THE IMPLEMENTATION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) STRATEGY GUIDELINES IN BOTSWANA

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ABSTRACT

The purpose of the study was to explore the challenges encountered in implementing the Integrated Management of Childhood Illness (IMCI)strategy guidelines by primary healthcare (PHC) nurses at first level healthcare facilities in the Francistown area of Botswana.

An exploratory, descriptive and quantitative research design was used and data were collected using self-administered questionnaires. Out of the population of 68 PHC nurses, 60 (88.2%) trained professional PHC nurses working at first level health facilities in the Francistown area, completed questionnaires and comprised the respondents for this study.

Respondents working in the outpatient and maternity departments had more knowledge about IMCI than those working in mother and child health services (MCH). Of the respondents, 61.7%% (n=37) reported that resources for implementing the IMCI strategy guidelines were

available at their facilities and 38.3%% (n=23) stated that a lack of resources was one of the main difficulties they encountered in implementing the IMCI strategy. Most respondents (93.3%; n=56) agreed that they had opportunities to attend to sick children aged five and younger (referred to as 'under fives'), but only 45.0% (n=27) of them reported that they used the entire IMCI approach when attending to these sick children.

PHC nurses stated that the implementation of the IMCI strategy could be enhanced if the lack of resources, shortage of staff, lack of time, untrained staff and lack of supervision could be addressed effectively.

Keywords: Botswana's healthcare system, childhood illnesses, first level health facility, integrated management of childhood illness (IMCI), primary healthcare(PHC)

INTRODUCTION AND BACKGROUND INFORMATION

The Integrated Management of Childhood Illnesses (IMCI) approach is a broad strategy, encompassing interventions at home and in the healthcare facilities to reduce childhood deaths, illnesses and disabilities and to contribute to improved growth and development (WHO, 2007a). The IMCI strategy combines improved case management of childhood illnesses with aspects of nutrition, immunisation, disease prevention and promotion of growth and development (WHO, 2007a). IMCI has three components that include improving skills of primary healthcare (PHC) nurses; improving the health system; support for child health service delivery and focusing on a set of family practices that are important for child health and development. IMCI also aims to encourage the development and implementation of community and household-based interventions to increase the proportion of children receiving care (WHO, 2007b).

One of the key elements of the IMCI strategy is an integrated case management training course for first level PHC nurses. Such training aims to enable PHC nurses to assess, classify and treat sick children aged from the age of one week till five years, using specifically developed IMCI guidelines.PHC nurses are trained through different types of programmes depending on the needs of a country. The standard training is the 11 day training programme on IMCI guidelines and the accelerated training usuallylasts 5-8 days (Kebede, 2007:4). These guidelines approach childhood illnesses in a comprehensive and systematic way, combining steps needed to manage different conditions, particularly acute respiratory infections (mostly pneumonia), diarrhoea, measles, malaria and malnutrition. According to the WHO (2007a), these conditions will continue to contribute to child mortality, unless greater efforts are made to control them. The use of the IMCI guidelines facilitates accurate identification of illnesses in outpatient settings, ensures appropriate combined treatment of all major illnesses and speeds up the referral of severely ill children (Mgalula, Ketsela & Mason, 2004:2).

In Botswana, the IMCI strategy was introduced during 1997. Since then the government has been committed to implementing and funding IMCI activities with assistance from

the World Health Organization (WHO) and from the United Nations International Children's Emergency Fund (UNICEF); hence IMCI is part of Botswana's national health delivery system (IMCI annual report 2009). Several healthcare workers, including PHC nurses, doctors and pharmacy technicians received training on case management to improve their IMCI skills and training continues. After receiving IMCI training, all PHCworkers in Botswana receive booklets containing all the steps to be followed when managing sick children aged from one week up to five years.

BACKGROUND

Each year more than 10 million children in low and middle income countries die before their fifth birthday. Of these deaths, 70% are due to five preventable and treatable conditions, namely: pneumonia, diarrhoea, malaria, measles and malnutrition, and often a combination of these (WHO, 2007b). WHO and UNICEF addressed this challenge by developing the IMCI strategy in 1995 to help reduce childhood morbidity and mortality, particularly among children under the age of five (WHO, 2007a).

The 2001 Population and Housing Census estimated Botswana's total population to be 1680863, of which 2.5% were children under the age of one year and 11.7% were under the age of five years (Botswana Millennium Development Goals Status Report, 2004). The World Bank data of 2002, as cited in the report of Botswana IMCI Health Facility Survey(WHO, 2004), indicated that infant and under–five mortality rates in Botswana were 74 and 95 per 1000 live births, respectively. The same report showed that Botswana had been slipping back in attaining Millennium Development Goal 4 (MDG 4) which aims to reduce the under-five mortality rate by two thirds by 2015. The report noted an increase in the under-five mortality rate from 58 to 110 per 1000 live births between 1990 and 2001; while the average annual rate of reduction in under-five mortality needed to achieve MDG 4 was 13.4% (WHO, 2004).

When the IMCI strategy was adopted in 1997, the primary aim was to try to reduce the infant and under-five mortality rates. All 24 health districts in Botswana are implementing the case management component of IMCI (WHO, 2004). Botswana's survey reports revealed that despite training, PHC nurses working at first level health facilities did not follow the IMCI guidelines when managing sick under-fives. Boonstra, Lindbaek and Ngome (2005:224) reported that Botswana's healthcare providers' adherence to guidelines on history taking was suboptimal in cases of acute respiratory infections and diarrhoea, but poor on examinations of both conditions. The same authors reported high levels of inappropriate antibiotic prescriptions for acute respiratory infections and diarrhoea. PHC nurses' non adherence to management guidelines was also confirmed by a Nnyepi (2006) who reported that many children, seeking curative care in the Botswana's health clinics, were not screened for possible compromised dietary intakes and nutritional status.

The use of the IMCI strategy guidelines in health facilities promotes accurate identification of childhood illnesses in outpatient settings; ensures appropriate combined treatment of all major illnesses; strengthens counselling of caretakers about providing preventive services and speeds up referrals of severely ill children (WHO, 2007c). Only one study, assessing the implementation of IMCI at health facilities in Botswana, could be traced (Mgalula et al., 2004:3) which revealed that PHC nurses did not follow IMCI guidelines when attending to sick under-fives.

PROBLEM STATEMENT

Botswana adopted the IMCI strategy in 1997 to try to reduce the infant and under-five mortality rates. The 2006 Botswana Demographic Survey (in Accelerated Child Survival and Development Strategy of 2009/10-2015/2016), found that the infant mortality rate was 51 deaths per 1000 live births and the under-five mortality rate was 76 deaths per 1000 live births. The Botswana IMCI Health Facility Survey Report (2004) revealed that despite training, healthcare workers in first level health facilities often failed to follow the IMCI guidelines when managing sick under-fives, despite the strategy's potential for preventing complications and reducing infant and under five morbidity and mortality rates.

AIM AND OBJECTIVES OF THE STUDY

The aim of this study was to explore the challenges relating to the implementation of the IMCI strategy guidelines by healthcare workers at first level health facilities in the Francistown area of Botswana.

The objectives of the research were to:

- assess the level of knowledge of PHC nurses trained in IMCI on assessment, classification and treatment of under fives
- identify challenges that influence the implementation of IMCI strategy guidelines

SIGNIFICANCE OF THE STUDY

The study's findings could contribute to the improvement of the quality of children's healthcare services and to a review of the IMCI practices at first level healthcare facilities in Botswana. The study's findings could also be used to improve in-service education on the implementation of the IMCI strategy so as to improve the utilisation of the IMCI guidelines. The study might identify gaps in the services that require attention, to improve services provided to under-fives with common childhood illnesses. The study's findings will also inform the City of Francistown District Health Team about the

status of IMCI implementation in the district, enabling improvements in this strategy's implementation, and probably reducing the mortality and morbidity rates among the under-fives in this area.

Definitions of key concepts

Accelerated training refers to a shortened competency-based training package (less than 11 days) in line with the target PHC nurse and pre-service training course (Kebede & Rowe, 2007).

Challenges implies problems in monitoring PHC nurses' adherence to IMCI guidelines (Mullei, Wafula & Goodman, 2008).

First level health facility, according to the WHO (2007b), is the first level of contact of individuals, the family and the community with the healthcare system to promote health, prevent illness, obtain care for common illnesses and manage ongoing health problems. Facilities such as healthcare centres, clinics, rural health posts, dispensaries or outpatient departments of hospitals are considered to be first level facilities within the healthcare system (WHO, 2007b). For this study first level health facilities will include all government clinics in the Francistown area.

Primary healthcare (PHC) nurses refer to persons engaged in the promotion and improvement of the health of the population (Kinfu, Dal Poz, Mercer & Evans, 2009:226). A PHC nurse is a person who delivers proper healthcare in a systematic way to any individual in need of healthcare services.

The integrated management of childhood illnesses (IMCI) strategy is defined by the WHO (2007a) as an integrated approach to child health that focuses on the wellbeing and development of the whole child. IMCI includes promotion of health, preventative and curative elements of healthcare that are implemented by healthcare providers in PHC facilities and communities in general.

Standard IMCI training is an11-day in-service training course for healthcare workers (Kebede & Rowe, 2007).

RESEARCH DESIGN

Polit and Beck (2008:765) defined a research design as the overall plan for addressing a research question, including specifications for enhancing the integrity of the study. Burns and Grove (2005:211) described it as a blue print for conducting the study that maximises control over factors that could interfere with the validity of the findings. A non experimental, descriptive and explorative study was conducted. The study did

not include any interventions, and its main objective was the accurate portrayal of PHC nurses' implementation of the IMCI guidelines in the government clinics in the Francistown area of Botswana.

Population, sampling procedure and sample

A study population (Burns & Grove, 2005:342) comprises the entire set of persons or elements that meets the sampling criteria. The population for this study comprised PHC nurses trained in IMCI case management and working in first level health facilities in the City of Francistown's Health District. According to the IMCI Annual Report (2009), there were 68 IMCI trained PHC nurses in this health district.

According to Polit and Beck (2008: 341) the advantage of a convenient sample is that it is easier for the researcher to obtain subjects and it is also convenient in terms of time and cost. However, the risk of bias is great because samples tend to be self selected and generalisations based on such samples are extremely risky as representativeness is questionable.

All 68 registered PHC nurses, trained in IMCI case management and working in first level health facilities in the City of Francistown's Health District, comprised the population for the study. As 60 (88.2%) of these nurses completed questionnaires during April 2010, they were the respondents for this study (N=60).

Data collection

A small scale pre-test was conducted at Nkoyaphiri Clinic, in the Kweneng Health District to pre-test the questionnaire with five respondents trained in IMCI case management guidelines. These five nurses did not participate in the actual study.

Data were collected in selected clinics during tea and lunch breaks. Every participant signed informed consent after reading the information sheet. Respondents were informed that participation was voluntary and that they were free to withdraw at any time. The questionnaires were completed in the PHC nurse's tea lounge so as not to disturb the normal clinic routines.

Research instrument

Polit and Beck (2008:763) defined a questionnaire as a method of gathering self report information from respondents in paper and pencil format. It comprised three sections requesting demographic information from respondents; questions that would help to determine the PHC nurses' level of IMCI knowledge and PHC nurses' opinions about

the implementation of IMCI guidelines at first level health facilities as well as factors influencing such implementation.

Data analysis

Data were captured, checked and entered into the SPSS 17.0 (Statistical Package for the Social Sciences) programme. Frequencies and percentages are displayed in the form of tables and graphs.

ETHICAL CONSIDERATIONS

Ethical considerations addressed in this study included informed consent, voluntary participation, anonymity and confidentiality, institutional rights and the right of respondents to withdraw from the study. Written permission was granted by the University of Kwa-Zulu Natals's Ethical Clearance Committee, Botswana's Health Research Unit at the Ministry of Health (MOH), Botswana's Ministry of Unified Local Government, the local authority of the City of Francistown Health District, the managers of the participating clinics and the respondents.

RESEARCH FINDINGS

Demographic data

Out of the total of 60 respondents,91.7% (n=55) were females and 8.3% (n=5) were males. Years of nursing experience ranged from one year to 15 years.

Type of IMCI training

All PHC nurses (N=60) knew what type of antibiotics should be given to a ten month child suffering from an acute ear infection. There were no differences based on the type of training. A meta-analysis that compared the effectiveness of the standard (11 day) IMCI in-service training with shortened training (<11 days) suggested that the standard in-service IMCI training course appeared to be more effective than the shorter training.

Table 2 shows that out of the 8 respondents who worked in the maternity section, 87.5% (n=7) responded that nutritional status should be assessed for all children seen at the clinic and 12.5% (n=1) indicated that this should be done for a child with persistent diarrhoea. In MCH, out of 7 respondents, 6 (85.7%) indicated that nutritional assessments should be done for all children seen at the clinic and 14.3% (n=1) would do this for a child with diarrhoea. In OPD, out of 45 respondents, 6.7% (n=3) would do nutritional assessments

for children requiring urgent referrals, 11.1% (n=5) would do so for children younger than two who do not need urgent referrals, 66.7% (n=30) would nutritionally assess all children seen at the clinic and 15.6% (n=7) would do so for children with persistent diarrhoea.

Table 1: Respondents' knowledge according to type of IMCI training

	What antibiotic dose and schedule should be prescribed for a 10 months old child with an acute ear infection?				
Type of IMCI training	*Amoxicillin 5.0 ml: 3 times daily for 5 days	Amoxicillin 2.5 ml: 3 times daily for 5 days	Cotrimoxazole 5.0 ml: twice daily for 5 days	Erythromycin 5.0 ml: 4 times daily for 5 days	**TOTAL**
Accelerated	13 (65.0%)	4 (20.0%)	2 (10.0%)	1 (5.0%)	20 (100%)
Standard	26 (65.0%)	5 (12.5%)	6 (15.0%)	3 (7.5%)	40 (100%)
TOTAL	**39 (65.0%)**	**9 (15.0%)**	**8 (13.3%)**	**4 (6.7%)**	**60(100%)**

*** indicates the correct response**

Table 2: Respondents' knowledge about the nutritional assessment of children under five

	Feeding should be assessed in a child who				
Unit (place of work)	Needs urgent referral	Is younger than two years and does not need urgent referral	*All children seen at the clinic	Has persistent diarrhoea	TOTAL
Outpatient department	3 (6.7%)	5 (11.1%)	30 (66.7%)	7 (15.6%)	45 (100%)
Maternal Child Health **(MCH)**	0 (0%)	0 (0%)	6 (85.7%)	1 (14.3%)	7 (100%)
Maternity ward	0 (0%)	0 (0%)	7 (87.5%)	1 (12.5%)	8 (100%)
TOTAL	3(5.0%)	5 (8.3%)	43 (71.7%)	9 (15.0%)	**60 (100%)**

*** indicates the correct response**

Main challenges encountered in implementing the IMCI strategy

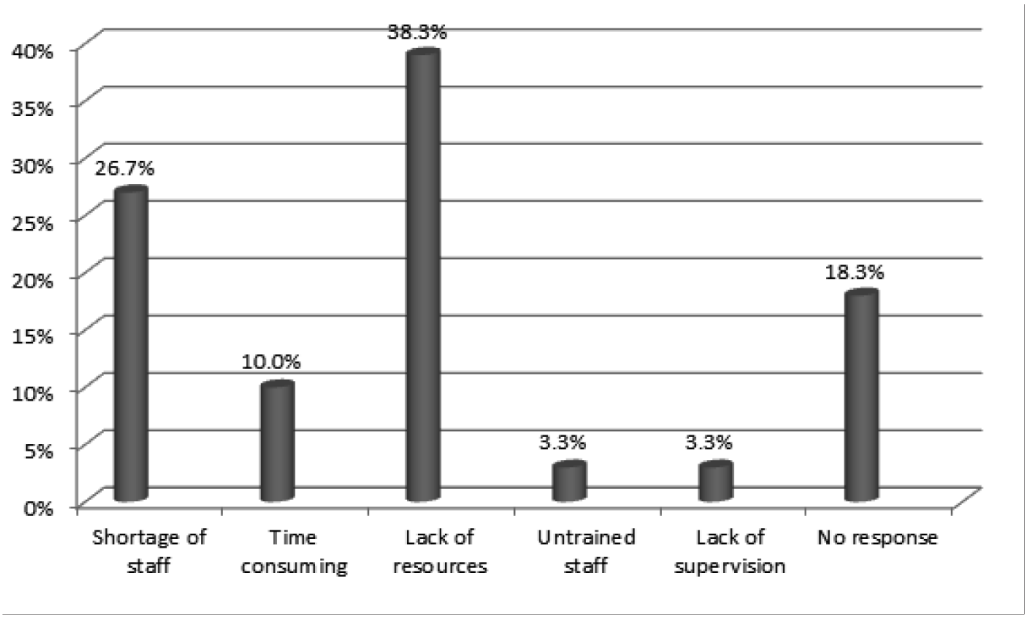

Figure 1: Main challenges encountered in implementing the IMCI strategy

As indicated in figure 1, the major challenges encountered in implementing the IMCI strategy in the Francistown area of Botswana were:

- lack of resources 38.3% (n= 23)
- shortage of staff 26.7% (n=16)
- time consuming procedures 10% (n=6)
- untrained staff 3% (n=2)
- lack of supervision 3% (n=2)
- 18.3% (n=11) did not respond.

DISCUSSION OF RESEARCH FINDINGS

Most respondents 91.7% (n=55) were females. Traditionally, nursing is a female dominated profession. Although the study had more females than males, gender did not influence the respondents' knowledge or theIMCI implementation challenges.

Respondents working in OPD and maternity units had better knowledge about assessment, classification and treatment of under fives. These respondents' higher levels of knowledge might be attributed to the fact that they were more likely to attend to children under five than those working in MCH. Studies conducted by Camara, Faye, Diagne-Gueye, Ba, Dieng-Sow, Sall, Ba and Sow (2008:164) revealed that PHC nurses

do not follow IMCI strategy guidelines. However, regularly attending to under fives gives PHC nurses opportunities to utilise the IMCI strategy guidelines more often than their nursing colleagues working in other areas.

The type of training had a minimal influence on the respondents' knowledge levels pertainingto assessment, classification and treatment of underfives (Kebede, 2007:4). Some responses indicated that the type of training did not have any impact on the respondents' knowledge levels as both groups had the same percentages. However, in response to other questions, respondents trained according to the standard IMCI case management programme had higher knowledge levels. A study conducted by Naimoli, Rowe, Lyaghfouri, Larbi & Lamrani (2006:140), showed that IMCI trained PHC nurses provided better quality care to under fives compared to those who had not been trained.

Most respondents knew about assessments, classifications and treatments of under fives even though they had problems assessing and classifying sick infants aged from one week up to two months. Out of the respondents, 70.0% (n=42) knew the four main symptoms for which every sick child should be checked.These symptoms are coughing or difficult breathing, diarrhoea, fever and ear problems (WHO, 2007a). Checking for general danger signs is very important when assessing children aged two months up to five years, as signs determine the classification and treatment of the sick child. The majority (93.3%: n= 56) of the respondents knew the steps required for checking for general danger signs which are assessing, classifying and treating (WHO, 2007a) . In another study by Chopra , Patel, Cloete, Sanders and Peterson (2005: 398), the results showed a marked improvement in assessment of general danger signs in sick children after IMCI training (7% before versus 72% after).

The findings also show that only 8.3% (n=5) of the respondents could assess a child's nutritional status. IMCI states that all children younger than two, and who do not need urgent referrals,should be assessed nutritionally so as to identify potential problems and counsel caretakers about infant feeding as well as to promote breastfeeding. Most respondents (91.7%; n=55) did not know which children should be nutritionally assessed and this might indicate that they were not using the IMCI strategy guidelines efficiently. The findings of this study concur with those of a South African study by Horwood, Vermaak, Rollins, Haskins, Nkosi & Qazi (2009) reporting that nutritional status was not classified in 47.5% of children. Nnyepi's (2006) results showed that a large proportion of children seeking curative care in the health clinics in Botswana were rarely screened for possible compromised dietary intakes and nutritional status.

Chopra et al. (2005:298) investigated the change in quality of care provided to sick children as a result of the routine implementation of the IMCI intervention and reported that supervision was regular before and after IMCI training. A South African study (Horwood et al., 2009) revealed that 65% of PHC nurses received follow-up supervision

after IMCI training. Follow-up supervision after training is an essential component of the IMCI training process to reinforce skills acquired during training and to help solve problems encountered during the implementation of the IMCI strategy (WHO, 2008).

In this study PHC nurses stated that the main IMCI implementation difficulties they encountered were: lack of resources, shortages of staff, IMCI's time consuming procedures, untrained staff and lack of supervision. These findings concur with a policy brief report on implementing IMCI in Kenya (Mullei, Wafula & Goodman, 2008), which indicated that reasons for PHC nurses' non-adherence to IMCI guidelines included duration of sick child assessment, lack of resources, frequent shortages of medicines, negative attitudes of some clinical officers and doctors, and inadequate supervision.

Of the respondents, 61.7% (n=37) reported that resources for implementing the IMCI strategy guidelines were available at their facilities, even though 38.3% (n=23) stated that lack of resources was one of the main difficulties encountered when implementing the IMCI strategy. A study by Dhavana-Maselesele (2009:68) revealed that PHC nurses in South Africa encountered difficulties to render IMCI services due to lack of resources and poor working conditions. Chopra et al, (2005: 398), showed that, under normal operating conditions and in a context of good facility infrastructure and management support, IMCI implementation is associated with improvements in important aspects of care provided to children under the age of five.

CONCLUSION

PHC nurses in the Francistown area of Botswana implemented some IMCI guidelines, but assessments were frequently incomplete, and some children requiring urgent referrals, had not been referred. The lack of resources in clinics inhibited the efficient functioning of the registered PHC nurses although they were knowledgeable about the IMCI guidelines. Key child survival interventions in Botswana could be improved by competent PHC nurses who can identify specific signs, perform comprehensive assessments of children, provide effective treatments or refer children timeously for specialised treatments. IMCI practitioners require sufficient human and material resources, sustained in-service training and effective follow-up supervision to continue to implement the IMCI guidelines effectively at PHC level.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations might enhance the implementation of the IMCI guidelines in the Francistown area of Botswana:

- Staff allocation should enable the IMCI trained PHC nurses to attend to under fives.

- Only 43% of the respondents received follow-up supervision after IMCI training, therefore follow-up supervision and support of IMCI trained PHC nurses must be intensified.
- IMCI training should be conducted for those PHC nurses not yet trained and regular in-service training should be provided for IMCI trained PHC nurses to retain and improve their competency levels.
- IMCI training should place more emphasis on the module for the sick young infant.
- Wall charts on IMCI assessment, classification and treatment of a sick child aged one week up to two months and from two months up to five years to be made available in first level health facilities to make it easier for PHC nurses to implement the IMCI guidelines.
- Similar large scale studies should be conducted so that the research findings can be generalised to the whole country, and country-wide effective IMCI training programmes can be instituted.

LIMITATIONS

The study was conducted in all government clinics in the City of Francistown Health District, Botswana. There are 24 Health Districts implementing the IMCI strategy in Botswana. Due to a lack of resources and time constraints, the study was conducted in one district only and data were collected from a sample of 60 IMCI trained registered PHC nurses. The results of the study cannot be generalised to other districts because the study setting and sample is not representative of the population of PHC nurses trained in IMCI in Botswana, but the study can be repeated in other districts.

Self-completion questionnaires were used to collect data. More in-depth information might have been obtained if interviews could have been conducted with the PHC nurses.

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