Strengthening the primary care workforce to deliver community case management for child health in rural Indonesia

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Abstract

Objectives. The aim of the present study was to report on the implementation of community case management (CCM) to reduce infant mortality in a rural district, namely Kutai Timur, Kalimantan Indonesia.

Methods. An interpretive qualitative methodology was used. In-depth interviews were conducted with 18 primary healthcare 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 transcripts were analysed thematically.

Results. PHCWs reported that their performance had improved as a result of increased knowledge and confidence. The implementation of CCM 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 the capacity of rural PHCWs to provide child health care and improve the uptake of life-saving interventions. However, work is needed to strengthen the workforce and to fully integrate CCM into maternal and child health service delivery across Indonesia.

What is known about the topic? Indonesia has successfully reduced infant mortality in the past 10 years. However, concerns remain regarding issues related to disparities between districts. The number of infant deaths in rural areas tends to be staggering high compared with 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 settings. In CCM, PHCWs are trained to deliver life-saving interventions to sick children in rural communities. In the present study, CCM improved the capacity of PHCWs to treat 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 regarding task shifting needs to be examined further so that CCM can be integrated into current health service delivery in Indonesia.

Additional keyword: primary health care workers.

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Introduction

Every day approximately 19 000 children under the age of 5 years die worldwide and approximately 13 000 of these die before they reach the end of their first year of life, particularly in low- and middle-income countries (LMIC).1,2 The new Sustainable Development Goals (SDGs) child health target is to end the preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality and under-5 mortality to 12 and 25 per 1000 live births respectively by the end of 2030.2 Indonesia has successfully reduced the number of infant deaths over the past decade from a high figure of 37 infant deaths per 1000 live births in 2005 to 23 per 1000 live births in 2015.3 In order to support the global effort to achieve the SDGs 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 the primary care level to reduce infant mortality.3 One of the initiatives that came from this policy was the development of integrated management for childhood illnesses (IMCI),3 which aims 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. IMCI has improved health service quality and reduced child mortality and health care costs. 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 remains 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, Indonesia, by the non-governmental organisations (NGOs) MCHIP (Maternal and Child Health Integrated Program) in collaboration with the District Health Office (DHO) with the goal of reducing infant mortality from the rate of 21 deaths per 1000 live births. 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 who 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 is known about how CCM in Indonesia is delivered from the perspective of primary healthcare workers (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 (C-) IMCI that has been subsequently endorsed by the Ministry of Health of Indonesia.

The Kutai Timur context

Kutai Timur is located in the province of East Kalimantan, Kalimantan Island, the largest island in Indonesia. With a size of 35 747 km², the district has 253 847 inhabitants, with approximately 7 people per square kilometre. Kutai Timur consists of 18 subdistricts with 135 villages. CCM was implemented in six subdistricts in a total of 17 villages, selected from those villages with established relationships with NGOs and taking into consideration logistic factors.

The Kutai Timur DHO is responsible for governing 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 clinics) in villages. However, at the time of the study, not all posyandu were in operation due to a shortage of resources and staff. In 2011, health services were provided by 682 health staff (17% medical doctors, 65% nurses and midwives). Other health workers (18%) include pharmacists, nutritionists and sanitation and public health staff.

In general, the ratio of health workers per population meets the national standard, whereby 25 doctors and more than 300 nurses serve 100 000 people. However, only 40 midwives serve 100 000 people, as opposed to the national standard of 117 per 100 000 people. The low level of midwifery coverage is further exacerbated by the poor distribution of health workers. Not all villages had a doctor, nurse or midwife in residence. In addition to these health workers, villagers are served by traditional healers and traditional birth attendants (d dukun).

In Kutai Timur, the health workers included in the implementation of CCM were trained community nurses, midwives and kader (community health volunteers). Nurses and midwives have a minimum of 3 years nursing and midwifery training, whereas the kaders do not have any formal health-related 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 2-week CCM training course before delivering care as part of this model. The 2-week training course consists of two parts, namely in-class and clinical practice sessions. Materials delivered during the in-class session were the same for all PHCWs, whereas for clinical practice session participants were grouped according to their job responsibilities and competencies (i.e. health professionals or kader). Accessing a health facility is challenging for communities in most villages due to geography and 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 were conducted with PHCWs and PHCWs who had been trained and were delivering CCM in Kutai Timur at the time of the study were observed. Participants were recruited through a snowball technique. The first participants invited were the village nurses or midwives and kaders, who were selected by the program supervisor in each puskesmas. After one PHCW had been recruited, he or she was asked to recommend other PHCWs in the district who may 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 used only to recruit village nurses, midwives and kaders. In contrast, purposive sampling was used to recruit program supervisors to the study.

In-depth interviews of approximately 1 h duration were held with the PHCWs, and observations were conducted when the PHCWs provided non-urgent consultations with mothers. Although 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 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 observations and interviews were conducted by the first author, who is a native Indonesian and has a health profession background. This background contributed to a close understanding of the study context and culture and helped establish rapport with the participants. The process of critical self-reflexivity was practiced to ensure that both authors considered their own individual norms and values and how these shaped the approach, analysis and interpretation of data.20

Data were analysed thematically.21 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.21 In the present study, the transcripts were read repeatedly (reread) and sorted to allow the creation of a conceptual map of predominant story lines. As new data were obtained through the continued process of interviews, 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.22

Field notes from the observations were used alongside interview data to link the context with phenomena and improve the rigour of the research. Consensus was reached by the authors regarding data coding and key themes.

Ethics clearance was obtained from the University of Technology Sydney Human Ethics Research Committee and from the Faculty of Nursing Universitas Indonesia.

Results

Eighteen PHCWs (three program supervisors, 11 village nurses or midwives and four kaders) were recruited to the study. The gender, age, education level and occupations of the study participants are given in Table 1.

The analysis identified four themes: (1) enhanced family and child health knowledge and practice; (2) professional confidence and motivation; (3) development of clinical reasoning; and (4) role and scope of practice.

Enhanced family and child health knowledge and practice

PHCWs revealed that CCM training had made a difference to their practice and enhanced their knowledge of the health of newborns. PHCWs’ reported increased knowledge about babies with infection, as well as an increased understanding about low birthweight (LBW) babies. As one nurse said:

*I have more knowledge...I came across a baby suffering from low birthweight, and I knew what to do with it.*

Another nurse said she taught a mother with a LBW baby to apply the Kangaroo Mother Care method. The mother was told to hold the baby with skin-to-skin contact between the baby’s front and the mother’s chest. The nurse reported that the baby’s weight had increased 2 weeks after the intervention. This was confirmed in a follow-up consultation with the mother.

Professional confidence and motivation

The increased knowledge of PHCWs resulted in increased confidence in delivering clinical interventions, as reported by a kader after a visit to a mother:

*I have got more knowledge and have become more confident in giving counselling to families.*

Confidence increased when the intervention provided 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 reported that following the training program most PHCWs were competent and able to implement the program. The supervisor believed that the PHCWs in the field were able to be trained in the delivery of the 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. One 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:

### Table 1. Participant characteristics

Data show the number of participants in each group. Note, puskesmas are community health centres and a kader is a community health volunteer. PHCWs, primary healthcare workers

<table>
<thead>
<tr>
<th>Gender</th>
<th>Program supervisor at puskesmas (n = 3)</th>
<th>PHCWs (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Female</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–27</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>28–37</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>38–47</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary (Years 7–12)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Academy or university</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Occupational status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Midwife</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Kader</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
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 [was] 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 co-trimoxazole or gentamycin [antibiotics] first...that is the difference._ (Nurse 2)

Some PHCWs implied that CCM was strongly medical in approach, which sometimes seemed at odds with the nursing or 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 other nurse and midwife participants noted that their goal is to address the basic needs of the patient.

**Role and scope of practice**

Participants noted that they were not sure about legal aspects of administering medicine. Participants were not clear whether they had the authority to legally administer antibiotics. A nurse participant noted that:

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...for the antibiotics administration in CCM, I don’t know...if something happened...I am not sure whether we are permitted by law.

This was supported by another PHCW (nurse) participant:

_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 the project. However, they were uncertain about their role:

_We do provide the service [giving medication to patients] in addition to 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 because community health workers were often the only ones who could administer medication in the village. One nurse stated:

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...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 because they had been trained and were familiar with the procedural standards. 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 noted that giving medication is a form of delegation from _puskesmas_ because:

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...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. One _kader_ noted:

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...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 confirm 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 and enhanced practitioner knowledge, professional confidence, motivation and clinical reasoning.

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

The findings of the present study indicate that healthcare workers transferred their learning into practice following training and were able to successfully deliver life-saving 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 the present study, PHCW confidence in their competence was built through feedback received from the examiners and trainers, and their practice reinforced from feedback from mothers as well as their own observations when the interventions they provided were successful. This concurs with Capper’s 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 _et 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.

In contrast, professional overconfidence may result in clinical
errors, leading to negative patient outcomes. Because 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’. Therefore, clinical reasoning is a thinking process involved in decision making. The perceived improvement of clinical reasoning by PHCWs may be the result of training conducted before 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 a low birthweight and infections, and how to assess, diagnose and intervene.

Clinical reasoning is closely related to professional confidence and patient outcomes, eventually contributing to quality of care. Therefore, clinical reasoning should continue to be a key aspect of CCM training, continuing professional development and supervision to ensure that clinical skills are constantly used and updated to maintain health worker performance. Studies have found that multifaceted interventions work best to improve health provider performance. Appropriate supervision and feedback alongside financial and non-financial incentives and effective personnel management in line with the service delivery program, can help facilitate provider performance to increase universal health care access.

Roles and scope of practice

One of the main interventions of CCM is administering medication (antibiotics) to sick children. In the present study, some PHCWs 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 PHCWs about whether their practice in delivering antibiotics was lawful.

In Indonesia, the legislation mandates that antibiotics should be obtained by 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 whereby 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 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 the IMA and INNA that resulted in the IMA cancelling the agreement in one district.

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

Study limitations

Despite the advantages of the snowballing technique, it was noted that the PHCW population included in the present study tended to be homogeneous. However, we argue that the study population itself was a specific group that had been exposed to the same training, project and a relatively similar working environment. Hence, the minimal variations in study participants have a minimal effect on the results.

We realise that the observation method used in the present study may lead to a potential response bias (Hawthorne effect). Therefore, the findings from the observations were triangulated with the interviews instead of being analysed and reported independently.

Conclusion

The findings of the present study show that 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.

Competing interests

The authors declare that they have no conflicts of interest.

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