Strengthening the Primary Care Workforce to Deliver Community Case Management for Child Health in Rural Indonesia

Abstract

Objectives This paper reports the implementation of Community Case Management (CCM) to reduce infant mortality in a rural district, Kalimantan Indonesia.

Methods An interpretive qualitative methodology was used. In-depth interviews were conducted with 18 Primary Health Care Workers (PHCWs), and PHCWs were observed during a consultation with mothers to gain insight into the delivery of the new protocol and workforce issues. The field notes and interview transcriptions were analysed thematically.

Results PHCWs reported that their performance had improved as a result of increased knowledge and confidence. The implementation had also reportedly enhanced the PHCWs’ clinical reasoning. However, the participants noted confusion surrounding their role in prescribing medication.

Conclusions CCM is viewed as a useful model of care in terms of enhancing rural PHCW’s capacity to provide child health care and improve the uptake of lifesaving interventions. However, work is needed to strengthen the workforce and to fully integrate CCM into maternal and child health service delivery across Indonesia.

Key words - child health, Primary Health Care Workers, community case management

What is known about the topic? Indonesia has successfully reduced infant mortality in the last ten years. However, the concern remains on the issues related to the disparities between districts. The number of infant deaths in rural areas tend to be staggeringly high compared to that in the cities. One of the causes is inadequate access to child health care.
What does this paper add? CCM is a model of care that is designed to address childhood illnesses in limited resource setting. In CCM, PHCWs are trained to deliver lifesaving intervention to sick children in rural community. CCM is reported to have improved PHCWs’ capacity in treating childhood illnesses.

What are the implications for practitioners? CCM can be considered to strengthen PHCWs’ competence in addressing infant mortality in areas where access to child health care is challenging. Policy on tasks shifting needs to be further examined so that CCM can be integrated into current health service delivery in the country.

Introduction

Everyday approximately 19,000 children under the age of five die worldwide and about 13,000 of them die before reaching the end of their first year of life, particularly in low and middle income countries (LMIC) 1-2. The new Sustainable Development Goal (SDGs) child health target is to end the preventable deaths newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to 12 deaths per 1,000 live births and under-5 mortality to 25 per 1,000 live births by the end of 2030 3. Indonesia has successfully reduced the number of infant deaths in the last decade, from the high figure of 37 infant deaths per 1000 lives in 2005 to 23 per 1000 in 2015 4. In order to support the global effort to achieve the development goals target, the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) established a policy that highlights the importance of community-based treatment and enhancement of quality service at primary care level to reduce infant mortality. One of the initiatives that came from this policy was the development of Integrated Management for Childhood Illnesses (IMCI) that aimed to reduce mortality and morbidity in children by improving the management of common illnesses at a primary care level.

Since 1996, IMCI has been implemented in more than 100 countries, including Indonesia 5. IMCI has improved health service quality and reduced child mortality and health care costs 6. Despite the reported successful implementation of IMCI, there have been some concerns associated with
the constraints in achieving adequate coverage to improve child survival and the implementation remained suboptimal. The constraints include poor health worker performance, problems associated with training, weak health systems and poor national policy support.

Community case management (CCM) is a further initiative in the development of a community-based model to improve child survival. CCM was introduced as a pilot in 2011 in the district of Kutai Timur, East Kalimantan by the NGO JHPIEGO and Save the Children in collaboration with the District Health Office (DHO) with the goal of reducing infant mortality from current rate of 21 deaths per 1000 lives. CCM focuses on the management and prevention of pneumonia, malaria, diarrhoea, and neonatal illness. The evidence-based interventions in CCM are delivered by trained, supervised community members that vary depending on the local context. Community members may include Ministry of Health outreach workers, professional health workers, and private sector workers. CCM has been reported by mothers to have improved their access to child health care and is accepted by communities. However, little knowledge is available concerning how CCM in Indonesia is delivered from the perspective of PHCWs.

Understanding CCM from the view of PHCWs is crucial to ensure that the workforce has the capacity to deliver relevant and appropriate care to communities and that there are adequate supportive mechanisms enabling the uptake of quality services. Such insights are also an important component in the documentation of lessons learnt to inform policy and service planning decisions to sustain improvements in service delivery and ultimately health outcomes.

This paper reports a study investigating the care provided by PHCWs and their experiences in implementing CCM in the Kutai Timur district that informed the further development of community based integrated management for childhood illness (C-IMCI) that has been subsequently endorsed by the Ministry of Health.

The context of Kutai Timur
Kutai Timur is located in the province of East Kalimantan, Kalimantan Island; the biggest island in Indonesia. With a size of 35,747 km², the district is inhabited by 253,847 people, with approximately seven people every km². Kutai Timur consists of 18 subdistricts with 135 villages. CCM was implemented in six subdistricts with a total of 17 villages with the selection based upon the villages that the NGO had established relationships with and logistic reasons.

The Kutai Timur DHO is responsible to govern health services provision in the district through one public hospital and 19 Puskesmas (community health centres). In addition, there are approximately 96 Posyandu (integrated health clinic) in villages. However, at the time of the research study not all were in operation due to a shortage of resources and staff. In 2011, health services were provided by 682 health staff comprising 17% medical doctors and 65% nurses and midwives. Other health workers include pharmacists, nutritionists, sanitation and public health staff. In general, the ratio of health workers per population meets the national standard where 25 doctors and more than 300 nurses served 100,000 people. However, only 40 midwives serve 100,000 people, as opposed to 117 per 100,000, which is the national standard. The low level of midwifery coverage is further exacerbated by the poor distribution of health workers. Not all villages had either a doctor, a nurse or a midwife in residence. Besides these health workers, villagers are served by traditional healers and traditional birth attendants (Dukun).

In Kutai Timur, the health workers included in the implementation of CCM are trained community nurses, midwives, and Kader (community health volunteers). Nurses and midwives have a minimum of three years nursing and midwifery training, whereas the Kaders do not have any health related formal education. In Indonesia, kader are local community members who provide volunteer work in expanding health programs endorsed by the Puskesmas. All PHCWs must undertake a two week CCM training prior to delivering care as part of this model. The two-week training consists of two parts: in-class and clinical practice section. Materials delivered during the in-class section were the same for all PHCWs while for clinical practice section,
participants were grouped in accordance to their job-responsibilities and competencies (health professionals or kader). Accessing a health facility is a challenge for the community in most villages due to geography and accessible transportation.

Methods

To comprehensively understand the implementation of CCM from the PHCWs’ perspective, qualitative data were collected from July to October 2011. In-depth interviews with PHCWs and observation of PHCWs who had been trained and were delivering CCM in Kutai Timur at the time of the study. The participants were recruited through a snowball technique. The first participant invited was the village nurse/midwife participant, and kader, who were selected by the program supervisor in each Puskesmas. After one PHCW participant was recruited, the participant was asked to recommend other PHCWs in the district who might be interested in participating in the study. This technique offered technical advantages in terms of recruiting participants in concealed and hard to reach populations such as villages in Kutai Timur. The snowballing method was applied only to recruit village nurses/midwives and kader participants. Whilst, purposive sampling method was utilised to recruit program supervisor participants.

In depth interviews of approximately one hour were held with the PHCWs, and observations were conducted when the PHCWs provided non-urgent consultation with mothers. While no formal observation checklists were used, notes were taken based upon the CCM guidelines. No new interviews were conducted when data saturation was achieved. The interviews and observation were conducted, recorded and transcribed in Bahasa Indonesia. The transcripts were then back translated into English with the closest interpretation and meaning for further analysis. As a native Indonesian, the first author used the approach of ‘researcher as translator’ in this role, the author was able to pay close attention to cross cultural meanings and interpretations, and therefore engaged with the issues of meaning equivalence within the research process. The observation and interview were conducted by the first author, who is a

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native Indonesian, and has a health professional background. This background contributed to a close understanding of the study context and culture and assisted in establishing rapport with participants. The process of critical self-reflexivity was practiced to ensure that all authors considered their own individual norms and values and how this shaped the approach, analysis and interpretation of data.

The data were analysed thematically. Once collected, the data were reviewed, sorted and classified to identify issues, topics, patterns, and themes. This method of analysis provided an opportunity for the researcher to become immersed within the data and so generate rich insights into the participants’ world. In this study transcripts were read repeatedly and sorted to allow the creation of a conceptual map of predominant story lines. As new data was obtained through the continued process of interview, new categories were created and some categories collapsed into themes. Categories developed into themes by virtue of their fit with and truthfulness to the data. Field notes from the observations were used alongside interview data to link the context with phenomena and improve rigor of the research. Consensus was reached with the authors concerning data coding and key themes.

Ethical clearance was obtained from the UTS Human Ethics Research Committee as well as from the Faculty of Nursing Universitas Indonesia.

**Results**

Eighteen PHCWs (three program supervisors, 11 village nurse/midwife, and four Kaders) were recruited in the study. The participant’s, gender, ages, education and occupations are illustrated in the Table 1.

| Table 1 |

| Participant characteristics |  |  |


<table>
<thead>
<tr>
<th>Characteristics of Participant</th>
<th>Program supervisor at <em>Puskesmas</em> (N=3)</th>
<th>Primary health care worker (N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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</tr>
<tr>
<td>Male</td>
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<tr>
<td>Female</td>
<td>3</td>
<td>13</td>
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<tr>
<td><strong>Age (years)</strong></td>
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<tr>
<td>18–27</td>
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<td>5</td>
</tr>
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<td>28–37</td>
<td>2</td>
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<td><strong>Education level</strong></td>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>Academy/ University</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td><strong>Occupational status</strong></td>
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</tr>
<tr>
<td>Nurse</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Midwife</td>
<td>2</td>
<td>4</td>
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<tr>
<td><em>Kader</em></td>
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152 The analysis identified five themes: enhanced family and child health knowledge and practice; professional confidence and motivation; development of clinical reasoning; and role and scope of practice.

155 **Enhanced family and child health knowledge and practice**

156 PHCW participants revealed that the CCM training had made a difference to their practice and enhanced their knowledge of newborn health. Not only did PHCWs’ knowledge about babies with infection increase, but also their understanding about low birth weight babies. This was demonstrated by a nurse participant who said: “I have more knowledge ... I came across with a baby suffering from low birth weight, and I knew what to do with it”. Another nurse said she...
taught a mother with low birth baby to apply the Kangaroo Mother Care method. The mother was asked to hold the baby with skin to skin contact between the baby's front and the mother's chest. The nurse reported increased weight two weeks following the intervention. This was confirmed in the observation of a following up consultation with this mother.

**Professional confidence and motivation**

The increase of PHCW’s knowledge resulted in a reported increase in PHCW confidence in delivering clinical interventions as reported by a *kader* participant following her visit to a mother. The participant said, "I have got more knowledge and have become more confident in giving counselling to families ...". The confidence increased when the intervention they gave to a family was successful. One nurse said, "... I become more confident ... particularly when we give medication and it works." A midwife reported that she was excited to see that a baby’s eye condition had much improved after the topical application of antibiotic cream. PHCWs noted that the feedback they received from the trainer during the CCM course and successfully passing the CCM examination improved confidence.

A supervisor participant in the study reported that following the training program, most of the PHCWs were competent and able to implement the program. The supervisor believed that “PHCWs in the field can do this program ...” and believed that “the PHCWs in *Puskesmas* and villages were motivated and enthusiastic after being trained and were willing to visit mothers at home following the delivery of their baby”.

**Development of clinical reasoning**

PHCWs reported that their clinical reasoning skills involving the assessment and evaluation of sick babies had improved. A nurse reported that:

CCM interventions depend on the level ... there are various levels ... each level has different interventions ... for babies with normal conditions, with local infection and severe infection ... so we will deliver interventions based on the level ... [Nurse 1]
Following a home visit, a PHCW demonstrated an understanding of the diagnosis based on what was outlined in the CCM protocol:

... the mother reported that the baby's umbilical cord was bleeding, so I immediately came (to visit the baby) ... we took the temperature ... it was good: 36.1°C ... and we assessed the body, there was no pustule (signs of infection - red swelling spot on the baby's skin), and she concluded that the baby was not classified as sick/infected. [Nurse 2]

PHCW participants were able to articulate the difference between newly learned CCM practice, previous practice and hospital practice.

I think it was classified as an emergency. The baby experienced chest in drawing, she was also groaning ... it was clear that there is something wrong with her respiration ...

Usually what we did in the past was address the breathing problem first. But in the CCM procedure, we have to address the infection first then we refer if there is no change. In hospital, we had to focus on respiration first, as it is impossible to give Cotrimoxazole or Gentamycin (antibiotics) first ... that is the difference. [Nurse 3]

Some PHCWs implied that CCM was strongly medical in approach, which sometimes seemed at odds with the nursing/midwifery approach. Two nurses and one midwife mentioned that their main role in delivering CCM was to diagnose a medical problem and to give medication. Whereas as another nurse and midwife participant noted that their goal is to address the basic needs of patient

**Role and scope of practice**

Participants noted that they were not sure about legal aspects of medicine administration.

Participants were not clear if they had the authority to legally administer antibiotics. A nurse participant noted that "for the antibiotics administration in CCM, I don't know ... if something
happened ... I am not sure whether we are permitted by law”. This is supported by another
PHCW (nurse) participant who said “I don’t know ... therefore I am a bit ... ehm ... is it legal or
not”. PHCWs in villages were familiar with giving medication in their usual daily practice
outside of the project. However, they were uncertain about their role:

We do provide the service (giving medication to patients) besides CCM, but we get
confused about that. I have asked someone in the Nursing Association about SIPP (the
permission letter for nursing practice) I think SIPP can only be used if you are in a group
with other health professionals ... and that is not for drug prescription”. [Nurse 5]

However, nurse and midwife participants stated that they felt confident and trusted by the
community to administer medication as CHWs were often the only ones who could administer
medication in the village. A nurse stated that “because we are the only ones in the village, there
is no doctor here ... the people here trust us”. Moreover, they felt competent to administer
medications as they had been trained and were familiar with the procedural standard. However
one nurse said, “I am worried if something happens after the antibiotics administrations ... but
we feel safe because the standard procedure is there”. Another nurse participant noted that
giving medication is a form of delegation from Puskesmas as “the Puskesmas has assigned us to
be here to run the program at village level”.

PHCWs said that they were reluctant to administer antibiotic injections to babies due to family
cultural objections, A Kader noted “there is a bit of worry ... let the nurses or midwives do the
medication ... I am not sure about the legal aspect”.

Discussion

Reports from PHCWs and observations of their practice confirms that the implementation of
CCM in the district has made a difference to the delivery of child health care, the introduction of
a structured clinical intervention enhanced practitioner knowledge, professional confidence, motivation and clinical reasoning.

**Improving family and child health knowledge and practice**

The findings of this study indicate that health care workers transferred their learning into practice following training and were able to successfully deliver lifesaving interventions to address child illnesses. Other studies have also found that community-based interventions can result in improved PHCW performance. However, to transfer new learning into practice trained health workers require a supportive working environment where there is appropriate supervision and adequate medicines.

In our study PHCWs confidence in their competence was built through feedback received from the examiners/trainers and their practice reinforced from feedback from mothers as well as their own observation when the intervention they provided was successful. This concurs with Cappers definition of professional confidence in the context of nursing practice as ‘an internal feeling of self-assurance and comfort as well as being reaffirmed by colleagues, patients and friends’. In research in Canada Brown at al. found that professional confidence is a dynamic process that involves personal and professional factors such as feeling, knowing, believing, accepting, doing, looking, becoming, and evolving. Professional confidence underpins engagement in effective practice, critical thinking, clinical reasoning and skill deployment.

Professional confidence can positively influence clinical performance, resulting in improved patient outcomes. The lack of professional confidence may be associated with stress, particularly in life threatening situations. Professional over-confidence, in contrast, may result in clinical errors, leading to negative patient outcomes. Since professional confidence and motivation of PHCWs is an essential element for practice performance, it is important that ongoing CCM program delivery incorporates continuing professional development and supervisory feedback.
Developing clinical reasoning

Clinical reasoning has been defined as “a complex cognitive process that uses formal and informal thinking strategies to gather and analyse patient information, evaluate the significance of this information and weigh alternative actions” [29]. Clinical reasoning is therefore a thinking process involved in decision-making. The perceived improvement of clinical reasoning by PHCWs maybe the result of training conducted prior to CCM implementation that drew upon pedagogically sound principles of adult learning. In the education program, the participants were taught, using interactive hands on case-based scenarios, how to deal with newborn babies with low birth weight and infections and how to assess, diagnose and intervene.

Clinical reasoning is closely related to professional confidence and patient outcomes [25], which eventually contributes to quality of care. Clinical reasoning should therefore continue to be a key aspect of CCM training, continuing professional development and supervision to ensure that clinical skills are constantly employed and updated to maintain health worker performance.

Studies have found that multifaceted interventions work best to improve health provider performance [29]. Appropriate supervision and feedback alongside financial and non-financial incentives [30] and effective personnel management in line with the service delivery program can help to facilitate provider performance to increase universal health care access [31].

Roles and scope of practice

One of the main interventions of CCM is administering medication (antibiotics) to sick children. Some PHCW participants felt confident in giving antibiotics to sick babies because they had trust from the community, and adequate knowledge in that they had been educated and passed the competency examination. In addition, their presence in the village was on behalf of the Puskesmas, which was mandated by the head of the Puskesmas, who was in all cases a medical doctor; thus, they had authority. However, there was a concern among PHCW participants about whether their practice in delivering antibiotics was lawful.
In Indonesia, the legislation mandates that antibiotics should be obtained by the presentation of a medical prescription. In order to enhance the quality of service in health centres in the country, there was a government initiative of task delegation where nurses and midwives could provide medical diagnosis and treatment for certain diseases using a clinical algorithm. A clinical algorithm has been developed as part of the Integrated Management of Childhood Illness (IMCI), a facility-based official model used by government to enhance child health provision in Puskesmas throughout the country. This task delegation initiative was formalised in a letter of agreement between the Indonesian Medical Association (IMA) and Indonesian National Nurses Association (INNA). Despite the rolling out of the nurse and midwife algorithm in the country, there was contention around the initiative between IMA and INNA that resulted in IMA cancelling the agreement in one district.

In contrast to the use of medical treatment in IMCI, the procedure of diagnosing and treating a sick baby in CCM had not been formalised in any legal document. The absence of such an agreement may have resulted in the confusion for PHCWs in delivering the health intervention. Since the PHCWs were uncertain of the legalities in the administration of medicine, this might have been better covered in the training, thus providing assurance around the legalities. Role confusion amongst PHCWs can also result from the absence of a clear job description of ‘who does what’ in CCM implementation, which may result in the PHCWs poor performance.

**Limitations**

Despite the advantages of snowballing technique, it was noted that the variation of PHCWs involved in this study tends to be homogenous. However, we argue that the study population itself was a specific group who all have been exposed to the same training, project, and a relatively similar working environment. Hence the minimum variation of the study participant has a minimum influence to the result.
We realized that observation method used in this study may lead to a potential response bias (Hawthorne effect). Therefore, the findings from this observation were triangulated with the interviews and FGDs results, instead of being analysed and reported independently.

**Conclusion**

The findings from this study show that the implementation of CCM has enhanced PHCWs’ practice and performance. In the context of the Kutai Timur district, the implementation of CCM is reliant upon trained community nurses, village midwives and community health volunteers. Ongoing training, professional development and supervision are required to maintain health worker knowledge, confidence, motivation and clinical reasoning skills. However, the role that PHCWs play and their scope of practice in delivering care under CCM needs to be more clearly defined.

**References**


