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Knowledge Translation in Vietnam

Evaluating facilitation as a tool for improved neonatal health and survival

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Abstract

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Neonatal mortality remains a problem worldwide, despite the existence of low-cost and evidence-based interventions. Unfortunately, the translation of these interventions into practice is deficient.

The aim of this thesis was to study aspects of knowledge translation (KT) before and during the Neonatal Knowledge Into Practice (NeoKIP) trial in Quang Ninh, Vietnam. Over a period of three years, this trial evaluated the use of facilitators from the Women's Union who supported maternal and newborn health groups (MNHG) comprised of eight local stakeholders, as an intervention for improved neonatal survival.

In the first two studies (before intervention) we assessed primary health care staff's knowledge and material preparedness regarding evidence-based neonatal care and explored how primary health care staff translated knowledge into practice. The last two studies (during intervention) were process evaluations aimed at describing the implementation, process and mechanism of the NeoKIP intervention.

Primary health care workers achieved 60% of the maximum score in the knowledge survey. Two separate geographical areas were identified with differences in staff levels of knowledge and concurrent disparities in neonatal survival, antenatal care and post-natal home visits. Staff perceived formal training to be the best way to acquire knowledge but asked for more interaction between colleagues within the healthcare system. Traditional medicine, lack of resources, low workload and poorly paid staff constituted barriers for the development of staff knowledge and skills.

Eleven facilitators were trained to cover eight facilitator positions. Of the 44 MNHGs, 43 completed their activities to the end of the study. In total, 95% of the monthly meetings with a MNHG and a facilitator were conducted with attendance at 86%. MNHGs identified 32 unique problems, mainly families' knowledge/behavior, and implemented 39 unique actions, mostly regarding communication. MNHGs experienced that the group was strategically composed to influence change in the communes and facilitators were identified as being important to sustaining activities over time. The facilitators' lack of health knowledge was regarded as a deficit in assisting the MNHGs, but their performance and skills increased over time.

This low-cost model, building on local stakeholder involvement, has the capacity to be scaled up within existing healthcare structures.

Keywords: Knowledge translation, Facilitation, Neonatal mortality, Primary health care, Vietnam

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To the more than 9000 children that die every day before reaching the age of one month

List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.

I. Eriksson L, Nga NT, Målqvist M, Persson LÅ, Ewald U, Wallin L. Evidence-based practice in neonatal health: knowledge among primary health care staff in northern Vietnam. *Human Resources for Health* 2009, 7:36.

II. Eriksson L, Nga NT, Hoa DP, Persson LÅ, Ewald U, Wallin L. Newborn care and knowledge translation - perceptions among primary healthcare staff in northern Vietnam. *Implementation Science* 2011, 6:29.

III. Eriksson L, Huy TQ, Duc DM, Hoa DP, Thuy NT, Nga NT, Wallin L. Process evaluation of a knowledge translation intervention using facilitation of local stakeholder groups to improve neonatal survival in the Quang Ninh province, Vietnam. *Manuscript.*

IV. Eriksson L, Duc DM, Eldh AC, Thanh VPN, Huy TQ, Målqvist M, Wallin L. Lessons learned from stakeholders in a facilitation intervention targeting neonatal health in Quang Ninh province, Vietnam. *Manuscript.*

Book cover: Anna-Carin Magnusson

Contents

Abbreviations

CHC	Commune Health Centre
FGD	Focus Group Discussion
IMCH	International Maternal and Child Health
KT	Knowledge Translation
MDG	Millennium Development Goal
MNHG	Maternal and Newborn Health Group
NED	Northeast Districts
NeoKIP	Neonatal Knowledge Into Practice
NMR	Neonatal Mortality Rate
PARIHS	Promoting Action on Research Implementation in Health Services
Sida	Swedish international development cooperation agency
SD	Standard Deviation
SWD	Southwest Districts
TM	Traditional Medicine
U5MR	Under-five Mortality Rate
VHW	Village Health Worker
WHO	World Health Organization

Preface

In 1997, I graduated with a bachelor of science in nursing from the College of Health and Caring Science in Umeå. The newborn child has been part of my nursing career from the start. My first position as a registered nurse was at the neonatal intensive care unit in Trondheim, Norway (1997-1999). This work within a high-tech environment took me to a nursing position at a postsurgical ward for both adults and children (including neonates) in Umeå, Sweden (1999-2004). On leave from that position, I prepared myself for working as a nurse in low and middle income countries at International Maternal and Child Health (IMCH) at Uppsala University, Sweden. In 2003 I worked for Médecins Sans Frontières over 9 months in intensive care at a field hospital and within primary health care, having responsibility for three field clinics in Southern Sudan.

My experiences in Africa lured me back to IMCH in Uppsala where I was introduced to the field of research within international health. I defended my Master thesis in 2006 where I studied neonatal mortality in a rural area of Nicaragua. Thereafter, I joined the Neonatal Knowledge Into Practice (NeoKIP) project group just in time to participate in the planning and performing of a pilot of the baseline study. Since then I have been part of this interesting, challenging and rewarding project. Through my participation I have gained a lot of experience in Vietnam about neonatal health and, more importantly, of primary health care, which is far removed from the type of care I engaged in when I began my career as a nurse. This thesis is my contribution to the field of improved neonatal care, in particular in the Quang Ninh province.

Introduction

Neonatal health and survival

In the United Nations Convention on the Rights of the Child there are 54 articles [1]. Three of the articles state that the nations that approve the convention shall:

...respect and ensure the rights set forth in the present Convention to each child within their jurisdiction without discrimination of any kind, irrespective of the child's or his or her parent's or legal guardian's race, colour, sex, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status **(Article 2);**

...ensure that the institutions, services and facilities responsible for the care or protection of children shall conform with the standards established by competent authorities, particularly in the areas of safety, health, in the number and suitability of their staff, as well as competent supervision **(Article 3);**

...ensure to the maximum extent possible the survival and development of the child and recognize that every child has the inherent right to life and ensure that **(Article 6).**

In 2000, the eight Millennium Development Goals (MDGs) were declared based on the United Nations Millennium Declaration [2]. The 4th goal (MDG-4) aims to reduce the mortality of children under five years of age by two-thirds from the level in 1990 by 2015 [3]. One of the reasons for having a specific goal targeting children was *"to encourage the ratification and full implementation of the Convention on the Rights of the Child"* [2 p7]. Globally, the under-five mortality rate (U5MR) declined rapidly between 1990 and 2010 [4] while the neonatal mortality rate (NMR) did not decline at the same pace during this time period [5].

Worldwide, 3.3 million deaths occur every year during the neonatal period (the child's first four weeks of life) [6]. About 75% of the neonatal deaths happen during the first week after birth with the highest risk of dying occurring the first 24 hours [7]. A main contribution to the overall reduction of NMR during the last decade was a decrease of infections (neonatal tetanus

and neonatal infections) [8]. However, infections, together with pre-term births and asphyxia, are still the three main causes of neonatal deaths [7, 9], which relates to suboptimal care before, during and after childbirth [10-12]. To reach the MDG-4, focus needs to be on both women and children along a continuum of care [13]. For children the focus should be on the neonatal period as 41% of child deaths occur during the first four weeks of life, whereas the remaining 59% are spread out on the other ~256 weeks [6, 11]. For both pregnant women and neonates the period around the delivery is of particular importance [7, 13]. For example, if complications arise during delivery, such as a woman with haemorrhage or a child with asphyxia or sepsis, both can easily die if not cared for properly by skilled health care staff.

Sixteen evidence-based and cost-effective interventions focusing on the pregnant woman and the neonate can prevent three out of four neonatal deaths if implemented successfully [14, 15]. A majority of these interventions are related to the birth and the immediate period thereafter, such as labour surveillance (including the use of a partograph), clean delivery practices, resuscitation of the newborn baby, breast feeding, prevention and management of hypothermia, kangaroo mother care (for low birth weight infants in health facilities) and pneumonia management. However, these interventions are often not in place. Therefore, it has been proclaimed urgent to study various strategies with which to bring these interventions into practice [16] and, according to Osrin and Prost, *"Understanding how to do this will require contributions from the emerging discipline of implementation science"* [17 p1044]. Further, as almost all (~98%) of the neonatal deaths worldwide occur in low and middle income countries [6, 8], the implication is that the focus should be on such settings.

Knowledge translation

During the 1990s, the concept of evidence-based medicine bloomed with David Sackett as one of its pioneers, who stated that: *"Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research"* [18 p71]. Unfortunately, studies performed thereafter underscore that health care worldwide still face challenges to increase the utilization of evidence-based knowledge.

In low and middle income countries it is reported that the uptake of evidence-based interventions for child survival varies from 2 to 90% [19]. Further, studies from high income countries suggest that 25-90% of patients do not receive care complying with recent scientific evidence [20, 21]. It has

also been shown that policy makers in the World Health Organization (WHO) do not frequently use evidence gained from systematic reviews when developing health guidelines [22]. The challenges of using current evidence can also be exemplified by two systematic reviews. In the first, the authors evaluated various methods to overcome the inappropriate prescription (usually over-prescription) of antibiotics for children with upper respiratory tract infections [23]. The results of the review tell that no single method was found to overcome the inappropriate prescription of antibiotics, but to apply multiple methods may change prescription habits. In the second systematic review, covering 235 guideline implementation studies, 86% of included studies showed improvements [24]. However, because of the heterogeneity of interventions and huge variations in the effects of one and the same intervention, it was not possible to point out which implementation strategies were the most effective under specific circumstances. Although the basic assumption is that enhanced use of evidence-based knowledge will improve processes and outcomes in health care, to realize this premise is evidently difficult as the implementation of evidence has not been self-acting.

During the last decade, the research community has put a lot of efforts in trying to understand the phenomenon of implementing existing evidence (knowledge) within health care practice [25]. However, as there are 100 coined terms to describe this phenomenon [26], determining an overview for this area of research is challenging, although, according to Strauss and colleagues, *"The common element in the different terms and definitions is the move beyond dissemination of knowledge to use of knowledge"* [27 p7]. Knowledge translation (KT) is one of the terms that is defined as "*a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products and strengthen the health care system"* by the Canadian Institute of Health Research [28]. There are critical voices about KT, suggesting it is too narrow a term because it mainly fits as a metaphor within the field of medicine and is not suitable for use within non-medical fields, such as philosophy and sociology [29]. However, as 'knowledge' is part of the term KT, it also implies a broader concept because it includes more than just research findings. There are, however, critical voices around whether knowledge could be described as evidence or if that term purely indicates research findings. For example, Scott-Findlay and Pollock [30] argue that it is confusing to define all kinds of knowledge evidence, but rather, suggest: *"the restriction of the term evidence to research findings, and while acknowledging the importance of other influences in clinical decision-making process, it is argued that they are not evidence"* [30 p96]. In a reply to this assertion, Rycroft-Malone and Stetler [31] claim that local data, patient preferences and clinical experiences should also be included under the 'evidence umbrella' as they are important pieces of in-

formation, often systematically collected, for health care worker when making decisions within practice. Nevertheless, KT is a term adapted by the WHO [32] and, in this thesis I apply it in its broad sense, including other sources of evidence, rather than merely research findings.

Use of theory

It has been suggested that theory can be used to explain the process of KT and what really goes on in the 'black box of implementation', that is to say why a certain KT intervention works, where, when and for whom [33]. For example, the Medical Research Council in the United Kingdom has acknowledged that the use of theory is important to assist with explaining the results from complex randomised controlled trials [34]. Eccels and colleagues [35] further suggest: if theory is missing, it is difficult to understand why an intervention was effective or not, which, unfortunately has been the case for almost 80% of the studies [36] evaluating guideline implementation [24]. However, there are also critical voices about theory use, which for example suggest that the use of theory will hinder the flexibility and spontaneity that is needed when translating knowledge into practice [37] and it will instead complicate the task of judging whether a piece of empirical evidence is relevant or not [38]. Rycroft Malone [39], who is in favour of theory use, understands some of the critique from the theory-sceptics and suggests that KT studies need to be designed to both allow theory evaluation and have the freedom to move outside certain borders. Although several theoretical perspectives exist that can be useful for KT, Estabrooks et al. [40] conclude that they are spread across several disciplines, which is an aggravating factor when trying to find and use them. Theoretical perspectives can be allocated in theories, frameworks and models [41]. A theory can be viewed as a tool trying to organise knowledge to understand a phenomenon, while frameworks and models are considered to be simpler tools (in descending scale) but with similar purposes as a theory. Theoretical tools are often aiming at different levels, for example, individuals, social contexts, organisational contexts or the larger healthcare systems [42]. Everett M. Rogers was considered to be a dominating researcher for many decades [43] with his theory *Diffusion of innovation* [44], which can be seen as a theory concerning social contexts. In his work, originally developed in the 1950s, Rogers states that *"the main elements in the diffusion of new ideas are: (1) an innovation (2) that is communicated through certain channels (3) over time (4) among the members of a social system"* [44 p36]. Two more recent theoretical products are the Promoting Action on Research Implementation in Health Services (PARIHS) framework [45] and the Knowledge to Action model [46]. The PARIHS framework highlights the importance of three ingredients for successful change of clinical practice: evidence, context and facilitation (*Figure*

1), while the Knowledge to Action model describes the complex KT process involving knowledge creation and action.

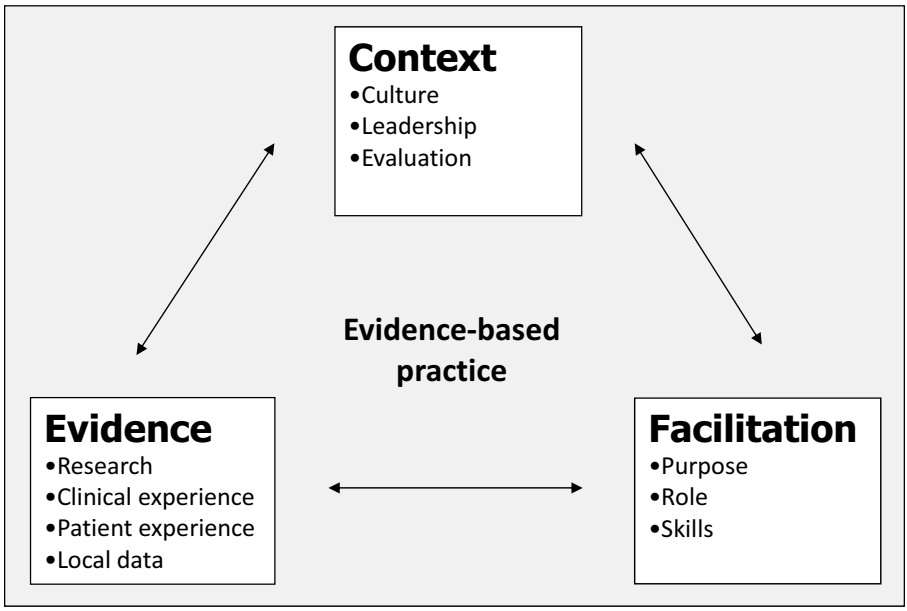

Figure 1. The Promoting Action on Research Implementation in Health Services (PARIHS) framework.

Facilitation

Several strategies exist for KT [47], which can be grouped as strategies for: dissemination/education, social interaction, decision support, organisational support and patient-oriented support [33]. Despite a number of systematic reviews, whose aims were to understand KT, there are no clear recommendations when certain strategies should be used [47-49]. However, methods building on social interaction are shown to be promising. For example, there are several methods where an individual actively influences the process of KT [50], such as a change agent, linking agent, facilitator, champion, knowledge broker, opinion leader and through educational outreach [51]. Despite the existence of knowledge about these different methods, it has not yet been clarified exactly how they differ from each other [45, 51, 52]. These roles can either be internal or external to an organisation and many of them imply that the individual knowledge translators must have health knowledge that is superior to the individuals or groups that he/she targets, for example, opinion leaders [51, 53, 54] and those performing educational outreach visits [52, 54].

Facilitation is described as a technique by which one person (the facilitator) targets individuals or groups to make things easier, to assist achieving

particular goals, to support, and to promote action [55]. According to the PARIHS framework, an important feature of facilitation is to challenge existing practices and support new ways of acting [52]. Further, a facilitator is a dynamic character with focus on enabling and developing a learning process rather than telling or persuading others about what they should do. The facilitator can either be internal or external to the individual or group that is targeted [52, 56, 57]. However, whether or not the facilitator is required to possess health knowledge is still being debated [52, 56-58] and an area needing more focus. Stetler and colleagues [57] describe facilitation as *"a deliberate and valued process of interactive problem solving and support that occurs in the context of a recognized need for improvement and a supportive interpersonal relationship"* [57 p1] and, according to Heron, the facilitator is *"a person who has the role of empowering participants to learn in an experiential group"* [59 p1]. Further, it has been underlined that facilitation should not only be seen as a method involving a facilitator, but rather as a process involving several stakeholders that are collaborating for the purpose of reaching a specific goal [56, 60].

Knowledge translation in low and middle income countries

KT has mainly been investigated in high income countries and only a few studies have been conducted in low and middle income countries [61-63]. The majority of these studies were criticised as being poorly designed, which further limits the opportunity to learn from them [64]. In response to the poor knowledge regarding KT in low and middle income settings, WHO highlighted the need to narrow the know-do gap and for finding ways to ensure that research and other important knowledge is translated into clinical practice as effectively and efficiently as possible [32, 63, 65]. Specifically, the facilitation strategy has only marginally been scrutinized as a KT method and studies have mainly been performed in high income countries [51, 52, 56-58, 60, 66, 67]. However, during the last 5 to 10 years, studies in low and middle income countries have increasingly focused on community mobilisation through different means (that is to say bottom-up approaches), among them the use of facilitators [68-70]. A project in Bolivia, where efforts in strengthening women's groups succeeded to lower perinatal mortality by more than 60% [71], inspired many consecutive and successful projects focusing on community-based strategies [72-76]. A project directly inspired by the success in Bolivia was a study in the Makwanpur district of Nepal, using facilitators targeting women's groups [77, 78]. They managed to lower neonatal mortality by 30% and increased coverage of antenatal care, institutional deliveries, skilled birth attendance and hygienic care. Studies in India [79] and Bangladesh [80] using a similar design as in Nepal were successful in improving health care practices and changing behaviour in the intervention sites. Further, the Indian study showed a comparable reduction of neonatal

mortality as in Nepal, while the study in Bangladesh, a scale-up attempt of the facilitation intervention, failed to show any impact on newborn survival. Pending is a study in Malawi having a similar design as the studies conducted in South Asia [81].

Knowledge translation in Vietnam

NeoKIP

Between July 2008 and June 2011, the Neonatal Knowledge Into Practice (NeoKIP, trial registration ISRCTN44599712) trial was evaluating the effectiveness of facilitation as a KT intervention for improved neonatal health and survival [82]. NeoKIP was theoretically framed by PARIHS, having a focus on *facilitation*, but also acknowledging the importance of *evidence* and *context* in planning and conducting the study. The hypothesis with NeoKIP was that interaction between practitioners and key commune members in a group supported by a facilitator and with access to evidence-based knowledge should speed up the process of practitioners changing their behaviour and subsequently improve patient outcomes. Specifically, it was hypothesised that this cluster-randomised intervention using a facilitation approach targeting local stakeholder groups should reduce the risk for neonatal deaths in the served population.

The districts in the Quang Ninh province, having a NMR ≥ 15 deaths per 1,000 live births (15/1,000), were included in the trial [82]. Thus, 8 districts with 90 communes became the study area where 44 communes were randomly allocated as intervention communes and 46 as control communes (*Figure 2*). The study area inhabited approximately 350,000 and the overall NMR was 24/1,000 (data from 2005).

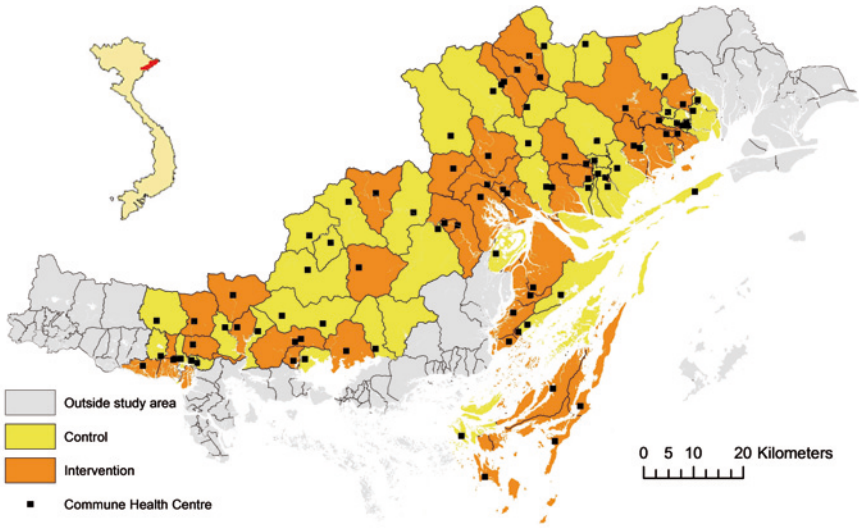

Figure 2. Quang Ninh province, Vietnam, showing study area and randomised intervention and control communes.

When evaluating the NeoKIP trial, the NMR of 22,378 live births from July 2008 to June 2011 was 19.2, 19.0 and 11.6/1,000 live births in the intervention communes and 18.0, 15.9 and 21.1 in control communes during the three years, respectively [83]. Thus, the risk of neonatal mortality in the third year was reduced by almost 50% in the intervention communes.

The studies presented in this thesis were all conducted within the frame of the NeoKIP project in order to assess the current function of KT at primary health care level and to evaluate the implementation and process of the NeoKIP facilitation intervention.

The Vietnamese health care context

For the last 20 years, U5MR and NMR in Vietnam have declined faster than the global average [4-6, 84]. However, the reduction of NMR has been slow [85], despite the fact that the Vietnamese government has focused on improving neonatal survival to reach the MDG-4 [86] in, for example, the launch of national guidelines for reproductive health care [87]. The Ministry of Health in Vietnam is responsible for the healthcare system, which is often described as a pyramid with four layers (national, provincial, district and commune) [88-90]. At the top there are national hospitals and central specialty institutes, on the second layer there are provincial and regional hospitals, on the third layer are district hospitals and inter-communal polyclinics and at the bottom of the pyramid are the commune health centres (CHCs).

The CHCs are responsible for primary health care in the communes, which includes implementing a number of health care programs targeting

areas such as maternal and child health, family planning, acute respiratory infections and immunization. At each CHC, three to six staff are responsible for the care, which, at minimum, are a doctor (medical doctor or assistant doctor), midwife and a registered nurse. Village health workers (VHW) are also connected to each CHC, one for each village, providing basic health care for the population in their villages and interconnecting people with the healthcare system [89]. The VHWs work on a voluntary basis and therefore must earn their living in other ways [90]. The VHW can be an important person, acting as a bridge between the population (especially the ethnic minority groups) and the healthcare system. Vietnam is a country with 54 different ethnic groups, whereof Kinh engage ~85% of the population [91]. Of the remaining 53 groups, 36 have a population of under 100,000 members and 17 under 10,000 members. The ethnic minority groups, those not classified as Kinh, often have their own individual languages, social organisations, customs and other cultural systems.

Traditional medicine (TM) is also integrated into the Vietnamese healthcare system and the Ministry of Health has decided to promote the rational use of both TM and more modern therapies [92]. TM in Vietnam has its roots in both Chinese beliefs and indigenous Vietnamese practices [93, 94]. The use of TM often involves a slower treatment process than with Western medicines [95]. Food and medicine can be classified according to hot or cold properties. For example, a pregnant woman in the first trimester is considered cold and should therefore eat/use hot food/medicines (potatoes, mangoes, meat, fatty food and Western medicines), while a pregnant woman in the last trimester is considered hot and should eat/use cold food/medicines (bananas, spinach, melon and TM).

Further, there are also other stakeholders aiming to improve the health of the population. The National Committee for Population, Family and Children provides counselling regarding family planning, and the Women's Union [96] supports women, for example in health care matters, especially those women belonging to poor and vulnerable groups.

As a result of the economic reforms (Đổi mới) in the 1980s, the health sector were liberalized regarding a number of measures, for example, the introduction of user fees at public hospitals and the legalization of private medical practices [88]. Although private health provision existed before the reforms, for example through governmental health care workers providing care out of hours and through traditional healers, it expanded during the 1990s [97]. The rapid economic transition in Vietnam has resulted in accelerated economic growth [98], and in 2008, the country moved from being classified as a low income country to a middle income country [99]. However, the transition has also had negative implications for poorer segments of the population [100, 101]. For example, poor people seek care less often than rich due to the high costs of health care or a need to borrow money to cover health care expenses.

In a literature review regarding information, education and communication interventions for promotion of health in Vietnam, it was revealed that such activities are provided through a mix of channels [102]. However, the provision of these interventions was top-down, that is to say in conformity with organisations of numerous higher authorities, such as the healthcare system. It was further reported that there is a gap between existing knowledge and practice, due to the culture of using didactic styles of communication and communicators' lack of knowledge in use of participatory methods [102]. However, in a recent study from northern Vietnam, the participants (political leaders, VHWs, teachers and representatives from various organisations) regarded the participatory methods that were evaluated as being promising and helpful [103].

Rationale

Worldwide, 3.3 million deaths occur every year during the neonatal period [6], which corresponds to more than 9,000 children every day and 350-400 children every hour. These are alarming figures, especially considering that already known, evidence-based, and low-cost interventions could avert >70% of these deaths [15]. Unfortunately the translation of these interventions into practice is deficient, partly because KT has turned out to be more complicated than it was first believed to be. The high number of neonatal deaths worldwide suggest a need to try to understand more about KT, especially in low and middle income countries where almost all neonatal deaths occur [7].

Facilitation has been described as a promising KT method. However, there is still a need to further understand how facilitation can function in different contexts, what skills a facilitator needs and how to train and support facilitators [51, 52, 56, 57]. Although facilitation has proven to be a successful strategy to lower NMR in low income countries [77, 79], these successes have occurred in smaller populations and the interventions were not entirely integrated into existing structures. There is also a need for more process evaluations of public health interventions [61] as such data can give valuable guidance during an ongoing project and for explaining its final outcomes [104, 105].

Vietnam was suitable as a platform for the evaluation of KT as it was a country with remaining challenges to improve neonatal survival despite efforts in translating knowledge into practice. Therefore, trying to understand KT in a Vietnamese primary health care context (study I and II) and to describe the implementation and process evaluation of a facilitation intervention (study III and IV) might generate valuable knowledge.

Aims

The overall aim of this doctoral project was to study aspects of knowledge translation before and during a facilitation intervention focusing on improving neonatal health and survival (the NeoKIP trial) at commune level in Quang Ninh province, Vietnam.

Specific aims were to:

- ✓ Assess primary health care workers' knowledge and material preparedness regarding evidence-based procedures in neonatal care (Study I).

- ✓ Explore how primary health care staff translated knowledge into practice with specific emphasis on how they acquired new knowledge, how clinical practice was changed and the parallel practice of traditional medicine and evidence-based practices (Study II).

- ✓ Describe the implementation of and report upon a process evaluation of the NeoKIP facilitation intervention (Study III).

- ✓ Describe mechanisms of the NeoKIP facilitation intervention based on experiences of facilitators and intervention group members (Study IV).

Methods

Study setting

All four studies in this thesis have been conducted in Quang Ninh province [82] but sampled from various geographical areas (*Figure 3*). The province is situated in the northeastern corner of Vietnam, 120 km east of the capital Hanoi bordering China. Quang Ninh is a long province occupying an area of 5,900 km^2. It has a large archipelago with more than 2,000 islands, flat land along the costs and mountains in the inlands. The province has 14 districts, 184 communes and approximately one million inhabitants. The population belongs to more than 20 different ethnic groups, whereof 80% are Kinh and, among the remaining groups, only five (Dao, Tay, San Diu, San Chi and Hoa) have a population larger than 1,000. Tourism and a coal mining industry are major sources of income in Quang Ninh.

A number of recent studies from Quang Ninh indicate some current challenges regarding neonatal health. For example, NMR in 2005 was found to be 16/1,000 although official statistics reported a NMR of 4/1,000, indicating a concerning underreporting [106]. Further, in the 14 districts the NMR ranged from 10 to 44/1,000. The high mortality districts are situated in rural and mountainous areas with NMR levels being equal to those of low income countries and the low mortality districts are situated in the more urban areas with the NMR in these being equal to levels of high-income countries [4, 107]. Moreover, neonates of mothers having a long distance to travel to a health facility and belonging to an ethnic minority group suffered an increased risk of dying during the first month of life [108, 109]. In Quang Ninh it is also reported that many of the neonatal death cases never had any contact with the healthcare system [110] and that there is a strong correlation between NMR and the home delivery rate [111].

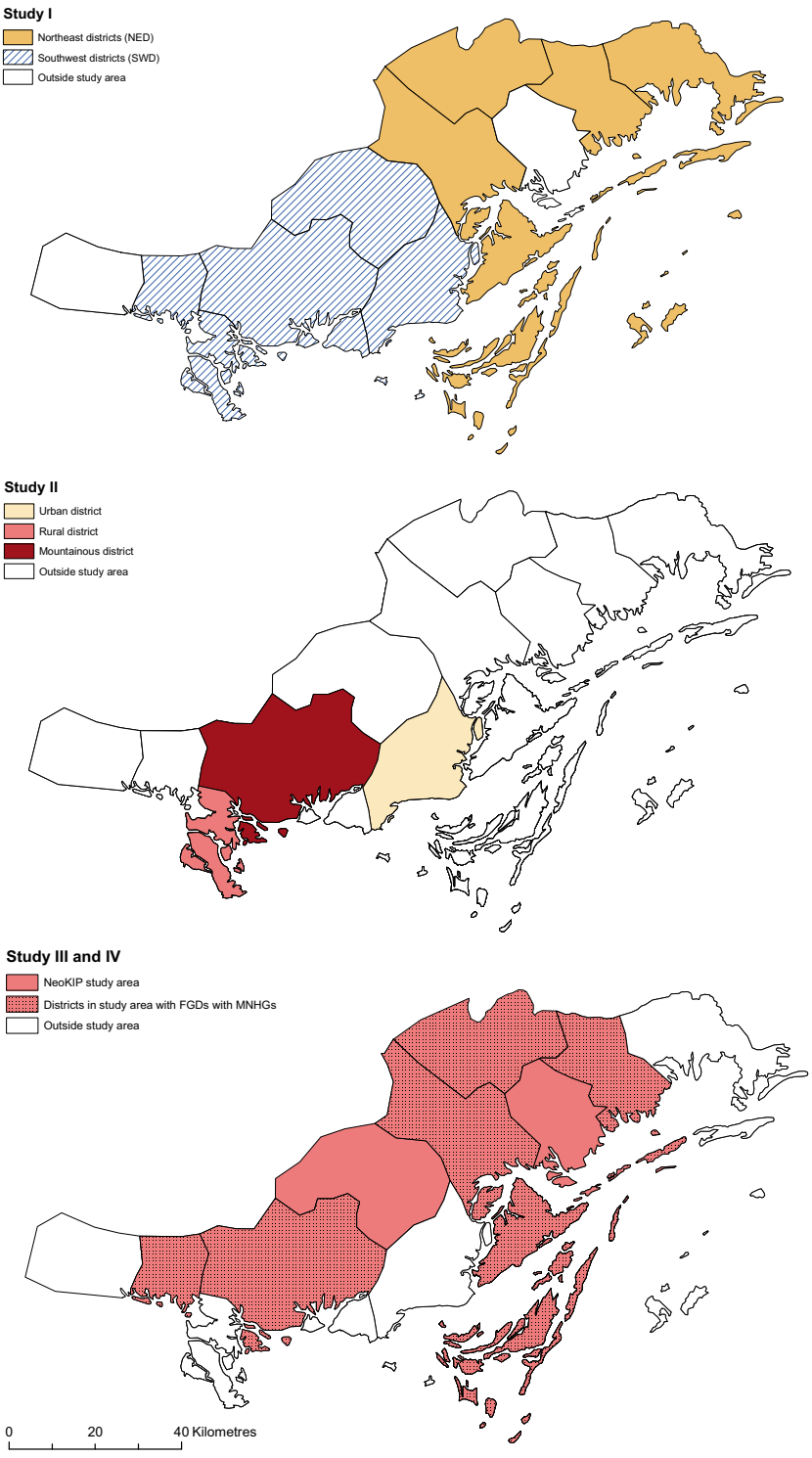

Figure 3. Maps over study I, study II and study III-IV.

The NeoKIP intervention

In each of the randomly selected intervention communes (n=44), a maternal and newborn health group (MNHG) was constituted. Each group consisted of eight participants; the vice chairperson of the commune (having responsibility for education and health in the commune), three primary health care staff (a doctor, midwife and a registered nurse), a VHW, two representatives from the Women's Union (at commune and village level) and a population motivator from the National Committee for Population, Family and Children. The intention with having a mix of influential individuals with varying background as members of a MNHG was to increase understanding of the local health situation, to get opportunity to reach out at different levels in society and also to build in authorization to ease the implementation of change. Each MNHG met monthly with a facilitator for 2-3 hours to identify local problems regarding neonatal health and to find and implement actions addressing these problems. The overall intention was that the facilitators should enable and support intervention groups, who were possessors of both local and practical knowledge, to improve the local situation of neonatal health and survival.

Study designs, participants and data collection

A mixed methods design [112] was used in this thesis. The four studies used both quantitative and qualitative methods (Table 1) and data were collected at varying points in time (*Figure 4*).

Table 1. Design, methods, sample size and analysis of the four studies in the thesis

Study	Study design	Data collection	Sample size	Main analysis
I	Explanatory sequential design	Questionnaire survey	412 primary health care workers	Descriptive statistics
II		Focus group discussions	Six focus group discussions with 44 primary health care workers	Qualitative content analysis
III	Convergent parallel design	Audit of documents, skills assessment	35 monthly supervision records, ~1500 diary episodes, ~100 communication papers, 5 evaluators of facilitators	Descriptive statistics
IV		Focus group discussions	15 focus group discussions with 11 facilitators and 53 maternal and newborn health group members	Thematic analysis

For study I (quantitative) and study II (qualitative), both conducted during the NeoKIP baseline in 2006, we used an explanatory sequential design [112], that is to say first quantitative data were collected and analyzed followed by a qualitative data collection.

In study I, a cross-sectional study, CHC staff on duty during data collection and involved in perinatal care (n=412) were invited to respond to a questionnaire with 16 multiple-choice questions on neonatal care. The multiple-choice questions covered basic aspects of evidence-based practice in neonatal care within the areas of breast feeding, immediate post-natal care, infection management, low birth weight management and post-natal home visits. The choice of topics was based on recommendations in the national standards and guidelines for reproductive health care services in Vietnam [87] and WHO recommendations on newborn care [113]. Each question could generate three points, entailing a maximum score of 48 points for the whole questionnaire. The questionnaire was developed by NeoKIP researchers and it was pilot tested both in Sweden and in Vietnam and revised accordingly. The respondents were medical doctors, assistant doctors, midwives and registered nurses from 12 of the districts in the Quang Ninh province (*Figure 3*). Access to certain equipment, drugs and guidelines [87] was assessed through a visual audit of 19 items. A Geographical Information System was set up to store and manage coordinates collected from all health care facilities with Global Positioning System devices.

In study II, we aimed to explore how primary health care staff translated knowledge into practice. CHC staff were purposely sampled [114] from communes in three districts (*Figure 3*) that represented the different types of geographical areas existing in the province: mountainous, rural, and urban. In each of the three districts a geographical representative sample of CHCs was selected where staff working within newborn care were invited to share their ideas in focus group discussions (FGDs). In each of the three districts medical doctors and assistant doctors were assembled in one group and midwives and nurses in another group, resulting in six groups with 44 CHC staff. FGDs were conducted with all groups with a Vietnamese paediatrician as a moderator, using an interview guide with six open-ended questions. A note-taker and an observer also assisted the moderator by keeping track of non-verbal activities. The FGDs lasted from 90 to 120 minutes. FGDs were audio-recorded and the material was transcribed verbatim. Subsequently, the material was translated from Vietnamese into English. Accuracy of the translation was verified by the two Vietnamese authors of the study.

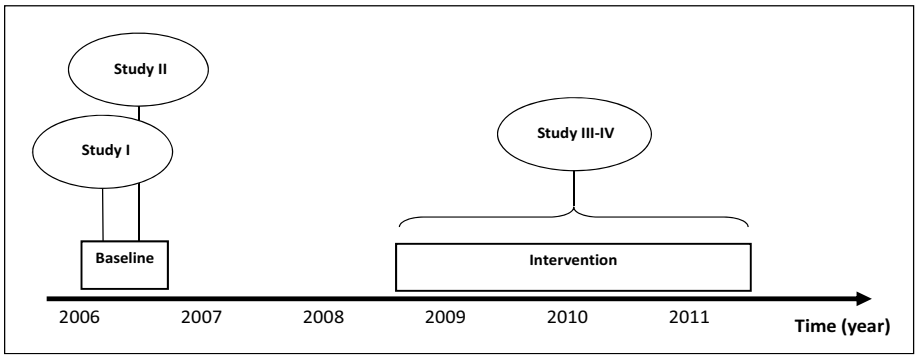

Figure 4. Timing of data collection for Study I-IV.

In study III (mainly quantitative) and IV (qualitative), a convergent parallel design was used [112], that is to say both quantitative and qualitative data were collected in parallel in order to understand the process and the mechanisms of facilitation in the NeoKIP project. Study IV also had an emergent design [115], which resulted in the expansion of the data collection through the intervention process, leading to an increased understanding of facilitation. To structure the studies, we were particularly inspired by a framework by Linnan & Steckler [104] as well as by the contribution of Saunders et al. [116]. This framework consists of seven key components based on a review of process evaluation literature for public health projects. The components that Linnan and Steckler highlight are *Recruitment, Dose delivered, Reach, Dose received, Context, Fidelity* and *Implementation*. In study III, we focused on five of these components: *Context, Recruitment, Dose delivered, Reach* and *Dose received*, while in study IV we focused on: *Dose delivered* and *Dose received*. The two excluded components (*Implementation* and *Fidelity*) were not possible to assess as the NeoKIP intervention not had been established according to the proposed framework.

In study III, we aimed to describe the implementation of and report upon a process evaluation of the NeoKIP intervention. To accomplish that, data were collected from various data sources, such as records from monthly supervision meetings conducted with facilitators, diary episodes from meetings with MNHGs, an assessment of attributes and skills of the facilitators, health information materials and notes from different events.

In study IV, facilitators and MNHG members were invited to share their experiences of the NeoKIP project through FGDs. Four FGDs were conducted with the facilitators: at start of the intervention and at 6, 27 and 36 months following initiation of the intervention. To capture MNHG members' experiences, 6 out of the 44 MNHGs were purposely sampled based on targeting varying groups in terms of geography, facilitators acting in the groups and performance as MNHG (*Figure 3*). Two rounds of FGDs were conducted with the six MNHGs (21 and 36 months into the intervention). All

16 FGDs lasted from 60 to 120 minutes. All FGDs were audio-recorded except the second FGD with the facilitators because of a malfunction of the audio-recorder. This FGD was therefore excluded from the analysis. Thus, the material from 15 FGDs were transcribed verbatim and translated from Vietnamese into English.

Data analyses

In study I, descriptive statistics, independent sample t-test, one-way ANOVA and χ^2-tests were used. P-values (<0.01 and <0.05) determined significance. Distances were obtained from geographical data collected within the NeoKIP project.

In study II, analysis was performed by manifest qualitative content analysis [117]. First, the material was read through several times, then meaning units were identified, followed by a condensation of the meaning units and labelling each with a code. Thereafter, codes were sorted into subcategories, the subcategories were sorted into categories, and finally, the categories were sorted into main categories [118].

In study III descriptive statistics and χ^2-tests were used. A p-value of <0.05 determined significance. Cronbach's alpha was calculated to determine internal consistency of the seven-item questionnaire, assessing the attributes and skills of facilitators.

In study IV, the material from 15 FGDs was initially analysed by reading all texts to reach a naïve understanding. This guided us to separate the material into two data sets: the 3 FGDs with the facilitators and the 12 FGDs with the MNHGs. Thematic analysis, according to the six steps described by Braun and Clarke [119], was used for analysis of both data sets:

1) the whole text was read through several times to obtain an understanding of the material and to search for meanings and patterns,
2) the material was coded,
3) a search for themes was conducted,
4) initial themes were closely reviewed individually and in relation to the entire data set and revised if necessary,
5) the themes were named, and finally,
6) the results were written up by using a mix of text and extracts from the data sets.

Statistical analyses were performed in SPSS 14 (study I) and SPSS 20 (study III), SPSS Inc, Chicago, Illinois, USA and Intercooled Stata 12 (study III), StataCorp LP, College station, Texas, USA. Geographical data were managed in Mapsource 6, Garmin International Inc., Olathe, Kansas, USA and ArcGIS 9, ESRI, Redlands, California, USA.

Ethical considerations

The studies in this thesis have been conducted within the NeoKIP project, which was approved by the Ministry of Health in Vietnam (ref 3934/QD-BYT), the provincial health bureau in Quang Ninh and the Research Ethics Committee at Uppsala University in Sweden (ref 2005:319).

Participation in the studies was voluntary. Study participants were informed about the purpose of each study and thereafter gave their verbal consent to participate. Data have been handled with confidentiality and de-identified. The facilitators signed a written informed consent form where they agreed to work as facilitators for the NeoKIP project. Despite these efforts, it could be a dilemma for the facilitators with a background from the Women's Union to shoulder the role of supporting MNHGs while originally possessing a lower rank then several of the group's members.

Data have been presented in peer-reviewed scientific journals and at conferences and have also been reported back to concerned persons in the study area through workshops and other forums.

Results

The four studies in this thesis cover aspects of KT at two time periods of the NeoKIP trial (*Figure 4*): at baseline (study I and II) and during intervention (study III and IV). Thus, results are structured in accordance to these two sections.

Knowledge translation among primary health care staff (study I and II)

The knowledge survey in study I was answered by 63% (412/657) of the health care personnel at 155 CHCs in Quang Ninh province. The survey participants achieved 60% of the maximal score (11,817 points out of 19,776) (*Figure 5*). Individual results ranged from 3 to 44 with a mean score of 28.7 (SD±6.1), while mean scores at district level varied from 26.7 to 31.5.

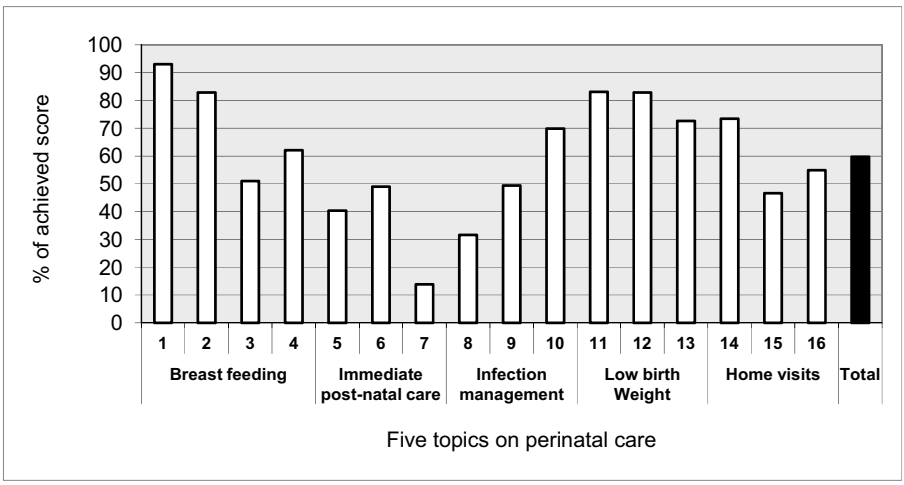

Figure 5. Results of the knowledge survey among primary health care staff on five topics of neonatal health care (n=412).

The national standards and guidelines for reproductive health care services in Vietnam [87] were available at 67% of the hospitals and 70% of the CHCs. No difference in survey result was detected between CHC staff hav-

ing access to the guidelines (28.7) and those not having such access (28.6), ($p=0.96$). Further, no association was found between staff's level of knowledge and number of deliveries at the corresponding CHC ($p=0.44$). Of the items investigated during the audit of available equipment and drugs, CHCs had lower access than hospitals to clean water, forceps, vacuum extraction equipment, Vitamin K_1, radiant heaters, towels for newborns, tubes for suction machines and masks and ambos for newborns and adults.

Based on the total score of the survey in each district, the six districts with the highest mean scores and the six districts with the lowest mean scores formed two distinct geographical areas, hereafter called the northeast districts (NED) and the southwest districts (SWD) (*Figure 3*). In the NED, survey participants had a mean score of 27.1, while staff in the SWD had a mean score of 29.9 ($p<0.01$). The two geographical areas also differed regarding other parameters related to neonatal health. In the NED the NMR was 50% higher, the number of pregnant women attending antenatal care at least three times was 35% lower, and the distance from the CHCs to any of the tertiary hospitals was, on average, three times longer than in the SWD.

The results from the first study, guided us when setting up the second study, aiming to explore how KT was performed in a Vietnamese primary health care setting. In study II, primary health care staff described several channels for acquisition and management of knowledge (*Figure 6*). Training, both theoretical and practical, was perceived as the best way to acquire knowledge and a necessity for providing good service at the CHCs. The national standards and guidelines for reproductive health care services in Vietnam [87] were also perceived as a relevant source of information. However, it was claimed that the guidelines were rarely used, mainly because of their poor introduction and the competition from other written material. Further, primary health care staff asked for interaction with colleagues at higher levels in the healthcare system but this way of communicating seldom happened. Staff knowledge and skills were, in general, perceived as scarce, which had negative consequences for the care of patients and the healthcare system.

> *There are rough hands [staff with inadequate knowledge and skills] working with obstetrics and paediatrics at the CHC; sometimes patients get scared when they see those hands. We need to select hands that can provide gentle service and for the health of the women and children; hands should be small and not rough.* (Assistant doctor, rural group)

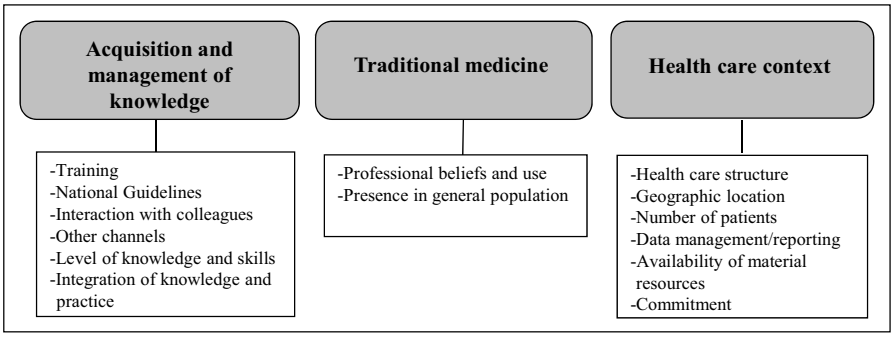

Figure 6. The 3 main categories and the 14 categories derived from focus group discussions with primary health care staff.

Primary health care staff described that they used both traditional medicine and evidenced-based medicine. Traditional medicine was considered to be important in the care of neonates and pregnant/postpartum women and it was often the first choice when treating mild conditions. However, as the two types of medical paradigms had different treatment strategies, it sometimes could be a dilemma for staff to choose between them. Among the general public, traditional medicine was more commonly used in communes with a higher proportion of ethnic minority groups, which often lived in rural and mountainous areas. However, not all traditional practices performed among the general population were accepted among the CHC staff.

> *It has not been scientifically tested, but when the baby cries, the family should burn the Mugwort because the smoke stops the baby from crying. So I think that the smoke of Mugwort helps to clear the baby's nose. I am personally against this practice, but I think it is alright that they use it.* (Assistant doctor, rural CHC)

FGD participants further narrated that low level of workload, low availability of equipment and drugs, disadvantaged (rural or mountainous) location of CHCs and poorly paid staff were barriers for improving their skills and also barriers to having a well-functioning health care context.

The implementation and process of the NeoKIP intervention (study III and IV)

Study III reports the quantitative findings of the process evaluation of the NeoKIP intervention implementation. The NeoKIP facilitators were recruited from the Women's Union and trained for two weeks in group dynamics, basic evidence-based neonatal care [87] and quality improvement methods, such as the Plan-Do-Study-Act (PDSA) cycle [120] (*Figure 7*) to pre-

pare them for their mission to facilitate the work of the 44 MNHGs. The PDSA cycle was the basic structure for the MNHGs' work, that is to say first, the groups identified and prioritised local problem/s and actions (Plan), then actions were implemented (Do), followed by an evaluation of process indicators for the targeted problem/s (Study), and finally, group members reconsidered their actions, to either modify or stop actions (Act).

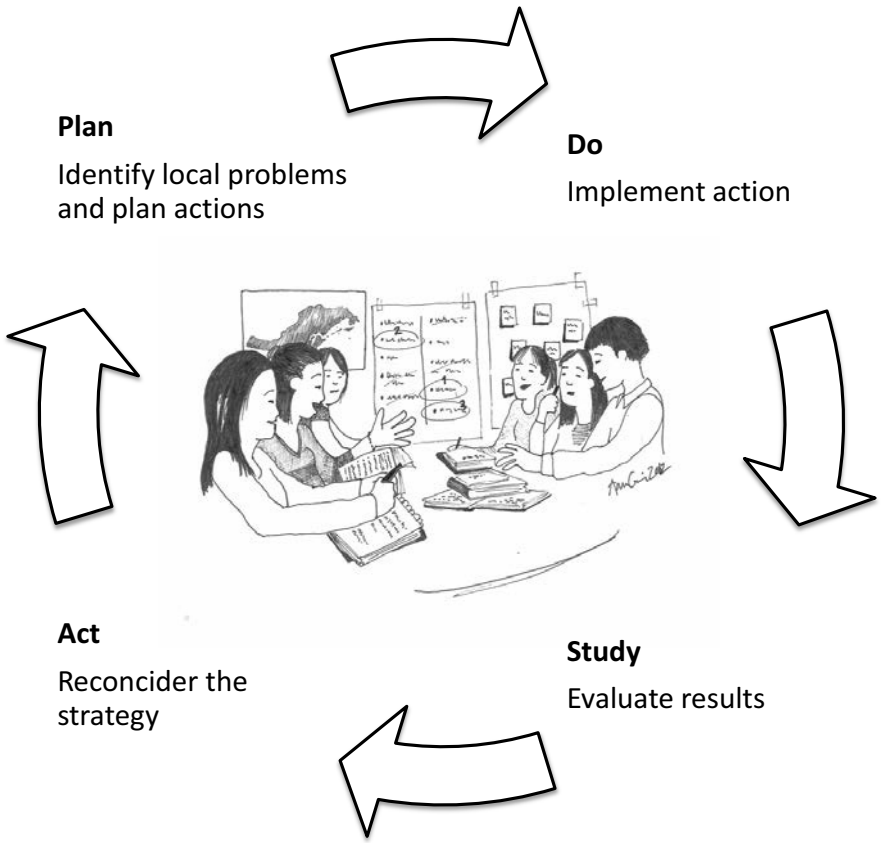

Figure 7. Action cycle in maternal and newborn health group

To cover eight facilitator positions over the NeoKIP intervention period, 11 facilitators were recruited and trained at two separate occasions (eight before start of intervention and three after half the intervention period due to withdrawals). During the intervention all facilitators met with supervisors monthly, for two consecutive days, to discuss and develop their facilitation roles. Supervisors and co-facilitators also attended MNHG meetings regularly to observe and give feedback to the facilitator in charge.

In the assessment of attributes and skills of the 11 facilitators the average score ranged from 0.07 to 0.83 (median 0.61). By using a cut-off point at 0.5, four facilitators were judged to have less skills and favorable attributes and seven with more skills and favorable attributes. When comparing the NMRs from the third intervention year between communes supported by a facilitator having more skills (NMR 8.5) with communes supported by a facilitator having less skills (NMR 17.1), there was a significant difference (χ^2=5.94, p<0.05). To determine whether this distribution of NMRs was linked to facilitator skills or inherent from the start of the project data from the NeoKIP baseline (data from 2005) were examined. The results from the analysis showed that there was no significant difference between communes supported by a facilitator having more skills (NMR 21.4) and communes supported by a facilitator having less skills (NMR 31.7) (χ^2=3.05, p=0.08).

Of the 44 MNHGs, 43 were active till the end of the intervention period. In total, the MNHGs conducted 95% (1,508/1,584) of the intended monthly meetings and the overall attendance of MNHG members was 86%.

Over the 3 years, the MNHG members identified 32 types of problem that were addressed 206 times and implemented 39 types of actions that were applied 933 times (Table 2). In the beginning of the intervention, MNHGs to a greater extent identified problems addressing the pregnant women's health than the health of the neonates. However, during the last half of the intervention, MNHGs were equally targeting problems relating to the health of pregnant women and neonates. The most frequently identified problems were low frequency of antenatal visits at the right time, low frequency of postnatal home visits and low awareness among pregnant women regarding appropriate diet, work and rest (Table 2). Actions taken to approach the problems mainly concerned communication. Most frequently used communication activities were to mobilise or counsel women at home (n=170), communicate messages at meetings (n=168), counsel women at CHCs (n=164), communicate messages through loudspeakers (n=105) and write communication papers (n=76). The communication papers contained clinically specific or more general information about various problems that the MNHG members agreed to focus their communication on.

Table 2. Identified problems and implemented actions among 44 maternal and newborn health groups for the entire intervention period.

Problems	Number of unique problems (n)	32
	Total number of times unique problems were identified (n)	206
	Five most commonly identified problems (n)	▪ Low frequency of antenatal care visits at the right time (42) ▪ Low frequency of post-natal home visits (33) ▪ Low awareness among pregnant women of appropriate diet, work and rest (23) ▪ High frequency of home deliveries (16) ▪ Low awareness among pregnant women of appropriate breast feeding practices (14)
Actions	Number of unique actions (n)	39
	Total number of times unique actions were implemented (n)	933
	Five most commonly implemented actions (n)	▪ Communication activities (623) ▪ Prepare material and educate MNHG members (154) ▪ Post-natal home visits (63) ▪ Develop lists of pregnant & post-natal women/neonates (28) ▪ Distribute leaflets (25)

In study IV the themes identified in the 15 FGDs mirror the facilitation process and its barriers (*Figure 8*). The facilitators experienced that to be a successful facilitator requires various skills and extensive commitment. Despite having described their lack of health knowledge as an aggravating factor and their confidence in acting as facilitators as low, facilitators' performance and skills increased over time. Two key factors to succeed as a facilitator were adaption to local culture and having a good relationship with the chair of the MNHG.

> *"I found it very hard to support the teams. This is because I don't have professional knowledge while the other 8 members of a team have their own specialty, enough confidence and education … About 1.5 year into the project, I was still very puzzled with many problems in the group; I didn't dare to express my idea during discussions. However, over time we received more knowledge and now at the end of the project, I find that my supporting role to the group is better, I can raise problems for discussion and I feel more confident about it."* (Facilitator)

The MNHG members had both positive and negative experiences of the new facilitator role. They described that the facilitators engaged in meetings and activities in an enthusiastic way. However, when the facilitators changed

frequently or when they were unfamiliar with the cultural context of a particular commune, they were described as being barriers for the MNHG to fulfil its task. Further, that the facilitator was a person lacking health knowledge surprised MNHG members as they had expected to be assisted by someone with superior knowledge. These experiences influenced the MNHG members to see the facilitator as an unnecessary person who did not provide any significant support.

"Actually, when there is a facilitator, support should be provided in terms of all aspects, including knowledge. But the facilitator of our group could not support us a lot. When she came and joined our monthly meeting, we summarised what we had done and planned for the next month. That's it; there was no support on knowledge." (MNHG member)

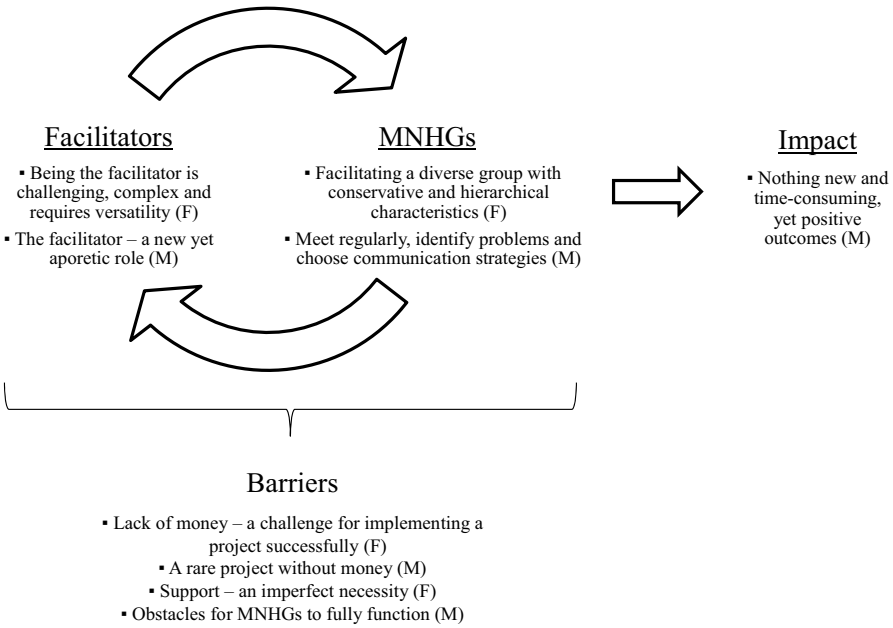

Figure 8. Mechanisms of facilitation as an intervention based on themes generated from experiences of facilitators (F) and maternal and newborn health group (MNHG) members (M).

The facilitators described the MNHGs as gatherings of several organisations for joint collaborations. The behaviour of the chair of the group influenced other group members' behaviour, that is to say if a chair was interested and engaged, the other group members became engaged in their group's work, while an unfocused chair influenced group members negatively. The facilitators faced both negative and positive attitudes and action when meeting the MNHGs. However, the MNHG members' engagement and enthusiasm in-

creased over time. Facilitators and MNHG members concurred that having intervention groups representing various organisations was beneficial for them as stakeholders and for the neonatal health in the communes. The MNHG members described that they met regularly in their groups and that all members were active and contributed to discussions, but often with the chair of the groups as the decision-maker.

A major perceived problem with the NeoKIP project was the lack of financial support. To have money was perceived to be a necessity to motivate group members to meet monthly and to implement actions in the communes. Further, facilitators experienced inadequate support to effectively carry out their role, that is to say facilitator training was considered too short and complicated and there was a lack of support from the involved organisations throughout the intervention. The MNHG members experienced the current function of the MNHGs as a barrier; there was a lack of resources to freely implement actions and there was a need to integrate the MNHG meeting into an already existing meeting at the CHC to involve more stakeholders, such as VHWs. Further, there were barriers for the MNHG members to meet the population and for the population to seek care at the CHCs, for example interfering relatives.

The work of the MNHGs addressed problems in both pregnant women's and newborns' health by using communication with the general public and pregnant woman as the universal action to target and resolve these problems. The MNHG members experienced that through their work in the groups, information was mainly provided to the general public verbally, by building on their own knowledge, through direct contact or via the loudspeaker systems in communes. The activities in the MNHG were further considered as strange, time consuming and not in line with expectations among the population, who instead, were more used to getting material, medicines or written documents when interacting with projects. Despite these negative experiences, MNHG members identified increased focus, knowledge and skills among themselves and an increased awareness and use of health care among the population as a result of their work.

Discussion

It can be concluded from the first two studies that KT in this Vietnamese context was performed in a top-down manner. However, several barriers were identified for the development of staff knowledge and skills, such as traditional medicine, lack of resources, low workload and poorly paid staff. Further, two separate geographical areas were identified with differences in primary health care staff level of knowledge, neonatal survival, antenatal care and post-natal home visits. The results from the first two studies indicated a need of improving the situation, which the NeoKIP intervention was a response to. In the last two studies, evaluating the basic and bottom-up NeoKIP intervention, results showed a high continuity among the MNHGs and high attendance among their members over the three intervention years. The MNHGs were experienced as strategically composed to influence change in the communes. The groups identified 32 unique problems, mainly concerning families' knowledge and behavior, and implemented 39 unique actions, mostly regarding communication. The facilitators were identified as important to sustaining activities and their performance and skills increased over time. However, the facilitators' lack of health knowledge was regarded as a deficit in their ability to assist the MNHGs.

The following discussion will focus on two sections, the KT according to the top-down Vietnamese model and the implication of the NeoKIP bottom-up approach. However, first some methodological considerations from the four studies will be discussed.

Methodological considerations

In study I we choose to construct our own knowledge survey questionnaire in order to get an indication of Vietnamese primary health care staff's level of evidence-based neonatal knowledge. As survey questions were pilot tested and based on recommendations from both WHO guidelines [113] and Vietnamese guidelines [87], they were considered to constitute a valid tool for measuring basic knowledge on evidence-based neonatal care. CHC staff responding to the survey questions were not allowed to use help from books or guidelines. As questions were of a basic nature, it was expected that staff involved in care of newborns should be able to answer the questions without any assistance. We chose to construct the questionnaire using multiple-

choice questions as this is a commonly used survey design and it was an approach familiar to the respondents. However, multiple-choice questions are most often constructed with only one correct answer for all questions in a survey [121]. Therefore, the mix of single and multiple correct answers in our survey may have caused a limitation, although this design also reduced the risk of the respondents being able to guess the correct answers [122]. Another limitation could be that we gave the same weight to all questions, although some questions could be considered to be more important than others.

Study III and IV, both being process evaluations, are important contributions to help explain the main outcomes in the NeoKIP trial [83]. In study III, several data sources contributed to the evaluation of the implementation and the process evaluation of the NeoKIP intervention. To structure the data we were inspired by a framework by Linnan and Steckler [104] and used five of their seven components, which we found well suited for organising the NeoKIP process data. Unfortunately, public health interventions in low and middle income countries often lack investments in evaluating intervention processes [61]. For example, among the three projects previously described from South Asia [77, 79, 80], only the project in India conducted a process evaluation of the trial [123], which can be a helpful resource when explaining a projects final outcome [104, 105].

In study II and IV, we used FGDs to collect data on experiences from CHC staff, MNHG members and facilitators. The choice of using FGDs was based on the expectation of generating knowledge through interactions between key people involved in the intervention [114]. In study II, this interaction was most successful in the three FGDs with medical doctors and assistant doctors. In the groups with midwives and nurses, which also had at least one doctor in each of the groups, discussion climates were inhibited. In study IV, FGDs were conducted with facilitators and MNHGs. In the FGDs with MNHGs, six groups were enrolled in two separate rounds. The experiences from this strategy were that MNHG members during the first round were less willing to express criticism openly, while negative experiences were articulated explicitly during the second round of FGDs. In study II, we used a paediatrician as a moderator and in study IV, we used a doctor in sociology, both of which could be considered to be superior in rank than the FGD participants. Constructing the groups in this way might have inhibited some of the FGD participants as people in Vietnam are raised in a system based on Communism and Confucianism, where critique of superiors is not allowed [124]. However, in study IV, participants' fear of expressing critique was overcome by our having conducted a second round of FGDs using the same moderator. Despite the heterogeneity in some groups (study II) and a more reductive behaviour in other FGDs (study IV), the material from these discussions has enriched our understanding of KT in a Vietnamese primary health care context.

In both studies, the Vietnamese materials have been translated into English, which suggests the possibility of the risk of losing important information. However, we have tried to avoid this by closely checking the correctness of translations. By using a mix of Vietnamese and non-Vietnamese researchers when analysing data and writing-up the manuscripts for study II and IV, we suggest instead that the credibility of the studies has increased. The use of two different analytic methods, qualitative content analysis [117, 118, 125] and thematic analysis [119, 126, 127], has previously been found to support a deeper understanding. However, stating that a qualitative method has been applied does not automatically explain how the analysis was performed; the balance between describing what, how when and by whom while having to limit the number of words in a scientific paper is always a delicate process.

To establish the trustworthiness of the four studies, the first author and the other Swedish researchers visited Vietnam several times over the duration of the NeoKIP project. This frequent contact enabled us to develop close relationships with the Vietnamese colleagues, which was crucial when trying to understand the Vietnamese health care context, culture and behaviour. To nurture these relationships has also eased the joint process of planning, data collection and analysis. The material in studies I-IV has also been scrutinised by numerous NeoKIP researchers representing diverse professions and cultures and by others at different forums (seminars, workshops and conferences).

The external validity (study I) and transferability (study II) might be limited to other provinces in Vietnam. However, regarding the NeoKIP trial (study III and IV), the fact that all stakeholders (facilitators and MNHG members) were from currently active and nationwide organisations in Vietnam, increases the potential to scale-up this type of KT method, primarily in Vietnam, but potentially also in other low and middle income countries where similar stakeholders and/or organisations can be identified.

Knowledge translation according to the top-down Vietnamese model

The reduction of neonatal mortality has been recognised as a necessity to meet the target of the MDG-4 [128]. In line with this need, a campaign run by the Ministry of Health in Vietnam focused on improving perinatal health and lowering neonatal mortality [86]. As a means to reach these goals, the national standards and guidelines for reproductive health care services in Vietnam were introduced in 2003 [87]. In study I and II, we show that these guidelines were not frequently used, although they were implemented as tools for CHC staff performing reproductive health care. From the know-

ledge survey results in study I, we conclude that a newborn child in the northeast districts (NED) (*Figure 3*) was not only cared for by staff with lower level of basic knowledge, it also had a higher risk of dying during the first four weeks after delivery and, if it became seriously ill, had a longer distance to travel to a tertiary hospital than a newborn child in the southwest districts (SWD). It is well known that ethnic minority groups in Vietnam are more disadvantaged than the Kinh population regarding, for example, education and health [91, 108]. The findings from study I verify these differences as the NED had a larger proportion of ethnic minorities than the SWD. Further, the inequities between NED and SWD also suggest an insufficient compliance to the second, third and sixth article in the United Nations Convention on the Rights of the Child [1]: a need for more measures in areas with high proportions of ethnic minority groups (article 2), unequal provision of standard of care (article 3) and, as a consequence, that all children did not have the same foundation on which to develop healthily and to survive (article 6).

In study II, we found that because of poor implementation and the existence of other competing sources of information, guidelines were not frequently used. Further, while training was perceived to be the best KT method, it was seldom used. In the hierarchically structured Vietnamese healthcare system [89, 90], known to perform KT in a top-down manner [102], both guidelines and training are provided by Ministry of Health to lower levels. Most likely, this way of working has been influenced from Confucianism, which is an important philosophy in Vietnam where hierarchy is a cornerstone [129]. The Confucianism ideal further provides a support for patriarchy, which previously has been identified as a barrier for pregnant women in Vietnam when making decisions regarding their own reproductive health [130]. In study IV, FGD participants told that relatives could be a barrier for women's care seeking behaviours, which might be a consequence of patriarchy.

In study II, we detected several factors that might have influenced the level of knowledge and skills among staff and, consequently, the quality of primary health care, for example, a low level of clinical activity. In the study province, two-thirds of the CHCs assisted less than 18 deliveries each in 2005 [111]. This low activity is largely a result of the health sector reforms in the 1980s [97], which influenced the population to an increased utilization of the private healthcare sector and the higher levels of the governmental health care system [88, 131]. Thus, the primary healthcare level had a reduction in clinical activity, for example, of assisted deliveries, which implies a risk of reduced quality of care [132].

In addition, lack of resources and commitment were most likely influential factors for staff knowledge and skills (study II). In Vietnam, it has been shown that medical doctors prefer to work at hospitals rather than at primary healthcare level because of better salaries, more resources and better work-

ing conditions [133]. Further, in a study in northern Vietnam, health care staff at primary healthcare level identified low income as the most discouraging factor in their work [89]. According to FGD participants in study II, low income might also be a contributing factor for the lack of commitment among the staff in Quang Ninh. In particular, the VHWs might lack motivation to perform well; despite being an important bridge between the population and the healthcare system, they have a relatively low monthly economic support. The VHW positions are most important in rural and mountainous areas [90, 131], which implies that the most disadvantaged groups in society, those belonging to an ethnic minority group, are dependent on the low-paid and potentially uncommitted VHWs. In a recent qualitative study, health care providers and patients perceived the use of CHCs to be a cost-effective strategy, with the potential to reach the whole population in regards to reproductive health care [131]. However, they also perceived the current standard of the CHCs to be too low, especially in rural and mountainous areas where the CHCs have a central function because of the long distance to hospitals. Further, payment for health services, adapted to the income level of the patient, was welcomed, in order to improve quality of care at the CHCs.

According to the PARIHS framework (*Figure 1*), successful implementation of evidence into practice requires good quality of evidence, supporting context and appropriate facilitation [45]. The authors of the framework suggest that various types of evidence need to be acknowledged, involving research, clinical experience, patient experience and local data [134]. The sparse use of the national standards and guidelines for reproductive health care services in Vietnam [87] detected in study I and II indicates a poor reliance on evidence based on research. Reasons for this poor use can be attributed to poor introduction of the guidelines, the existence of other textual documents and the competition with traditional medicine. Further, the underreporting of NMR previously presented from the study province [106] might indicate a culture not valuing local data as important. Thus, to use local data as evidence might not have been a priority for CHC staff. Consequently, primary health care staff mainly used evidence based on patient and clinical experiences. However, in a healthcare context with few patients, primary health care staff will have limited opportunities to gain knowledge and practice skills, suggesting that this approach may cause an increased risk of a deteriorating quality of primary health care. The PARIHS framework further suggests that a rich context needs to be receptive to change [45] and must include a decentralisation of decisions [135], which implies that a health care context which puts emphasis on a respectful collaboration between managers and workers and uses a management style that is facilitative rather than directive is more effective. The findings from study I and II do not support that this was the situation for the health care context in Quang Ninh, which rather was hierarchically structured with the direction of flow of various types of actions from higher to lower levels. Thus, to test a KT model characterized

as bottom-up and pro-interaction [82], like NeoKIP, was both challenging and interesting in a top-down context.

Community mobilisation supported by facilitation of local stakeholder groups – a bottom-up approach

Projects using community mobilisation as a key feature were already established in low and middle income countries in the 1970s [70]. For example, in the Jamkhed project, India [136, 137], participatory approaches were used to engage community members, resulting in a 90% reduction of the infant mortality rate over the project's first 20 years. Attempts to scale up the Indian project and similar undertakings in other countries have failed [70]. During the last decade, community mobilisation has received renewed focus as a promising strategy for improved neonatal health and survival [17, 69] because the NMR has remained static worldwide [7]. For example, projects in Nepal [77] and India [79] evaluating the use of female facilitators mobilising women's groups were successful in improving various health indicators and reduced the NMR by 30-45%.

The evaluation of the NeoKIP trial, where facilitators supported local stakeholder groups for 3 years [82], showed that intervention communes had an almost 50% lower NMR than control communes for the third and final intervention year [83]. Further, process indicators collected from a random sample of mothers with surviving neonates (n=1,243) from the three intervention years showed that women in intervention communes had a higher attendance to antenatal care, higher preparedness for delivery and higher frequency of institutional deliveries. In study III, a compilation of process data from the intervention showed that top priority problems (dealing with attendance during antenatal care, post-natal home visits, diet and rest during pregnancy, home deliveries and breast feeding) coincided well with the progress in some of the process indicators. However, no increase was detected for post-natal home visits and initiation of breast feeding by the intervention [83].

The occurrence of post-natal home visits in Quang Ninh province differed between 5% and 40%, depending on the data source [83, 111]. Yet these figures indicate that too few post-natal home visits are conducted as health care staff should perform post-natal home visits of newborn children and their mothers [87]. Most likely, to effect an increase in the occurrence of home visits will take time to implement because CHC staff are accustomed to conducting few home visits, lack resources to actually conduct them and work in a setting where more than 90% of the deliveries are at a health care unit [111]. To increase the occurrence of post-natal home visits will be of high importance in Vietnam, although not as important as in settings where

there are high proportions of home deliveries [10]. Regarding the initiation of breast feeding, it is not surprising that effects are not yet visible because low awareness among pregnant women regarding breast feeding was only identified as a problem in 14 MNHGs. Further, as the NeoKIP intervention targeted MNHGs [82] and not the population directly, as other facilitation projects did [77, 79, 80], to see the effects on an indicator like initiation of breast feeding might take time or fail completely depending on how MNHG members dealt with this problem and how well the women respond to MNHG members' actions. In study III and IV, we propose that the constellation of the local stakeholder group probably was crucial for the success of the NeoKIP trial [83]. However, when an action, such as a MNHG member communicating with a pregnant woman, was conducted by a member lacking a health background, the communication content was most likely at a more general level. A key element to succeed with community mobilisation is to allow time for communes to develop their own solutions in accordance with their local norms and beliefs [70]. Therefore, if a problem such as low awareness among pregnant women of the benefits of breast feeding practices was addressed in a MNHG it will most likely increase the practice of breast feeding in the long run, if pregnant women continue to attend antenatal care and if also the content of care is prioritized by the CHCs.

The MNHGs in the NeoKIP trial can be viewed as community coalitions, that is to say groups of people having a joint venture to make change and introduce innovative solutions to health problems [138]. However, a key feature of a community coalition is an agreement to work together. Therefore, it can be questioned whether the MNHGs can be considered community coalitions as they were established by the NeoKIP project and not by the MNHG members themselves. Thus, the local ownership was probably not that strong, which might have resulted in a lack of motivation among MNHG members to engage in the project. However, due to the 'achievement decease', which refers to a behavior of pretending to succeed with a task to avoid critique of superiors [124], MNHG members might have reported successful results despite a lack of engagement. Nevertheless, when having a coalition promoting health to a population, it has been acknowledged that to have members coming from both the healthcare sector and other sectors is an important element [139]. Yet, so far there is not much knowledge on how such an intersectoral coalition should function effectively. Therefore, study III and IV contributes by generating knowledge regarding the function of local stakeholder groups in a Vietnamese primary health care setting, where group members actually praised the joint collaboration of several organisations to focus on neonatal health.

In study III and IV we identified the facilitators as central characters to gather the MNHG members and assure that all groups but one were meeting monthly over the 3 intervention years. However, the facilitators experienced their tasks to facilitate and engage the MNHG members during the monthly

meetings as challenging. When using change agents in community mobilisation projects it is important that such an agent has *"credibility in the communities; language skills and cultural sensitivity; knowledge of community structures and protocols; interest in being a facilitator and in maternal and newborn health; affiliation with and support from an organisation; good interpersonal communication skills; and availability of time to do the work"* [70 p969]. However, the NeoKIP facilitators did not fulfil all these criteria. It has previously been determined that establishing a group leader is a key element for the function of a successful group coalition [56, 57, 60, 139]. In the NeoKIP project, when facilitators failed to establish a good relationship with the chair of the MNHG, the other MNHG members performed poorly and this most likely influenced the facilitators' credibility in the MNHGs and also in the communes. Despite the 44 intervention communes having been divided according to the NeoKIP facilitators' place of residence, not all communes could obtain a local facilitator. In study IV it was recognised as a problem when facilitators resided in other districts than the commune she supported, which meant that facilitators had scarce knowledge of local structures, languages and cultures. However, over time the facilitators' skills improved (study IV) and during the third intervention year the positive results from the NeoKIP trial also became evident [83]. This delay in having positive outcomes could be because it took time for MNHGs to function properly and for facilitators to develop required skills and acclimatize themselves within the various communes. Further, in the NeoKIP trial we used laywomen as facilitators [82] in order to create the possibility of scaling up the intervention if it was proven to be successful. However, the facilitators' lack of health knowledge was criticized by both the facilitators themselves and the MNHG members. According to Harvey et al., it has been suggested that effective facilitation will be achieved if facilitators have *"a mixture of personal attributes and personal, interpersonal and group management skills"* [52 p582], while Stetler and colleagues [57] suggest that it is critical that facilitators have knowledge on evidence-based practice. Based on the findings of our work in Vietnam, I support the latter suggestion and believe that the facilitators' lack of health knowledge in the NeoKIP trial has been the main reason for their difficulties in functioning in their role in accordance with how they were trained. It has also been proposed that successful facilitation is a team effort [56, 60], which the results from study III and IV support. The facilitator-MNHG teams succeeded in changing attitudes and behavior in the intervention communes, which led to improved neonatal survival. Thus, the success was not solely because of the performance of the facilitators or the MNHGs.

Conclusion

Poor neonatal health and survival are prominent public health problems in the world, especially in low and middle income settings, despite the existence of evidence-based knowledge that can improve health and increase survival. In Quang Ninh province, Vietnam, these problems are also present, particularly in certain geographical areas and among disadvantaged groups, despite the availability of evidence-based guidelines for reproductive health care services [87]. Thus, a key issue needing attention is the translation of relevant knowledge into practice.

The first study in this thesis revealed a low level of knowledge regarding evidence-based neonatal care among primary health care staff. Two separate geographical areas were identified with differences in staff levels of knowledge and concurrent differences in neonatal survival, antenatal care and postnatal home visits. The second study identified several barriers to improving the primary health care staff's level of knowledge, such as lack of resources, low workload and poorly paid staff. Despite Vietnam already having an established and structured healthcare system [88-90], the development of health care over the last 20 years has been unfavorable at the primary healthcare level [88, 97, 101], which contributes to an explanation of the findings in the first two studies. This situation primarily affects the most disadvantaged groups in Vietnamese society (the poor, ethnic minorities and those living in rural areas) who can only afford to seek care at primary healthcare level or use the parsimonious service in the villages. The staff at the CHCs are not only at the bottom layer of the healthcare system, but are also at the end of the line in a hierarchical flow of information from higher to lower levels [102]. This system dictates that primary health care staff are the receivers of directives rather than being part of an interaction with higher levels where exchange of knowledge could occur, despite that such interaction is being requested by primary health care staff.

The implementation of the NeoKIP trial was not only an attempt to evaluate facilitation as a KT model, but also to integrate this model into the existing societal structures to enable up-scaling. The trial was successful in lowering neonatal mortality [83] and the last two studies in this thesis suggest that this result can be explained by the basic NeoKIP intervention model where facilitators support local stakeholder coalitions. In particular, the strategic composition of the coalitions with a representation of politicians, health care providers and individuals living close to the families in need of help

appeared to be of great importance for the outcome of the trial. The work in the MNHGs led to changed attitudes and behaviour, both among the targeted population and group members. However, MNHGs might have benefited from using more sources of evidence [134], that is to say to use more evidence from national guidelines and local data.

It has been recognized that projects dealing with community mobilisation need dedication and time to achieve results [70]. The facilitators' ability to sustain the MNHGs' activities over time was thus an important contribution. The studies further suggest that laywomen can function as facilitators. However, this approach was criticised, indicating that facilitators recruited from the Women's Union need more comprehensive training and support if this KT model is to be scaled up or implemented elsewhere. Possibly, having facilitators with a health care background would have strengthened the facilitators' work in the MNHGs. The evaluations further suggest that facilitators functioned best if they were familiar with the local culture and were able to come to terms with the chair of the MNHG.

This thesis contributes with extended knowledge regarding KT, in particular, the use of the facilitation method at primary healthcare level in Vietnam. Using individuals within existing communal structures in a KT model is a complex undertaking. However, neonatal health and survival were improved by the NeoKIP model, although it took time to reach favourable results in NMR. Several barriers exist with this KT model, which implies that there is room for improvement. Therefore, the positive outcomes of the trial with regard to the relatively low costs of the intervention point at promising potential for its scaling up.

Summary in Swedish/sammanfattning på svenska

Årligen dör 3.3 miljoner barn runt om i världen innan de uppnått en ålder av en månad, det vill säga under neonatalperioden. Detta motsvarar mer än 9,000 barn på en dag och 350-400 barn varje timme. Dödsfallen som bidrar till dessa skrämmande siffror sker nästan uteslutande i låg- och medelinkomstländer (98%) trots att det finns enkla, billiga och evidensbaserade metoder som skulle kunna förhindra mer än 70% av dessa dödsfall. Exempel på sådana metoder är att amma barn exklusivt från födseln, se till så de håller sig varma och att det finns utbildad hälsopersonal till hands vid och efter förlossningar. Men detta sker inte överallt i världen, det vill säga det finns ett glapp mellan befintlig kunskap/metoder och vad som i praktiken används i vården och ute i samhället. Följaktligen, mer vetskap om hur befintlig kunskap kan implementeras i praktiken på ett effektivt sätt skulle kunna bidra med stora förbättringar, i synnerhet rörande vården av nyfödda barn i medel- och låginkomstländer.

Detta avhandlingsarbete rymmer fyra artiklar som behandlar processutvärderingsaspekter av den randomiserade kontrollerade NeoKIP-studien i Quang Ninh-provinsen i norra Vietnam. Det övergripande projektet utvärderade effekten av ett stöd från en så kallad faciliterare i arbetet med en grupp bestående av nyckelpersoner på kommunnivå som hade till syfte att förbättra vård och resultat i omhändertagande av barn i nyföddhetsperioden. De första två artiklarna belyser förutsättningar för kunskapsimplementering i Quang Ninh-provinsen och de sista två artiklarna genomförandet av NeoKIP-interventionen som avsåg att stödja förbättringsarbete.

I studie I undersökte vi kunskapsnivån hos läkare, barnmorskor och sjuksköterskor som jobbade på 155 vårdcentraler i 12 av 14 distrikt i Quang Ninh. Ett frågeformulär bestående av 16 basala flervalsfrågor inom området evidensbaserad neonatalvård konstruerades för denna studie. Totalt svarade 412 hälsoarbetare som erhöll 60% av möjliga poäng. Vi kunde se en länk mellan respondenternas kunskapsnivå och det geografiska läget av den vårdcentral de jobbade på. Respondenterna i de sex distrikten i den nordöstliga delen av provinsen fick lägre resultat än respondenterna i de sex distrikten i den syvästliga delen av provinsen (*Figure 3*). När vi undersökte andra parametrar rörande dessa två geografiska områden såg vi att i det nordöstliga området var det en högre neonatal mortalitet, lägre användande av mödrahäl-

sovård och det genomfördes färre hembesök hos barn/mamma efter förlossning än i området i sydväst.

I studie II genomförde vi sex fokusgruppintervjuer med personal från vårdcentraler (läkare, barnmorskor, sjuksköterskor) involverade i vården av nyfödda barn. Deltagarna kom från tre olika distrikt som representerade de tre typer av geografiska områden som finns i Quang Ninh-provinsen, det vill säga tätbefolkade områden, landsbygd och bergsområden (*Figure 3*). Resultatet av analysen visade att de som arbetar på vårdcentraler i dessa distrikt hade flera olika metoder för att skaffa sig kunskap, men ingen metod verkade fungera riktigt bra. Man föredrog att inhämta kunskap genom utbildning men mest önskat var att etablera ett ökat samarbete med kollegor högre upp i hälsosystemet. Traditionell medicin, brist på resurser (material och medicin), få förlossningar och lågavlönad personal upplevdes som hinder för att bevara vårdcentralspersonalens kompetens.

I studie III och IV rapporteras hur NeoKIP-interventionen genomfördes och hur den uppfattades av faciliterarna och av de personer som ingick i de 44 interventionsgrupperna. Totalt rekryterades och tränades 11 faciliterare från ett nationellt kvinnoförbund för att täcka de 8 faciliterarpositionerna. I de 44 interventionsgrupperna fanns bland annat lokala politiker i beslutsfattande positioner och hälsopersonal från vårdcentralen. Totalt genomfördes 95% (n = 1508) av de planerade mötena med faciliterare och interventionsgrupper. Av de 44 grupperna var det bara en som hoppade av projektet i förtid. Under de 3 interventionsåren var närvaron vid månadsmötena i de 44 grupperna 86%. Totalt identifierade grupperna 32 unika problem som i huvudsak berörde kunskap och beteende hos framför allt kvinnor/familjer. Trettionio unika åtgärder implementerades vilka till stor del utgjordes av kommunikation av information på olika sätt. Vi fann att interventionsgrupperna var strategiskt komponerade för att påverka situationen i kommunerna och faciliterarna var viktiga personer för att bibehålla kontinuiteten och närvaron i grupperna. Faciliterarnas brist på hälsokunskap kritiserades och bidrog troligtvis till upplevelsen hos deltagarna (faciliterarna och interventionsgruppmedlemmarna) att denna projektmodell var långsam.

I dessa fyra studier fann vi att kunskapsimplementering i största grad genomfördes hierarkiskt, det vill säga från högre till lägre nivå, trots att personalen på vårdcentralerna önskade mer samarbete mellan nivåerna. Den genomförda utvärderingen av NeoKIP-interventionen pekar på att det var möjligt att använda lekmän som faciliterare av lokala kommungrupper som förändringsstrategi. Trots att det fanns olika hinder för att denna intervention skulle fungera optimalt så åstadkom den en betydande sänkning av den neonatala mortaliteten och besitter stor potential för att användas i större skala.

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References

1. United Nations General Assembly, *Convention on the Rights of the Child*. 1989, United Nations: New York.
2. United Nations General assembly, *Resolution 2 session 55 United Nations Millennium Declaration*. 2000, United Nations: New York.
3. UN, *The Millennium Development Goals report 2008*. 2006, United Nations: New York.
4. UNICEF, *The State of the Worls's Children*. 2012, UNICEF: New York.
5. World Health Organization, *Worls Health Statistics*. 2011, World Health Organization: Geneva.
6. Oestergaard, M.Z., et al., *Neonatal Mortality Levels for 193 Countries in 2009 with Trends since 1990: A Systematic Analysis of Progress, Projections, and Priorities.* PLoS Med, 2011. **8**(8): p. e1001080.
7. Lawn, J.E., S. Cousens, and J. Zupan, *4 million neonatal deaths: When? Where? Why?* Lancet, 2005. **365**(9462): p. 891-900.
8. Lawn, J.E., et al., *3.6 million neonatal deaths--what is progressing and what is not?* Semin Perinatol, 2010. **34**(6): p. 371-86.
9. Bryce, J., et al., *WHO estimates of the causes of death in children.* Lancet, 2005. **365**(9465): p. 1147-52.
10. Baqui, A.H., et al., *Effect of timing of first postnatal care home visit on neonatal mortality in Bangladesh: a observational cohort study.* Bmj, 2009. **339**: p. b2826.
11. Lawn, J.E., et al., *Newborn survival in low resource settings--are we delivering?* BJOG, 2009. **116 Suppl 1**: p. 49-59.
12. Lawn, J.E., et al., *Two million intrapartum-related stillbirths and neonatal deaths: where, why, and what can be done?* Int J Gynaecol Obstet, 2009. **107 Suppl 1**: p. S5-18, S19.
13. Kerber, K.J., et al., *Continuum of care for maternal, newborn, and child health: from slogan to service delivery.* Lancet, 2007. **370**(9595): p. 1358-69.
14. Bhutta, Z.A., et al., *Community-based interventions for improving perinatal and neonatal health outcomes in developing countries: a review of the evidence.* Pediatrics, 2005. **115**(2 Suppl): p. 519-617.
15. Darmstadt, G.L., et al., *Evidence-based, cost-effective interventions: how many newborn babies can we save?* Lancet, 2005. **365**(9463): p. 977-88.
16. *Executive summary.* Journal of Perinatology, 2002(Suppl 2): p. 3-4.

17. Osrin, D. and A. Prost, *Perinatal interventions and survival in resource-poor settings: which work, which don't, which have the jury out?* Arch Dis Child, 2010. **95**(12): p. 1039-46.
18. Sackett, D.L., et al., *Evidence based medicine: what it is and what it isn't.* Bmj, 1996. **312**(7023): p. 71-2.
19. Jones, G., et al., *How many child deaths can we prevent this year?* Lancet, 2003. **362**(9377): p. 65-71.
20. McGlynn, E.A., et al., *The quality of health care delivered to adults in the United States.* N Engl J Med, 2003. **348**(26): p. 2635-45.
21. Grol, R., *Successes and failures in the implementation of evidence-based guidelines for clinical practice.* Med Care, 2001. **39**(8 Suppl 2): p. II46-54.
22. Oxman, A.D., J.N. Lavis, and A. Fretheim, *Use of evidence in WHO recommendations.* Lancet, 2007. **369**(9576): p. 1883-9.
23. Arnold, S.R. and S.E. Straus, *Interventions to improve antibiotic prescribing practices in ambulatory care.* Cochrane Database Syst Rev, 2005(4): p. CD003539.
24. Grimshaw, J.M., et al., *Effectiveness and efficiency of guideline dissemination and implementation strategies.* Health Technol Assess, 2004. **8**(6): p. iii-iv, 1-72.
25. Shea, B.J., *A decade of knowledge translation research--what has changed?* J Clin Epidemiol, 2011. **64**(1): p. 3-5.
26. McKibbon, K.A., et al., *A cross-sectional study of the number and frequency of terms used to refer to knowledge translation in a body of health literature in 2006: a Tower of Babel?* Implement Sci, 2010. **5**: p. 16.
27. Straus, S.E., J.M. Tetroe, and I.D. Graham, *Knowledge translation is the use of knowledge in health care decision making.* J Clin Epidemiol, 2011. **64**(1): p. 6-10.
28. Canadian Institute of Health Research (CIHR). *About Knowledge Translation*. 2009 3 April; Available from: http://www.cihr-irsc.gc.ca/e/29418.html.
29. Greenhalgh, T. and S. Wieringa, *Is it time to drop the 'knowledge translation' metaphor? A critical literature review.* J R Soc Med, 2011. **104**(12): p. 501-9.
30. Scott-Findlay, S. and C. Pollock, *Evidence, research, knowledge: a call for conceptual clarity.* Worldviews Evid Based Nurs, 2004. **1**(2): p. 92-7; discussion 98-101.
31. Rycroft-Malone, J. and C.B. Stetler, *Commentary on Evidence, Research, Knowledge: A call for Conceptual Clarity: Shannon Scott-Findlay & Carolee Pollock.* Worldviews on Evidence-Based Nursing, 2004. **1**(2): p. 98-101.
32. World Health Organization, *Bridging the "Know-Do" Gap. Meeting on Knowledge translation in Global Health 10-12 October 2005*. 2006, WHO: Geneva.
33. Wallin, L., *Knowledge translation and implementation research in nursing.* Int J Nurs Stud, 2009. **46**(4): p. 576-87.

34. Medical Research Council. *A framework for the development and evaluation of RCTs for complex interventions to promote health*. 2000 09.10.2009]; Available from: http://www.mrc.ac.uk/utilities/Documentrecord/index.htm%3Fd=MRC003372.
35. Eccles, M., et al., *Changing the behavior of healthcare professionals: the use of theory in promoting the uptake of research findings.* J Clin Epidemiol, 2005. **58**(2): p. 107-12.
36. Davies, P., A.E. Walker, and J.M. Grimshaw, *A systematic review of the use of theory in the design of guideline dissemination and implementation strategies and interpretation of the results of rigorous evaluations.* Implement Sci, 2010. **5**: p. 14.
37. Oxman, A.D., A. Fretheim, and S. Flottorp, *The OFF theory of research utilization.* J Clin Epidemiol, 2005. **58**(2): p. 113-6; discussion 117-20.
38. Bhattacharyya, O., et al., *Designing theoretically-informed implementation interventions: fine in theory, but evidence of effectiveness in practice is needed.* Implement Sci, 2006. **1**: p. 5.
39. Rycroft-Malone, J., *Theory and knowledge translation: setting some coordinates.* Nurs Res, 2007. **56**(4 Suppl): p. S78-85.
40. Estabrooks, C.A., et al., *A guide to knowledge translation theory.* J Contin Educ Health Prof, 2006. **26**(1): p. 25-36.
41. Carlfjord, S., *Teorianvändning vid forskning som rör implementering inom hälso- och sjukvård*, in *Implementering. Teori och tillämpning inom hälso- & sjukvård*, P. Nilsen, Editor. 2010, Studentlitteratur AB: Lund.
42. Grol, R., M. Wensing, and M. Eccles, *Improving Patient Care. The Implementation of Change in Clinical Practice.* , ed. R. Grol. 2005, London: Elsevier.
43. Estabrooks, C.A., et al., *The intellectual structure and substance of the knowledge utilization field: a longitudinal author co-citation analysis, 1945 to 2004.* Implement Sci, 2008. **3**: p. 49.
44. Rogers, E.M., *Diffusion of innovations*. 2003, New York: Free Press.
45. Rycroft-Malone, J., et al., *Ingredients for change: revisiting a conceptual framework.* Qual Saf Health Care, 2002. **11**(2): p. 174-80.
46. Graham, I.D., et al., *Lost in knowledge translation: time for a map?* J Contin Educ Health Prof, 2006. **26**(1): p. 13-24.
47. Grol, R. and J. Grimshaw, *From best evidence to best practice: effective implementation of change in patients' care.* Lancet, 2003. **362**(9391): p. 1225-30.
48. Bero, L.A., et al., *Closing the gap between research and practice: an overview of systematic reviews of interventions to promote the implementation of research findings. The Cochrane Effective Practice and Organization of Care Review Group.* Bmj, 1998. **317**(7156): p. 465-8.

49. Thompson, D.S., et al., *Interventions aimed at increasing research use in nursing: a systematic review.* Implement Sci, 2007. **2**: p. 15.
50. Nilsen, P., K. Roback, and B. Krevers, *Förklaringsfaktorer för implementeringsutfall - ett ramverk*, in *Implementering. Teori och tillämpning inom hälso- & sjukvård*, P. Nilsen, Editor. 2010, Studentlitteratur AB: Lund.
51. Thompson, G.N., C.A. Estabrooks, and L.F. Degner, *Clarifying the concepts in knowledge transfer: a literature review.* J Adv Nurs, 2006. **53**(6): p. 691-701.
52. Harvey, G., et al., *Getting evidence into practice: the role and function of facilitation.* J Adv Nurs, 2002. **37**(6): p. 577-88.
53. Locock, L., et al., *Understanding the role of opinion leaders in improving clinical effectiveness.* Soc Sci Med, 2001. **53**(6): p. 745-57.
54. Oxman, A.D., et al., *No magic bullets: a systematic review of 102 trials of interventions to improve professional practice.* CMAJ, 1995. **153**(10): p. 1423-31.
55. Kitson, A., G. Harvey, and B. McCormack, *Enabling the implementation of evidence based practice: a conceptual framework.* Qual Health Care, 1998. **7**(3): p. 149-58.
56. Dogherty, E.J., M.B. Harrison, and I.D. Graham, *Facilitation as a role and process in achieving evidence-based practice in nursing: a focused review of concept and meaning.* Worldviews Evid Based Nurs, 2010. **7**(2): p. 76-89.
57. Stetler, C.B., et al., *Role of "external facilitation" in implementation of research findings: a qualitative evaluation of facilitation experiences in the Veterans Health Administration.* Implement Sci, 2006. **1**: p. 23.
58. Wallin, L., J. Profetto-McGrath, and M.J. Levers, *Implementing nursing practice guidelines: a complex undertaking.* J Wound Ostomy Continence Nurs, 2005. **32**(5): p. 294-300; discussion 300-1.
59. Heron, J., *The Complete Facilitator's Handbook*. 1999, London: Kogan Page.
60. Dogherty, E.J., et al., *Following a natural experiment of guideline adaptation and early implementation: a mixed-methods study of facilitation.* Implement Sci, 2012. **7**(1): p. 9.
61. Haines, A., S. Kuruvilla, and M. Borchert, *Bridging the implementation gap between knowledge and action for health.* Bull World Health Organ, 2004. **82**(10): p. 724-31; discussion 732.
62. Santesso, N. and P. Tugwell, *Knowledge translation in developing countries.* J Contin Educ Health Prof, 2006. **26**(1): p. 87-96.
63. World Health Organization, *World Report on Knowledge for better health. Strengthening Health Systems.* 2004, World Health Organization: Geneva.

64. Siddiqi, K., J. Newell, and M. Robinson, *Getting evidence into practice: what works in developing countries?* Int J Qual Health Care, 2005. **17**(5): p. 447-54.
65. World Health Organization, *Knowledge management strategy*. 2005, WHO: Geneva.
66. Ellis, I., et al., *From workshop to work practice: An exploration of context and facilitation in the development of evidence-based practice.* Worldviews Evid Based Nurs, 2005. **2**(2): p. 84-93.
67. Wallin, L., A. Rudberg, and L. Gunningberg, *Staff experiences in implementing guidelines for Kangaroo Mother Care--a qualitative study.* Int J Nurs Stud, 2005. **42**(1): p. 61-73.
68. Lassi, Z.S. and Z.A. Bhutta, *Unfolding the universe of newborn health interventions: the role of innovative community-based strategies.* Bjog, 2011. **118 Suppl 2**: p. 18-21.
69. Nair, N., et al., *Improving newborn survival in low-income countries: community-based approaches and lessons from South Asia.* PLoS Med, 2010. **7**(4): p. e1000246.
70. Rosato, M., et al., *Community participation: lessons for maternal, newborn, and child health.* Lancet, 2008. **372**(9642): p. 962-71.
71. O'Rourke, K., L. Howard-Grabman, and G. Seoane, *Impact of community organization of women on perinatal outcomes in rural Bolivia.* Rev Panam Salud Publica, 1998. **3**(1): p. 9-14.
72. Bang, A.T., R.A. Bang, and H.M. Reddy, *Home-based neonatal care: summary and applications of the field trial in rural Gadchiroli, India (1993 to 2003).* J Perinatol, 2005. **25 Suppl 1**: p. S108-22.
73. Baqui, A.H., et al., *Effect of community-based newborn-care intervention package implemented through two service-delivery strategies in Sylhet district, Bangladesh: a cluster-randomised controlled trial.* Lancet, 2008. **371**(9628): p. 1936-44.
74. Bhutta, Z.A., et al., *Improvement of perinatal and newborn care in rural Pakistan through community-based strategies: a cluster-randomised effectiveness trial.* Lancet, 2011. **377**(9763): p. 403-12.
75. Jokhio, A.H., H.R. Winter, and K.K. Cheng, *An intervention involving traditional birth attendants and perinatal and maternal mortality in Pakistan.* N Engl J Med, 2005. **352**(20): p. 2091-9.
76. Kumar, V., et al., *Effect of community-based behaviour change management on neonatal mortality in Shivgarh, Uttar Pradesh, India: a cluster-randomised controlled trial.* Lancet, 2008. **372**(9644): p. 1151-62.
77. Manandhar, D.S., et al., *Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster-randomised controlled trial.* Lancet, 2004. **364**(9438): p. 970-9.
78. Morrison, J., et al., *Women's health groups to improve perinatal care in rural Nepal.* BMC Pregnancy Childbirth, 2005. **5**(1): p. 6.

79. Tripathy, P., et al., *Effect of a participatory intervention with women's groups on birth outcomes and maternal depression in Jharkhand and Orissa, India: a cluster-randomised controlled trial.* Lancet, 2010. **375**(9721): p. 1182-92.
80. Azad, K., et al., *Effect of scaling up women's groups on birth outcomes in three rural districts in Bangladesh: a cluster-randomised controlled trial.* Lancet, 2010. **375**(9721): p. 1193-202.
81. Rosato, M., et al., *MaiMwana women's groups: a community mobilisation intervention to improve mother and child health and reduce mortality in rural Malawi.* Malawi Med J, 2010. **22**(4): p. 112-9.
82. Wallin, L., et al., *Implementing knowledge into practice for improved neonatal survival; a cluster-randomised, community-based trial in Quang Ninh province, Vietnam.* BMC Health Serv Res, 2011. **11**: p. 239.
83. Persson, L.Å., et al., *Effect of facilitation of local maternal-and-child stakeholder groups on neonatal mortality. The NeoKIP cluster-randomised trial in Quang Ninh province, Vietnam.* 2012 (manuscript).
84. Rajaratnam, J.K., et al., *Neonatal, postneonatal, childhood, and under-5 mortality for 187 countries, 1970-2010: a systematic analysis of progress towards Millennium Development Goal 4.* Lancet, 2010. **375**(9730): p. 1988-2008.
85. Hoa, D.P., et al., *Persistent neonatal mortality despite improved under-five survival: a retrospective cohort study in northern Vietnam.* Acta Paediatr, 2008. **97**(2): p. 166-70.
86. Ministry of Health Vietnam, *Ministry of Health Directive on Newborn Health: 04/2003/CT-BYT*. 2003: Hanoi.
87. Ministry of Health Vietnam, *National standards and guidelines for reproductive health care services*. 2002, Ministry of Health: Hanoi.
88. Deolalikar, A.B., *Access to Health Services by the Poor and the Non-Poor: The Case of Vietnam.* Journal of Asian and African Studies, 2002. **37**(2): p. 244-261.
89. Dieleman, M., et al., *Identifying factors for job motivation of rural health workers in North Viet Nam.* Hum Resour Health, 2003. **1**(1): p. 10.
90. Ladinsky, J.L. and R.E. Levine, *The organization of health services in Vietnam.* J Public Health Policy, 1985. **6**(2): p. 255-68.
91. World Health Organization, *Health And Ethinc Minorities In Viet Nam. Technical series No.1*. 2003, WHO: Hanoi, Vietnam.
92. Ministry of Health - Vietnam, *Comprehensive development design for the health system in Viet Nam to 2010 and vision by 2020*. 2006, Ministry of Health - Vietnam: Hanoi.
93. World Health Organization, *Legal Status of Traditional Medicine and Complementary/Alternative Medicine: A Worldwide Review*. 2001, WHO: Geneva, Switzerland.

94. World Health Organization, *WHO Traditional Medicine Strategy 2002 - 2005*. 2002: Geneva.
95. Ladinsky, J.L., N.D. Volk, and M. Robinson, *The influence of traditional medicine in shaping medical care practices in Vietnam today.* Soc Sci Med, 1987. **25**(10): p. 1105-10.
96. Vietnam Women's Union. *Basic Information on Vietnam Women's Union*. 2009 17 September 2009]; Available from: http://www.hoilhpn.org.vn/?lang=EN.
97. Witter, S., *'Doi moi' and health: the effect of economic reforms on the health system in Vietnam.* Int J Health Plann Manage, 1996. **11**(2): p. 159-72.
98. International Monetary Fund, *World economic outlook, April 2009; Crisis and Recovery*. 2009: Washington, D.C. .
99. Worldbank, *From Low Income to Industrialized: Vietnam in the Next Decade and Beyond*, K.-C. Cheong, P.M. Duc, and N. Thang, Editors. 2010: Hanoi.
100. Khe, N.D., et al., *Primary health concept revisited: where do people seek health care in a rural area of Vietnam?* Health Policy, 2002. **61**(1): p. 95-109.
101. Segall, M., et al., *Economic transition should come with a health warning: the case of Vietnam.* J Epidemiol Community Health, 2002. **56**(7): p. 497-505.
102. Laverack, G. and T. Tuan, *Effective information, education and communication in Vietnam*. 2001.
103. Hien, L.T.T., et al., *Effectiveness of a capacity-building program for community leaders in a healthy living environment: a randomized community-based intervention in rural Vietnam.* Health Promot Int, 2008. **23**(4): p. 354-64.
104. Linnan, L. and A. Steckler, *Process evaluation for Public Health Interventions and Research*. 2002: Jossey-Bass.
105. Oakley, A., et al., *Process evaluation in randomised controlled trials of complex interventions.* Bmj, 2006. **332**(7538): p. 413-6.
106. Målqvist, M., et al., *Unreported births and deaths, a severe obstacle for improved neonatal survival in low-income countries; a population based study.* BMC Int Health Hum Rights, 2008. **8**: p. 4.
107. World Bank. *Countries and Economies*. 2012 [cited 2012 2012-01-18]; Available from: http://data.worldbank.org/country.
108. Målqvist, M., et al., *Ethnic inequity in neonatal survival: a case-referent study in northern Vietnam.* Acta Paediatr, 2011. **100**(3): p. 340-6.
109. Målqvist, M., et al., *Distance decay in delivery care utilisation associated with neonatal mortality. A case referent study in northern Vietnam.* BMC Public Health, 2010. **10**: p. 762.
110. Målqvist, M., et al., *Delivery care utilisation and care-seeking in the neonatal period: a population-based study in Vietnam.* Ann Trop Paediatr, 2008. **28**(3): p. 191-8.

111. Nga, N.T., et al., *Perinatal services and outcomes in Quang Ninh province, Vietnam.* Acta Paediatr, 2010.
112. Creswell, J.W. and V.L. Plano Clark, *Designing and conducting mixed metods research*. 2 ed. 2011, London: SAGE Publications, Inc.
113. World Health Organization, *Managing Newborn Problems: A guide for doctors, nurses, and midwives*, in *Integrated Management of Pregnancy and Childbirth*. 2003: Hong Kong.
114. Dahlgren, L., M. Emmelin, and A. Winkvist, *Qualitative Methodology for International Public Health*. 2004, Umeå.
115. Polit, D.F. and C.T. Beck, eds. *Nursing Research. Principles and Methods*. 2004, Lippincott Williams & Wilkins: Philadelphia.
116. Saunders, R.P., M.H. Evans, and P. Joshi, *Developing a process-evaluation plan for assessing health promotion program implementation: a how-to guide.* Health Promot Pract, 2005. **6**(2): p. 134-47.
117. Graneheim, U.H. and B. Lundman, *Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness.* Nurse Educ Today, 2004. **24**(2): p. 105-12.
118. Elo, S. and H. Kyngäs, *The qualitative content analysis process.* J Adv Nurs, 2008. **62**(1): p. 107-15.
119. Braun, V. and V. Clarke, *Using thematic analysis in psychology.* Qualitative Research in Psychology, 2006. **3**(2): p. 77-101.
120. Langley, G., et al., *The Improvement Guide. A Practical Approach to Enhancing Organizational Performance*. 2009, Chichester: Jossey Bass Wiley.
121. Considine, J., M. Botti, and S. Thomas, *Design, format, validity and reliability of multiple choice questions for use in nursing research and education.* Collegian, 2005. **12**(1): p. 19-24.
122. Haladyna, T., *Developing and validating multiple-choice test items*. 1994, New Jersey: Lawrence Erlbaum Associates.
123. Rath, S., et al., *Explaining the impact of a women's group led community mobilisation intervention on maternal and newborn health outcomes: the Ekjut trial process evaluation.* BMC Int Health Hum Rights, 2010. **10**: p. 25.
124. Malqvist, M., *Neonatal mortality: an invisible and marginalised trauma.* Glob Health Action, 2011. **4**.
125. Hsieh, H.F. and S.E. Shannon, *Three approaches to qualitative content analysis.* Qual Health Res, 2005. **15**(9): p. 1277-88.
126. Boyatziz, R.E., *Transforming Qualitative Information: Thematic Analysis and Code Development*. 1998, Thousand Oaks, CA: Sage.
127. Tuckett, A.G., *Applying thematic analysis theory to practice: a researcher's experience.* Contemp Nurse, 2005. **19**(1-2): p. 75-87.
128. Lawn, J.E., et al., *Newborn Survival.* 2006.
129. Hägerdal, H., *Vietnams historia*. 2005, Lund: Historiska Media.

130. Graner, S., et al., *Maternal health care professionals' perspectives on the provision and use of antenatal and delivery care: a qualitative descriptive study in rural Vietnam.* BMC Public Health, 2010. **10**: p. 608.
131. Ngo, A.D. and P.S. Hill, *Quality of reproductive health services at commune health stations in Viet Nam: implications for national reproductive health care strategy.* Reprod Health Matters, 2011. **19**(37): p. 52-61.
132. Scotland, G.S. and C.H. Bullough, *What do doctors think their caseload should be to maintain their skills for delivery care?* Int J Gynaecol Obstet, 2004. **87**(3): p. 301-7.
133. Witter, S., et al., *Understanding the 'four directions of travel': qualitative research into the factors affecting recruitment and retention of doctors in rural Vietnam.* Hum Resour Health, 2011. **9**(1): p. 20.
134. Rycroft-Malone, J., et al., *An exploration of the factors that influence the implementation of evidence into practice.* J Clin Nurs, 2004. **13**(8): p. 913-24.
135. Rycroft-Malone, J., *The PARIHS framework--a framework for guiding the implementation of evidence-based practice.* J Nurs Care Qual, 2004. **19**(4): p. 297-304.
136. Arole, M. and R. Arole, *A comprehensive rural health project in Jamkhed (India)*, in *Health by the People*, K.W. Newell, Editor. 1975, World Health Organization: Geneva. p. 70-90.
137. Comprehensive Rural Health Project. 28 March 2012]; Available from: http://jamkhed.org/.
138. Butterfoss, F.D., *Process evaluation for community participation.* Annu Rev Public Health, 2006. **27**: p. 323-40.
139. O'Neill, M., et al., *Coalition theory as a framework for understanding and implementing intersectoral health-related interventions.* Health Promotion International, 1997. **12**(1): p. 79-87.

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