender

Gender	n = 257	%
Female	252	98
Male	5	2

4.3.4 Question 4: Health-related work experience (n = 256)

The majority of the participants (n = 170/66%) did not have any prior health-related work experience before starting to work as a CCW, which appears to be similar to the findings of studies conducted in India, in which Gopalan et al. (2012:2) found that CCW are without prior exposure to community health (Table 4.3). On the other hand, a minority of participants (n = 86/33%) did have health-related work experience before starting to work as a CCW.

Table 4.3: Health-related work experience

Health-related work experience	n = 256	%
No	170	66
Yes	86	33

4.3.5 Question 5: Work experience with children (n = 255)

As shown in Table 4.4, some of the participants (n = 101/39%) did have work-related experience with children before they started to work as a CCW. The majority of the participants (n = 154/60%) did not have any work experience with children before they started to work as a CCW.

Table 4.4: Work experience with children

Work experience with children	n = 255	%
No	154	60
Yes	101	39

4.3.6 Question 6: Daily working hours at NPO (n = 257)

According to Figure 4.2, all the participants (n=257/100%) answered this question, with a mean answer of four hours 30 minutes. This is in line with the 7th Draft of the policy of the PGWC (2010b:26). According to studies worldwide it seems that CCWs do not have standardised working hours (Takasugi & Lee, 2010:842). In Arizona, CCWs have flexible working hours (Ingram et al., 2008:417), whereas in Kenya extended working hours are a problem and leads to demotivation of CCWs (Olang'o et al., 2010:235). CCWs in Bangladesh work part-time, usually in the afternoon, and are assigned an average of 250 households (Standing et al., 2008:2101).

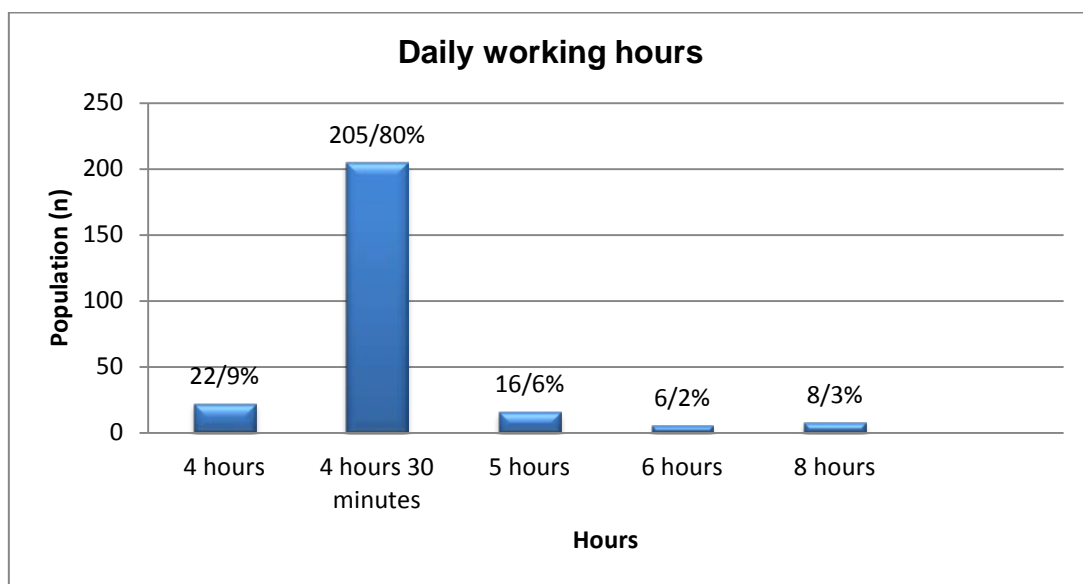


Figure 4.2: Daily working hours at NPO

4.3.7 Question 7: Stipend per month (n = 256)

According to Table 4.5 most of the participants (n = 157/61%) received a stipend of R1 000 to R1 154 per month. The mean stipend per month is R1 192 and the median is R1 090, with a standard deviation of R203.

According to studies in India, CCWs are volunteers and not salaried staff (Gopalan et al., 2012:2). Standing et al. (2008:2098) further state that CCWs are often regarded as a low-cost way to deliver PHC in poor rural areas.

In its guidelines for task-shifting, the WHO acknowledges the contribution of short-term or part-time volunteers, but states that trained CCWs who provide essential health services should receive adequate wages or other appropriate and commensurate incentives (World Health Organization, 2008:40-41). According to Standing et al. (2008:2104), CCWs in

Bangladesh earn an average of 200 Taka per month (about \$3) and supervisors earn 900 Taka per month (about \$14) for working four hours a day.

Table 4.5: Stipend

Stipend per month	n = 256	%
R1 000 to R1 154	157	61
R1 275 to R1 384	18	7
R1 385 to R1 499	14	5
≥ R1 500	31	12
R1 155 to R1 274	36	14

4.4 SECTION B: FACTORS RELATED TO CIMCI (CHILDREN UNDER FIVE YEARS OF AGE) PRACTICE

Section B of the survey questionnaire was dedicated to investigating the factors related to doing CIMCI in practice.

This section was divided into five specific areas of CIMCI practice:

- working hours;
- training;
- challenges of working in rural and remote areas;
- supervision and support; and
- equipment.

4.4.1 Working hours

4.4.1.1 Question 8.1: CBS clients seen per day (n = 255)

Nearly half of the participants (n = 122/47%) see 11 to 15 clients per day (Figure 4.3). The descriptive study shows that the minimum CBS clients seen per day vary from zero (0) clients to a maximum of 28 clients per day. Therefore, the mean number of CBS clients seen per day was 11 and the median was 12.

As stated, the current available norms for CBS are one CCW per 120 households. The client visits vary from six to 15 clients per day (PGWC, 2010b:22). Therefore, the CCWs in the West Coast District are delivering CBS according to the norm of the PGWC Department of Health. However, it is a concern that the norms are not the same worldwide. The target groups also differ according to the place where the CCWs do health care in the community.

In a study by Edwards and Saha (2011:88) in Bangladesh, the village health volunteers were responsible for a group of 250 households and provided all pregnant women with antenatal care, birth planning and postnatal care. In Kenya, on the other hand, it is difficult for part-time workers to cover a wide range of duties, including maternal and child care and the prevention and control of diseases (Takasugi & Lee, 2012:840).

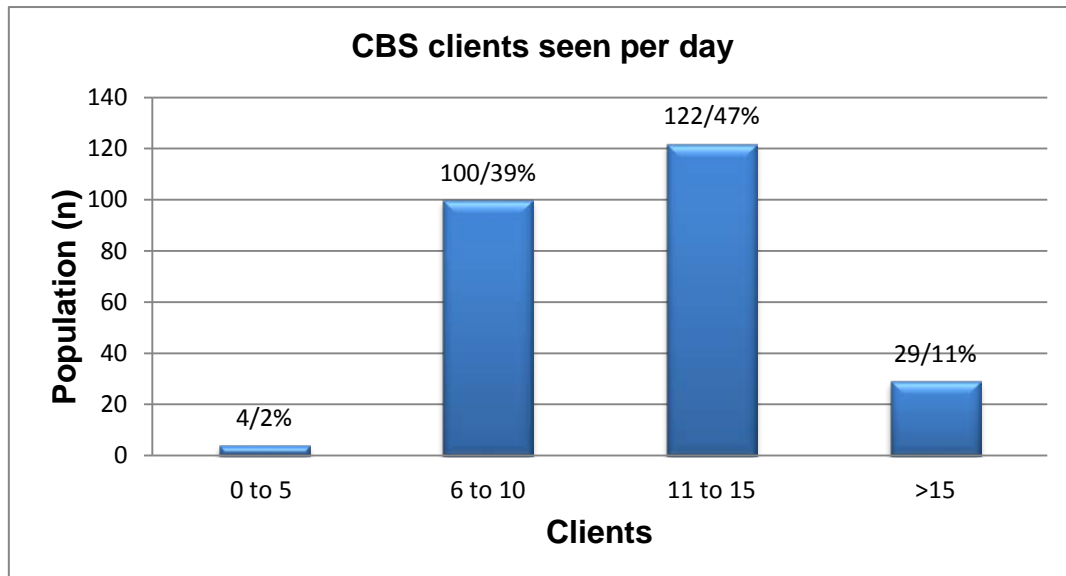


Figure 4.3: CBS clients seen per day

4.4.1.2 Question 8.2: CIMCI service for NPO during working hours (n = 257)

Most of the participants (n = 238/93%) delivered CIMCI services for the NPO during their working hours. However, a few participants (n = 19/7%) do not deliver CIMCI services for the NPO during their working hours (Table 4.6). CIMCI clients could be a referred client or the CCW can do prevention and promotion in the community during household visits. According to the rural CBS model, the CCW has to deliver an integrated healthcare service (basic nursing care, CIMCI, TB DOTS, adherence support for ARV, mental illness and chronic diseases of lifestyle medication), which include CIMCI (PGWC, 2010b:16). The concern is that the CCW cannot predict how many health prevention and promotion clients need attention during working hours. For example, if a CCW sees a TB DOTS client she has to do health prevention and promotion of all the family members or visitors in the home regarding the signs and symptoms of tuberculosis and how to prevent it. Furthermore, the CCW will check the Road to Health cards of all the children currently in that home. It is important to ensure that children comply with the weight for their age and have had all the immunisations. Therefore, as CIMCI cannot be predicted, the concern is that the client load will be much higher than what the standardised norm is according to the policy of the PGWC Department of Health.

Table 4.6: CIMCI services for NPO during working hours

CIMCI services for NPO during work hours	n = 257	%
Yes	238	93
No	19	7

4.4.1.3 Question 8.3: Frequency of working with CIMCI clients

Half of the participants (n = 129/50%) work with CIMCI clients daily (Table 4.7). Some participants (n = 82/32%) work weekly and others (n = 42/16%) work monthly, and there were also a few participants (n = 4/2%) who work with CIMCI clients only quarterly. Therefore, as stated in the policy of the PGWC (2010b:17-18), CIMCI is part of the rural model that delivers an integrated service.

In addition, CIMCI could be part of the CCWs' daily visits according to basic nursing care or crèche visits as scheduled (weekly/monthly). Furthermore, health promotion campaigns that are done according to the four season model are divided into four quarters, therefore they could do it quarterly.

Table 4.7: Frequency of working with CIMCI clients

Frequency of working with CIMCI clients	n = 257	%
Daily	129	50
Weekly	82	32
Monthly	42	16
Quarterly	4	2

4.4.1.4 Question 8.4: Do you only do health promotion for CIMCI in the four seasons child health month? (n = 256)

According to Table 4.8 the majority of participants (n = 208/81%) do not only do health promotion for CIMCI during the four seasons child health month. Only a few participants (n = 49/19%) do health promotion for CIMCI during the four seasons child health month, from April to June.

According to the four seasons model in the Western Cape, the year is structured into four quarters, and the focus on child health is from June to September. The four seasons model is structured as follows:

- April to June – Child and Youth Health

- July to September – Women’s Month
- October to November – Mental Health/CBS and CIMCI
- December to March – HAST and Diarrhoeal Disease

However, health prevention and promotion for child health have to be included in each quarter (PGWC, 2010b:16).

Table 4.8: Do you only do health promotion for CIMCI in the four seasons child health month?

Do you only do health promotion for CIMCI in the four seasons child health month?	n = 256	%
No	208	81
Yes	49	19

4.4.1.5 Question 8.5: How many CIMCI clients do you see? (n = 244)

According to Figure 4.4, the majority of participants (n = 234/91%) see from zero (0) to ten CIMCI clients. A few participants (n = 9/4%) see from 10 to 20 CIMCI clients, and there was only one participant (n = 1/1%) who saw more than 20 CIMCI clients. Therefore, the mean for CIMCI clients seen is four. It is significant that the number of CIMCI clients can be from zero (0) clients to 28, depending on the need for the specific day. This could mean that the CCW does not have proper time to manage the workload. CCWs are part of a multidisciplinary team, also used for campaigns for child health. For example, there is a Vitamin A and deworming campaign, where the CCWs have to screen the child’s Road to Health card to check the Vitamin A or deworming status. Furthermore, CCWs do CIMCI visits in crèches to screen the children’s weight, height and mid-upper arm circumference. CIMCI visits can also be in the client’s house, where the CCW checks the Road to Health card and gives prevention and promotional talks on child health.

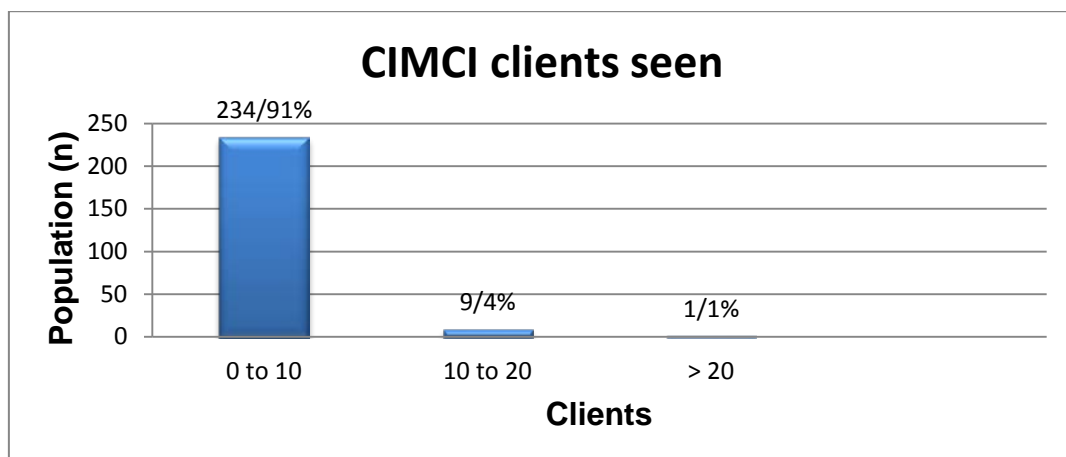


Figure 4.4: How many CIMCI clients do you see?

4.4.1.6 Question 8.6: What is the average time you spend on a CIMCI? (n = 246)

More than fifty percent of the participants (n = 139/54%) spend 0 to 15 minutes on a CIMCI visit (Figure 4.5). More than a third of the participants (n = 92/36%) spend 15 to 30 minutes on a CIMCI visit. The remaining participants (n = 10/4%) spend 30 to 60 minutes on a CIMCI visit. A small number of participants (n = 5/2%) spend more than an hour on a CIMCI visit. The mean for the average times spent on CIMCI visits by a CCW is 21 minutes. Therefore these visits are time consuming and the CCWs need to incorporate this into their daily work schedule.

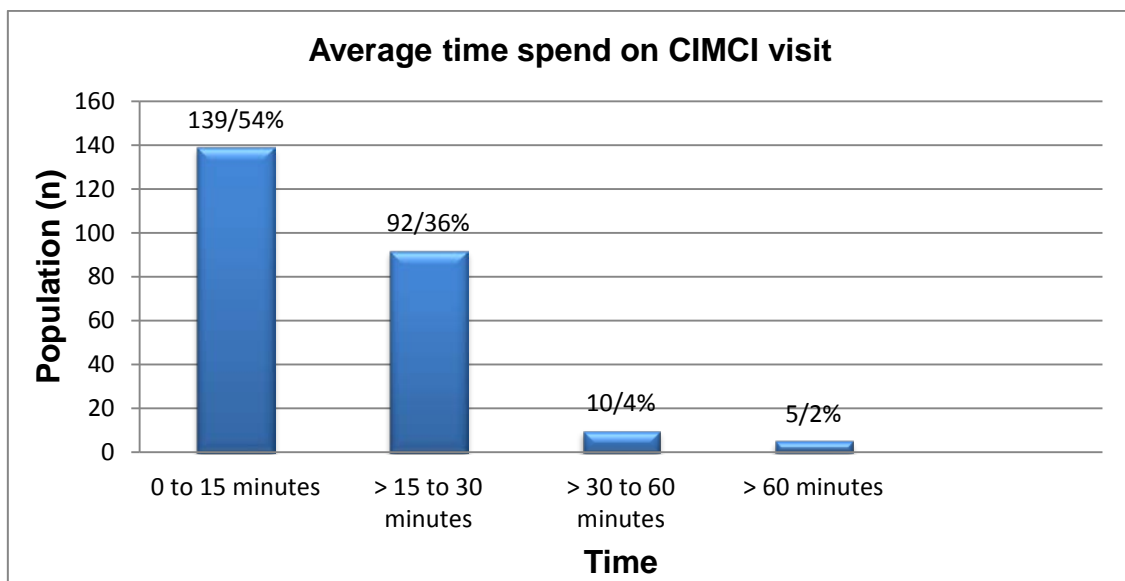


Figure 4.5: What is the average time you spend on a CIMCI visit?

4.4.2 Training

4.4.2.1 Question 9.1: Health-related training after school (Did you do any health-related training after school?) (n = 257)

According to Table 4.9, many of the participants (n = 195/76%) had done health-related training after school, while about a quarter (n = 62/24%) had not done any health-related training after school.

Olang'o et al. (2010:233) state that, in Kenya, CCWs receive training locally by various NPOs in collaboration with the Ministry of Health. However, the training is not standardised as each NPO trains CCWs based on its programmatic focus. Thus, some NPOs focus more on HIV while others focus more on TB services.

In Bangladesh, CCWs receive four weeks of basic training on the following common illnesses: anaemia, angular stomatitis, common cold and cough, diarrhoea, dysentery,

gastric ulcer, peptic ulcer, ringworm, scabies and worm infestations (Standing et al., 2008:2101).

Table 4.9: Health-related training after school

Health-related training after school	n = 257	%
Yes	195	76
No	62	24

4.4.2.2 Question 9.2: CCWs' level of EPWP training (n = 257)

The majority of the participants (n = 93/36%) did not start with the EPWP programme (Figure 4.6). According to the Parliamentary Monitoring Group (2011/12:1), the EPWP is a nationwide programme with the objective of drawing significant numbers of the unemployed into productive work, so that learners gain skills while they work and increase their capacity to earn an income through a stipend. These skills development opportunities are crucial to maximise outcomes within primary health care and related programmes; secondly, to ensure skills synergy with the Human Resource Plan and, thirdly, to enhance service delivery. Therefore the objective is ultimately to convert the EPWP opportunities into real jobs in the Provincial Government of Health and its non-profit organisation partners. It therefore is a cause for concern that so many CCWs do not start with the EPWP programme, which could up-skill them in relation to health issues.

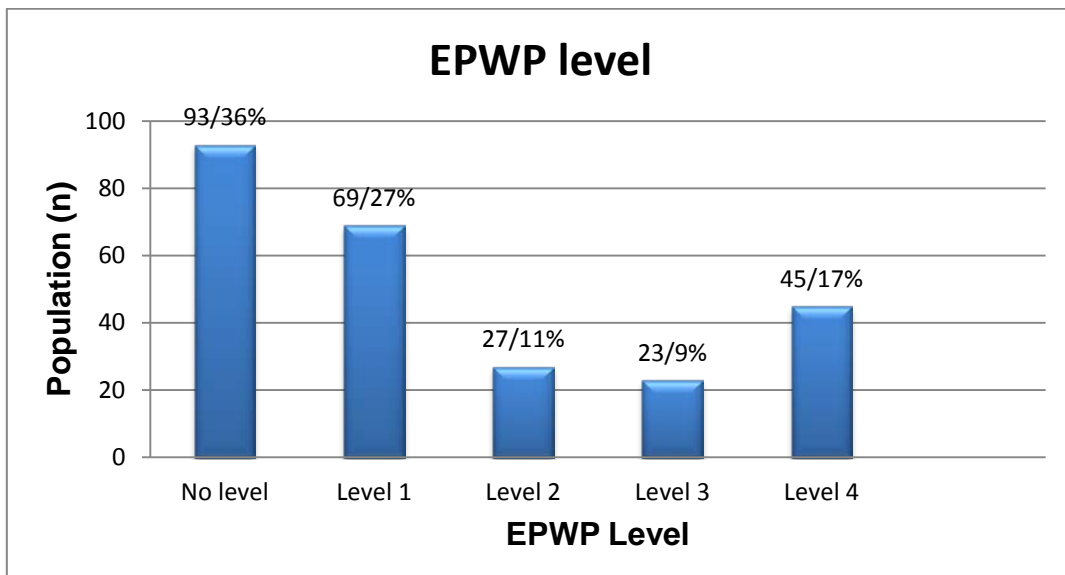


Figure 4.6: CCWs' level of EPWP training

4.4.2.3 Question 9.3: Attendance of CIMCI five-day course (n = 256)

According to Table 4.10, about half the participants (n = 126/49%) indicated that they attended the CIMCI five-day course. However, more than a half of the participants (n = 130/51%) did not attend the CIMCI five-day course. CIMCI is a crucial part of the CCWs workload. The concern is whether the community receives adequate information about CIMCI. There currently is no standardised CIMCI course worldwide and the length and content of the courses differ. According to a study in Kenya, CHWs receive training on the Management of the Sick Child guidelines (Rowe et al., 2007:189). These programme required all CCWs to attend initial training, which involved 10 days of lectures, reviewing case scenarios and role-playing, and five days of clinical practice at the district hospital.

Table 4.10: Attendance of CIMCI five-day course

Attendance of CIMCI five-day course	n = 256	%
No	130	51
Yes	126	49

4.4.2.4 Question 9.4: Year CIMCI training done (n = 257)

More than half of the participants (n = 133/51%) did not yet attended CIMCI training, as can be seen in Figure 4.7. Only a minority of the participants (n = 47/18%) received CIMCI training during 2010. According to this study, training in the West Coast started for the first time in 2004, with a single participant (n = 1/1%). The researcher is concerned about the CCWs who received the CIMCI five-day training in 2004 with no standardised refresher course or additional training on the topic thereafter.

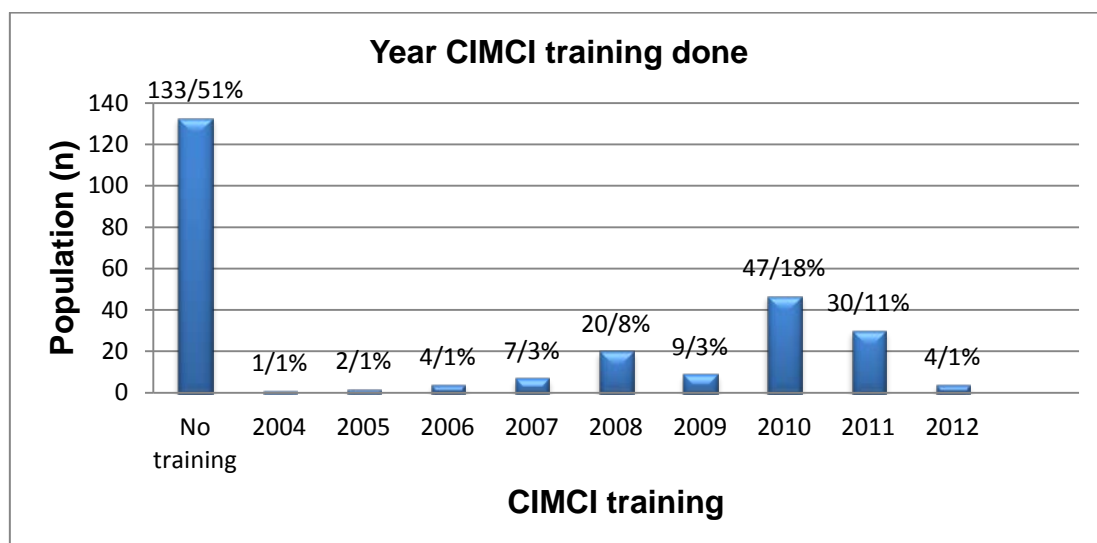


Figure 4.7: Attendance of CIMCI training

4.4.2.5 Question 9.5: Refresher course after CIMCI training (n = 252)

Some of the participants (n = 110/43%) had done a refresher course on CIMCI, while the majority of participants (n = 142/55%) had not done a refresher course on CIMCI after training (Table 4.11).

A critical element of the CHW programme in Bangladesh is the monthly refresher training, which is conducted in an interactive and problem-solving way (Standing et al., 2008:2101). According to Rowe et al. (2007:189), refresher training to target weaknesses in CCWs' performance lasts for six to 15 days.

Table 4.11: Refresher course after CIMCI training

Refresher course after CIMCI training	n = 252	%
No	142	55
Yes	110	43

4.4.2.6 Question 9.6: When did CCWs attend a CIMCI refresher course? (n = 257)

According to Table 4.12, a large number of the participants (n = 161/63%) did not attend a CIMCI course. In 2012, some (n = 58/22%) participants did refresher training on CIMCI.

Table 4.12: Year in which CIMCI course was attended

Year in which CIMCI refresher course was attended	n = 257	%
No course attended	161	63
2008	2	1
2009	4	2
2010	18	7
2011	14	5
2012	58	22

4.4.3 Challenges of working in rural and remote areas

4.4.3.1 Question 10.1: Participants stay in the community in which they render CIMCI services (n = 257)

Table 4.13 shows that the majority of participants (n = 249/97%) live in the community in which they render CIMCI services. This is in line with the guidelines of the PGWC

(2010b:16), which indicate that NPOs are funded for specific geographic boundaries and CCWs have to be recruited from the local area to minimise travelling.

Very few participants ($n = 8/3\%$) did not live in the community in which they rendered CIMCI services.

Table 4.13: Participants stay in the community in which they render CIMCI services?

CCWs stay in the community where services are rendered?	n = 257	%
Yes	249	97
No	8	3

4.4.3.2 Question 10.2: The distance between the CCW's house and the NPO office ($n = 251$)

According to Figure 4.8, for some of the participants ($n = 114/44\%$) the distance from their house to the NPO office is less than one kilometre, while others ($n = 14/5\%$) live more than four kilometres from the NPO office. The CCWs have to walk to the NPO office to start their working day. These walking times are not included in their working hours and walking more than four kilometres could be quite time consuming.

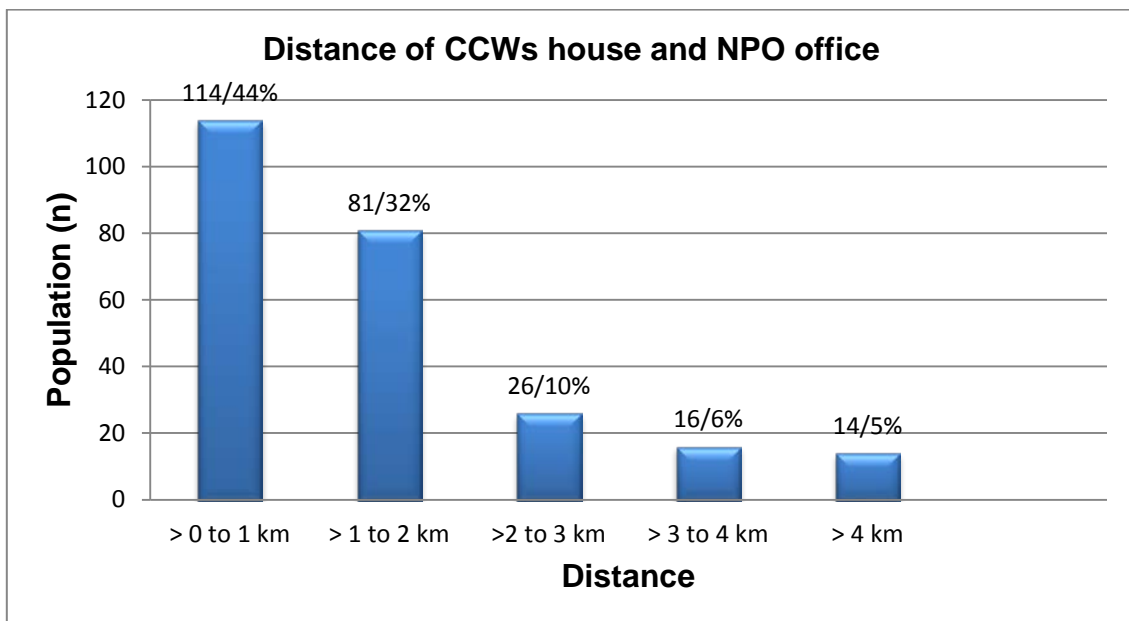


Figure 4.8: The distance between CCW's house and the NPO office

4.4.3.3 Question 10.3: The distance between CCW's house and the nearest clinic (n = 256)

According to Figure 4.9, more than half of the participants (n = 138/54%) have a distance of less than one kilometre to travel from their house to the nearest clinic. However, some participants (n = 18/7%) need to travel more than five kilometres from their home to the nearest clinic. CBS is an extension of PHC services, therefore the CCW has to walk to the clinic to discuss any client matters.

According to Takasugi and Lee (2010:842), transport for patients to health facilities in Kenya is a problem, because the clinics are a considerable distance from the villages.

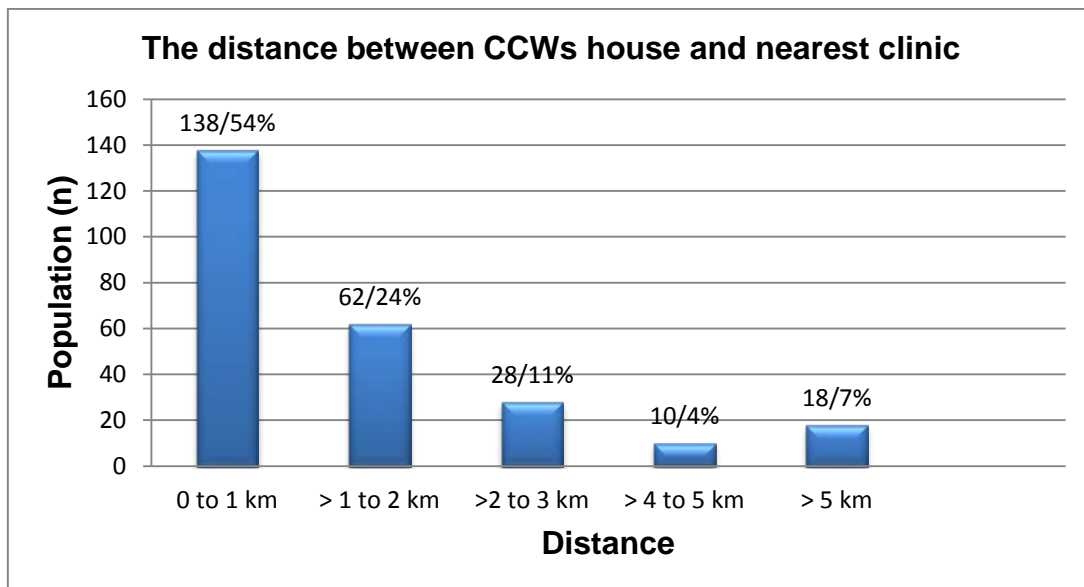


Figure 4.9: The distance between the CCW's house and the nearest clinic

4.4.3.4 Question 10.4 : The distance between the CCW's house and the nearest district hospital (n = 255)

According to Figure 4.10, 51% of the participants (n = 130/51%) had a distance of zero (0) to 20 kilometres between their house and the nearest district hospital. The remaining CCWs live more than 40 kilometres from their nearest district hospital, of which a few (n = 11/4%) participants stay more than 100 kilometres from the nearest district hospital. This is a challenge in the rural areas and therefore also for the CCWs who stay in the communities, as they are the only people with health experience after hours, when other health facilities are closed. The CCW therefore need to support clients, including those with transport problems. The findings of Olang'o et al. (2010:233) showed that, in western Kenya the hospital is over 10 km from the Nyang'oma divisional headquarters, making it inaccessible to many people due to high transport costs.

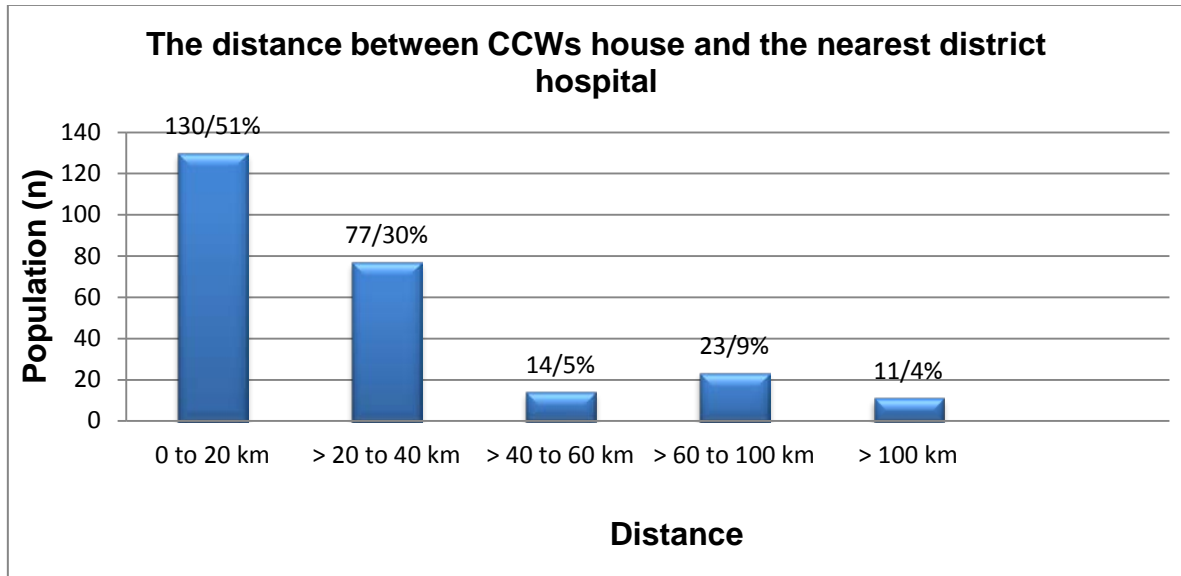


Figure 4.10: The distance between the CCW's house and the nearest district hospital

4.4.3.5 Question 10.5: The place where the participants practise CIMCI in the community (n = 257)

According to Table 4.14, the participants (n=189/74%) practise CIMCI predominantly in homes and crèches. One fifth of participants (n = 52/20%) do CIMCI only in the client's home, while a few participants (n = 16/6%) do CIMCI in crèches. Therefore CIMCI is part of the CCW's daily working routine and not for specific areas only.

Table 4.14: The place where participants practise CIMCI in the community

Place where participants practise CIMCI	n = 257	%
Both homes and crèches	189	74
Home	52	20
Crèches	16	6

4.4.3.6 Question 10.6: The way CCWs reach their CIMCI clients (n = 257)

Table 4.15 shows that most participants (n = 254/98%) have to walk to their CIMCI clients, while a single participant (n = 1/1%) makes use of transport. Two participants (n = 2/1%) walk and make use of transport. Currently, the CCWs work four and a half hours and therefore it is important to take the walking distances into consideration. In rural areas it could be a challenge to reach the clients, clinic, hospital and NPO office.

Table 4.15: The way CCWs reach their CIMCI clients

The way CCWs reach CIMCI clients	n = 257	%
Walk	254	98
Transport	1	1
Walk and transport	2	1

4.4.3.7 Question 10.7: The average distance CCWs need to travel to CIMCI clients (n = 249)

The average distance that the participants (n=249/97%) have to travel is 2.3 kilometres, with a median of two kilometres and a standard deviation of 1.9 (Table 4.16). Half of the participants (n = 128/50%) travel more than two to five kilometres to their CIMCI clients. According to these distances it could take some time to reach the CIMCI clients and the CCW also have other clients, which could increase the distance as well as the time to travel.

Table 4.16: The average distance CCWs need to travel to CIMCI clients

Average distance to travel to CIMCI clients	n = 249	%
(0:1) km	43	17
(1:2) km	57	22
(2:5) km	128	50
≥ 5 km	21	8

4.4.3.8 Question 10.8: How much time does it take to travel to the CIMCI client? (n = 246)

The mean time that participants (n=246/96%) takes to travel to a CIMCI clients is 25 minutes and the median is 20 minutes, with a standard deviation of 24 minutes. This finding shows that the CCWs use a lot of time to travel to their clients, and this is cause for concern.

Table 4.17: How much time does it take to travel to the CIMCI clients?

Time it takes to travel to the CIMCI clients	n = 246	%
(0:15) minutes	84	33
(15:30) minutes	72	28
≥ 60 minutes	25	10
(30:60) minutes	65	25

4.4.3.9 Question 10.9: CCWs' experience of safety in the community (n = 256)

According to Table 4.18, most of the participants (n = 193/75%) feel safe to work in the community. A real concern is some participants (63/25%) feel that it is dangerous to work in the community. In relation to Kenya, Takasugi and Lee (2012:841) state that CCWs are given badges and shirts to help identify them as CCWs to improve their personal safety in the community.

Furthermore, according to Razee, Whittaker, Jayasuriya, Yap and Brentnall (2012:831), CCWs in Papua New Guinea need the communities' respect. Respect can only be earned if you involve yourself in the community, since then you can travel around in the village and feel safe because the community respects and knows you (Razee et al., 2012:831).

Table 4.18: CCWs' experience of safety in the community

CCWs' experience of safety in the community	n = 256	%
Safe	193	75
Dangerous	63	25

4.4.3.10 Question 10.10: Dangerous experiences that CCWs have during working hours (n = 257)

According to Figure 4.11, close on half of the participants (n = 108/42%) have had a dangerous experience with a dog attack. CCWs walk to their clients and therefore dog attacks are dangerous and a challenge because they cannot prevent them. Verbal harassment is experienced by some participants (n = 97/38%) in the community. Although only a few participants (n = 9/4%) experience physical harassment, this is a matter that requires urgent attention. Some participants (n = 20/8%) also experience other dangerous issues in the community where they work. Dangerous experiences hamper the ability of CCWs to do their work in the communities.

Table 4.19: Dangerous experiences that CCWs have during working hours

	Yes	No	Total n Total %
10.10.a Dog attack	n = 108 (42%)	n = 149 (58%)	n = 257 (100%)
10.10.b Verbal harassment	n = 97 (38%)	n = 160 (62%)	n = 257 (100%)
10.10.c Physical harassment	n = 9 (4%)	n = 248 (96%)	n = 257 (100%)
10.10.d Other dangerous experiences	n = 20 (8%)	n = 237 (92%)	n = 257 (100%)

4.4.3.11 Question 10.11: Do CCWs have cell phone contact where they work? (n = 256)

According to Table 4.19, almost all the participants (n = 241/94%) do have cell phone contact where they work. However, these participants make use of their own cell phones. This is a concern in the light of the amount of money they earn per month. Very few (n = 15/6%) participants have no cell phone contact where they work.

Table 4.20: Do CCWs have cell phone contact where they work?

Cell phone contact where CCWs work	n = 256	%
Yes	241	94
No	15	6

4.4.3.12 Question 10.12: Do CCWs have landline telephone contact where they work? (n = 257)

According to Table 4.20, more than half the participants (n = 149/58%) did not have a landline telephone at their work. The rest of the participants (n = 108/42%) did have a landline telephone at their work. This is a cause for concern, because most of the participants do not have contact with the NPO coordinator, clinic or hospital if needed in case of an emergency or if they require support.

Table 4.21: Do CCWs have landline telephone contact where they work?

Landline telephone where the CCWs work	n = 257	%
No	149	58
Yes	108	42

4.4.3.13 Question 10.13: *Does the NPO supply the CCW with a cell phone or telephone card to use for work purposes? (n = 256)*

The majority of the participants (n = 193/75%) did not get a cell phone or telephone card to use for work purposes; the rest of the participants (n = 63/25%) did receive a cell phone or telephone card to use for work purposes (Table 4.21).

Table 4.22: Does the NPO supply the CCW with a cell phone or telephone card to use for work purposes?

Supply of cell phone or telephone card by the NPO	n = 256	%
Yes	63	25
No	193	75

4.4.4 Supervision and support

4.4.4.1 Question 11.1 *Do you work under a non-profit organisation coordinator who is a professional nurse? (n = 256)*

According to Table 4.22, a large percentage of the participants (n = 220/86%) work under an NPO coordinator who is a professional nurse. A challenge is faced by the few participants (n = 36/14%) who do not work under a non-profit organisation coordinator who is a professional nurse. Professional nurses are scarce skills to recruit in the rural areas. Adequate supervision is very important for the success of CBS.

According to the Provincial Government of the Western Cape (2010b:26), the NPO coordinator has to be a professional nurse who is responsible for supervising 15 to 20 CCWs. A study by Standing et al. (2008:2099) among Bangladesh CCWs found they were often poorly supported in terms of regular supervision by professional health staff. Takasugi and Lee (2012:843) also found that it is a challenge to get appropriate supervision in rural areas.

Table 4.23: Do you work under an NPO coordinator who is a professional nurse?

Work under an NPO coordinator who is a professional nurse	n = 256	%
Yes	220	86
No	36	14

4.4.4.2 Question 11.2: Is the NPO coordinator available to supervise or support you with CIMCI every day, if needed?(n = 256)

The results in Table 4.23 shows that just over half the participants (n = 137/53%) have a supervisor available to supervise and support them with CIMCI daily. However, the rest of the participants (n = 119/46%) did not have a supervisor available. As a result, the CCWs might end up doing work or taking responsibility for work that is not within their scope of practice.

A study in Kenya on the management of the sick child and the supervision received by CCWs showed that all CCWs should receive ongoing clinical and at least biannual administrative supervision. Supervisors examined children with the CCWs at health facilities in the villages, reviewed the CCWs administration and held monthly group meetings to discuss problems (Rowe et al., 2007:189).

Table 4.24: Is the NPO coordinator available to supervise or support you with CIMCI every day, if needed?

Availability of NPO coordinator for support, when needed	n = 256	%
Yes	137	53
No	119	46

4.4.4.3 Question 11.3: Do you receive a standard referral form for CIMCI clients?(n = 257)

According to Table 4.24, the majority of participants (n = 253/98%) receive a standard referral form for CIMCI clients. Only a few participants (n = 4/2%) did not receive a standard referral form for CIMCI clients.

According to the PGWC (2010b:23) there is an institutionalised referral system in the Western Cape, where the de-hospitalising health facility has to fill in a standardised CBS referral form and indicate the homecare requirement in the tick box. This is faxed to the sub-district CBS coordinator where the referred client lives. The sub-district CBS coordinator contacts the relevant NPO about the referral and the turnaround time from the referral to the initial visit by the NPO nurse coordinator is 72 hours. At the initial visit by the nurse

coordinator, she/he does an assessment of the patient, categorises the patient, opens a client folder and provides a care plan. A CCW is then allocated to the client (PGWC, 2010b:16).

Table 4.25: Do CCWs receive a standard referral form for clients?

CCWs receive a standard referral form for CIMCI clients?	n = 257	%
Yes	253	98
No	4	2

4.4.4.4 Question 11.4: Do you keep record of the CIMCI?(n = 257)

The majority of the participants (n = 255/99%) keep record of their CIMCI visits, while the remainder (n = 2/1%) did not keep record (Table 4.25). Record keeping is very important in CBS because if it is not written down it is not done. According to UNICEF and WHO (2006:36), documentation of the activities of the community health worker programme is highly recommended. This documentation could ensure that the community health worker delivers health services to children that are functional and according to plan.

CIMCI clients have a folder and the CCW records and signs each visit in the folder. Each CCW has a tally sheet to fill in on a daily basis as a data source document and these figures are used as statistical data. The nurse coordinator then compiles the monthly statistics (PGWC, 2010b:16).

Table 4.26: Do CCWs keep record of the CIMCI visits?

Do CCWs keep record of the CIMCI visits?	n = 257	%
Yes	255	99
No	2	1

4.4.4.5 Question 11.5: Telephone/cell phone contact with coordinator of NPO on daily basis (n = 257)

Most of the participants (n = 248/96%) did have telephone/cell phone contact with the NPO coordinator on a daily basis (Table 4.26), although there were a few participants (n = 9/4%) who did not have telephone/cell phone contact with the NPO coordinator on a daily basis. Supervision by the NPO coordinator is the backbone of CBS services. If the coordination is good, it will motivate the CCWs according to their work performance.

Table 4.27: Telephone/cell phone contact with coordinator of NPO on daily basis

Do CCWs have telephone/cell phone contact with coordinator of NPO on daily basis	n = 257	%
Yes	248	96
No	9	4

4.4.5 Question 12: Equipment

4.4.5.1 Question 12.1: Equipment that assists CCWs during CIMCI visits (n = 257)

The CCW is supposed to have a first aid bag that should contain the basic dressings, gloves and a red bag (PGWC, 2010b:16).

As stated in the CIMCI course, CCWs receive training on fast breathing in pneumonia. They therefore need a watch to measure the correct breathing of a child. Not many participants (n = 81/32%) have a watch. Furthermore, the CCWs need to measure a child's weight to record it on the Road to Health card. As shown in Figure 4.12, only just over half of the participants (n = 142/55%) have a scale to measure the weight of a child. To establish if a child has a high temperature the CCWs need to have a thermometer, but less than half (n = 104/41%) of the participants reported having a thermometer. To deliver quality care, CCWs need to have adequate equipment during CIMCI visits and this is currently a challenge.

According to a study in Nicaragua, CCWs are given a drug kit with equipment. There is one drug kit per community. The following equipment or supplies are in the drug kit: thermometer, stopwatch or timer to count respiration, spoon, flashlight and raincoat, soap, cotton balls and clean towels (George, Menotti, Rivera, Montes, Reyes & Marsh, 2009:103).

Table 4.28: Equipment that assists CCWs during CIMCI visits

	Yes	No	Total n Total %
12.1.a Thermometer	n = 104 (41%)	n = 153 (59%)	n = 257 (100%)
12.1.b Blood pressure monitor for children	n = 31 (12%)	n = 226 (88%)	n = 257 (100%)
12.1.c Stethoscope	n = 72 (28%)	n = 185 (72%)	n = 257 (100%)
12.1.d Scale	n = 142 (55%)	n = 115 (45%)	n = 257 (100%)
12.1.e Watch	n = 81 (32%)	n = 176 (68%)	n = 257 (100%)

*4.4.5.2 Question 12.2: What guidelines do CCWs have to assist with the CIMCI visit?
(n = 257)*

According to Figure 4.13, guidelines that assist CCWs during a CIMCI visit are important to ensure that the correct information reaches the community. According to Figure 4.13, more than half the participants (n = 152/59%) have a CIMCI family booklet to support their CIMCI visit.

Just under half the participants (n = 127/49%) had the milestone evaluation for children to assist them with a CIMCI visit. Therefore just over fifty percent the participants (n = 130/50%) do not have this guideline to assist them.

The flip file with pictures to do health promotion on CIMCI is important so that the CCW can strengthen the message to the community. It helps the client hear and see the messages that support health promotion. More than half of the participants (n = 150/58%) did not have a flip file with pictures to do health promotion among CIMCI clients.

Table 4.29: What guidelines do CCWs have to assist with the CIMCI visits?

	Yes	No	Total n Total %
12.2.a CIMCI family booklet	n = 152 (59%)	n = 105 (41%)	n = 257 (100%)
12.2.b Milestone evaluation for children	n = 127 (49%)	n = 130 (51%)	n = 257 (100%)
12.2.c Flip file with pictures to do health promotion on CIMCI	n = 107 (42%)	n = 150 (58%)	n = 257 (100%)

4.4.5.3 Question 12.3: Do CCWs walk to the clients with consumables (linen savers, plasters, urine bags, gauze, etc.)? (n = 257)

The majority of the participants (n = 233/91%) walk to the clients with consumables. According to Table 4.27, only a few participants (n = 24/9%) walk to clients without consumables. It is important that the CCWs have a bag to carry all the consumables to the client's home.

Table 4.30: Do CCWs walk to the clients with consumables?

Do CCWs walk to the clients with consumables?	n = 257	%
Yes	233	91
No	24	9

4.4.5.4 Question 12.4: NPO issue CCWs with a bag to carry consumables and equipment? (n = 257)

According to Table 4.28, most of the participants (n = 222/86%) are issued with a bag to carry consumables and equipment. The remainder (n = 35/14%) are not issued with a bag to carry consumables and equipment.

Table 4.31: NPO issue CCWs with a bag to carry consumables and equipment

NPO issue CCWs with a bag to carry consumables and equipment	n = 257	%
Yes	222	86
No	35	14

4.4.5.5 Question 12.5: CCWs issued by NPO with stationery for work purpose (n = 257)

The majority of participants (n = 228/89%) were issued by the NPO with stationery for work purpose (Table 4.29). However, the remainder (n = 29/11%) did not receive stationery for work purpose. The participants need stationery to keep adequate record.

Table 4.32: CCWs issued by NPO with stationery for work purpose

CCWs issued by NPO with stationery for work purpose	n = 257	%
Yes	228	89
No	29	11

4.4.6 Question 13: Training

4.4.6.1 Question 13.1: Indicate the standard observations you do during a CIMCI visit (n = 257)

According to a systematic review by Winch et al. (2005:206) and Källander et al. (2009:957) in Uganda, CCWs assess the signs of pneumonia and count the respirations of the child. Nyirandutiye et al. (2011:1) stated that, in Mali, CCWs were trained to do mid-upper arm circumference to screen children for acute malnutrition.

According to Figure 4.14, the majority of participants (n = 133/52%) primarily assessed temperature. The assessment of pulse rate was done by nearly a quarter (n = 61/23%) of the participants.

Respiration assessment is a very important observation to evaluate when the child has fast breathing, which could indicate that the child has pneumonia and therefore needs referral to the clinic. Figure 4.14 shows that about a quarter of the participants (n = 65/26%) counted the child's respirations during CIMCI visits. Only a small number of participants (n = 10/5%) assessed blood pressure in children.

Table 4.33: Indicate the standard observations you do during a CIMCI visit

	Yes	No	Total n Total %
13.1.a Pulse	n = 61 (23%)	n = 196 (75%)	n = 257 (100%)
13.1.b Temperature	n = 133 (52%)	n = 124 (49%)	n = 257 (100%)
13.1.c Breathing	n = 65 (26%)	n = 192 (74%)	n = 257 (100%)
13.1.d Blood pressure for children	n = 10 (5%)	n = 247 (95%)	n = 257 (100%)

4.4.6.2 Question 13.2: Do you refer the child to the clinic or hospital if there is any abnormality? (n = 257)

The majority of the participants (n = 253/98%) refer the child to the clinic or hospital when there is any abnormality (Table 4.30). The remainder participants (n = 4/2%) said they did not refer a child to the clinic or hospital when any abnormality was identified.

According to a study in Bangladesh, if a CCW cannot manage an illness she refers it to the government health centre or clinic (Standing et al., 2008:2101). A study in Nicaragua showed that CCWs refer the child to a facility if they identified a severe case according to their job aids. The referred children wear a purple handkerchief on their head to prioritise care and to signal their diagnosis to the health facility. Back-referral slips are given to the parents, who give them to the CCW (George et al., 2009:104).

Table 4.34: Do you refer the child to the clinic or hospital if there is any abnormality?

Do you refer the child to the clinic or hospital if there is any abnormality?	n = 257	%
Yes	253	98
No	4	2

4.4.6.3 Question 13.3: Do CCWs diagnose CIMCI clients? (n = 256)

The majority of participants (n = 243/95%) did not diagnose CIMCI clients, while the rest (n = 13/5%) did diagnose CIMCI clients (Table 4.31).

Table 4.35: Do CCWs diagnose CIMCI clients?

Do CCWs diagnose CIMCI clients?	n = 256	%
Yes	13	5
No	243	95

4.4.6.4 Question 13.4: Do CCWs issue medicine to sick children? (n = 257)

The majority of the participants (n = 240/93%) do not issue medicine to sick children (Table 4.32). The rest of the participants (n = 17/7%) indicated that they issued medicine to sick children. According to the PGWC (2010b:29) there is no allocation for CBS medication, as the clinic supplies the medicine according to a prescription. Takasugi and Lee (2012:842) state that CCWs feel that it has a negative effect on their work if they cannot give drugs to clients.

According to Pitt, Roberts and Checchi (2012:2), CCWs working in remote geographical areas have success with the management of pneumonia. They provide oral antibiotics and reduce the mortality of under-fives by 36%. According to a study by George et al. (2009:103), CHWs have the following medicine in their drug kits: zinc tablets and Oral rehydration solution sachets for diarrhoea; oral suspension of Furazolidone for dysentery; amoxicillin for pneumonia and acetaminophen for fever.

Table 4.36: Do CCWs issue medicine to sick children?

Do CCWs issue medicine to sick children?	n = 257	%
Yes	17	7
No	240	93

4.5 SECTION C: KNOWLEDGE OF CIMCI (N = 257)

Section C of the survey questionnaire was based upon the current knowledge of the CCWs that do CIMCI in the West Coast. The questions were compiled according to the training module of the CIMCI course offered by the Department of Health. The questions were asked as follows:

- questions for which participants could choose one correct picture;
- questions with multiple answers and participants could choose one correct answer;
- question for which participants could complete the correct answer; and
- questions for which the participants could choose the right answer.

The following topics were included in the questionnaire on CIMCI:

Breastfeeding, physical development, micronutrients, danger signs, TB, HIV/AIDS, Road to Health card, pneumonia.

The total score for Section C was 40 and the scoring was as follows:

- poor : 0-49%
- average: 50-69%
- good: 70-89%
- excellent: 90-100%

According to Table 4.33, a third of the participants ($n = 87/33\%$) had a total score for Section C of 0% to 49% (poor). Just over half the participants ($n = 145/55\%$) had a total score of 50% to 69% (average). About one tenth of the participants ($n = 25/10\%$) had a total score for Section C of 70 to 89% (Good). There were no participants with a total score of 90 to 100% (Excellent). The mean of the total score for Section C was 53,3% and the median was 52,5%, with a standard deviation of 12,3%. These results are not good enough to ensure that the children in the community receive the correct health care to reduce child morbidity and child mortality.

A statistically significant correlation was identified between the total score and the highest school grade passed (Spearman rank order correlation $p < 0, 01$). According to the results there was a statistically significant association between the total score and the participants' EPWP level (Spearman rank order correlation $p < 0, 01$). Therefore, the higher the CCW's education level according to the EPWP National Qualifications Framework levels, the better their knowledge of CIMCI. This higher level would also contribute to the CCWs' work performance.

As indicated by the Mann-Whitney U test ($p < 0.01$), the total score obtained by the participants in Section C had a direct relationship with whether they had received any health-related training after school.

The results of the study show a statistically significant association between the total score and the attendance of the CIMCI five-day course (Mann-Whitney U test $p < 0.00$). There is a further statistically significant association between the total score and the participants who completed any refresher course on CIMCI (Mann-Whitney U test $p < 0.01$). It was more likely that scores were higher if the participants had training.

Table 4.37: Total score for test on knowledge of CIMCI

Total score for test on knowledge of CIMCI	n = 257	%
Poor (0-49%)	87	33
Average (50-69%)	145	55
Good (70-89%)	25	10
Excellent (90-100%)	0	0

4.5.1 Question 14: The correct positioning and attachment for breastfeeding (n = 257)

The majority of the participants (n = 232/90%) knew the answer to the correct positioning and attachment for breastfeeding (Table 4.34).

Picture 14b was the correct answer (SA National Department of Health & UNICEF, 2001:25)

**Table 4.38: The correct positioning and attachment for breastfeeding**

The correct positioning and attachment for breastfeeding	n = 257	%
Incorrect	25	10
Correct	232	90

4.5.2 Question 15: The correct attachment of the infant for breastfeeding (n = 257)

Most participants (n = 149/58%) indicated the attachment of the infant for breastfeeding correctly, but the remainder (n = 108/42%) answered incorrectly (Table 4.35).

Picture 15a was the correct answer (SA National Department of Health & UNICEF, 2001:25)



Table 4.39: The correct attachment of the infant for breastfeeding

The correct attachment of the infant for breastfeeding	n = 257	%
Incorrect	108	42
Correct	149	58

4.5.3 Question 16: The correct positioning of the baby for breastfeeding (n = 257)

According to Table 4.36, the majority of participants (n = 213/83%) knew the correct positioning of the baby for breastfeeding.

The correct answer was 16a: The infant's head and body should be straight, facing the breast, with nose opposite the nipple (SA National Department of Health & UNICEF, 2001:25).

Table 4.40: The correct positioning of the baby for breastfeeding

The correct positioning of the baby for breastfeeding	n = 257	%
Incorrect	213	83
Correct	44	17

4.5.4 Question 17: Exclusive breastfeeding (n = 257)

The majority of participants (n = 231/90%) knew what exclusive breastfeeding was (Table 4.37).

The correct answer was 17a: Only breast milk for first six months, breastfeed on demand, no bottles or teats (SA National Department of Health & UNICEF, 2001:22).

Table 4.41: Exclusive breastfeeding

Exclusive breastfeeding	n = 257	%
Incorrect	26	10
Correct	231	90

4.5.5 Question 18: Advantages of breastfeeding (n = 257)

According to Table 4.38, nearly two thirds of the participants (n = 156/61%) had all three answers correct. Nearly one third (n = 81/31%) had two answers correct, while a few (n = 18/7%) had one answer correct, and the rest (n = 2/1%) had no answers correct.

The correct answers for question 18 were (SA National Department of Health, 2001:86):

- a. Breastfeeding contains all the nutrients a baby needs and always in the right amounts.
- b. Breast milk contains live anti-infective factors, which protect the young infant against infection.
- c. Breastfeeding provides closeness and contact, which help the mother and baby to bond emotionally.

Table 4.42: Advantages of breastfeeding

Advantages of breastfeeding	n = 257	%
0 out of 3 correct	2	1
1 out of 3 correct	18	7
2 out of 3 correct	81	31
3 out of 3 correct	156	61

4.5.6 Question 19: Good attachment of the baby to the mother's breast entails (n = 257)

Table 4.39 indicates that the majority of the participants (n = 174/68%) did know what good attachment of the baby to the mother's breast entails. The rest (n = 83/32%) did not know what good attachment of the baby to the mother's breast entails.

The correct answer was 19a: The mouth is wide open, the chin is touching the breast, the lower lip is turned outward and more areola is visible above than below the mouth (SA National Department of Health & UNICEF, 2001:86).

Table 4.43: Good attachment of the baby to the mother's breast entails

Good attachment of the baby to the mother's breast entails	n = 257	%
Incorrect	174	68
Correct	83	32

4.5.7 Question 20: The correct feeding option for infants of an HIV-positive mother (n = 257)

The majority of participants (n = 214/83%) knew the correct feeding option for infants with HIV-positive mothers (Table 40). The remainder (n = 43/17%) did not know what the correct feeding option for the infants of HIV-positive mothers was.

The correct answer was 20b: Exclusive breastfeeding (SA National Department of Health & UNICEF, 2001:86).

Table 4.44: The correct feeding option for infants of an HIV-positive mother

The correct feeding option for infants of an HIV-positive mother	n = 257	%
Incorrect	43	17
Correct	214	83

4.5.8 Question 21: Physical development (n = 256)

According to Figure 4.15, the participants mostly had an average score, which is a concern because they could not interpret the Road to Health card correctly. Question 21.2 obtained a good score, which shows that most of the participants (n = 228/89%) could interpret "good growth".

Table 4.45: Physical development as shown on a Road to Health card

	Correct	Incorrect	Total n Total %
21.1 The Road to Health card	n = 172	n = 84	n = 256
Correct answer (c): Growth faltering	(67%)	(33%)	(100%)
21.2 The Road to Health card	n = 228	n = 28	n = 256
Correct answer (a): Growing well	(89%)	(11%)	(100%)
21.3 The Road to Health card	n = 173	n = 83	n = 256
Correct answer (c): Growth faltering	(67%)	(32%)	(100%)
21.4 The Road to Health card	n = 164	n = 92	n = 256
Correct answer (b): Malnourished	(64%)	(36%)	(100%)

4.5.9 Question 22: A sign of pneumonia (n = 257)

The majority of participants (n = 242/94%) did not know the signs of pneumonia, which were only known by a few (n = 15/6%) participants (Table 4.41).

The correct answer was: More than a. 50 breaths per minute (SA National Department of Health & UNICEF, 2001:86).

Table 4.46: A sign of pneumonia

A sign of pneumonia	n = 257	%
Incorrect	242	94
Correct	15	6

4.5.10 Question 23. The sugar-salt solution recipe contains (n = 257)

Most of the participants (n = 231/90%) knew the amount of water in the sugar-salt solution recipe (Figure 4.16). More than half of the participants (n = 133/52%) did not know what the amount of salt was in the recipe, and nearly half (n = 103/40%) of the participants did not the amount of sugar. It is a cause for concern that so many participants do not know the sugar-salt recipe, because this is what the caregiver of a child should use to prevent diarrhoea in the household.

The correct answer to question 23 (SA National Department of Health & UNICEF, 2001:86):

- a. 1 litre of boiled and cooled water
- b. half teaspoon of salt
- c. 8 level teaspoons of sugar

Table 4.47: The sugar-salt solution recipe contains

	Correct	Incorrect	Total n Total %
23.a The sugar-salt recipe contains 1 litre of boiled and cooled water	n = 231 (90%)	n = 26 (10%)	n = 257 (100%)
23.b The sugar-salt solution recipe contains half a teaspoon of salt	n = 124 (48%)	n = 133 (52%)	n = 257 (100%)
23.c The sugar-salt solution recipe contains eight level teaspoons of sugar	n = 154 (60%)	n = 103 (40%)	n = 257 (100%)

4.5.11 Question 24: Children with TB present with four signs or symptoms (n = 257)

According to Table 4.42, only a few participants (n = 34/13%) could identify all four signs or symptoms. A concern is was the number of participants (n = 23/9%) who did not have any correct answers.

The correct answer for question 24 (SA National Department of Health & UNICEF, 2001:86):

- chronic cough for more than three weeks;
- loss of weight and failure to thrive;
- loss of appetite; and
- persistent fever.

Table 4.48: Children with TB present with four signs or symptoms

Children with TB present with four signs or symptoms n = 257		%
0 out of 4	23	9
1 out of 4	44	17
2 out of 4	88	34
3 out of 4	68	27

4 out of 4

34

13

4.5.12 Question 25: The diagnosis of a malnourished child with swelling of the body (n = 257)

The results in Table 4.43 show that about two thirds of the participants (n = 173/67%) knew the correct answer.

The correct answer was 25a: kwashiorkor (SA National Department of Health & UNICEF, 2001:86).

Table 4.49: The diagnosis of a malnourished child with swelling of the body

The diagnosis of a malnourished child with swelling of the body	n = 257	%
Incorrect	84	33
Correct	173	67

4.5.13 Question 26: The diagnosis of a malnourished child who appears to be very wasted (i.e. no body fat, ribs show and arms and legs are very thin) (n = 257)

Only a bit more than half of the participants (n = 144/56%) knew the correct answer (Table 4.44).

The correct answer was 26b: Marasmus (SA National Department of Health & UNICEF, 2001:86).

Table 4.50: The diagnosis of a malnourished child who appears to be very wasted

The diagnosis of a malnourished child who appears to be very wasted	n = 257	%
Incorrect	113	44
Correct	144	56

4.5.14 Question 27: An example of iron-rich food (n = 257)

According to Table 4.45, the majority of participants (n = 186/72%) knew the example of iron-rich food.

The correct answer was 27a: meat (SA National Department of Health & UNICEF, 2001:40).

Table 4.51: An example of iron-rich food

An example of iron-rich food	n = 257	%
Incorrect	71	28
Correct	186	72

4.5.15 Question 28: An example of Vitamin A-rich food (n = 257)

Table 4.46 shows that just under two thirds of the participants (n = 161/63%) did not know the correct answer for Vitamin A-rich food.

The correct answer was 28a: liver (SA National Department of Health & UNICEF, 2001:40).

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Table 4.52: An example of Vitamin A-rich food

An example of Vitamin A-rich food	n = 257	%
Incorrect	161	63
Correct	96	37

4.5.16 Question 29: The five danger signs in a child that you need to refer to a clinic or hospital (n = 257)

A very small number of participants (n = 12/4%) could identify all five danger signs. Most of the participants (n = 75/29%) could identify only two of the five danger signs. This study shows that the CCWs could not do prevention and promotion with this little knowledge of the 10 danger signs in a child that need to be referred to a hospital or clinic. Furthermore, the CCWs might not identify the danger signs while doing a household visit, which means a referral would not be done, which could have a negative impact on the child's health.

There are 10 danger signs in a child that you need to refer to a clinic or hospital and any five could be the correct answer (SA National Department of Health & UNICEF, 2001:25):

- child is unable to drink or breastfeed;
- child vomits everything;
- convulsions in this illness;
- child is lethargic or unconscious;
- cough with fast breath (> 50 breaths per minute);
- cough and chest in-drawing;
- a child with diarrhoea who has sunken eyes or sunken fontanel;
- diarrhoea with blood;
- child under two months of age who develops a fever; or
- is not feeding properly

Table 4.53: The five danger signs in a child that you need to refer to a clinic or hospital

The five danger signs in a child that you need to refer to a clinic or hospital	n = 257	%
0 out of 5	17	7
1 out of 5	49	19
2 out of 5	75	29
3 out of 5	71	28
4 out of 5	33	13
5 out of 5	12	4

4.5.17 Question 30: How a child becomes infected with HIV (n = 257)

About a third of the participants (n = 97/38%) got one out of three correct, and only a minority (n = 23/9%) got three out of three correct.

The correct answers for how a child gets infected with HIV were (SA National Department of Health & UNICEF, 2001:40):

- from the mother during the pregnancy;
- from the birth process; or
- from breastfeeding

Table 4.54: How a child becomes infected with HIV

How a child becomes infected with HIV	n = 257	%
0 out of 3	45	18
1 out of 3	97	38
2 out of 3	92	35
3 out of 3	23	9

4.5.18 Question 31: The three (3) measures you will recommend for a child with fever (n = 257)

As shown in Table 4.49, only one fifth of the participants (n = 55/21%) got three out of three correct.

The correct answers to three measures you will recommend for a child with fever (SA National Department of Health & UNICEF, 2001:25):

- remove some of the child's clothes;
- bath the child with lukewarm water; and
- give paracetamol syrup.

Table 4.55: The three (3) measures you will recommend for a child with fever

Three (3) measures you will recommend for a child with fever	n = 257	%
0 out of 3	33	13
1 out of 3	77	30
2 out of 3	92	36
3 out of 3	55	21

4.5.19 Question 32: One sign which will make you suspect pneumonia in a child (n = 257)

The majority of the participants (n = 212/82%) did not know a sign that should make you suspect pneumonia in a child (see Table 4.50). The remaining participants (n = 45/18%) knew the sign if you suspect pneumonia in a child.

The correct answer to question 32: fast breathing (more than 50 breaths per minute) (SA National Department of Health & UNICEF, 2001:82).

Table 4.56: One sign which will make you suspect pneumonia in a child

One sign which will make you suspect pneumonia in a child	n = 257	%
Incorrect	212	82
Correct	45	18

4.5.20 Question 33: The correct immunisation at six weeks (n = 257)

The majority of the participants (n = 250/97%) did not know the correct immunisation at six weeks; only a few (n = 7/3%) knew the correct answer (Table 4.51).

The correct answer to question 33: polio, Diphtheria, Tetanus, and Pertussis and hepatitis fever (SA National Department of Health & UNICEF, 2001:92).

Table 4.57: The correct immunisation at six weeks

The correct immunisation at six weeks	n = 257	%
Incorrect	250	97
Correct	7	3

4.5.21 Question 34: The correct immunisation at nine months (n = 257)

According to Table 4.52, most of the participants (n = 237/92%) did not know the correct immunisation at nine months. The rest (n = 20/8%) knew the correct immunisation at nine months.

The correct answer to question 34: measles fever (SA National Department of Health & UNICEF, 2001:92).

Table 4.58: The correct immunisation at nine months

The correct immunisation at nine months	n = 257	%
Incorrect	237	92
Correct	20	8

4.5.22 Question 35: The correct immunisation at 18 months (n = 257)

The great majority of participants (n = 250/96%) did not know the correct immunisation at 18 months, compared to those who knew (n = 7/4%) (Table 4.53).

The correct answer to question 35: Polio, DTP and measles fever (SA National Department of Health & UNICEF, 2001:86).

Table 4.59: The correct immunisation at 18 months

The correct immunisation at 18 months	n = 257	%
Incorrect	250	96
Correct	7	4

4.6 CONCLUSION

In this chapter, the data collected during this study were analysed, interpreted and discussed. The researcher succeeded in addressing the research question, viz.:

“What are the factors influencing CIMCI in rural areas?”

By using scientific, investigative techniques, the factors influencing CIMCI in the rural areas of the West Coast District in the Western Cape of South Africa were identified successfully.

The following objectives were thus achieved:

- have working hours that were adequate for such a comprehensive service package;
- be adequately trained;
- have adequate knowledge regarding the “16 Key Family Practices” of CIMCI;
- have equipment that is adequate for the execution of their daily duties;
- can cope with the challenges of working in rural and remote areas; and
- receive adequate supervision and support related to CIMCI.

In the final chapter (Chapter 5), conclusions are drawn and recommendations are made, based on the study outcomes generated during the research.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The aim of this study was to conduct a scientific investigation of the factors influencing CIMCI in rural areas. In this chapter the conclusions from the findings are summarised and the recommendations are presented, followed by the summary and the conclusion of the study.

5.2 CONCLUSIONS FROM THE SURVEY OUTCOMES

The objectives for this study were to determine the factors influencing CIMCI in the rural areas of the West Coast District in the Western Cape of South Africa, particularly in relation to whether the CCWs:

- have working hours that are adequate for such a comprehensive service package;
- were adequately trained;
- have adequate knowledge regarding the “16 Key Family Practices” of CIMCI;
- have equipment that is adequate for the execution of their daily duties;
- can cope with the challenges of working in rural and remote areas; and
- received adequate supervision and support related to CIMCI.

These objectives were met through a scientific evidence-based research study that was compared with similar studies in South Africa as well as internationally.

5.2.1 Objective 1: Working hours adequate for CCWs to deliver a comprehensive service package

Section A: question 6 and Section B: questions 8.1 to 8.6 and 13.2 of the questionnaire answered this objective.

According to Figure 4.2, the majority of the participants ($n = 205/80\%$) work four hours and 30 minutes per day. This is according to the PGWC 7th Draft policy (2010b:26). The reason for this is to avoid CCWs working full days in adverse weather conditions that expose them to extreme weather conditions. However, these hours are inadequate to cover the comprehensive approach. During these working hours the CCWs work according to the rural CBS model, which is an integrated healthcare service. This includes basic nursing care, TB DOTS, adherence support for clients on ARV, mental illness and chronic diseases of lifestyle medication, which includes CIMCI (PGWC, 2010b:16). The average number of CBS clients seen per day was 11 (Figure 4.3). According to the PGWC 7th Draft policy, CCWs have to see six to 15 clients per day.

A further aggravation is the distance to be covered to reach the homes of clients. The results showed that nearly all the participants ($n = 254/98\%$) walked to their CBS clients (which include the CIMCI clients) in the community (Table 4.15). The average distance walked was 2,3 km (Table 4.16) and the average time to travel to the CIMCI clients was 20 minutes (Table 4.17).

It is a challenge to cover all the activities in the limited four and a half hours daily. According to Takasugi et al. (2012:840) and Gopalan et al. (2012:2), the increasing workload as a result of more and more CBS health programmes could produce a feeling in the CCWs of being “overburdened”.

In conclusion, it is not possible to deliver a quality CBS service according to the current rural model within four and a half hours a day.

5.2.2 Objective 2: CCWs adequately trained

The second objective of this study was to identify if the CCWs are adequately trained. This is answered by questions 9.1 to 9.6 and 13.1 to 13.4.

For this study the focus was on CIMCI training. More than half of the participants ($n = 130/51\%$) indicated that they had not yet received CIMCI training (Table 4.10). The number of participants who had received CIMCI training from 2004 until 2012 ($n = 124/48\%$), a period of nine years, is shown in Figure 4.7. CIMCI training is delivered by the Department of Health of the Western Cape, but not according to a standard operating plan. Furthermore, there is no refresher course on CIMCI.

Several studies have shown that CIMCI training is relevant, but without any standardisation (Ebuehi & Adebajo, 2010:236; George et al. 2009:102; Olang'o et al., 2010:233; Pinto, Da Silva & Soriano, 2012:940; Rowe et al. 2007:189).

CIMCI entails that the CCW needs to make decisions on the assessment of the patient's vital signs. According to question 13.1, the participants indicated that they needed to document the observations that they make during a CIMCI visit, which entails the assessment of the pulse rate, measuring of the temperature, breathing rate, and blood pressure for children.

According to Figure 4.14, the only observation that most of the participants made during CIMCI was the monitoring of the temperature of the child ($n = 133/52\%$). In addition, pulse rate ($n = 61/23\%$), respiration rate ($n = 65/26\%$) and blood pressure ($n = 10/5\%$) were taken, but only in the minority of cases.

CCWs in Afghanistan, who have limited training and are not trained in the emergency stabilisation of patients, may have a tendency to over-refer children to a higher level of care. CCWs are trained and expected to treat uncomplicated pneumonia without referral, although referral rates seem very high on acute respiratory infection (Newbrander, Ickx, Werner & Mujadidi, 2012:9).

According to the findings of this study, the majority of the participants (n = 253/98%) referred the child to the clinic or hospital when there was any abnormality (Table 4.30).

Table 4.31 shows that most of the CCWs on the West Coast do not diagnose (n = 243/95%) or issue medicine to sick children (n = 240/93%) (refer to Table 4.32).

In conclusion, the training offered to the CCWs is inadequate, taking cognisance of the amount and intensity of activities expected from the CCWs.

5.2.3 Objective 3: CCWs had adequate knowledge regarding the “16 Key Family Practices” of CIMCI

Section C of the questionnaire answered this objective. The participants' knowledge was tested on the topics that are included in the CIMCI training. The total score for this section was calculated out of 40 points and the score was rated according to the percentage achieved by the participants.

The majority of the participants (n = 145/55%) achieved an average score (Table 4.33), which is not satisfactory. The participants' knowledge regarding the “16 Key Family Practices” of CIMCI needs to be accurate. This inadequate knowledge could reach the communities and therefore have an influence on child mortality and child morbidity.

According to this study's findings, there is a statistically significant correlation between the highest school grade passed by the participants ($p < 0,01$) and the level of EPWP training ($p < 0,01$) according to the Spearman rank order correlation. Therefore the participants perform better in the EPWP programme depending on the highest grade they passed at school.

Furthermore, statistically significant correlations were shown between the participants' health-related training ($p < 0,01$) and their attendance of the CIMCI five-day course ($p < 0,00$). The attendance of any refresher course on CIMCI also had an influence on the total score achieved for the test. Training in and knowledge of CIMCI are essential to deliver a quality CIMCI service.

The test covered the following topics: breastfeeding, physical development, pneumonia, diarrhoea, danger signs, immunisations, HIV/AIDS and TB.

5.2.3.1 Breastfeeding

The questions dealing with the correct positioning and attachment of the baby to the breast, exclusive breastfeeding and the advantages of breastfeeding were answered incorrectly (Tables 4.36 and 4.40) by the majority of participants. It is important that the participants are well educated regarding the above-mentioned topics because they need to train the community on the advantages in order to promote exclusive breastfeeding. According to the World Health Organization (2001:2-3), the most important potential advantage of exclusive breastfeeding for six months relates to the prevention of infectious diseases, morbidity and mortality, especially that due to gastrointestinal infections. On the other hand, according to Perez-Escamilla (2007:485), women stay in hospital for a very short period after birth and therefore health promotion on breastfeeding at community level is very important.

In conclusion, the participants have a huge responsibility to train the community on the advantages of exclusive breastfeeding. The communities have incorrect information due to cultural beliefs or a lack of information. According to the CIMCI course, breastfeeding is one of the topics that the participants have to learn.

5.2.3.2 Physical development

In question 21, the participants' knowledge was tested on the correct interpretation of some aspects (growing well, malnourished or growth faltering) of the Road to Health cards.

The majority of the participants did answer the questions mentioned above correctly.

The participants' knowledge about malnutrition was tested to see if they know the difference between marasmus and kwashiorkor. Only half of the participants answered the questions correctly (Tables 4.43 and 4.44).

The CCWs also answered two questions on micronutrients. Only half of the CCWs answered the question correct (Table 4.45 and 4.46).

Nyirandutiye et al. (2011:1) showed that CCWs were trained to provide nutritional educational sessions, screen children for acute malnutrition, use mid-upper arm circumference, and refer and follow-up those with acute malnutrition. The CCWs reported a considerably higher prevalence of acute malnutrition with this screening outreach and this could be due to inaccurate measurements or misinterpretation of them.

In conclusion, the CCWs do not have adequate knowledge of a child's physical development. Kwashiorkor and marasmus are important signs of malnutrition and the CCW has to know the signs and symptoms. Prevention of kwashiorkor and marasmus through the intake of the correct micronutrients is important. Therefore, without adequate knowledge, the community will not receive the correct information to assist with a child's physical development.

5.2.3.3 Pneumonia

Questions 22 and 32 tested the participants' knowledge about pneumonia; more than 80% of the participants did not know the correct answers (Tables 4.41 and 4.50).

In conclusion, the participants need to count the child's respiration rate because, when the breathing rate is more than 50 respirations per minute, the child has to be referred to the clinic or hospital urgently. This high respiration rate is a sign of pneumonia. This intervention could be lifesaving to a child. The findings of the study show that the participants do not have appropriate knowledge to evaluate a child for pneumonia.

5.2.3.4 Diarrhoea

Question 23 asked the participants for the recipe for the sugar-salt solution, which is the household intervention for children with diarrhoea. The question was divided according to the ingredients. The participants' lack of knowledge of the recipe for the sugar-salt solution is a cause for concern, because it needs to be correct to improve dehydration in a child.

The conclusion is that, with diarrhoeal infections being the fifth leading cause of child death worldwide, the participants' knowledge was not adequate to prevent and manage diarrhoea in the community. If the participants do not know the sugar-salt solution recipe, it could lead to increased child morbidity and mortality due to dehydration. Furthermore, traditional beliefs form part of the community's treatment of children and it is important to be aware of this. All spheres of the community should be partners in the prevention of diarrhoea.

5.2.3.5 Danger signs in children

Questions 29 and 31 tested the participants' knowledge of the danger signs in children.

According to the SA National Department of Health and UNICEF, 2001:95. there are 10 danger signs for children that need referral to a clinic or hospital. The participants only had to identify five danger signs. Some of the participants ($n = 75/29\%$) could give two danger signs correctly (Table 4.47). Very few participants ($n = 12/4\%$) could identify five danger signs.

In question 31 the participants' knowledge was tested on three recommendations for children with fever. It is a cause for concern that a number of participants ($n = 33/13\%$) did not know a single recommendation, and only one fifth ($n = 55/21\%$) knew three recommendations (Table 4.49).

In conclusion, the participants did not have adequate knowledge regarding the identification of danger signs. The danger signs include the following: a child that does not drink, vomits everything, has convulsions, is lethargic or unconscious, is breathing fast, is coughing and drawing in the chest, has diarrhoea and sunken eyes or fontanel, has diarrhoea containing blood, is not feeding properly and has fever. Awareness of these symptoms is important for early referral of the children to reduce or prevent child morbidity and mortality.

5.2.3.6 *Immunisations*

The participants' knowledge of immunisations was tested with questions 33, 34 and 35. The majority of CCWs did not know the specific immunisations that a child must receive at six weeks, and nine and 18 months (Tables 4.51 to 4.53).

Abdulraheem et al. (2011:197) found that fewer than one-fifth (12,8%) of mothers know that Bacillus Calmette-Guerin is given at birth, while only 6% knew that hepatitis B vaccine could also be given at birth. Therefore, less than half (37,2%) of the mothers in their study completed routine immunisation schedules for their children by the age of nine months.

According to Patel and Nowalk (2010:604), the selection, retention and training of CCWs is critical for the success of India's immunisation programme.

In conclusion, the participants were not familiar with the immunisation schedule. This information is on the Road to Health card that the participants have to evaluate during a routine household visit. However, the immunisation schedule is given in abbreviations and there is no explanation of the immunisations. For the participants to do proper prevention and promotion it is important that they have a guideline with all the relevant information to assist them during health prevention and promotion efforts.

5.2.3.7 *HIV/Aids and TB*

Question 24 was about TB and question 30 about HIV/AIDS.

According to Table 4.42, many of the participants ($n = 88/34\%$) knew only two of the four signs of TB in children. Nearly one tenth of the participants ($n = 23/9\%$) did not know one TB sign for children (Table 4.42). The TB symptoms include a chronic cough for more than three weeks, loss of weight, loss of appetite and persistent fever.

According to Table 4.48, many of the participants (n=97/38%) did know only one of the three manners to become infected with HIV. A child becomes infected with HIV from the mother during pregnancy, during the birth process and during breastfeeding. Some participants (n = 45/18%) did not know one method to become infected with HIV (Table 4.48).

In conclusion, the participants do household visits in the community and therefore have to screen clients for TB. According to this study, the participants are not adequately trained to be knowledgeable regarding TB signs and symptoms. This is important knowledge, since the participants need to identify TB early or prevent it.

According to the findings of this study, the participants have inadequate knowledge of how a child becomes infected with HIV. A child gets it from the mother during pregnancy, during the birth process and during breastfeeding. If the participants have adequate knowledge, transmission from mother to child could be prevented.

The conclusion is that the participants' knowledge is not adequate to adhere to their responsibility to educate communities on the prevention and promotion of TB and HIV.

5.2.4 Objective 4: CCWs have adequate equipment for the execution of their daily duties

The participants need adequate equipment for the execution of their daily duties. This objective was addressed in Question 12 of the questionnaire.

Of the equipment stated in the questionnaire, the participants use the scale more than anything else (Figure 4.12). The participants need the equipment to do observations of the children to assist them with interventions. The following guidelines assist participants during CIMCI visits (Figure 4.13):

- CIMCI family booklet (n = 152/59%);
- milestone evaluation for children (n = 127/49%); and
- flip file with pictures to do health promotion on CIMCI (n = 107/42%).

Most of the participants (n = 233/91%) walk to clients (Table 4.27) with a bag in which to carry consumables and equipment (n = 222/86%) (Table 4.28).

Furthermore, many participants (n = 222/89%) are provided with stationery by the NPOs for work purposes (Table 4.29).

Equipment and consumables such as home-based care kits and bandages for a child's wound are regarded as hindrances by CCWs in KwaZulu-Natal, South-Africa (Uwimana et al., 2012:10).

In conclusion: the participants need to interpret certain vital signs to come to a decision. Therefore they need equipment such as a scale to monitor the child's weight. It is important to plot the weight of the child on the Road to Health card to prevent malnutrition or identify a malnourished child.

On the other hand, it might be possible that the participants cannot remember everything about CIMCI while in the field without the support of an NPO coordinator. It is cause for concern that only around 50% of the participants have guidelines on CIMCI to support them. As a result, if the participants do not remember CIMCI information they give incorrect information that could be unsafe for the child.

According to the National Health Act, Act 61 of 2003 (Republic of South Africa, 2003b), the CBS team needs to keep medical health records, which consist of information about the health condition and history of clients. Therefore the correct record keeping is very important. Therefore the participants need to receive proper stationery from the NPOs to adhere to this requirement. If the NPO does not provide the participants with the proper stationery, they could not expect the participants to do accurate and complete record keeping.

The majority of participants do not have adequate equipment and there is a need for standardisation of what is applicable to use in CIMCI.

5.2.5 Objective 5: CCWs contend with the challenges of working in rural and remote areas

Question 10 of the questionnaire answers these objectives.

The findings of the study show that the majority of participants ($n = 249/97\%$) live in the community in which they work (Table 4.13). This is in terms of the PGWC (2010b:16), which prefers to recruit people from the local area to minimise travelling distances.

Nearly half the participants ($n = 114/44\%$) live between zero and one kilometre from the NPO office (Figure 4.8). Furthermore, the majority of participants ($n = 138/54\%$) live between zero to one kilometre from the nearest clinic (Figure 4.9). On the other hand, the study shows that most of the participants are between zero and twenty kilometres from the district

hospital (Figure 4.10). A concern is the participants (n = 11/4%) who live more than 100 kilometres from the district hospital.

Participants do CIMCI in their communities – in homes, crèches or both. Most of the participants (n = 189/74%) do CIMCI in both places (Table 4.14).

According to this study, most of the participants (n = 254/98%) have to walk to the CIMCI clients in the community (Table 4.15).

The focus of this study was the distance that the participants need to travel to their CIMCI clients (Table 4.15). The mean distance was 2,3 kilometres, with a median of two kilometres.

About a third of the participants (n = 84/33%) travel for between 0 and 15 minutes to their CIMCI clients (Table 4.17). The mean time that the participants have to travel is 26 minutes and the median is 20 minutes.

According to the study participants they were exposed to certain dangerous experiences during working hours, which include attacks by dogs, verbal harassment, physical harassment or other (Figure 4.11).

According to Table 4.20, more than half the participants (n = 149/58%) did not have landline telephone contact. However, most of the participants (n = 241/92%) have cell phone contact where they work (Table 4.19). Furthermore, only a quarter of the participants (n = 63/25%) received a cell phone or telephone card to use for work purposes (Table 4.21).

In conclusion, even though the majority of the participants live in the communities where they work, they need to walk to their clients, which is time consuming. According to this study, the majority of participants were not exposed to any dangerous experiences. However, it is important to give attention to the participants who feel unsafe.

Furthermore, this study showed that telephone contact is not available for all the participants. In rural areas, supervision is not always available and therefore the need for telephone contact is a priority. The majority of participants use their private cell phones for urgent communication.

5.2.6 Objective 6: CCWs have adequate supervision and support related to CIMCI

This objectives was addressed in question 11 of the questionnaire.

Most of the participants (n = 220/86%) work under a NPO coordinator who is a professional nurse, which is policy according the PGWC (2010b:26) (Table 4.22). On the other hand,

some participants (n = 36/14%) do not work with a professional nurse as an NPO coordinator, which is against the policy framework. As stated by Eygelaar (2009:106), rural areas experience challenges to recruit professional nursing staff.

As stated in the study, more than half the participants (n = 137/53%) have daily supervision and support in CIMCI (Table 4.23), and most of the participants have telephone or cell phone contact with an NPO coordinator on a daily basis (Table 4.26).

The majority of participants (n = 253/98%) received a standard referral form for CIMCI clients (Table 4.24). According to Table 4.23, nearly half of the participants (n = 119/46%) do not have daily supervision or support from the NPO coordinator. Therefore it would not be possible to do CBS admissions of the referred clients in the turnaround time of 72 hours (PGWC, 2010b:16). Furthermore, according to Table 4.25, nearly all (n = 255/99%) the participants keep record of the CIMCI visits that they make.

According to Uwimana et al. (2012:10), both government and NPO managers in KwaZulu-Natal acknowledge that a lack of supervision is an obstacle to quality provision of services in CBS.

In conclusion: According to this study, supervision is a challenge and the reason is that it is a problem to recruit qualified professional nurses in rural areas (Eygelaar, 2009:106). Supervision by the NPO coordinator is the backbone of CBS because this is the only personnel member who is a qualified nursing professional. According to the Nursing Act, 2005 (Act 33 of 2005) it is an offence for anyone not registered as a nurse to perform any act pertaining to the profession of nursing. The concern is that if the participants do not have support from an NPO coordinator, they tend to make decisions on their own on health issues. Participants need daily assistance and support to ensure that they deliver a service according to their job description. Furthermore, the NPO coordinator has to provide the client with a nursing care plan according to the needs of the client within 72 hours. This is not possible without an NPO coordinator who works with the CCWs on a daily basis. Therefore, the participants need to fulfil this role. The conclusion is that supervision is not adequate according to the policy framework (PGWC, 2010b:26), which includes daily supervision by a professional nurse.

5.3 RECOMMENDATIONS

According to the conclusions that have been drawn in Section 5.2, the researcher has certain recommendations on the factors influencing CIMCI in the rural areas of the West Coast District.

5.3.1 The rural model's influence on working hours

Effectively addressing a population's health needs and dealing with a country's high burden of disease require policies that focus on health services provided at the community level. The Declaration of Alma Ata (World Health Organization, 1978) recognised the community as part of the health system. Many countries recognise the community level as an integral part of the health system. However, in many countries the role of communities in keeping people healthy does not receive the attention it deserves (World Health Organization and Global Health Workforce Alliance, 2008:39).

CCWs work in their own communities, performing a diverse range of roles and activities. These include vaccinations, treatment for malaria and tuberculosis, and CIMCI. Studies have confirmed that CCWs can be effective in contributing to a substantial reduction in child mortality and therefore help to reach the MDG 4 by 2015 (Haines, Sanders, Lehmann, Rowe, Lawn, Jan, Walker & Bhutta, 2007:2121; Lehmann & Sanders, 2007:15).

The recommendations arising from this study are as follows:

The service package of the CBS rural model needs to be evaluated by the PGWC Department of Health and the CCWs' hours should be extended, as these aspects are important to deliver quality care. Contributing factors to support the extension of hours are the fact that CCWs deliver the service by foot and the client load is higher, especially with the prevention and promotion programme. According to USAID (2010:3-5), studies done in Ghana showed that the CCWs received motorcycles for transport. Furthermore, in Mali and Malawi they were provided with bicycles for transport. Therefore it could be feasible for CCWs to be given a motorcycle for transport to their clients. It is also important that the CCWs must be consulted about what form of transport they would prefer. Regarding the extension of working hours, a forty-hour week will be sufficient for them to do their work. There needs to be financial support from the Department of Health to increase the CCWs' stipend. The salaries of the NPO coordinators also need to be evaluated by Department of Health so that the posts can be filled.

5.3.2 Training

According to Lehmann and Sanders (2007:4), the literature reflects a great diversity of approaches to, locations for, and organisation and length of training. However, refresher training is not available and therefore the acquired skills and knowledge are quickly lost.

CCWs can be trained and deployed relatively quickly (in one year), they understand the community's health needs and they give underserved communities access to the health

system (African Medical Relief Foundation, 2007:8-9). Furthermore, over 60% of rural inhabitants in South Africa seek health advice and treatment from a traditional healer before visiting a primary healthcare service. The traditional healers need to be part of the health team and training is important for referral and record keeping.

The recommendations are as follows:

The CIMCI course needs to be standardised internationally as well as nationally, and also by the PGWC Department of Health. This includes standardisation of the course content and the duration of the training. The training should be competence and practice based and located close to the CCWs' working context. Training materials and activities should be developed specifically for CCWs.

Training manuals must be tailored to the literacy of the CCWs and traditional healers.

CIMCI refresher courses should be offered annually and these need to be standardised and implemented to strengthen the CCWs' knowledge and the quality of care that they render.

5.3.3 Equipment

According to the conceptual framework, social learning theory is based on the education of CCWs, but they also need certain job aids and equipment for this education (Murphy, 2005:7).

The health belief model is a way to change personal beliefs, therefore equipment is needed for this to succeed (Glanz & Bishop, 2010:402).

The conclusion is that the majority of CCWs do not have adequate equipment and there is a need for standardisation of what is applicable to use in CIMCI by the PGWC Department of Health, but also on a national and international level.

The recommendations are as follows:

As indicated above, CIMCI standardisation will show the specific equipment needed for the programme.

CCWs need to receive training to use the equipment as needed for CIMCI.

6.3.4 Challenges in rural and remote areas

Countries in Sub-Saharan Africa have health staff shortages, despite the fact that the health needs are huge. One of the strategies to address this problem is task shifting to lower-level

health workers (Scheffler, Liu, Kinfu & Dal Poz, 2008:516). CCWs then receive more responsibilities, such as working after hours, helping NPO coordinators, working with CBS admissions and the extension of rehabilitation services, therefore they could get burned out. Furthermore, CCWs who are newly appointed need to deliver a service even without having received any training

According to Takasugi and Lee (2012:841), CCWs gain respect from the community by wearing badges and shirts as a uniform. It also improves their personal safety in the community.

The recommendations are as follows:

Rural areas have specific needs and these include task shifting. The extension of rehabilitation services is an add on to the CCWs' current workload. The CCWs should receive in-service training to do exercises with paraplegic clients and therefore continue with the programme on a daily basis. It therefore is important that the PGWC Department of Health evaluate the current policy to establish what is expected of the CCW, specifically in relation to the delivery of CIMCI. Therefore standard operating procedures are needed to evaluate the programme.

The extension of working hours to forty hours a week will be adequate to address the need in rural areas.

The experiences of danger (dog attack, verbal harassment, physical harassment or other) must be investigated by the NPO and the PGWC Department of Health. The majority of CCWs are women and they have to walk in the community to do their work, which makes them a soft target. As a result, the CCWs could become demotivated when they feel unsafe in their work environment.

Because the CCWs need some form of protection, the NPOs could give them a "heavy duty stun gun" or pepper spray, but this will have a financial implication that the Department of Health should budget for. Furthermore, the CCWs who have experienced trauma arising from a dangerous experience should be given support by the NPO. Currently there is an Employment Assistance Programme that provides independent counselling and advisory services for CCWs (Western Cape Department of Health, 2006:6). This counselling is given via the telephone. However, it seems that the CCWs needed on-the-spot help to support them during the trauma.

6.3.5 Supervision of and support for CCWs

The success of the CCW programme hinges on regular (daily to every third day) and reliable support and supervision. However, supervision is often among the weakest links in CCW programmes (Lehmann & Sanders, 2007:5).

On the other hand, training can be delivered at a lower cost and more quickly than training new professionals. By providing appropriate supervision for these trainees it has been shown that there will be no reduction in quality of care (African Medical Relief Foundation, 2007:8-9).

According to the 7th Draft policy of the PGWC (2010b: 26), the NPO coordinator has to be a professional nurse who is responsible for supervising 15 to 20 CCWs. This is not possible in rural areas, as showed by this study (Table 4.26).

The recommendations are as follows:

The PGWC Department of Health needs to revise the 7th CBS Draft policy to include all South African Nursing Council registered nursing staff (professional and staff nurses) to be nursing coordinators.

There is a need to investigate the reasons that have an influence on the fact that NPO coordinators cannot supervise the CCWs on a daily basis. This could be done by a university or department of health. The NPO coordinator needs to supervise the CIMCI visits. It is important that the NPO coordinator assist the CCWs with recordkeeping, for example to implement scientific nursing care plans for the clients. The standardisation of recordkeeping also needs to be ensured, therefore all the information that needs to be recorded must be received from the CCW in a standardised form (referral letters, daily client visits, CIMCI visits, statistics, monitoring and evaluation forms). Currently there are no standardised norms and standards to evaluate these records.

The CCWs need telephone or cell phone allowances to be in contact with the NPO coordinator that supports their services in the community.

5.4 LIMITATIONS

A limitation of this study is that it was conducted in only one district (West Coast District). The CIMCI programme is delivered by according to the same principles throughout the West Coast District. It would however be applicable to do further investigations in other districts with other CIMCI policies.

5.5 CONCLUSION

Quantitative, descriptive research was conducted to do an in-depth study of the factors influencing CIMCI in rural areas. This study was conducted in the West Coast District of the Western Cape province. The population included was all the CCWs funded by the Department of Health that are working for NPOs in the West Coast District.

The objective of the study was to determine:

- if the working hours were adequate for the comprehensive service package delivered by CCWs;
- if the CCWs were adequately trained;
- if the CCWs have adequate knowledge regarding the “16 Key Family Practices” of CIMCI;
- if the equipment was adequate for the execution of their daily duties;
- if the CCWs can cope with the challenges of working in rural and remote areas; and
- if CCWs received adequate supervision and support related to CIMCI.

In Chapter 1, the rationale, problem statement and aim of the study, as well as the ethical considerations, were discussed. Chapter 2 provided the extensive literature review that guided this research. In Chapter 3 a broad discussion of the methodology, population, sampling and instrumentation of this study was provided. The data analysis and interpretation were presented in frequency tables and histograms in Chapter 4. Finally, in Chapter 5 the findings have been discussed and compared with the findings of previous studies, and conclusions and recommendations were presented.

The overall conclusion is that there are many factors influencing CIMCI in the rural areas. The findings show that supervision, dangerous experiences, inadequate working hours and no standardisation of CIMCI (which includes recordkeeping, equipment and training) are the challenges to be addressed.

The findings of this study have identified that the knowledge of the CCWs is average, and therefore not sufficient for the service they need to deliver. The following have a direct influence on the CCWs' knowledge of CIMCI:

- the participants' highest school grade passed;
- the participants' EPWP level;
- whether the participants have had any health-related training after school;
- whether the participants attended the CIMCI five-day course; and
- if the participants had done any refresher course on CIMCI after their training.

According to the researcher, the standardisation of CIMCI training, the equipment needed and supervision are essential or very important. However, to ensure quality of care in CIMCI, the integrated rural model for CBS must be evaluated. According to the service delivery model there is a need to extend the working hours for CCWs.

Finally, this study has demonstrated that CIMCI is already part of the CCWs' daily duties in the West Coast District. However, the factors influencing CIMCI in this rural area need to be handled to ensure a reduction in child morbidity and child mortality, as indicated by the MDG 4.

REFERENCES

- Abdulraheem, I.S., Onajole, A.T., Jimoh, A.A.G. & Oladipo, A.R. 2011. Reasons for incomplete vaccination and factors for missed opportunities among rural Nigerian children. *Journal of Public Health and Epidemiology*, 3(4):194-203.
- African Medical Relief Foundation. 2007. People first: African solutions to the health worker crisis. London: AMRF UK [Online]. Available: <http://www.amref.org/silo/files/people-first-african-solutions-to-the-health-worker-crisis.pdf> [2012, November 12].
- Ahmed, H.M., Mitchell, M. & Hedt, B. 2010. National implementation of Integrated Management of Childhood Illness (IMCI): policy constraints and strategies. *Health Policy*, 96:128-133.
- Aidam, B.A., Pe'rez-Escamilla, R. & Lartey, A. 2005. Lactation counseling increases exclusive breast-feeding rates in Ghana. *The Journal of Nutrition*, 135:1691-1695.
- Akhter, S. & Larson, C.P. 2010. Willingness to pay for zinc treatment of childhood diarrhoea in a rural population of Bangladesh. *Health Policy and Planning*, 25:230-236.
- Alam, K., Tasneem, S. & Oliveras, E. 2012. Performance of female volunteer community health workers in Dhaka urban slums. *Social Science & Medicine*, 75:511-515.
- Alfaro-Trujillo, B., Valles-Medina, A.M. & Vargas-Ojeda, A.C. 2012. Profiles, perceptions and motivations of community health workers of NGOs in a border city of US-Mexico. *Journal Community Health*, 37:583-590.
- Amin, M. & Khondoker, F. 2004. A contingent valuation study to estimate the parental willingness-to-pay for childhood diarrhoea and gender bias among rural households in India. *Health Research Policy and Systems*, 2:1-5.
- Anderson, A.K., Damio, G., Young, S., Chapman, D.J. & Perez-Escamilla, R. 2005. A randomized trial assessing the efficacy of peer counseling on exclusive breastfeeding in a predominantly Latina low-income community. *Pediatric Adolescent Medicine*, 159(9):836-841.
- Baqui, A.H., Arifeen, S.E., Rosen, H.E., Mannan, I., Rahman, S.M., Al-Mahmud, A.B., Hossain, D., Das, K.M., Begum, N., Ahmed, S., Santosham, M., Black, R.E., Darmstadt, G.L. & The Projahnmo Study Group. 2009. Community-based validation of assessment of newborn illnesses by trained community health workers in Sylhet

- district of Bangladesh. *Tropical Medicine and International Health*, 14(12):1448-1456.
- Bhandari, N., Mazumder, S., Taneja, S., Dube, B., Agarwal, R.C., Mahalanabis, D., Fontaine, O., Black, R.E. & Bhan, M.K. 2008. Effectiveness of zinc supplementation plus oral rehydration salts compared with oral rehydration salts alone as a treatment for acute diarrhea in a primary care setting: a cluster randomized trial. *Pediatrics*, 121:1279-1289.
- Black, R.E., Cousens, S., Johnson, H.L., Lawn, J.E., Rudan, I., Bassani, D.G., Jha, P., Campbell, H., Walker, C.F., Cibulskis, R., Eisele, T., Liu, L. & Mathers, C. 2010. Global, regional, and national causes of child mortality in 2008: a systematic analysis. *The Lancet*, 375:1969-1987.
- Boschi-Pinto, C., Bahl, R. & Martines, J. 2009. Limited progress in increasing coverage of neonatal and child health interventions in Africa and Asia. *Journal of Health Population Nutrition*, 27(6):755-762.
- Brenner, J.L., Kabakyenha, J., Kyomuhangi, T., Wotton, K.A., Pim, C., Ntaro, M., Bagenda, F.N., Gad, N.R., Godel, J., Kayizzi, J., McMillan, D., Mulogo, E., Nettel-Aguirre, A. & Singhal, N. 2011. Can volunteer community health workers decrease child morbidity and mortality in Southwestern Uganda? An impact evaluation. *Plosone*, 6(12):1-9.
- Brink, H. 2006. *Fundamentals of research methodology for health care professionals*, 2nd edition. Landsdown: Juta.
- Brownstein, J.N., Hirsch, G.R., Rosenthal, E.L. & Rush, C.H. 2011. Community health workers "101" for primary care providers and other stakeholders in health care systems. *The Journal of Ambulatory Care Management*, 34(3), 210-220.
- Bryce, J., Arifeen, S., Pariyo, G., Lanata, C.F., Gwatkin, D. & Habicht, J. 2003. Reducing child mortality: can public health deliver? *The Lancet*, 362:159-164.
- Burns, N. & Grove, S.K. (2007). *Understanding nursing research: building an evidence-based practice*, 4th edition. St. Louis: Elsevier Saunders
- Burns, N.B. & Grove, S.K. 2009. *The practice of nursing research: appraisal, synthesis and generation of evidence*, 6th edition. St Louis: Saunders.
- Byrne, E. & Gregory, J. 2007. Co-constructing local meanings for child health indicators in community-based information systems: The Uthukela District Child Survival Project in KwaZulu-Natal. *International Journal of Medical Informatics*, 76S:S78-S88.

- Campbell, C. 2004. Health education behaviour models and theories. MSUcares.com [Online]. Available: http://msucares.com/health/helath/appa_1.htm. [2012, February 10].
- Chopra, M., Daviaud, E., Pattinson, R., Fonn, S. & Lawn, J. 2009a. Saving the lives of South Africa's mothers, babies, and children: can the health system deliver? *The Lancet*, 374:835-846.
- Chopra, M., Lawn, J.E., Sanders, D., Barron, P., Karim, S.A., Bradshaw, D., Jewkes, R., Karim, Q.A., Flisher, A.J., Mayosi, B.M., Tollman, S.M., Churchyard, G.J. & Coovadia, H. 2009b. Achieving the health Millennium Development Goals for South Africa: challenges and priorities. *The Lancet*, 374: 1023-1031.
- Department of Health. 2011. 1st Triennial Report of the Committee on Morbidity and Mortality in children under 5 years (CoMMiC). [Online]. Available: <http://www.doh.gov.za/docs/reports/2011/morbieport.pdf>[2012, October 10].
- Department of Health and Department of Social Development. 2009. Community Care Worker Policy Management Framework, Draft version 6. [Online]. Available: [http://www.cabsa.org.za/sites/default/files/2009%20-%20Community%20Care%20Worker%20Management%20Policy%20Frame work.pdf](http://www.cabsa.org.za/sites/default/files/2009%20-%20Community%20Care%20Worker%20Management%20Policy%20Framework.pdf) [2012, August 20].
- De Vos, A.S., Strydom, H., Fouche, C.B. & Delport, C.S.L. 2011. *Research at grass roots*, 4th edition. Pretoria. Van Schaik Publishers.
- Dippenaar, H., Joubert, G., Nel, R., Bantobetse, M.L., Opawole, A.A. & Roshen, K.S. 2005. Homemade sugar-salt solution for oral rehydration: knowledge of mothers and caregivers. *South Africa Family Practice*, 47(2):1-3.
- Doherty, T., Chopra, M., Nkonki, L., Jackson, D. & Greiner, T. 2006. Effect of the HIV epidemic on infant feeding in South Africa: "When they see me coming with the tins they laugh at me". *Bulletin World Health Organisation*, 84(2):90-96.
- Ebuehi, O.M. & Adebajo, S. 2010. Improving caregivers home management of common childhood illnesses through community level interventions. *Journal of Child Health Care*, 14(3):225-238.
- Eduardo, R., Ochoa, R. & Nash, C. 2009. Community Engagement and its Impact on Child Health Disparities: Building Blocks, Examples, and Resources. *Paediatrics*, 124(3):S237-S245.

- Edward, A., Ernst, P., Taylor, C., Becker, S., Mazive, E. & Perry, H. 2007. Examining the evidence of under-five mortality reduction in a community-based programme in Gaza, Mozambique. *Tropical Medicine and Hygiene*, 101(8):814-822.
- Edwards, C. & Saha, S. 2011. From home to hospital, a continuum of care: making progress towards Millennium Development Goals 4 and 5 in rural Bangladesh. *British Journal of Gynaecology*, 118(2):88-92.
- Eygelaar, J.E. 2009. An investigation into factors influencing the quality of nursing care in district hospitals in the West Coast Winelands Region of the Western Cape. Unpublished Master's dissertation. Stellenbosch: University of Stellenbosch.
- Fadnes, L.T., Engebretsen, I.M.S., Moland, K. M., Nankunda, J., Tumwine, J.K. & Tylleskar, T. 2010. Infant feeding counselling in Uganda in a changing environment with focus on the general population and HIV-positive mothers – a mixed method approach. *BioMed Central*, 10:260.
- Friend-du Preez, N., Cameron, N. & Griffiths, P. 2009. Stuips, sputis and prophet ropes: the treatment of abantu childhood illnesses in urban South-Africa. *Social Science Medicine*, 86(2): 343-351.
- Fujino, Y., Sasaki, S., Igarashi, K., Tanabe, N., Muleya, C.M., Tambatamba, B. & Suzuki, H. 2009. Improvement in mothers' immediate care-seeking behaviors for children's danger signs through a community-based intervention in Lusaka, Zambia. *Tohoku Journal of Experimental Medicine*, 217:73-85.
- George, A., Menotti, E.P., Rivera, D., Montes, I., Reyes, C.M. & Marsh, D.R. 2009. Community case management of childhood illness in Nicaragua: transforming health systems in underserved rural areas. *Journal of Health Care for the Poor and Underserved*, 20: 99-115
- Ghimire, M., Pradhan, Y.V. & Maskey, M.K. 2010. Community-based interventions for diarrhoeal diseases and acute respiratory infections in Nepal. *Bulletin of the World Health Organization*, 88(3):216-221.
- Glanz, K. & Bishop, D.B. 2010. The role of behavioral science theory in development and implementation of public health interventions. *Public Health*, 31:399-418.
- Gopalan, S.S., Mohanty, S. & Das, A. 2012. Assessing community health workers performance motivation: a mixed-methods approach on India's Accredited Social Health Activists (ASHA) programme. [Online].

Available: <http://www.ncbi.nlm.nih.gov/pmc/articles/pmc3488714/pdf/bmjopen-2012-001557.pdf> [2012, October 29].

- Haines, A., Sanders, D., Lehmann, U., Rowe, A.K., Lawn, J.E., Jan, S., Walker, D.G. & Bhutta, Z. 2007. Achieving child survival goals: potential contribution of community health workers. *The Lancet*, 369:2121-2131.
- Hanh, N.T.T., Gammeltoft, T. & Rasch, V. 2011. Early uptake of HIV counselling and testing among pregnant women at different levels of health facilities-experiences from a community-based study in Northern Vietnam. *BioMed Central*, 11:29.
- Ingram, M., Reinschmidt, K.M., Schachter, K.A., Davidson, C.L., Sabo, S.J., De Zapien, J.G. & Carvajal, S.C. 2012. Establishing a professional profile of community health workers: results from a national study of roles, activities and training. *Journal Community Health*, 37:529-537.
- Ingram, M., Sabo, S., Rothers, J., Wennerstrom, A. & de Zapien, J.G. 2008. Community health workers and community advocacy: addressing health disparities. *Journal Community Health*, 33:417-424.
- Jabareen, Y. 2009. Building a conceptual framework. *International Journal of Qualitative Methods*, 8(4):49-64.
- Källander, K., Tomson, G., Nsabagasani, X., Sabiiti, J.N., Pariyo, G. & Peterson, S. 2005. Can community health workers and caretakers recognise pneumonia in children? Experiences from western Uganda. *Tropical Medicine and Hygiene*, 100:956-963.
- Kesterton, A.J. & Cleland, J. 2009. Neonatal care in rural Karnataka: healthy and harmful practices, the potential for change. *BioMed Central Pregnancy and Childbirth*, 9:20.
- Khan, M.M., Saha, K.K. & Ahmed, S. 2002. Adopting Integrated Management of Childhood Illness Model at local level in Bangladesh: implications for recurrent costs. *Journal Health Population Nutrition*, 20(1):42-50.
- Lehmann, U. & Sanders, D. 2007. Community health workers: what do we know about them? A report by the School of Public Health, University of the Western Cape. WHO: Geneva. [Online]. Available:http://www.who.int/hrh/documents/community_health_workers.pdf. [2012, September 10].
- Lewin, S., Munabi-Babigumira, S., Glenton, C., Daniels, K., Bosch-Capblanch, X., Van Wyk, B.E., Odgaard-Jensen, J., Johansen, M., Aja, G.N., Zwarenstein, M. & Scheel, I.B. 2010. Lay health workers in primary and community health care for maternal and

child health and the management of infectious disease (Review) [Online]. Available: http://www.hlegphfi.org/uploads/Lewin_Lay%20health%20worker.pdf. [2012, December 3].

- Lewycka, S., Mwansambo, C., Kazembe, P., Phiri, T., Mganga, A., Rosato, M., Chapota, H., Malamba, F., Vergnano, S., Newell, M., Osrin, D & Costello, A. 2010. A cluster randomised controlled trial of the community effectiveness of two interventions in rural Malawi to improve health care and to reduce maternal, newborn and infant mortality. *BioMed Central Trials Journal*, 11:88.
- Lidell, C., Barrett, L. & Bydawell, M. 2005. Indigenous representations of illness and AIDS in Sub-Saharan Africa. *Social Science & Medicine*, 60:691-700.
- Mohamad, M., Silong, A.D. & Hassan, Z. 2009. Participative and effective community leadership practice in Malaysia. *The Journal of Human Resource and Adult Learning*, (5)1: 139-148.
- Mannan, I., Rahman, S.M., Sania, A., Seraji, H.R., Arifeen, S.E., Winch, P., Darmstadt, G.L. & Baqui, A. 2008. Can early postpartum home visits by trained community health workers improve breastfeeding of newborns. *Journal Perinatal*, 28(9):632-640. (PubMed).
- Mouton, J. 2001. *How to succeed in your Master's & doctoral studies*. Pretoria: Van Schaik Publishers.
- Mulogo, E.M., Abdulaziz, A.S., Guerra, R. & Baine, S.O. 2011. Facility and home-based HIV counseling and testing: a comparative analysis of uptake of services by rural communities in southwestern Uganda. *BioMed Central*, 11:54.
- Murphy, E. 2005. Promoting health behaviour. *Health Bulletin* [Online]. Available: http://www.prb.org/pdf05/PromotingHealthyBehaviour_Eng.pdf. [2012, February 10].
- National Department of Health, South Africa; South African National AIDS Council. 2010. Clinical Guidelines: PMTCT (Prevention of Mother-to-Child Transmission) [Online]. Available: http://www.fidssa.co.za/images/PMTCT_Guidelines.pdf. [2012, November 20].
- Newbrander, W., Ickx, P., Werner, R. & Mujadidi, F. 2012. Compliance with referral of sick children: a survey in five districts of Afghanistan. *BioMed Central Pediatrics*, 12:1-12.

- Nyirandutiye, D.H., Iknane, A.A., Fofana, A. & Brown, K.H. 2011. Screening for acute childhood malnutrition during the National Nutrition Week in Mali increases treatment referrals[Online]. <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0014818> [2012, October 13].
- Olang'o, C.O., Nyamongo, I.K. & Aagaard-Hansen, J. 2010. Staff attrition among community health workers in home-based care programmes for people living with HIV and AIDS in western Kenya. *Health Policy*, 97:232-237.
- Pahwa, S., Kumar, G.T. & Toteja, G.S. 2010. Performance of a community-based health and nutrition-education intervention in the management of diarrhoea in a slum of Delhi, India. *Journal Health Population Nutrition*, 28(6):553-559.
- Parimi, N., Pereira, L.M. & Prabhakar, P. 2004. Caregivers' practices, knowledge and beliefs of antibiotics in paediatric upper respiratory tract infections in Trinidad and Tobago: a cross-sectional study. *BioMed Central Family Practice*, 5:28 (PubMed).
- Patel, A. & Nowalk, M. 2010. Expanding immunization coverage in rural India: a review of evidence for the role of community health workers. *Vaccine*, 28:604-613.
- Pera, S.A. & Van Tonder, S. 2005. *Ethics in Health Care*. 2nd Edition. Landsdown: Juta.
- Perez-Escamilla, R. 2007. Evidence-based breast-feeding promotion: the Baby-friendly Hospital Initiative. *American Society for Nutrition*, 137:484-487.
- Pinto, R.M., Da Silva, S.B. & Soriano, R. 2012. Community health workers in Brazil's unified health system: a framework of their praxis and contributions to patient health behaviors. *Social Science & Medicine*, 74:940-947.
- Pitt, C., Roberts, B. & Checchi, F. 2012. Treating childhood pneumonia in hard-to-reach areas: a model-based comparison of mobile clinics and community-based care [Online]. Available: <http://www.biomedcentral.com/1472-6963/12/9>[2012, November 18].
- Polit, D.F. & Beck, C.T. 2008. *Nursing research: generating and assessing evidence for nursing practice*. 8th edition. London: Wolters Kluwer.
- Provincial Government of the Western Cape, Department of Health. 2010a. Circular H13/2010 Population Data.
- Provincial Government of the Western Cape, Department of Health. 2010b. Community Based Services Delivery Framework 7th Draft. Cape Town: District Health Services & Health Programmes.

- Rajaratnam, J.K., Marcus, J.R., Flaxman, A.D., Wang, H., Levin-Rector, A., Dwyer, L., Costa, M., Lopez, A.D. & Murray, C.J.L. 2010. Neonatal, postneonatal, childhood, and under-5 mortality for 187 countries, 1970-2010: a systematic analysis of progress towards Millennium Development Goal 4. *The Lancet*, 375: 1988.
- Razee, H., Whittaker, M., Jayasuriya, R., Yap, L. & Brentnall, L. 2012. Listening to the rural health workers in Papua New Guinea – The social factors that influence their motivation to work. *Social Science and Medicine*, 75:828-835.
- Republic of South Africa. 2003a. Constitution of the Republic of South Africa Second Amendment Act, No. 3 of 2003. Pretoria: Government Printer.
- Republic of South Africa. 2003b. National Health Act, 2003 (Act 61 of 2003). Pretoria. Government Printer.
- Republic of South Africa. 2005. Nursing Act, 2005 (Act 33 of 2005) Pretoria. Government Printer.
- Rosato, M., Mwansambo, C., Lewycka, S., Kazembe, P., Phiri, T., Malamba, F., Newell, M., Osrin, D. & Costello, A. 2010. MaiMawana women's groups: a community mobilisation intervention to improve mother and child health and reduce mortality in rural Malawi. *Malawi Medical Journal*, 22(4):112-119.
- Rosenthal, E.L., Wiggins, N., Ingram, M., Mayfield-Johnson, S. & De Zapien, J. G. 2011. Community Health Workers Then and Now An Overview of National Studies Aimed at Defining the field. *Journal of Ambulatory Care Management*, 34(3):247-259.
- Rowe, S.Y., Kelly, J.M., Olewe, M.A., Kleinbaum, D.G., McGowan, J.E., McFarland, D.A., Rochat, R. & Deming, M.S. 2007. Effect of multiple interventions on community health workers adherence to clinical guidelines in Siaya district, Kenya. *Tropical Medicine and Hygiene*, 101:188-202.
- SA National Department of Health & UNICEF. 2001. IMCI Household and Community Component Working Group: A guide for local level implementers. uThukela District, KwaZulu-Natal: Government Printer.
- Sanders, D., Reynolds, L., Eley, B., Kroon, M., Zar, H., Davies, M., Westwood, T., Nongena, P. & Van Heerden, T. 2007. Decreasing the burden of childhood disease [Online]. Available: http://westerncape.gov.za/Text/2007/6/cd_volume_7_childhood_diseases_overview.pdf. [2012, October 10].

- Scheffler, R., Liu, J.X., Kinfu, Y. & Dal Poz, M.R. 2008. Forecasting the global shortage of physicians: an economic and needs-based approach. *Bulletin of the World Health Organization*, 86(7):516-523.
- Schneider, H., Hlophe, H. & Van Rensburg, D. 2008. Community health workers and the response to HIV/AIDS in South Africa: tensions and prospects. *Health Policy and Planning*, 23:179-187.
- Sibeko, L., Coutsooudis, A., Nzuzi, S.P. & Gray-Donald, K. 2009. Mothers' infant feeding experiences: constraints and supports for optimal feeding in an HIV-impacted urban community in South Africa. *Public Health Nutrition*, 12(11):1983-1990.
- Standing, H., Mushtaque, A. & Chowdhury, R. 2008. Producing effective knowledge agents in a pluralistic environment: what future for community health workers? *Social Science & Medicine*, 66:2096-2107.
- Statistics South Africa. 2010. Republic of South Africa Millennium Development Goals Country Report for 2010. Concept Paper.[Online]. Available: http://www.statssa.gov.za/nss/documents/Concept%20Paper%20for%20MDG%202010%20final%20Draft_2_3_4_aposteriori.pdf [2012, June 23].
- Takasugi, T. & Lee, A.C.K. 2012. Why do community health workers volunteer? A qualitative study in Kenya. *Public Health*, 126:839-845.
- Trifiletti, L.B., Gielen, A.C., Sleet, D.A. & Hopkins, K. 2005. Behavioral and social sciences theories and models: are they used in unintentional injury prevention research? *Health Education Research*, 20(3):298-307.
- Thompson, M.E. & Harutyunyan, T.L. 2009. Impact of a community-based integrated management of childhood illnesses (IMCI) programme in Gegharkunik, Armenia. *Health Policy and Planning*, 24:101-107.
- UNAIDS. 2010. UNAIDS World AIDS day Report. The state on the AIDS epidemic.[Online]. Available: http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/jc2216_worldaidsday_report_2011_en.pdf. [2013, February 10].
- UNICEF. 2012. Inter-Agency working Group on CIMCI.[Online]. Available: <http://www.unicef.org/programme/cimci>. [2012, December 4].

- UNICEF & WHO. 2006. Management of sick children by community health workers intervention models and programme examples.[Online]. Available: http://www.coregroup.org/storage/Program_Learning/Community/Health_Workers/Management_of_sick_Children_by_Community_Health_Workers.pdf. [2012, December 1].
- United Nations Foundation and Pan American Health Organizations. 2007. Final Report. Empowering Local Communities to Improve Children's Health in Ten Latin American Countries [Online]. Available: <http://www.paho.org/spanish/ad/fch/ca/UNF%20f> [2012, April 17].
- United States Agency International Development (USAID). 2010. Health Care Improvement Project. [Online]. Available: http://www.hciproject.org/sites/default/files/CHW%20literature%20review_Jan2010_0.pdf. [2012, November 27].
- Uwimana, J., Zarowsky, C., Hausler, H. & Jackson, D. 2012. Engagement of non-government organisations and community care workers in collaborative TB/HIV activities including prevention of mother to child transmission in South Africa: Opportunities and challenges. *BioMed Central*, 12:233.
- Van Ginneken, N., Lewin, S & Berridge, V. 2010. The emergence of community health worker programmes in the late apartheid era in South Africa: An historical analysis. *Social Science & Medicine*, 71:1110-1118.
- Walley, J., Lawn, J.E., Tinker, A., de Francisco, A., Chopra, M., Rudan, I., Bhutta, Z.A., Black, R.E. and the Lancet Alma-Ata Working Group. 2008. Alma-Ata: Rebirth and Revision 8. Primary health care: making Alma-Ata a reality. *The Lancet*, 372:1001-1007.
- Western Cape Department of Health. 2006. ICAS. [Online]. Available: http://www.westerncape.gov.za/other/2006/11/jonga_vol1_is7_6.pdf. [2012, December 2].
- Western Cape Government Provincial Treasury. 2011. Regional Development Profile West Coast [Online]. Available: http://www.westerncape.gov.za/other/2011/12/dc01_west_coast_district_profile_15_12_11.pdf [2012, November 10].
- Winch, P.J., Doumbia, S., Kante, M., Male, A.D., Swedberg, E., Gilroy, K.E., Ellis, A.A., Cisse, G. & Sidibe, B. 2008. Differential community response to introduction of zinc

- for childhood diarrhea and combination therapy for Malaria in Southern Mali. *American Society for Nutrition*, 138:642-645.
- Winch, P.J., Gilroy, K., Doumbia, S., Patterson, A.E., Daou, Z., Coulibaly, S., Swedberg, E., Black, R.E. & Fontaine, O. 2006. Short report: prescription and administration of a 14-day regimen of zinc treatment for childhood diarrhea in Mali. *American Journal of Tropical Medicine Hygiene*, 74(5):880-883.
- Winch, P.J., Gilroy, K.E., Wolfheim, C., Starbuck, E.S., Young, M.W., Walker, L.D. & Black, R.E. 2005. Intervention models for the management of children with signs of pneumonia or malaria by community health workers. *Health Policy Plan*, 20(4):199-212.
- Winch, P.J., Leban, K., Casazza, L., Walker, L. & Percy, K. 2002. An implementation framework for household and community integrated management of childhood illness. *Health Policy and Planning*, 17(4):345-353.
- World Health Organization. 1978. Declaration of Alma-Ata. International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978.[Online]. Available: <http://www.who.int/hpr/NPH/docs/declaration-almaata.pdf>. [2011, March 24].
- World Health Organization. 2008. Scaling up, saving lives. Task Force for Scaling Up Education and Training for Health Workers.[Online]. Available: http://www.who.int/workforcealliance/documents/Global_Health%20REPORT.pdf. [2012, November 10].
- World Health Organisation. 2011. MDG 4: Reduce child mortality. [Online]. Available: http://www.who.int/topics/millennium_development_goals/child_mortality/en/index.html. [2011, February 2].
- World Health Organisation. 2001. The Optimal duration of exclusive breastfeeding. Results of a WHO systematic review. [Online]. Available: <http://www.who.int/inf-pr-2001/en/note2001-07.html>. [2012, November 28].
- World Health Organization and Global Health Workforce Alliance. 2008. Task force for scaling up education and training for health workers.[Online]. Available: http://www.who.int/workforcealliance/documents/Global_Health%20REPORT.pdf [2012, October 10].
- You, D., Jones, G., Hill, K., Wardlaw, T. & Chopra, M. 2010a. Levels and trends in child mortality, 1990-2009. *The Lancet*, 376:931-933.

You, D., Wardlaw, T., Salama, P. & Jones, G. 2010b. Levels and trends in under-5 mortality 1990-2008. *The Lancet*, 375:100-102.

Annexures

Annexure A: Ethical Approval



UNIVERSITEIT-STELLENBOSCH-UNIVERSITY
Jou Erwagingsgenoot • jou Knowledge partner

Approval Notice New Application

21-Jun-2012
VAN ZYL, Marjorie Alice

Ethics Reference #: S12/04/096

Title: The factors influencing community integrated management of childhood illness on child health in rural areas

Dear Miss Marjorie VAN ZYL,

The **New Application** received on **13-Apr-2012**, was reviewed by members of **Health Research Ethics Committee 2** via Expedited review procedures on **20-Jun-2012** and was approved.

Please note the following information about your approved research protocol:

Protocol Approval Period: **20-Jun-2012 -20-Jun-2013**

Please remember to use your **protocol number (S12/04/096)** on any documents or correspondence with the REC concerning your research protocol.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review:

Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired.

The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number projects may be selected randomly for an external audit.

Translation of the consent document in the language applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001372

Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

Provincial and City of Cape Town Approval

Please note that for research at a *primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health (healthres@pgwc.gov.za Tel: +27 21 483 9907) and Dr Helene Visser at City Health (Helene.Visser@capetown.gov.za Tel: +27 21 400 3981). Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.*

We wish you the best as you conduct your research.

For standard REC forms and documents please visit: www.sun.ac.za/rds

If you have any questions or need further help, please contact the REC office at 0219389207.


Included Documents:

Protocol
Questionnaire
CV
Declaration
Application
Synopsis
Consent
Checklist

Sincerely,

Mertrude Davids
REC Coordinator
Health Research Ethics Committee 2

Annexure B: Consent form

 <p>UNIVERSITEIT-STELLENBOSCH-UNIVERSITY jou kennisvenoot + your knowledge partner</p>	<p>Title</p> <p>FACTORS INFLUENCING COMMUNITY INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS IN RURAL AREAS</p>
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PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

REFERENCE NUMBER: Ethics: S12/04/096 Department of Health: 2012RP83

PRINCIPAL INVESTIGATOR: MS. M.A. VAN ZYL

ADDRESS: 15 BUITELAAN STREET
VREDENDAL
8160

CONTACT NUMBER: 082 3770 280

Dear Participant

You are invited to take part in a research project entitled "FACTORS INFLUENCING COMMUNITY INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS IN RURAL AREAS".

Please take some time to read the information presented here, as it explains the details of this project. Please feel free to ask the researcher any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied and that you understand clearly what this research entails and how you could be involved. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to drop out of the study at any point, even if you do agree to take part.

This study has been approved by the Health Research Ethics Committee (HREC) of Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, the South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

The goal of the study is to investigate the factors influencing Community Integrated Management (CIMCI) in rural areas.

The following information is of importance to you as a participant:

Your written consent is needed to take part in this study.

You will be visited at a scheduled time that is convenient for you and you will be expected to complete a questionnaire that will take approximately 30 minutes to complete.

All information will be managed by the researcher and supervisors only, and will be stored in a locked cupboard. You will be informed of the results of the study.

The questionnaire will be divided into the following sections:

Section A: Demographic data

Section B: Factors related to CIMCI practice

Section C: Training and community care workers' knowledge of CIMCI

Why have you been invited to participate?

This study is about CIMCI in the West Coast District of the Western Cape province of South Africa and you are one of the community care workers (CCWs) of the CIMCI initiative that have been found suitable to take part in it.

What will your responsibility be?

Your responsibility will be to complete the questionnaire.

Will you benefit from taking part in this research?

The benefit to you is that the findings of this study have the potential to empower the caregivers and the communities with knowledge through improved CIMCI practices. This could improve child health, with a reduction in child morbidity and mortality caused by the most common and preventable childhood illnesses.

Are there any risks involved in your taking part in this research?

There are no risks involved in taking part in the project, as confidentiality/privacy will be maintained and participation is voluntary.

If you do not agree to take part, what alternatives do you have?

The choice to participate is yours. Refusing to take part will not be held against you.

Who will have access to your medical records?

Your personal details will be kept anonymous and confidential, meaning that your name will not be mentioned to anyone. The information given by you will only be seen by the researcher and her supervisors.

Will you be paid to take part in this study and are there any costs involved?

No, you will not be paid to take part in the study and there are no costs involved.

Is there anything else that you should know or do?

You can contact Ms. J.E. Eygelaar (Ms M.A. van Zyl's study supervisor) at tel. (0836301376) if you have any further queries or encounter any problems.

You can contact the HREC at (021) 938-9207 if you have any concerns or complaints that have not been addressed adequately by the researcher.

You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I,, agree to take part in a research study entitled "**Factors influencing Community Integrated Management of Childhood Illness in rural areas**".

I declare that: I have read or had read to me the information in this consent form and that it is written in a language with which I am fluent and comfortable.

- I have had a chance to ask questions and all my questions have been answered adequately.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (place) on (date) 2012

Signature of participant..... Signature of witness..... of

Declaration by investigator

I (name) declare that:

I explained the information in this document to

I encouraged her to ask questions and took adequate time to answer them.

I am satisfied that she adequately understands all aspects of the research, as discussed above.

I did/did not use an interpreter. (If an interpreter is used, the interpreter must sign the declaration below.)

Signed at (place) on (date) 2012.

Signature of investigator..... Signature of witness.....

ANNEXURE C: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC DATA

Indicate your answer by placing an x in the box or complete the appropriate answer.

1. Indicate your age.

_____ years

2. Indicate your highest school grade/standard that you passed.

Grade: _____ or Standard: _____

3. Indicate your sex:

a. Male

b. Female

4. Did you have any health-related working experience before starting to work as a community care worker (ccw)?

a. Yes

b. No

5. Did you have any working experience with children before starting to work with community integrated management of childhood illness (CIMCI) clients?

a. Yes

b. No

6. What are your daily working hours for the non-profit organisation (NPO)?

7. What is your stipend for this position per month?

R_____

SECTION B: FACTORS RELATED TO COMMUNITY INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (CHILDREN UNDER FIVE YEARS OF AGE) PRACTICE**8. Working hours**

8.1 How many community based service clients do you see per day?

8.2 Do you do Community Integrated Management of Childhood Illness for the non-profit organisation during working hours (i.e. during the 4 hours 30 minutes)?

- a. Yes
- b. No

8.3 Indicate the frequency of working with Community Integrated Management of Childhood Illness clients?

- a. Daily
- b. Weekly
- c. Monthly
- d. Quarterly

8.4 Do you only do health promotion for Community Integrated Management of Childhood Illness in the 4 Season's child health month?

- a. Yes
- b. No

8.5 How many Community Integrated Management of Childhood Illness clients do you see?

- a. _____per day

8.6 What is the average time you spend on a Community Integrated Management of Childhood Illness visit?

_____hours_____ minutes

9. Training

9.1 Did you do any health-related training after school?

- a. Yes
- b. No

9.2 Indicate your level in the Expanded Public Works Programme training.

Level _____

9.3 Did you attend the Community Integrated Management of Childhood Illness 5-day course?

a. Yes

b. No

9.4 When did you do the CIMCI training?

Year: _____

9.5 Did you do any refresher course on CIMCI after the training?

a. Yes

b. No

9.6 If “yes”, when did you do the refresher course on CIMCI?

Year: _____

10. Challenges of working in rural and remote areas

10.1 Do you live in the community in which you render CIMCI services?

a. Yes

b. No

10.2 What is the distance between your house and the NPO office?

_____ km

10.3 What is the distance between your house and the nearest clinic?

_____ km

10.4 What is the distance between your house and the nearest district hospital?

_____ km

10.5 Where do you practise CIMCI in the community?

a. Crèches

b. At the client's home

10.6 How do you reach your CIMCI clients?

- a. by walking
- b. by transport

10.7 What is the average distance you need to travel to your CIMCI clients (i.e. from the non-profit organisation office to the clients)?

a. _____ km

10.8 How much time does it take to travel to the CIMCI client?

a. _____ hours _____ minutes

10.9 What is your experience of the community and clients to whom you render community based services?

- a. safe
- b. dangerous

10.10 What dangerous experience have you had during working hours?

- a. dog attack
- b. verbal harassment
- c. physical harassment
- d. other
- e. none

10.11 Do you have cell phone contact where you work?

- a. Yes
- b. No

10.12 Do you have landline telephone contact where you work?

- a. Yes
- b. No

10.13 Does the non-profit organisation supply you with a cell phone or telephone card to use for work purposes?

- a. Yes
- b. No

11. Supervision and support

11.1 Do you work under a non-profit organisation coordinator who is a professional nurse?

- a. Yes
- b. No

11.2 Is the non-profit organisation coordinator available to supervise or support you with Community Integrated Management of Childhood Illness every day, if needed?

- a. Yes
- b. No

11.3 Do you receive a standard referral form for Community Integrated Management of Childhood Illness clients?

- a. Yes
- b. No

11.4 Do you keep record of the Community Integrated Management of Childhood Illness visits?

- a. Yes
- b. No

11.5 Do you have daily telephone/cell phone contact with a non-profit organisation coordinator?

- a. Yes
- b. No

12. Equipment

12.1 What equipment do you have to assist you during the Community Integrated Management of Childhood Illness visit?

- a. Thermometer
- b. Blood pressure monitor for children
- c. Stethoscope
- d. Scale

e. Watch

12.2 What guidelines do you have to assist you with the Community Integrated Management of Childhood Illness visit?

a. CIMCI family booklet

b. Milestone evaluation for children

c. Flip file with pictures to do health promotion on CIMCI

12.3 Do you walk to the clients with consumables (linen savers, plasters, urine bags, gauze, ext.) ?

a. Yes

b. No

12.4 Has the non-profit organisation issued you with a bag to carry consumables and equipment?

a. Yes

b. No

12.5 Does the non-profit organisation issue you with stationery for work purposes?

a. Yes

b. No

13. Training

13.1 Indicate the standard observations you do during a Community Integrated Management of Childhood Illness visit?

a. Pulse

b. Temperature

c. Breathing

d. Blood pressure for children

13.2 Do you refer the child to the clinic or hospital if there is any abnormality?

a. Yes

b. No

13.3 Do you make a diagnosis of Community Integrated Management of Childhood Illness clients?

a. Yes

b. No

13.4 Do you have medicine with you to give to sick children?

a. Yes

b. No

Annexure C

SECTION C: KNOWLEDGE OF CIMCI

Identify the correct answer:

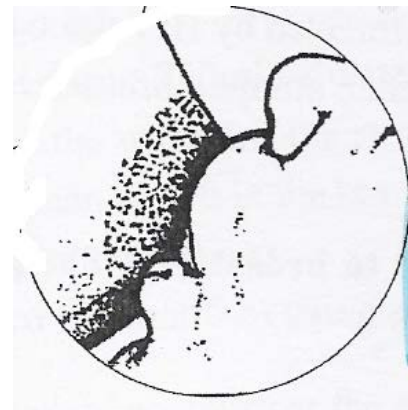
14. Identify the correct positioning and attachment for breastfeeding with an x:

a. Picture one	b. Picture two
----------------	----------------



15. Identify the correct attachment of the infant for breastfeeding with an x:

a. Picture one	b. Picture two
----------------	----------------



Identify the one correct answer(s) as indicated by each number:

16.	What is the correct positioning of the baby for breastfeeding?	Indicate <u>one</u> correct answer with an x
a.	The infant's head and body should be straight, facing the breast, with nose opposite the nipple.	
b.	The infant's head and body should be straight, facing the breast, with open nose.	
c.	The infant's head should be straight, facing the breast, with open nose.	
d.	The infant should be comfortable in the mother's arms while being breastfed.	
17.	Exclusive breastfeeding is?	Indicate <u>one</u> correct answer with an x
a.	Only breast milk for first six months, breastfeed on demand, no bottles or teats.	
b.	Only breast milk for first 6 months, breastfeed on demand, no bottles, only a dummy.	
c.	Breast milk on demand, bottle when sick, for first six months	
d.	Only breast milk for first four months, breastfeed on demand, no bottles or teats.	

18.	Advantages of breastfeeding?	Indicate <u>the</u> correct <u>answers</u> with an x
a.	Breastfeeding contains all the nutrients a baby needs and always in the right amounts.	
b.	Breast milk contains live anti-infective factors, which protect the young infant against infection.	
c.	Breastfeeding provides closeness and contact, which help the mother and baby to bond emotionally.	
d.	Breastfeeding is easier than bottle feeding.	
e.	Breast milk contains good nutrients, but could be too salty.	

19.	Good attachment of the baby to the mother's breast entails?	Indicate <u>one</u> correct answer with an x
a.	The mouth is wide open, the chin is touching the breast, the lower lip is turned outward and more areola is visible above than below the mouth.	
b.	The mouth is wide open, the lower lip is turned outward, the baby's nose is open.	
c.	The mouth is wide open, the chin is touching the breast, the lower lip is turned inwards and no areola is visible.	
d.	The mouth is wide open and no areola is visible, the baby is comfortable with an open nose.	

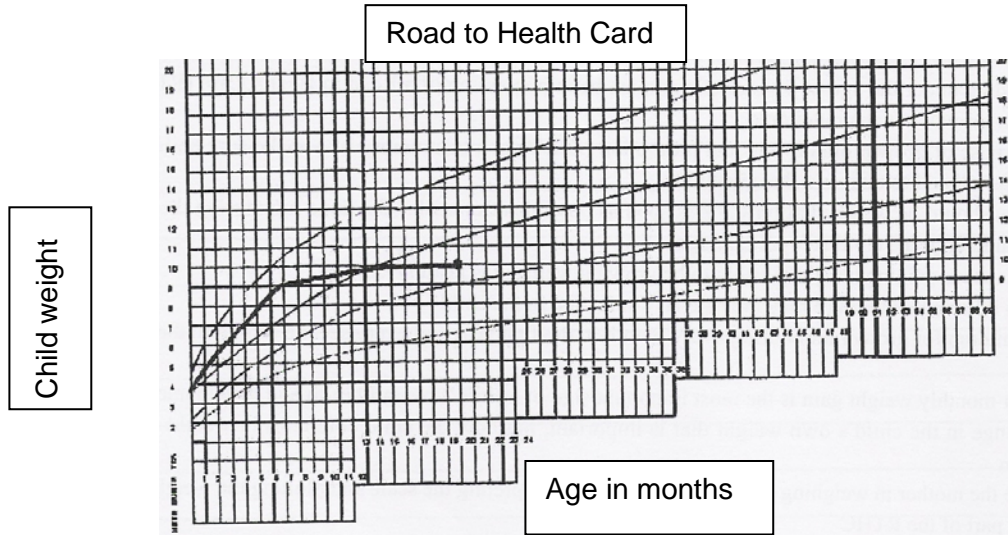
20.	The correct feeding option for the infant(s) of an HIV-positive mother is?	Indicate the <u>one</u> correct answer with an x
a.	Breastfeeding, bottle feeding and water bottles	
b.	Exclusive breastfeeding	
c.	Bottle feeding during the day and breastfeeding during the night	

21. Physical development

Indicate with an x which answer is correct regarding the Road to Health Card

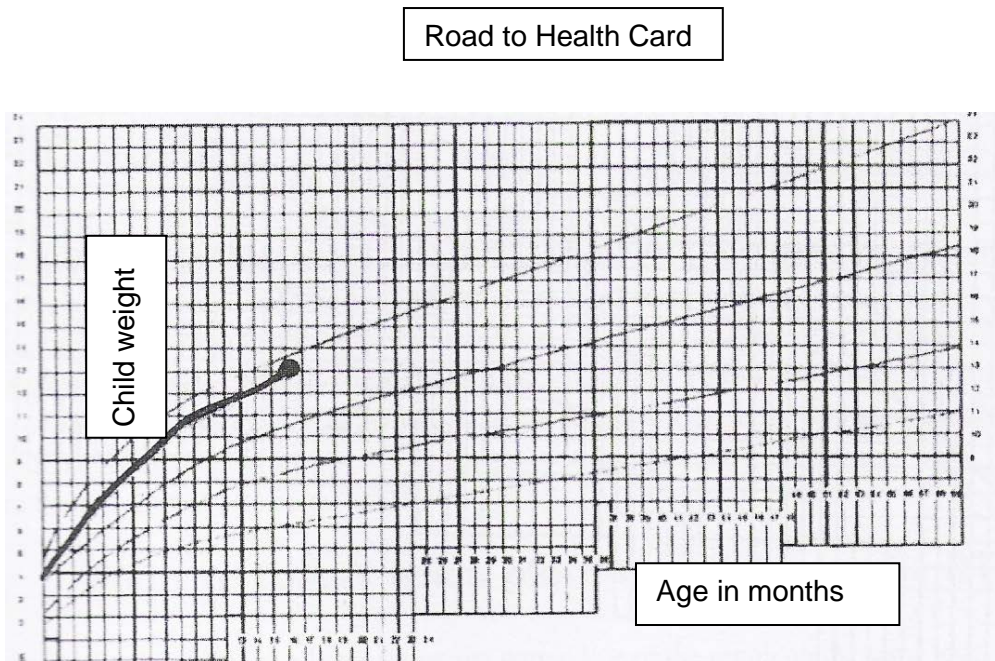
21.1 The Road to Health Card shows that the child:

- | | | |
|--------------------|--------------------|---------------------------|
| a. is growing well | b. is malnourished | c. is faltering in growth |
|--------------------|--------------------|---------------------------|



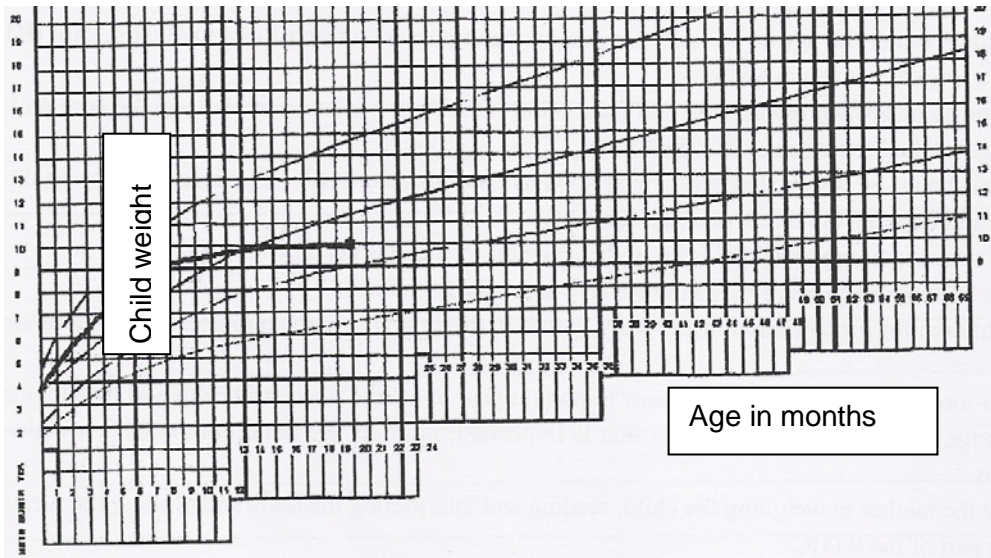
21.2 The Road to Health Card shows that the child:

- | | | |
|--------------------|--------------------|---------------------------|
| a. is growing well | b. is malnourished | c. is faltering in growth |
|--------------------|--------------------|---------------------------|



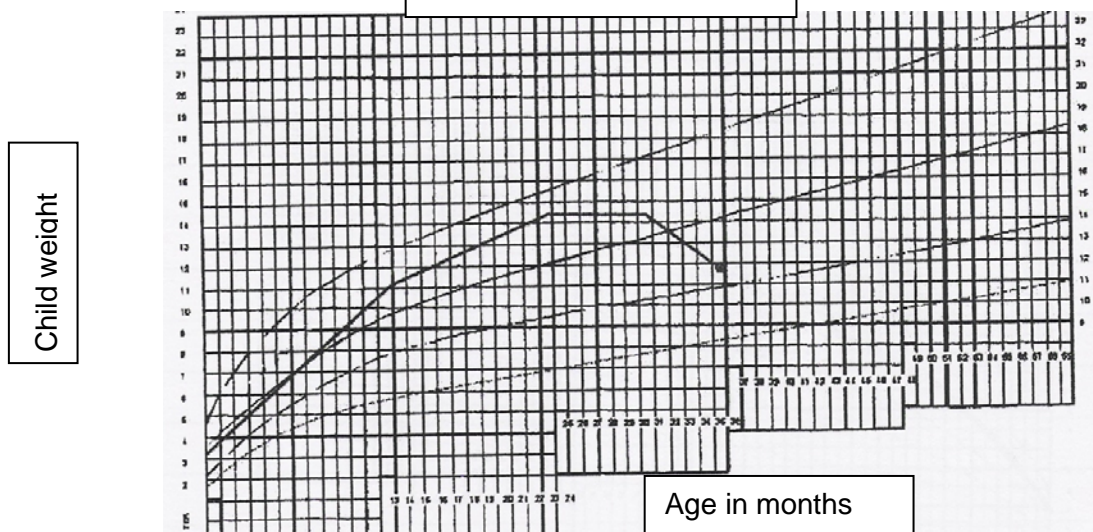
21.3 The Road to Health Card shows that the child:

a. is growing well	b. is malnourished	c. is faltering in growth
Road to Health Card		



21.4 The Road to Health Card shows that the child:

a. is growing well	b. is malnourished	c. is faltering in growth
Road to Health Card		



Complete with the right answer:

22.	A sign of pneumonia is	More than a. _____ breaths per minute
23.	The sugar salt solution recipe contains	a. _____ litre of boiled and cooled water b. _____ teaspoon of salt c. _____ level teaspoon of sugar
24.	Children with TB present with (name four (4) signs or symptoms)	a.
		b.
		c.
		d.
25.	Malnourished children with swelling of the body have	Circle the right answer: a. kwashiorkor or b. marasmus
26.	Malnourished children who appear to be very wasted (i.e. they have no body fat, ribs show and arms and legs are very thin) have	Circle the right answer: a. kwashiorkor or b. marasmus
27.	What is an example of iron-rich food	Identify the right one a. meat b. apple c. mango
28.	What is an example of Vitamin A-rich food	Identify the right one a. liver b. beans c. Chicken

29.	Give 5 of the 10 danger signs in a child that you need to refer to a clinic or hospital	a.
		b.
		c.
		d.
		e.
30.	How does a child become infected with HIV?	a.
		b.
		c.
31.	Name three (3) measures you will recommend for a child with fever	a.
		b.
		c.
32.	Name one sign which will make you suspect pneumonia in a child?	a.

Choose the correct answer(s):

What is the correct immunisation at?

33.	6 weeks	a. polio	b. DTP	c. hepatitis	d. measles
34.	9 months	a. polio	b. DTP	c. hepatitis	d. measles
35.	18 months	a. polio	b. DTP	c. hepatitis	d. measles

Total score for Annexure 3 is 40.

Scoring:

Poor	Average	Good	Excellent
0-40%	50-60%	70-80%	90-100%

ANNEXURE D: DEPARTMENT OF HEALTH APPROVAL LETTER

19/07/2012 09:05 0214833859

FINANCE

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STRATEGY & HEALTH SUPPORT

echn@ecg.westerncape.gov.za
 Tel: +27 (0) 21 483 3859 Fax: +27 (0) 21 483 3859
 11 Plein, Pletzer Park, P.O. Box 13044, Cape Town, 8001
www.westerncape.gov.za

REFERENCE: RP 83/2012
 ENQUIRIES: Dr S khumbuzo Mabunda

15 Buiteloan
 Vredendal
 8140

For attention: Ms. M.A. van Zyl, Ms. E. Eygelau, Dr. E.L. Stellenberg

Re: Factors Influencing Community Integrated Management of Childhood Illness (CIMCI) in rural areas

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact the following people to assist you with any further enquiries:

West Coast District Dr D. Schonman (022) 487 9212

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (research@ecg.westerncape.gov.za).
3. The reference number above should be quoted in all future correspondence.

We look forward to hearing from you.

Yours sincerely,

DR N. Naledi

DIRECTOR: HEALTH IMPACT ASSESSMENT

DATE: 18/7/2012

Cc: MS C BESTER

DIRECTOR: WEST COAST

ANNEXURE E: LANGUAGE EDITING AND TRANSLATION

Marisa Honey

PO Box 7504, Stellenbosch, 7600

Tel. 021-889 6688 Cell. 082 412 8642

e-mail: marisahoney@africa.com

4 June 2012

To Whom It May Concern:

Hereby I, Marisa Freya Honey, declare that I am a full-time editor and translator with 13 years' experience of, among other things, editing theses, dissertations and journal articles. I also wish to state that I undertook a linguistic edit of the research proposal and related documents for a thesis, *Factors influencing Community Integrated Management of Childhood Illness in rural areas*, on behalf of Alice van Zyl.

My qualifications are the following (all degrees obtained at Stellenbosch University:

BA (1984)

BJournalism (Hons) *cum laude* (1986)

BA (Hons) Philosophy (1988)

MPhil (Translation) *cum laude* (2006)

The latter degree had a large editing component.

Please feel free to contact me should you have any queries.

Kind regards

A handwritten signature in black ink on a light grey background. The signature reads "Marisa Honey" in a cursive script. The first name "Marisa" is written in a standard cursive, while the last name "Honey" is written in a more stylized, flowing cursive with a prominent loop at the end of the "y".

Marisa Honey

ANNEXURE F: LETTER OF CONFIRMATION OF TECHNICAL FORMATTING



To whom it may concern

This letter serves as confirmation that I, Lize Vorster, have performed the technical formatting of Marjorie Alice van Zyl's thesis which entails ensuring its compliance with the Stellenbosch University's technical requirements.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Lize Vorster', is written over a simple line drawing of a pen nib.

Lize Vorster