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東南アジア、南アジアにおける
補助看護助産師の役割に関する文献検討

Roles of Auxiliary Nurse Midwives in South-Eastern and Southern Asia: A Literature Review

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Chapter 1. Introduction

Background

The World Health Organization (WHO) developed the vision of Universal Health Coverage (UHC) in their Sustainability Development Goals. Between 1990 and 2015, the maternal mortality worldwide dropped by about 44% (WHO, 2016). However, approximately 830 women die daily from preventable causes related to pregnancy and childbirth, and 99% of all maternal deaths occur in developing countries (WHO, 2016). It is particularly important that all births are attended by skilled health professionals, as timely management and treatment can make the difference between life and death for both the mother and the baby (WHO, 2016).

In this situation, because of the shortage of medical staff, some countries used the system and human resource (HR) of an Auxiliary Nurse Midwife (ANM). An ANM is defined as someone who assists in the provision of maternal and newborn health (MNH) care, particularly not only during childbirth but also in the prenatal and postpartum periods (WHO, 2012, 2014). Home births are common and auxiliary midwives have been perceived as an essential care provider during childbirth in hard-to-reach areas (Than, 2017).

WHO (2012, 2014) recommended some maternal interventions based on systematic reviews to be provided by ANM as stated in their Optimize MNH task shifting guidance "Optimizing health worker roles for maternal and newborn health through task shifting". However, although ANMs possess some midwifery competencies, they are still not fully qualified as midwives (WHO, 2012), and the system varies in different countries. This is the reason they do not get sufficient support from the government. This support is in the form of not only financial but also educational.

In Francophone West Africa, it depends on the health system to be classified as Skilled Birth Attendants (SBA) in human resource related childbirth (Matsuno & Mori, 2016). In Asia, there have been some reports indicating that ANMs are treated as SBAs, while others are treated as unskilled on Demographic and Health Survey (DHS).

ANMs are occasionally classified as community health workers. Moreover, 8 out of 20 countries in South-Eastern Asia and the Southern Asian region also have ANMs (Sakamoto, 2012;United Nations Population Fund [UNFPA], 2014; WHO, 2013); however, their work have not been clarified. These countries include India, Nepal, Myanmar, Pakistan, Bangladesh, Vietnam, Lao People's Democratic Republic (Lao PDR) and Bhutan (Sakamoto, 2012; Shimazawa, 2016; UNFPA, 2014). These ANMs account for the largest proportion of midwifery workforce distribution in South-East Asia (UNFPA, 2014) and play important roles in MNH. According to the health indicators related to MNH (**Table 1**), MNH improved in these countries similarly to other developing countries. However, there are still improvements that need to be carried out in MNH. In some countries, ANMs assist in delivery, but others only perform antenatal and postnatal care (Matsuno & Mori, 2016). Some countries have ceased providing education for new ANMs, but they have started education for ANMs for them to progress and become midwives. Because of this, the authority of ANMs is rather unstable. These unsteady status effects ANMs. ANMs feel joyful for the job and at the same time also experience difficult situations such as overwork and misunderstanding from their families among others (Higuchi, 2013). The lack of clear government-level written permission to distribute drugs was perceived as a barrier to task shifting (Than, 2017).

In this situation, the health system of ANMs varies in countries, but these reports are not be organized. To achieve task-shifting, we must not only consider these differences but also conduct studies to synthesize the roles of ANMs. This review focuses on the roles of ANMs through the following three perspectives: HR management system, policy, and education.

Objective

To describe the roles of ANM in Southern Asia and South-Eastern Asia.

Definition of terms

Auxiliary Nurse Midwife (ANM): A health worker who has attended secondary

school. A period of on-the-job training may be needed, and occasionally formalized apprenticeships. Similar to auxiliary nurses, ANMs have basic nursing skills but no training in nursing decision-making. ANMs assist in the provision of maternal and newborn health care, not only during childbirth but also in the prenatal and postpartum periods. They possess some of the competencies in midwifery but are not fully qualified as midwives (WHO, 2012, 2014). WHO defined Auxiliary Midwife (AMW) as being similar to ANMs. Moreover, UNFPA (2014) referred to Family Welfare Visitors (FWVs), Junior Midwives, Community SBAs in Bangladesh; Lady Health Visitors in India, Myanmar, Pakistan; Family Welfare Workers in Pakistan; and village-based ethnic minority midwives (EMMs) in Vietnam as ANMs in their report. However, WHO classified Community SBAs as Lay Health Workers in Bangladesh. Moreover, Lady Health Visitors and family welfare worker had education similar to the education of MWs or more than that of MWs. Therefore, I excluded Community SBAs in Bangladesh and Lady Health Visitor in India, Myanmar, Pakistan and family welfare workers. In addition, lady health workers in Pakistan was also included instead of above cadres to similarly mean ANMs.

South-Eastern Asia: The southern region of the Asian continent include countries like Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Vietnam. These are classified according to M49. M49 is prepared by the Statistics Division of the United Nations (UN) Secretariat primarily for use in its publications and databases (UN, 2017).

Southern Asia: This region classified by the UN consists of Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of Iran), Maldives, Nepal, Pakistan, and Sri Lanka. These countries are classified according to M49 similarly to South-Eastern Asia.

Chapter 2. Methods

Study design

This study design is a literature review.

Types of countries

I searched countries that accept ANMs in south-eastern and southern Asia. The search yielded the following 8 countries: India, Nepal, Myanmar, Pakistan, Bangladesh, Vietnam, Bhutan, and Lao PDR (Sakamoto, 2012; Shimazawa, 2016; UNFPA, 2014).

Types of participants

The eligible ANMs are those who are working at the national, provincial, districts, and community levels (i.e., home, community or referral facility interventions). I excluded nurse, midwives, lay health workers, traditional birth attendants (TBAs), and trained TBAs.

Types of data

I conducted the basic data, the information of ANM related HR management system, Policy, and Education. The basic data included the name of ANM, number of ANM, Density of ANM per 1,000 population, Density of nurses (Ns) and midwives per 1,000 population Density of doctors per 1,000 population. Density of ANM per 1,000 population was calculated with second data which is the number of ANM from literatures and population (UNICEF, 2016) by researcher.

Electronic searches

An electronic search of the literature was conduct in December 31, 2017. I search the following databases with “the name which related ANM” and each “region” and “country”. I exceptionally searched with “nurse” in Vietnam and Lao PDR because ANMs were included in “nurse” on DHS almost every time (see Additional **Tables 2-6**):

a) The Cochrane Library

b) PubMed

c) CINAHL

d) Japan Medical Abstract Society

e) CiNii

Google Scholar was also used to ascertain scholarly literature across an array of publishing formats.

Searching other resources

I checked the reference lists of all relevant papers retrieved. I searched the websites of the National Diet Library of Japan and the Human Resource for Health (HRH) Global Resource Centre, as well as other search engines. I examined online documents (e.g., Ministry of Health or Education among others) of the governments of various countries as well as their DHS. We also used the online documents of WHO, UNHFR, United Nations Children's Fund (UNICEF), other donor institutions, and related resources. Moreover, the websites of nursing and midwifery council and association in each country were searched. Supplementary, I asked the health professionals about ANMs in surveyed country.

Data collection and analysis

Selection of studies

Studies were included if they met the following criteria:

a) studies that were related to ANMs

b) studies that implemented any HRH action in the management system, policy, and education.

c) studies conducted in South-Eastern Asia and Southern Asia

e) studies written in Japanese or English.

Analysis

I used the HRH action framework as defined by WHO, Global Health Workforce Alliance (GHWA), and U.S. Agency for International Development (USAID) in 2005 (WHO, 2008. USAID, GHWA, WHO, 2017). WHO (2008) introduced this framework as a tool to comprehensively approach HRH. This framework is used in systematic review on HRH interventions (Lassi et al, 2016) and report related with HRH.

The HRH action framework diagram (**Fig. 1**) includes six clickable action fields (i.e., HR Management Systems, Leadership, Partnership, Finance, Education, and Policy) and four clickable phases (i.e., Situational Analysis, Planning, Implementation, and Monitoring and Evaluation) (Capacity project, 2017).

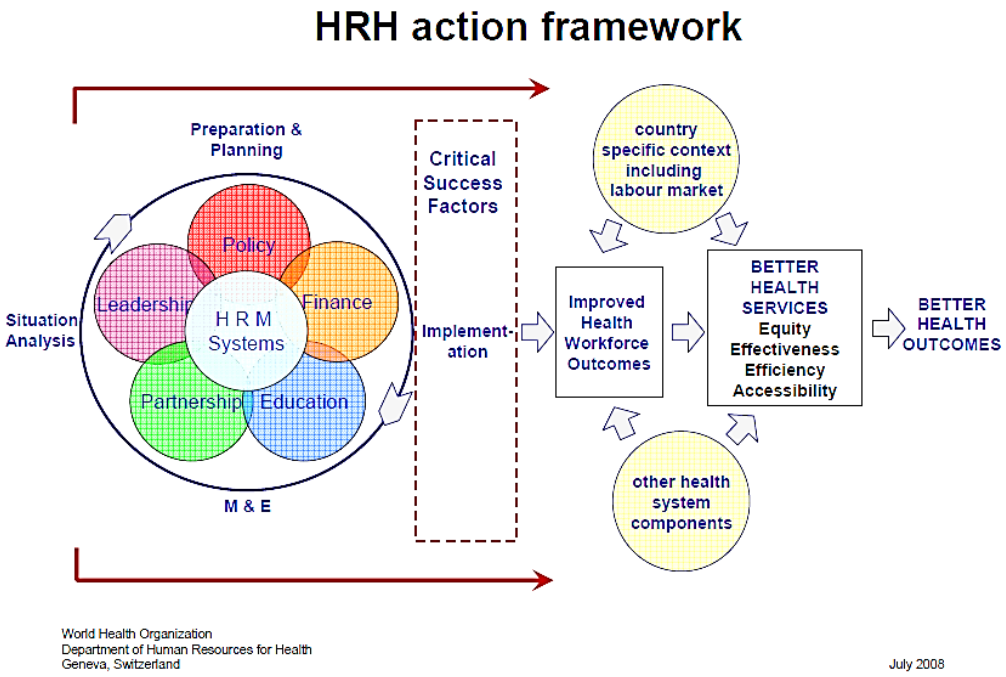

Figure 1 The HRH action framework diagram (WHO, 2008)

In the present study, I adopted the three of the six field, HR management system, policy and education as a first step in the analysis of the roles of ANMs.. I divided the collection data into these three fields and then divided the information in more detail through the following contents. I extracted the following contents from the HRH action framework:

a) **HR Management System**: Personnel systems; Work environment and conditions;

b) **Policy**: Professional standards; Licensing; Accreditation; Authorized scopes of practice

c) **Education**: Pre-service education tied to health needs (e.g., Entry requirements, Length of training, Subjects covered practical training, Teaching styles, Evaluation methods), In-service training (e.g., direct supervision, Continuing education), and Capacity of training institutions

Chapter 3. Results

Research results

The search strategy and results are summarized in **Fig. 2.** This flow diagram was made in reference to the PRISM flow diagram (Moher, Libierati, Tetzalaff & Altman, 2009). Finally, 63 reports was included in this study. Policy review was focused on in this study, and summarized the data from these reports in **Tables 7-11**.

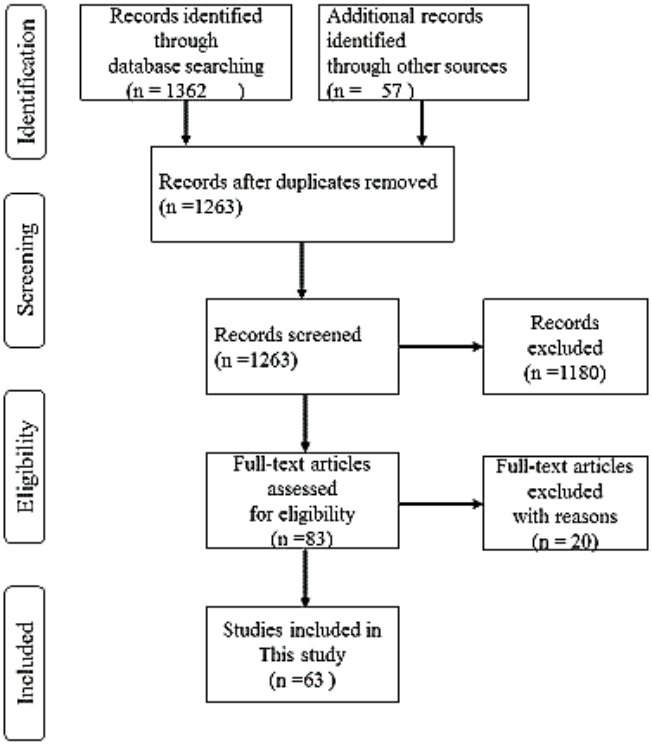

Figure 2 Flow diagram of research procedure and results

Basic data (Table 7)

A total of 11 cadres were found to be included in ANM. There were 7 ANMs which used other name of ANMs. They is named 1 auxiliary midwife (AMW), 1 ethnic minority midwife (EMM), 1 primary nurse midwife, 1 secondary nurse midwife, 1 lady heath worker (LHW), 1 family welfare visitor (FWV), and 1 junior midwife. Several cadres were categorized into ANM cadre in Vietnam and Bangladesh. India changed the name of ANM to multiple purpose workers (MPWs), and Bhutan has also recently changed the name to female health assistants (HAs). ANM has been established since

around the 1920s, and mainly 5 out of 8 countries have established ANMs from in the 1970s to in the 1990s. The numbers of ANMs varied in each country. In all 8 countries, the density of ANMs was less than density of Ns and MWs. However, the density of ANMs was more than the density of Ns and MWs if ANMs was excluded from the total number of nurse cadres. In Lao PDR and Bhutan, the number of ANMs was more than that of the doctors.

HR management system (Table 7)

Personnel systems

The workforce planning of ANMs was summarized in Fig 3. Six out of 8 countries have plans of expanding the number of ANMs except Vietnam and Lao PDR. Lao PDR discontinued the initial education of ANMs and Vietnam and had plans to reduce ANM to improve the quality of care and upgrade from the primary level to a higher level or expand the training of higher level nurse-midwives' cadre. In fact, the number of ANMs is gradually decreasing in Lao PDR. On the other hand, other southern Asian countries and Myanmar are expanding their education and requirements of ANMs with clear personnel distribution to provide the MNH care and UHC particularly in rural, remote, and hard to reach areas. Myanmar also plans to expand and upgrade training from ANMs to MWs. Despite the reduction in the number of lower level nurses, Vietnam has established EMMs, which is a new cadre for ethnic minority women in rural and mountainous areas since 2011.

Compared with southern Asia, ANMs are hired as volunteers in southeastern Asia. Their recruitment or hiring is managed by the government at the national level or in local communities/government at the provincial level. The probationary period of 3 months is reported only in Lao PDR.

The deployment of ANMs is at the grassroots level in all of the criteria countries. Moreover, the deployments of ANMs in Vietnam, Myanmar, and Pakistan are not facility-based but are in local areas and homes. The ANMs of 6 countries have been

required to work in primary medical area facilities such as health centers more than in hospitals. ANMs in Vietnam, Nepal, Bangladesh and Bhutan also work in secondary and tertiary medical facilities.

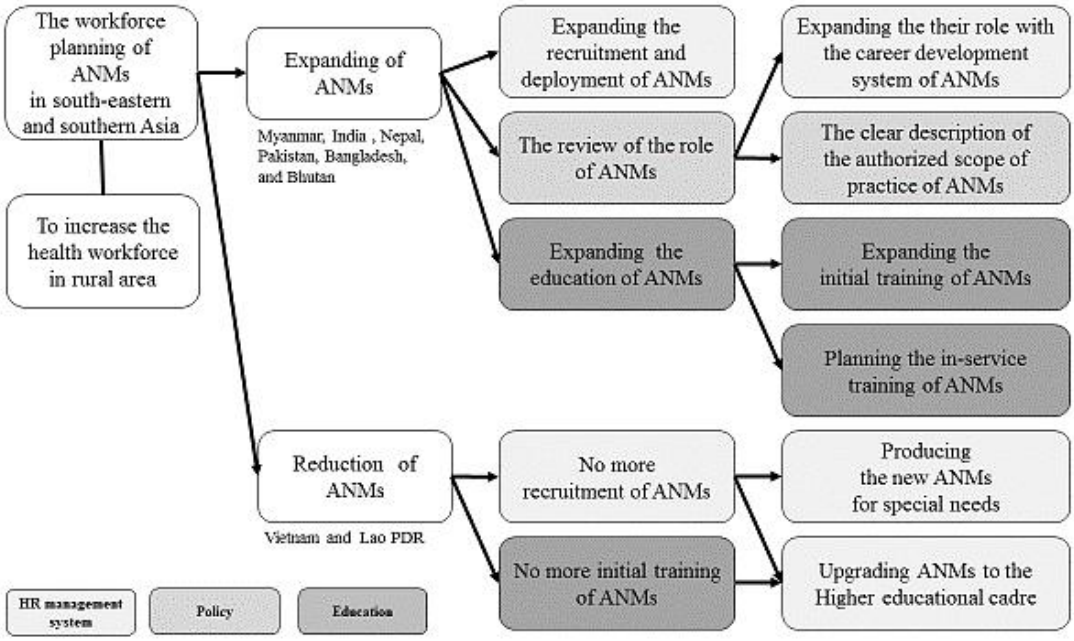

Figure 3 The workforce planning of ANMs in south-eastern and southern Asia

Work environment and conditions

ANMs have 2 types of employee relations. One type is when they are on themselves in their areas or homes and they cooperate with other workforces in nearby health facilities. Another type is working together with different cadres in the same facility as well as cooperating with higher facilities. There is a wide range of variations in the types of coworkers from the cadres with a higher educational level including doctor, Ns, MWs, lady health visitors (LHVs), HAs, and other paramedical personnel to the cadres with a lower educational level, namely, village health workers (VHWs), maternal and child health workers (MCHWs), community SBAs (CSBAs), TBAs, and other support staff at the community level.

The rest of the 6 out of the 8 countries had a career development system which is system to higher career with experience or further education. In these countries, ANMs

could become Community MWs in Lao PDR, other cadres of SBAs in India and Nepal, higher level of nurse-midwives in Lao PDR, higher level of ANMs in Nepal and Bhutan. Moreover, the government is in the process of upgrading ANMs to MWs in Myanmar. The career development systems in Pakistan and Bangladesh are not clearly described.

Policy (Table 8)

Professional standards

Five countries, namely, Vietnam, India, Nepal, Pakistan, and Bhutan have professional standard of ANMs with guidelines, circular, or policy statement. Professional standards for ANMs were included in the guidelines in 4 countries and policies in 2 countries. Myanmar is currently developing an HR management system. Moreover, the standard of ANMs in Lao PDR and Bangladesh could not be found.

Licensing, accreditations/registrations

Of the 8 countries studied, the ANMs in 6 countries were certificated and the ANMs in the other 2 countries were licensed. Accreditations/registrations were not observed at the national level, but most of the accreditations/registrations were observed in nurse-midwife councils including Bhutan Medical and Health Council in Bhutan, in training institutions or in local communities. Only India and Bangladesh have examination for licensing. The examination was held not at the national level, but at the nursing and midwifery council level.

Authorized scope of practice

The authorized scopes of practice of ANMs were mainly MNH (e.g., antenatal care [ANC], postnatal care [PNC], and delivery assistance), child health (e.g., Integrated Management of Neonatal and Childhood Illness); reproductive health including family planning, and other primary health care (e.g., nutrition,

immunization).

For *MNH*, all southern Asia countries performed ANC and PNC. Vietnam, India, Nepal, Bangladesh, and Bhutan allowed ANMs to assist in deliveries. India and Nepal permitted and suturing of perineal or genital lacerations. Nepal permitted instrument delivery, medical abortion, and manual removal of placenta in remote areas. Vietnam and India allowed ANMs to use Oxytocin. India, Nepal, Bhutan described to provide neonatal resuscitation.

For *reproductive health*, there are clear descriptions in southern Asia. ANMs in India and Bhutan were allowed to insert Intra Uterine Devices (IUD) if they had proper training and injectable contraceptives besides oral contraceptives and condom. Pakistan also allowed ANM to provide injectable contraceptives. ANMs in Bangladesh was also allowed all contraceptives including implants of contraceptive methods, emergency contraceptives, and sterilization service.

Almost of ANM in southern country provide not only MNH, child health and reproductive health programs but also a wider scope of health programs than other countries. Particularly, ANMs in India and Bhutan are involved in the following areas: communicable disease, non-communicable disease, vital event's report, house-to-house survey, outreach clinic, school health program, and supervision for lower cadres. In southeastern Asia, these scopes of ANMs were not clear except for ANMs in Vietnam. For Myanmar, the policy making for the scope of practice of ANMs in Myanmar is in progress. For Vietnam, different scopes of practice are presently being made for each nursing level by nursing association.

Education (Table 9, 10)

Pre-service education tied to health needs (Table 9, 10)

The entry requirement for ANMs is above secondary school (8-10th grade) or higher secondary school (12th grade), which is the same as the ANM definition of WHO. However, in Lao PDR, their criteria are varied according to the region and are

not standard, and they require ANMs to have passed at least the primary school level. Moreover, EMMs in Vietnam do not have a particular requirement regarding their education level because of their low education level from failing to avail of sufficient schooling being in an ethnic minority area. Vietnam, Myanmar, Pakistan, and Bhutan required ANMs to live in rural areas or work in these areas after graduation. India, Pakistan, Bangladesh, and Bhutan had age restriction which is at least 17 years old and a maximum of 30 years old in Bangladesh, 35 years old in India, and 45 years old in Pakistan. Pakistan prefers married women to be ANMs.

The length of training of ANMs was from 6 months in Myanmar to 29 months in Nepal. The most common length of training was more than 18 months in 6 out of 8 countries. The training of AMWs in Myanmar was only 6 months, that of LHWs in Pakistan was 15 months, and that of primary nurse midwives in Vietnam was 12 months. The countries which have difference lengths of training were Vietnam (6-24 months), and Nepal (18-29 months).

In all 8 countries, ANMs have MNH or midwifery and child health in their program. In Lao PDR, Myanmar, and southern Asian countries, more subjects need to be learned in various areas such as Reproductive health and primary health care. Moreover, ANMs learn about the timing and treatment of referrals. In India, Pakistan, Bangladesh, and Bhutan, ANMs also learn about the management of health facilities or patient data. I could not find about the subject of nursing for primary or secondary nurse midwives in Vietnam, and the curriculum of junior midwives in Bangladesh.

In all 8 countries, the teaching style for ANMs involves both theory with lecture or training and practicum in the field or health facilities such as hospitals and health centers. However, the proportion of theory to practicum varied with country. The practicum involved a longer period than the theory in Nepal and Pakistan. On the other hand, the theory involved a longer period than the practicum in Vietnam, Lao PDR and India. In Myanmar and Bangladesh, a 50/50 ratio of theory to practicum was mostly observed. The ratio was, however, unknown for Bhutan.

For evaluation methods, ANMs in Myanmar and Nepal are required to complete a certain number of assisted deliveries before graduation. Moreover, ANMs in India

are required not only a certain number of delivery cases, but also cases in antenatal care and postnatal care among others.

In-service training (Table 9)

Seven out of the 8 countries had a supervision system except Lao PDR. The supervisors are upper level health staff who are Ns, MWs, LHVs, lady health supervisors, and Medical officers among others. In Myanmar, NGO staff can also become a supervisor. They supervised at monthly meetings or reports in Vietnam, Myanmar and Bangladesh. Five countries, namely, in Vietnam, Myanmar, Nepal, Pakistan, and Bangladesh have refresher courses conducted by training centers, nursing associations, or MWs. The contents of the refresher courses include maternal and neonatal health, child health, and nutrition in Myanmar, Bangladesh, and Pakistan. Moreover, ANMs have Early Learning Childhood Development, Birth Registration and Child Rights training, and Counseling, IUD, Infection Prevention Training in Bangladesh. ANMs in Myanmar also learn about communicator training, reproductive health and HIV, community support group. However, there were no clear descriptions about the contents of the rest of countries which have refresher courses.

Capacity of training institution (Table 9)

Accreditation of the education of ANMs is given by the MOH, Ministry of Education (MOE), National Education Institution, and Nursing and Midwife Council. In Myanmar, India, Nepal, Bangladesh, and Bhutan, ANMs were supported by WHO/SEARO which supports the revision of ANMs curricula and training of a critical mass of ANMs. Other UN agencies and NGOs are also involved in these developments in 8 surveyed county.

The training institutions were public schools, private schools, hospitals, health facilities, or in township. Lao PDR had no ANM training institution since 2003 because they discontinued the ANM training and they upgraded the training institution from 2 years to 2.5 years and the nursing/midwifery level. The training of junior

midwives in Bangladesh is conducted only by private schools because this cadre is not recommended by the government.

Chapter 4. Discussion

Roles of ANMs in south-eastern and southern Asia

ANMs were the important primary health care worker especially in MNH, reproductive health, and other primary health care in rural, remote, and hard to reach area in all study country.

HR management

ANMs were considered as the frontline workers in all surveyed countries from the aspect of deployment. On the other hand, in some countries, there are ANMs who work in higher medical facilities in cooperation with a wide variety of health workers. However, southeastern Asian countries tended to position ANMs particularly EMMs and AMWs as grassroots level workers and their education is more focused on increased supply and for ethnic minorities. The severe shortage of HRH which is a common problem in low middle income countries (WHO, 2010a) had an impact on the workforce planning and deployment of ANMs who work in the margin of health care service. The WHO recommendation with regard to the density of doctors, Ns, and MWs is 23 per 10,000 population, but almost all of the countries surveyed failed to achieve this goal (WHO, 2010a), and this mainly occurred in rural areas where recruitment of new health workers is complicated (WHO, 2010b; WHO/WPRO, 2013). Moreover, there was also a need for ANMs for and the ethnic minority in some countries (Mickinn et al, 2017; Mai et al., 2011).

In the case of Myanmar, MWs had problems of work overlord (MMR. Department of Health & Ministry of Health, 2014), and they recognized the value of AMWs in being close to the communities, especially in “hard-to-reach” areas where there may not be MWs, or where the visits by MWs are less frequent (Medical Emergency Relief International [MERLIN], 2014). There are some reasons for the lack of MWs which include shortage of human resources, geographical restrictions, and some armed insurgencies against the government. Even though the MOH in Myanmar

did not move forward to implement a formal education after around 2004, they have set a national goal to deploy 1 AMW per village to provide professional care since 2014 (MMR. Department of Health & Ministry of Health, 2014).

Furthermore, ethnic minority women in Vietnam could not consult effectivity about their situation to Ns or MWs because of language barrier and no access to interpreted information (Mickinn et al, 2017). Therefore, the idea was that EMMs who share the same language, culture, values, and beliefs would gain the trust of local women and encourage them to use more maternal health services (Doan et al, 2016). Although the HRH has plans to reduce the density of secondary nurses, they also have plans to increase EMMs since 2011. The presence of EMMs is indispensable for ethnic minority women in the context of this situation. These HRH actions were supposed to be part of a strategy on achieving MDGs in line with the timing of the above 2 countries in implementing this planned action regarding ANMs.

In this situation, ANMs who play the roles of health workers supplemented or supported other health workers such as Ns and MWs. This was similar to other mid-level health workers (Lehmann, 2008). The difference of deployment whether ANMs worked in hospitals was also influenced by the recruitment of ANMs and their scope of practice. ANMs who worked in hospitals were regular employees and had a wider scape of practices.

I discovered no common grounds in the type of recruitment of ANMs in the countries surveyed. This is caused by the large variations in their positions and the scope of practice in each country even if they work as ANMs. In the present study, ANMs were categorized in many position. Occasionally, some of them were categorized into the cadre of SBAs and the others were categorized into the cadre of non-SBAs including community health workers even in the same country. This situation is similar to that in western Africa (Matsuno & Mori, 2016).

Of the 8 total countries surveyed, 6 countries had a career development system. The assumed purpose of the system’s career development is divided into 2 types depending on workforce planning. One of the purposes is thought to be the transition to other higher level cadres to improve the quality of care with professional cadres

such as Ns and MWs in Vietnam and Lao PDR. Another assumed purpose is the expanding roles of ANMs with further education. The reasons for the absence of a career development system in Pakistan and Bangladesh were not clear. Moreover, the Myanmar government is in the process of upgrading ANMs to MWs. This suggests that these 3 countries are focused on expanding of the number of ANMs to achieve their goals.

Policy

The authorized scope of practice in South Asia is clearer than in south-eastern Asia. In Myanmar, there are no clear descriptions of the scope of ANM practice. However, based on their training curricula and strategy, Myanmar ANMs played a wider authorized scope of essential practice in the community. This was assumed to be related to recruitment and workforce planning. In Vietnam and Laos PDR, the government planned a reduction of ANMs. Moreover, countries in south-eastern Asia were in the phase of making provisions for Ns and MWs in the 2000s (National Center for Global Health and Medicine, 2013). Because of this situation, the provision of ANMs is assumed to be a secondary concern. According to the history of ANMs in India (Anand and Ahmed, 2013; Prasad and Dasquapta, 2013), it should be noted that the wider scopes of practice caused midwifery care to be neglected in some situations, thus a balance between the number of deployments and community health needs should be considered.

WHO (2012, 2014) recommended some maternal, newborn and reproductive health interventions based on systematic reviews to be provided by ANM as stated in their Optimize MNH task shifting guidance. They recommended the task which is performance of neonatal resuscitation, treatment of postpartum hemorrhage (PPH) with intravenous fluid or bimanual uterine compression or both, suturing of minor perineal or genital lacerations, initiation and maintenance of injectable contraceptives, insertion and removal of IUD (WHO, 2012. 2014). Moreover, they accepted a number of task which include maternal intrapartum care and administration of oxytocin and

misoprostol to prevent or treat PPH or both as being within the competency of ANMs (WHO, 2012. 2014).

According to the authorized scope of ANM practice, India, Bangladesh, and Pakistan, Bhutan have described the roles of ANMs that can be practiced such as IUD insertion or injectable contraceptive methods or both which were recommended in the guideline (WHO, 2012. 2014). Meanwhile, ANMs in Bangladesh were allowed sterilization service include tubal ligation which was not recommended by WHO (2012). Some countries, namely, Vietnam, Myanmar, Lao PDR, and Nepal did not have clear descriptions of the scope of ANM practice for family planning.

India and Vietnam allowed ANMs to use Oxytocin. ANMs in India and Nepal were allowed suturing of perineal or genital lacerations. India, Nepal, and Bhutan described the roles to provide neonatal resuscitation. However, there were not clear descriptions in the view of treatment of PPH including suturing of minor perineal or genital lacerations and neonatal resuscitation regarding the scopes of practice in almost all surveyed countries except India, Nepal. PPH is one of the major cause of maternal deaths (WHO, 2016). Children who die within the first 28 days of birth suffer from conditions and diseases associated with lack of quality care at birth or skilled care and treatment immediately after birth (WHO, 2017). Therefore, there were still needs to consider and make clear descriptions regarding the scopes of practice to task shifting to ANMs who play important roles as frontline worker in their community with the guidance of WHO (2014).

Professional standards for ANMs were included in the guidelines in 4 countries and policies in 2 countries. The professional standards for ANMs in Nepal was stated under the category of SBAs focusing only on MNH, child health, and reproductive health. If the country had no clear professional standards, ANMs did not belong to the nursing midwifery council or association particularly in Myanmar and Lao PDR. This situation suggests that there are no leadership stakeholders for ANMs in some countries. Bangladesh has professional standards written in Bengal. Licensing was not conducted at the national level, and the accreditations of licensing and regulations were under the local community, the nursing midwifery council or association, or the

training institution.

Education

In 7 countries which provided pre-service education for ANMs, the entry requirement for ANMs is above the secondary school level which is the same as the WHO proposal (2014) in all of these countries except EMMs in Vietnam, and the teaching style involves both theory and practicum. However, the lengths of training varied in countries. The training subjects covered in South Asian countries were wider than those in south-eastern Asia. I speculated that the differences in the length and contents of the training programs for ANMs depend on the coverage of the scope of practice. The length of training is also assumed to change and differ according to the policy of health and education even in the same country (Matsuo, Phonesavanh and Akazawa, 2017; Prasad and Dasgupta, 2012; the Council of Technical Education and Vocational Training, 2014b). Matsuno and Mori (2016) suggested that it was complicated to review the HRH policy which needs adjustments among multiple ministries, because of the presence of various institutions responsible for the training of personnel aside from MOH in western Africa. Thus, it is considered important for various accreditations of education of ANMs, including the MOH and nursing midwifery council in these countries, to cooperate with others to improve the roles of ANMs in south-eastern and southern Asia, as well as in western African countries (Matsuno & Mori, 2016)

The EMMs' program in Vietnam has been set to 18 months which is in line with WHO's recommendation of the length of midwifery education (Mai et al., 2011). In the present study, it was found that ANMs in some countries failed to meet this recommended length of training. Some of these countries focused on work-ready health service to solve urgent issues of health worker shortage. Compared with ANMs whose training length is more than 18 months, ANMs whose training length is less than 18 month are supposed to have a lower entry requirement. This indicates that length of training is influenced by the educational level entry requirement.

Of the 8 countries surveyed, 7 countries had a supervision system and 5 countries had refresher courses. Some studies have recently reported that the supervision system and refresher courses were held informally or irregularly, and that the supervisors usually reviewed the facility condition and records but they seldom commented on how to improve the quality of the ANM services (Ganguly and Garg, 2013; MERLIN, 2014). For both the supervision system and the refresher courses, it is unknown whether there is an assessment of the quality of in-service education. Therefore, there is still a need to further elucidate these aspects of education for ANMs.

In India, Nepal, Bangladesh, Bhutan, and Myanmar, the WHO/SEARO has supported the achievements in ANM development, including the revision of their ANM curricula and the training of a critical mass of ANM in partnership with educational institutions and the Ministries of Health and Education (WHO, 2013). Vietnam is considered to be in the WHO/WPRO region and Pakistan in the WHO eastern Mediterranean regional office (WHO/EMRO). There were no clear WHO/WPRO and WHO/EMRO plans regarding ANMs in the WHO report (2013). Therefore, I speculated that the quality of ANM education varied within each district boundary that is covered by each regional WHO office.

Limitations and future expectation

This study has four limitations. *First*, possible biases in terms of article selection based on language and article reviewer could not be completely excluded. Article selection was limited to only English or Japanese articles. Only one researcher acted as the article reviewer and independently assessed all potential studies resulting from the search for potential inclusion. Therefore, these biases may have affected the results.

Second, I confined our survey and evaluation to 8 countries, namely, India, Nepal, Myanmar, Pakistan, Bangladesh, Vietnam, Bhutan, and Lao PDR. The results therefore may not be generalizable to all countries that accept ANMs.

Third, the results were based only on a review of policies. Therefore, results based on the gap between policy and clinical practice for ANMs must be further assessed.

Fourth, although the HRH action framework diagram used in this review originally had six fields (i.e., HR management system, policy, education, finance, partnership, and leadership), only three fields (i.e., HR management system, policy, and education) were included in the present study. Therefore, further study involving all six fields of the framework diagram is necessary to specifically clarify the roles of ANMs.

Chapter 5. Author's conclusions

The present study indicates that ANMs play important roles as frontline workers particularly in the areas of MNH, child health, reproductive health, and other primary health care programs in rural, remote, and hard-to-reach areas in south-eastern and southern Asia.

Implications for practice

It is timely to emphasize that clearer descriptions of the authorized scope of practice by governments are needed for efficient task shifting to improve MNH. This underscores the value of educating ANMs not only by preservice trainings but also by the implementation of a supervision system and continuous education.

Implications for future research

Further research to clarify the gap between policy and clinical practice for ANMs is required. A comprehensive study using all six fields of the HRH action framework diagram is necessary to clarify the specific roles of ANMs.

Table 1 health indicator of study country

	Country	Proportion of births attended by skilled health personnel (%)				Maternal mortality (MM)	Neonatal mortality rate (NMR) per1000 live births	Infant mortality (IM) per1000 live births		under-5 mortality rate (U5M) per1000 live births		popuration (1000U)
		All	city	rural	city/rural	modified						
		2010-2015				2015	2015	1990	2015	1990	2015	2015
South-eastern Asia	Vietnam	94%	99%	92%	1.1	54	11	37	17	51	22	93,448
	Myanmar	71%	90%	63%	1.4	178	26	78	40	110	50	53,897
	Lao PDR	42%	na	na	na	197	30	111	51	162	67	6.802
Southern Asia	India	52%	76%	43%	1.7	174	28	88	38	126	48	1,311,051
	Nepal	56%	90%	51%	1.4	258	22	98	29	141	36	28,514
	Pakistan	52%	71%	44%	1.6	178	46	106	66	139	81	188,925
	Bangladesh	42%	61%	36%	1.7	176	23	100	31	144	38	160,993
	Bhutan	75%	96%	67%	1.4	148	18	93	27	134	33	755
South-eastern Asia & Pasific Osian		93%	97%	90%	1.1	62	9	44	15	58	18	2,097,940
Southern Asia		49%	69%	41%	1.7	182	30	92	42	129	53	1,743,865

Souce: UNICEF(2016) The state of the world's childern reports

Search strategy

Table 2 the Cochrane Library

No	Query	result
#1	"auxiliary nurse midwi*"	17
#2	"auxiliary midwi*"	4
#3	"ethnic minority midwi*"	0
#4	"lady health worker*"	40
#5	"family welfare visitor*"	1
#6	"junior midwi*"	3
#7	"ANM"	28
#8	"AMW"	25
#9	"EMM"	91
#10	"LHW"	57
#11	"FWV"	0
#12	OR #1-11	232
#13	"lay health worker"	139
#14	#12 NOT #13	197
#15	"vietnam"	910
#16	"myanmar"	195
#17	"laos"	95
#18	"lao PDR"	42
#19	"india"	19194
#20	"nepal"	836
#21	"pakistan"	3806
#22	"bangladesh"	1496
#23	"bhutan"	30
#24	"south asia"	204
#25	"southern asia"	12
#26	"southeast asia"	207
#27	"southeastern asia"	2
#28	"south-east asia"	227
#29	OR #15- #28	25578
#30	#14 and #30	55
#31	"nurse*"	19071
#32	#15 OR #17 OR #18	974
#33	#31 AND #32	100
#34	#30 OR #33	148

Table 3 PubMed

No	Query	Result
#1	"auxiliary nurse midwi*"	281
#2	"auxiliary midwi*"	213
#3	"ethnic minority midwi*"	137
#4	"lady health worker*"	24
#5	"family welfare visitor*"	3
#6	"junior midwi*"	171
#7	"ANM"	431
#8	"AMW"	137
#9	"EMM"	1060
#10	"LHW"	173
#11	"FWV"	4
#12	OR #1-11	2433
#13	"lay health worker"	94
#14	#12 NOT #13	2410
#15	"vietnam"	18519
#16	"myanmar"	3253
#17	"laos"	2513
#18	"lao PDR"	804
#19	"india"	459943
#20	"nepal"	12385
#21	"pakistan"	37323
#22	"bangladesh"	16891
#23	"bhutan"	635
#24	"south asia"	3023
#25	"southern asia"	6021
#26	"southeast asia"	7582
#27	"southeastern asia"	8673
#28	"south-east asia"	3510
#29	OR #15- #28	55906
#30	#14 and #30	270
#31	"nurse*"	212620
#32	#15 OR #17 OR #18	20660
#33	#31 AND #32	208
#34	#30 OR #33	477

Table 4 CINAHL Plus with Full Text

No	Query	Result
#1	"auxiliary nurse midwi*"	47
#2	"auxiliary midwi*"	14
#3	"ethnic minority midwi*"	0
#4	"lady health worker*"	35
#5	"family welfare visitor*"	0
#6	"junior midwi*"	5
#7	"ANM"	45
#8	"AMW"	11
#9	"EMM"	123
#10	"LHW"	39
#11	"FWV"	0
#12	OR #1-11	294
#13	"lay health worker"	131
#14	#12 NOT #13	271
#15	"vietnam"	4097
#16	"myanmar"	604
#17	"laos"	441
#18	"lao PDR"	113
#19	"india"	30914
#20	"nepal"	2479
#21	"pakistan"	4353
#22	"bangladesh"	3637
#23	"bhutan"	175
#24	"south asia"	604
#25	"southern asia"	38
#26	"southeast asia"	879
#27	"southeastern asia"	9
#28	"south-east asia"	484
#29	OR #15- #28	46522
#30	#14 and #30	95
#31	"nurse*"	186564
#32	#15 OR #17 OR #18	4496
#33	#31 AND #32	150
#34	#30 OR #33	244

Table 5 Japan Medical Abstract Society

No	Query	result
#1	auxiliary/AL	63
#2	(助産師/TH or nurse-midwife/AL)	10415
#3	#1 and #2	4
#4	"ethnic minority midwife"/AL	0
#5	"lady health worker"/AL	3
#6	"family welfare visitor"/AL	0
#7	"junior midwife"/AL	0
#8	#3 or #4 or #5 or #6 or #7	7
#9	(ベトナム/TH or vietnam/AL)	2012
#10	(ミャンマー/TH or myanmar/AL)	691
#11	(ラオス/TH or laos/AL)	947
#12	"lao PDR"/AL	147
#13	(インド/TH or india/AL)	3067
#14	(ネパール/TH or nepal/AL)	1158
#15	(パキスタン/TH or pakistan/AL)	468
#16	(バングラデシュ/TH or bangladesh/AL)	900
#17	(ブータン/TH or bhutan/AL)	86
#18	("南アジア"/TH or "south asia"/AL)	72
#19	("南アジア"/TH or "southern asia"/AL)	56
#20	("東南アジア"/TH or "southeast asia"/AL)	12355
#21	("東南アジア"/TH or "southeastern asia"/AL)	12333
#22	("東南アジア"/TH or "south-east asia"/AL)	12334
#23	#9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22	18066
#24	#9 or #11 or #12	2933
#25	#2 and #24	28
#26	#8 and #23	7
#27	#25 or #26	35

Table 6 CiNii

No	Query	result
#1	"auxiliary midwife"	1
#2	"auxiliary midwives"	1
#3	"auxiliary nurse midwife"	1
#4	"auxiliary nurse midwives"	0
#5	"auxiliary nurse-midwives"	0
#6	"ethnic minority midwife"	0
#7	"lady health worker"	0
#8	"family welfare visitor"	0
#9	"junior midwife"	0
#10	ANM	57
#11	AMW	12
#12	EMM	333
#13	LHW	49
#14	FWV	1
#15	nurse and vietnam	6
#16	nurse and lao	2

Table 7 Summary of literature on basic data and HR management system of ANMs

		Basic data					**HR management system**						
							parsonnel system					**Work environment and conditions**	
Region	Country	Name (yaer)	Number (year)	Density of ANM / 1000 population	Density of nurses and midwives / 1000 population	Density of physician / 1000 population	Workforce planning		Recruitment/ hiring	Deployment		Employee relations	Career development
							Expanding	Reduction		Primary health care center / area	Hospital		
South-eastern Asia	Vietnam	Primary / Elementary level Nurse-Midwife (1946-) Secandary Nurse-Midwife/ Intermediate Nurse (1969-) Ethnic minority midwife(EMM) /village birth attendants (2011-)	104,784 (2012)[a]	1.12	1.23 (2013)[b] including primary& secondary	1.18 (2013)[b]	**Primary/Secondary:** n/a **EMM:** Expanding of training of EMM [d] "Project of training health human resources for disadvantaged, mountainous areas in the northern, central, Mekong Delta regions, and the central highlands by nomination and free student recruitment to schools"[c]	**Primary/Secondary:** ・Redution of the density of secondary nurse mideives from 75% to 50% with no recruitment by 2021.[e,g] **EMM:** n/a	**Primary/Secondary:** Regular employment Managemrnt by at the Bureau of Health in each province or the Ministry of Health **EMM:** Volunteer Management by the department of Health [d]	**Primary:** [f] ✔ **Secondary :**[f] ✔ **EMM:** [d] ✔ -Ethnic minority area -Villages in rural and mountainous areas	**Primary:** [f] n/a **Secondary :**[f] ✔ **EMM:** [d] n/a	**Primary/Secondary:** CHSs: [c,d,f] -Doctor, -Pediatric obstetric assistant doctors **EMM:**[h] -Cooperate with health related staff in CHSs	**Primary:** -upgrading to secondary with further educaton(1972-) [f] **Secondary:** -upgrading to bachelor-level with four-year part-time program. The criteria is secondary nurses with at least 3 years clinical experience before taking a program (1993-) [f] **EMM:** -
	Myanmar	AMW (1986-)	22,757 (2012)[a]	0.42	0.93 (2012)[b]	0.57 (2012)[b]	Expanding the initial taining of AMW[l] Regular supervision support and mentoring mechanisms of AMW[l] Review of the role of AMW[l] Expanding the recuruitment and deployment of ANMs. one ANMs per one villages(2014-)[j] Expand bridging couses to up-skill AMWs to fully qualificater midwives.[j]	n/a	Volunteer [k,l] Management by by the local communities.[m]	✔ 1 AMWs per 1 Village Her own private home in the village[k,l]	n/a	Cooperation with MW/ Lady health visitor (LHV), and Bacic health staff (BHS) in Rural Health Centre (RHC) and sub-centre.[k,l] In some of the villages where there are both MWs and AMWs, the ANMs of often assist the MWs during deliverly. [k]	Upgrading to fully qualificater midwives (in progress) [j]
	Lao PDR	ANM /primary nurse-midwife /low level nurse-midwife (1924,1993-2004)	3629(2012)n	0.44	0.86 (2012)[b] including primary	0.18 (2014)[b]	n/a	Discontcuing the training of ANM [n] Upgrading to higher cadre. ANM can be given the course of coummunity midwife that lanched in 2009.[n,o,p]	Civil-sarvant/ volunteer/ contructual worker (not official)[n,o,p] The probation period: 3 months.[p]	✔ [n,p]	n/a	primary health worker [n]	Upgrading to coummunity midwife with 1 yaer training.[n,o,p]

Note: [a.] UNFPA. (2014). The state of the world's midwifery 2014, [b.] WHO. (2017). Global Health Observatory (GHO) data, [c.] VTN. Ministry of Health. (2010). Joint annual health review 2009, [d.] VTN. Ministry of Health. (2016). Joint annual health review 2015, [e.] Southeast Asian Ministers of Education Organization (SEAMEO). (2016). High Officials Country Case Study harmonization in nursing education in south east Asian countries,
[f.] World Health Organization. Regional Office for the Western Pacific (WHO/WPRO) (2003) Region nursing and midwifery databank Vietnam, [g.] Hirano Y, Pham D. M., Fujisaki K, Kawaguchi, Y., Ohno, S. (2015) International collaboration research on Vietnamese nurses migration under the JVEPA,
[h.] Mai BTT, Minh TH, Linh DTH, et al.(2011) Pilot model: 18 month training of ethnic minority midwives, [i.] MMR, Department of Health., MOH (2014) Five-Year Strategic Plan for Reproductive Health (2014-2018) , [j.] MMR, MOH (2014) Strategic directions for universal health coverage -meeting agmda-, [k.] Wangmo. et al., (2016) Auxiliary midwives in hard to reach rural areas of Myanmar: filling MCH gaps,
[l.] Medical Emergency Relief International (MERLIN) (2014) Improving maternal, neonatal and child health in Myanmar, [m.] Oo, K. N., Svendsen, L.; Doyle, B. A., Seymour, J. M., & Dessallien, C. (2002) Evaluation of Training Activities Supported by the Myanmar-UNICEF country Programme final report 1st draft, [n.] WHO/WPRO. (2013). human recourse for health country profile Lao PDR, [o.] Shimazakw, K. (2016). Lao People's Democrtic Republic The Japanese journal of nurses' education, [p.] WHO/WPRO., & Asia Pacific Observatory on Health System and Policies. (2014). Lao People's Democratic Republic Health System Review

n/a= not applicable; - = missing data

Table 7 Summary of literature on basic data and HR management system of ANMs (Continued)

		Basic data					**HR management system**						
							parsonnel system					**Work environment and conditions**	
Region	Country	Name (yaer)	Number (year)	Density of ANM / 1000 population	Density of nurses and midwives / 1000 population	Density of physician / 1000 population	Workforce planning		Recruitment/ hiring	Deployment		Employee relations	Career development
							Expanding	Reducation		Primary health care center / area	Hospital		
Southern Asia	India	ANM/ Multi porpose worker(MPW) (the 1950s-)	718,661 (2012)[a]	0.55	2.05 (2013)[b]	0.73 (2013)[b]	Expanding the ANMs especially in remote areas and in larger village and semi-urban areas.[e] Expanding of the training institustions for ANMs in different States.[d,e] Expanding the requirement and deployment to provide minimum two ANMs (against one at present) at each Sub-Centre to be fully supported by the Government of India.[e]	n/a	Regular employment	✔ Sub-Centre(SHC): 2 ANMs.e Primary Health Centres(PHCs) area: at least 1 ANM.[e]	n/a	Sub-center:[f] Anganwadi worker(AWW) Accredited Social Health Activist(ASHA) Medical officer(MO) PHC:[g] Medical Officer, Accountant cum Data Entry Operator, Pharmacist, Pharmacist AYUSH, Staff-Nurse, Health Assistant(HA). (Male) , HA (Female)/LHV, Health Educator, Laboratory Technician Cold Chain & Vaccine Logistic Assistant Multi-skilled Group D worker Sanitary worker cum watchman	Upgrading to SBAs.[e]
	Nepal	ANM (the 1990s-)	3,711 (2012)[a]	0.13	0.47 (2004)[b]	0.21 (2004)[b]	Expanding the role with education ANM who have received midwifery training is considerd as SBA (2004-).[h] Expanding the requirement and deployment.[h] Priority for posting of ANM with SBA skills will go to remote districts and ensure round the clock (24 hours a day) provision of delivery services.[h] Each health post and subhealth post will be staffed by two ANMs and more deployment for other fasilities by 2017.[i]	n/a	Regular employment	✔ Health post :2 ANMs [h,i] Sub-health post: 2 ANMs [h,i]	✔ HealthCent. with beds:2 ANMs District Hospital :6 ANMs Zonal Hospital :40 ANMs Regional/Central/Teaching hospitals: 30 ANMs Long-stay speciality hospitals:10 ANMs.[i]	Health post:[h,i] a staff nurse, Village Health worker (VHW)/ Maternal and child health worker(MCHW), AAW/Auxiliary Health Worker(AHW), Other support staff Sub-health post:[h,i] VHW/MCHW,AAW/AHW,Other support staff Public Sector Hospital:[i] Medical specialist, Medical officer Integrated Med. Officer, Dental surgeon Pharmacist, Asst. Pharmacist, Nurse(certif./staff), Graduate nurse Medical Technologist, Lab technician/Assist. Radiographer, Asst. radiographer, VHW/MCHW, AAW/AHW, Health Asst./Kaviraj/Hakim, Allied health occup. Allied non-med. prof, Manager, Skilled support staff, Other support staff	Upgrading to SBAs with 2month tarining.[h,k] Upgrading to Sr. ANM and ANM-P with training in nationl health trainig center.[l]
	Pakistan	Lady health workers(LHW) (1994-)	about100,000 (2016)[m]	0.53	0.60 (2014)[b]	0.80 (2014)[b]	Expnading the number of LHWs. Expnading the recruitment of LHWs.[m] The government planed increasing the LHW and the target is 150,000 LHWs, or one LHW per 1000 population.[m]	n/a	Regular employment Management by Provincial Health, Department / District Implementation Unit [w]	✔ Health houses (LHWs' own homes) within an area of 200 houses.[m,n]	n/a	Cooperate with TBAs, MW, LHV and HA [m,n] In some regions, there was insufficient integration into the health system, with traditional health cadres looking down on LHW. [m]	-
	Bangladesh	Familly Welfere Visitor (FWV) (the 1980s-) Junior Midwifery	6,994 (2017)[o] 2,435 (2017)[o]	0.06	0.21 (2012)[b]	0.39 (2012)[b]	Expnading the recruitment of FWVs in DGFP-Critical service providers positions The large GOB fieldworker forces of the 1980s and 1990s that include FWV will probably not be available in future. Indeed, they may not be needed in such large numbers as before, but for some time special populations—the poor, the young, and the low performing areas—will continue to require fieldworkers to provide information, motivation, and FP supplies and referrals.[q]	n/a	Regular employment Management by government	✔ Mother and child welfare center(MCWC) at District level(District hospital), Upazila health conplex(UHC)level,and Union level(Familit welfare center;FWC, Union health centre;UH) [p,r] NGO facilities [p]	✔ Private hospitals.[p]	UHC: Doctor,dentist,nurse [p] FWC& UH: Family welfare assistant(FWA)[p] Community: Community SBAs [s]	-
	Bhutan	ANM(1975-)/ female health assintant (female HA) (the 2000s-)	592 (2016) including male HA	0.73	1.08 (2014)[b]	0.26 (2014)[b]	Expanding the ANMs role Bhutan Medical and Health Council (BMHC) recognizes ANM under nursing cadre, recentry upgraded to femele HA[v] Expanding the recruitment and deployment The ministry of health has committed to have at least one female health assistant in every Basic Health Unit-II (BHU) by January 2018 to improve the maternal and child health.[w]	n/a	Regular employment Management by Direct Employment Scheme Government, Private, Corporate, NGOs	✔ Basic health unit(BHU)- II : 1 ANM, BHU- I : 2ANMs [v]	✔ District hospital : 4 ANMs [v]	BHU- II :[v] HA(Male) or Assistant Clinical Officer Basic Health Worker (BHW) sMenpa wherever traditional medicine services are introduced Care taker BHU- I :[v] staff nurses Assistant nurse(AN) Direct hospital : [v] In cherge nurse, OT nurse, staff nurse, AN	A career ladder for ANM. [v] Stage 1: junior ANM ↓ (4years) Stage 2: ANM ↓ (4years) Stage 3: Senior ANM ↓ (4years + 6 months Diploma) Stage4: Junior staff nurse

Note.[a.] UNFPA. (2014). the state of world's midwifery.[b] WHO. (2017). Global Health Observatory data[c.] d. IND. MOHFW (2013) Human Resource.[e.] IND. MOHFW. (2005). National rural health mission Meeting people's health needs in rural areas Framework for Implementation 2005-2012., [f.] IND, Directorate General of Health Services, MOHFW. (2012). Indian Public Health Standards Guidelines for Sub-Centres Revised 2012.
[g.]IND. Directorate General of Health Services, MOHFW(2012) Indian Public Health Standards (IPHS) Guidelines for Primary Health Centres Revised 202., [h.] NPL, Department of health services and Family health Division, Ministry of Health and Population (MOHP).(2006), National policy on SBAs supplementary to Safe motherhood policy 1998., [i.] NPL, MOHP(2003) Strategic plan for the Human Resource Strategy of 2003-2017., j. Nepal law commission. (1996). Nepal Nursing council Act, 2052.,
[k.] Bogren, M. U., Teijlingen, E. V, Berg M. (2013). Where midwives are not yet recognised: A feasibility study of professional midwives in Nepal, [l.] NPL. Department of health services. MOHP. (2006), National Health Training Center, m.WHO, Global Health Workforce Alliance(GHWA)(2008)Pakistan's Lady Healtn Worker Programme, [n.] Haq, Z., Iqbal. Z., & Rahman, A. (2008) Job stress among community health workers: a multi-method study from Pakistan,
[o.] Bangladesh Nursing and Midwifery Council (BNMC)(2017) Total Registred Nurse-Midwife Update 31 October 2017, [p.] National Institute of Population Research and Training (NIPORT), Ministry of Health and Family Welfare(MOHFW),Associates for Community and Population Research(ACPR) and ICF International (2016), .Bangladesh Health Facility Survey 2014 FINAL REPORT, [q.] NIPORT, Mitra and Associates, Macro International. (2009). Demographic and Health Survey 2007
[r.] BGD. Planning Wing. MOHFW. (2011). Health, Population and Nutrition Sector Development Program Program Implementation Plan (HPNSDP-PIP) 2011-2016 Volume I. [w.] PAK. Ministry of Primary Health Care Wing. (2008). "The Lady Health Workers' Programme". [x.] the population council. (2016). Evaluation of the Impact of Strengthening Union Health and Family Welfare Centers for Providing 24/7 Normal Delivery Services in Bangladesh.

Table 8 Summary of literature on policy of ANMs

Policy															
Region	Country	Name	Professional standards		Licensing		Accreditation/ registration	Authorized scopes of practice							
			Guidelines	Policy statements	Type od License	Examination for licensing		Maternal and newborn health	Child health	Reproductive health	Medical termination of pregnancy	Immunization	Nutrition	Other	Note
South-eastern Asia	Vietnam	Primary / Secondary nurse midwife	**Primary/Secondly:** -	**Primary/Secondly:** ✔ the Decision No. 342/QDBYT (2014) promulgated basic competency standards of Vietnam midwifery by MOH [a] the Decision No 41/2006/QD – BNV by Ministry of Internal Affair[j]	**Primary/Secondary :** Certificate [b] There is no approved National Qualifications Framework. (still under construction) [b,c]	**Primary/Secondly:** n/a [f]	**Primary/Secondly:** Vietnam Nurses Association.(VNA)[c,f]	✔[e,i] Oxytocine	✔[i]	✔[i]	n/a	✔[i]	n/a	**Primary/Secondary:** Health education, First aid, Basic nursing techniques.[i] **Secondary:** Supervision for nursing students and primary nurse[i]	VNA is acting to adovocate for defferent scope of each category of nurses.[d]
		Ethnic minority midwife(EMM)	**EMM:** National clinical guidelines on reproductive health care services.[e]	**EMM:** ✔ the Circular No. 07/2013/TT-BYT (2014) issuing standards, functions, tasks of EMM. For the first time, EMM are included as a form of village health work by MOH[a]	**EMM:** Crtificated [a,e] After educaton of phase two, they are certificated as "VHW". Then after phase four, they are finally certificated as "EMM".[e]	**EMM:** n/a [f]	**EMM:** the Medical Secondary Schools or Training Center for HRH where they were trained [e]	✔[e] normal home deliveries, Oxytocine	-	-	-	-	-	-	
	Myanmar	AMW	(In progress)[j]	(In progress)[i]	certificated [j]	n/a	The local communities [k]	(✔)[j]	(✔)[j]	(✔)[j]	-	-	-	-	(In progress)[j]
	Lao PDR	ANM	-	-	certificated[c]	n/a	No external accrediting body for the nursing program[c]	-	-	-	-	-	-	-	
Southern asia	India	ANM	✔ Guidelines for Antenatal Care and Skilled Attendance at Birth by ANMs/LHVs/SNs (2010)[m] Indian health public health standard(IPHS) guidelines for sub-centeres revised 2012.[n]	-	Licensed	✔ by INC Nursing Examination Borad a,b	Indian nursing council (INC)/each state	✔[n] ANC & PNC, delivery, treatment for PPH (e.g., use of Oxytocin, manual removal of placenta, bimanual uterine compression), repair vagional tears (only first-degree), neonatal resuscitation	✔[n]	✔[n] Oral contraseptives, condoms, Injectable Contraceptives, Intra Uterine Devices(IUD) insertion (if properly trained)	✔[n] only consultation	✔[n]	✔[n]	Communicable Diseases, Non-Communicable Diseases, Vital event, Record Keeping, Treatment of minor ailments, Team activities House to House Survey, and A facilitator of ASHA. [n]	
	Nepal	ANM	-	✔ National policy on SBAs(2007)[o]	Certificated [p]	n/a	Certificated by Training Instituton[p] Registration by Nepal nursing council (NNC)[p ,q]	✔[o] ANC & PNC, delivery, neonatal resuscitation	✔[o]	✔[o]	✔[o] vaccum aspitation	-	-	Health education, Suprvision of non-skilled and semi-skilled attendants, including TBAs, MCHWs, and paramedics. [O]	SBAs (including ANMs) working at the primary health facilities in remote areas with limited acces to BECO/CEOC facilities should also be able to do the following: [o] -use vassum extraction in viginal deliveries, -perform manual vaccum aspiraton for the management of incomplete abotion, -repair vagional tears, -perform manual removal of placenta
	Pakistan	Lady health workers(LHW)	✔ The National Program for Family Planing & PHC[r]	-	Certificated a supplementary qualification in the register	n/a	Provincial Health, Department/ District Implementation Unit [s,t]	✔[r,s] ANC & PNC	✔[r,s]	✔[r,s] Oral contraseptives, condoms, Injectable Contraceptives	n/a	✔[r,s]	✔[r,s]	-	
	Bangladesh	Familly Welfere Visitor (FWV)	-	-	FWV: Licensed	FMV/Junior midwife: ✔ by the Bangladesh Nursing and Midwifery Council (BNMC)[d]	FWV:BNMC[d] the bangladesh nursing council ordinance,1983 Junior Midwife: -	✔[v] ANC & PNC, delivery	✔[v]	✔[v] Oral contraseptive, condoms, Injectable Contraceptives, implants, IUD insertions, sterilization (tubal ligation or vasectomy), emergency contraceptive.	n/a	✔[v]	n/a	Health education[v]	
		Junior Midwifery			Junior midwife: Licenced			-	-	-	-	-	-	-	(Junior Midwives' role is almost same but not on policy because they ara not reccomend by the government.)
	Bhutan	ANM	✔ National professional nursing servises standard(2007)[w]	-	Certificate[x]	n/a	Bhutan Medical and Health Council (BMHC)[w]	✔[w,y] ANC & PNC, delivery, neonatal resuscitation	✔[w,y]	✔[w,y] Oral contraseptive, condoms, Injectable Contraceptives, IUD insertion (if properly trained).	n/a	✔[w,y]	✔[w,y]	PAP smear and VCT , Outreach clinics, House-hold visits/survey, School Health Program, General nursing care, Recording and reporting Health education First Aid Follow up of the round orders as assigned by either the senior staff or doctor, Supervision of the AN, students and the support staff.[w,y]	

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*. From supervisor from
n/a= not applicable; - = missing data

Table 9 Summary of literature on education of ANMs

Education													
Region	Country	Pre-service education tied to health needs								In-service training		Capacity of training institution	
		Entry requirement			length of training	Teaching Style			Evoluation method	Direct supervision	Cont. education	Accrediation	Training institution
		Age	Grade	Other		Theory	Practicum	Mix					
South-eastern Asia	Vietnam	n/a	**Praimary**:[a] -at least 9th grade pass **Secondary**:[a,b] -12th grade pass -Pass National Exam on Biology, Mathematics , Chemistry EMM:[c] n/a (Due to lower level of education among women in the remote areas[c])	**Praimary**:[a] n/a **Secondary**:[a,b] -Pass National Exam on Biology, Mathematics , Chemistry **EMM:**[c] - ethnic minority women from ethnic minority villages, - someone who shows commitment to practicing in their home village after completing the training, -the woman must be a respected and trusted member of the community.	**Primary:**[a] 12month full-time **Secondary:**[a,b] 24month full-time **EMM:** 18months [c] at least 6 month [e]	**Primary:** - **Secondary:**[b] 15 month **EMM:**[c] "6+3+6+3" formula Phase 1: 6 months Phase 3: 6 months	**Primary:** - **Secondary:**[b] 9 months under supervision by a licensed nurse. **EMM:**[c] "6+3+6+3" formula Phase 2: 3 months Phase 4: 3 months	n/a n/a	**Primary/secondary:** - **EMM:** -	**Primary/secondary:** - **EMM:** [c] supervision from health related staff in CHC at monthly meeting , and from the province district supervisors	**Primary/Secondary:** by Vietnam Nursing Associaton [b] Policy of Cont. education (2007-) EMM: c the Medical Secondary Schools or Training Center for Human resource for health	**Primary/Secondary/:** MOH (Law on medication and treatment areticle 5-2,f)[f] The Ministry of Education and Training (MOET)[b] EMM: c MOH MOET supported by UNFPA[c]	**primary/secondary:**[a] 35 secondary medical schools in 35 provinces EMM:c Provincial Hospital, Provincial Reproductive Health Center, and the Secondary Medical School/Training Center for Human Resource for Health the District Hospital, District Health Center and Reproductive Health Care team the Commune Health Centre
Myanmar	n/a	8th grade pass or studied in secondary school as a minimum.[g]	・female ・must be literate, ・reside in the village, and be likely to remain in the village ・commit to at least 3 years.[g]	6month[g,h]	3 month [g,l]	3 months [g,l]	n/a	AMWs are expected to have witnessed 20 deliveries before completing their practical training period.[g]	Supervision from mainly MWs, LHVs, BHSs and district medical officer(GMO) and township midical officer(TMO) and the NGOs at the opportunity of monthly report.[g,h,i]	Refresh course ・Maternal and child health, ・Communicator training ・Rproductive health and HIV ・Community support group[h] by the NGOs and MWs and LHVs [h,g]	MOH (1997-2000)(2014-) Support by WPRO UNICEF(1986-2000) NGO(e.g.,Merlin&GAVI.)h,[i,j,k] MOH executed the AMW training programme by mobilising funding from various sources, either from the MOH's core budget or international development partners when opportunities arose.[j]	Township or The respective station hospital [l]
Lao PDR	n/a	at least primary school pass to high school pass [m]	n/a	24month [m,n,o]	1824 hours [o]	256hours [o]	n/a	-	n/a	n/a	National Mahosot hospital(1960-) [m]	0 training institution(2012) [n] The two-year nursing schools have been upgraded to two and a half years of training and their graduates are now considered technical, or middle-level, nurses.[n]	

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n/a= not applicable; - = missing data

Table 9 Summary of literature on education of ANMs (Continued)

Education													
Region	Country	Pre-service education tied to health needs							In-service training		Capacity of training institution		
		Entry requirement			length of training	Teaching Style			Evoluation method	Direct supervision	Cont. education	Accrediation	Training institution
		Age	Grade	Others		Theory	Practicum	Mix					
Southern Asia	India	17 - 35 years of age a	12 grade pass [a]	・10 + 2 in Arts and English Core/English Elective or Science or Health care Science - Vocational stream ONLY passing out from recognized Board. ・Students qualified in 10+2 Arts or Science examination conducted by National Institute of Open School. ・Student shall be admitted once in a year. ・Student shall be medically fit. [a]	24months [b]	18month [a]	6month [a]	n/a	Theory and practical examinations in each grade, and the number of normal ANC, PNC, deliveries required to be conducted during their study period [a]	Supervision from GNM and BSc nurse, HA(male), LHV.[a,d]	-	Indian nursing council (INC) with WHO/SEARO [j]	290 govermrnt school / 8579 seats[c] 1696 private school/ 48440 seats [c]
	Nepal	N/A	**Post School Leaving Certificate (SLC):** SLC pass (10th grade)[e,f] **Pre SLC:** 10th grade pass [f,g]	n/a	Post SLC; 18 months [f] Pre SLC; 29 months [f]	Post SLC: 167 hours [f] Pre SLC: 195 hours [f]	Post SLC: 561 hours [f] Pre SLC: 624 hours [f]	n/a	Final examination in each grade,[e,g] the number of normal deliveries required to be conducted during their study period varies from 10 cases depending up on the education institutions [f]	Technical supervision from a Nurse Midwife/Professional Midwife working at the PHCC or district hospital.[h,k]	Refresher course by National Health Training Center [i]	Ministry of health(1956-1972) Ministry of Education (1972 - early 1990s) the Council of Tecnical Education and Vocational Training(CTEVT) (early 1990s-) with WHO/SEARO [j,k]	50 ANM schools [i]
	Pakistan	18-45 years of age [l,m]	8th Grade Pass [l,m]	・ Local Resident of the catchment area i.e 1000 population/150 HH ・Preferably Married ・Recommended by/acceptable to the Community [l,m,n]	15 months [l,m,n,o]	n/a	n/a	3 months theory&some practical, 12 months of practical, which includes one day per month in the classroom working on problem-based modules[l,m,n,o]	-	Supervision from LHV, Lady Health Supervisor(LHS), Field Programme Officers(FPO) and the management setup at the District, Provincial and Federal level[n]	Refresher trainings (15days)m ・ Maternal and Neonatal Health. ・Child Health. ・ Nutrition refresher course by Provibcial PIU, FLCF/Traning center [m]	Provincial Health, Department / District Implementation Unit [m,n]	basic health unit rural heanlth center, Tehshil headquarter hospital.[n]
	Bangladesh	**FWV:** ・under 30years * **Junior Midwives:** N/A	**FWV:**[p] ・12th degree pass ・secondary school certificate (SSC) pass graduates **Junior Midwives:** -	**FWV:** ・working at health servise for 1 year (preferably) * **Junior Midwives:** -	**FWV**: [p,q,u] 18 months **Junior midwife**: 18 months [q]	**FWV:**[r] 6 months **Junior midwife:** -	**FWV:**[r] last 6 months distance field with attachment to a hospital/clinic **Junior midwife:** -	**FWV:**[r] 6 months theory and short field **Junior midwife:** -	**FWV:**[r] Examination(Pre-test,Post test) Session evaluation, Course evaluaton, Trainee follow-up Junior midwife: -	**FWV:** Technical supervision from medical officer (MO-MCH) and upazila FP manager (UFPO) during the supervisory visit every month. **Junior midwife:** -	**FWV:**[s,t] a)Refresher Training- 5 days ・New programmatic changes ・Maternal and Neonatal Health. ・Reproductive health ・ARI, diarrhoea ・reatment and management of emerging and reemerging diseases ・ Child health b)Early Learning Childhood Developmen and Birth Registration & Child Rights Training – 5 days c)Counseling, IUD & Infection Prevention Training – 5 days. by Family Welfare Visitors' Training Institutes (FWVTIs) **Junior midwife:** -	**FWV:**[t,u] Ministry of health and family welfare(MOHFW) National Institute of Population Research and Training (NIPORT) BNMC with WHO/SEARO [j] **Junior midwife:** -	FWV[p,q,t,u] 12 FWVTIs (public) / 1000 seats FWVTIs are located at Division/District level. **Junior midwife:**[q] 12 private institutions/ 320seats
	Bhutan	over 18 years of age[v]	9 or 10 grade pass [v]	・they come from or be able to adapt to the rural environment, ・have the necessary physical health and emotional stability essential for work in a rural area.[v]	24 months [x]	Theory [x]	Field practial [x]	-	-	Supervision by GNM and BN/BSc,x	-	MOH BMHC with WHO/SEARO, UNICEF(1979) v,j	Royal Institute of Health Sciences v

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*. From supervisor from Bangladesh
n/a= not applicable; - = missing data

Table 10 Summary of literature on Subject covered practical training

Education											
			Pre-service education tied to health needs								
Region	Country	Name	Subject coverd practical training								
			Maternal and newborn health	Child health	Reproductive health	Medical termination of pregnancy	Immunization	Nutrition	First aids and referral	Manegement	Other
South-eastern Asia	Vietnam	Primary / Secondary nurse midwife	✔	-	-	-	-	-	-	-	nursing
		Ethnic minority midwife(EMM)	✔	✔	✔	n/a	n/a	n/a	n/a	n/a	Health education, Basic knowledge and skills of a village health worker
	Myanmar	AMW	✔	✔	✔	n/a	✔	✔	✔	n/a	
	Lao PDR	ANM (No training course for ANM since 2003)	✔	✔	✔	n/a	n/a	✔	✔	✔	General psychology, Social science, Communication Mathematics,physics,chemistry, Foreign language Ⅰ,Ⅱ, Anatomical physiology Microbiology,parasitology, Pathology, Pharmacology Developmental psychology Primary nursing Ⅰ,Ⅱ Community nusing Ⅰ,Ⅱ Adult nursing Mental heanlth nursing Nursing ethics Public health Health Education Depelopment of nursing
Southern asia	India	ANM	✔ midwifery	✔	✔	✔	✔	✔	✔	✔ health center	Communicable Diseases, Non-Communicable Diseases, Human Body & Hygiene, Environmental Sanitation, Mental Health, Community health problems, Primary medical care
	Nepal	ANM	✔ midwifery	✔	✔	✔	✔	✔	✔	✔	Post SLC/ Pre SLC : Anatomy and Physiology Fundamental of Nursing Community Health Nursing Epidemiology and Communicable Diseases Treatment of Simple Disorders Pre SLC courses take above course and the following subject; English, Nepali, Mathematics, Science
	Pakistan	Lady health workers(LHW)	✔	✔	✔	n/a	✔	✔	✔	✔	HIV/AIDS and treatment of minor illnesses. Basic curative care
	Bangladesh	Familly Welfere Visitor (FWV)	✔	✔	✔	✔	✔	-	-	✔	Anatomy, Physiology, Pharmacology and microbiology Limited curative care Communicable disease control and emerging disease
		Junior Midwifery (No standard curriculums on BNMC)	-	-	-	-	-	-	-	-	
	Bhutan	ANM	✔ midwifery	✔	✔	n/a	✔	✔	✔	✔	Anatomy, physiology, pharmacology, and microbiology Health services, hygiene and psychology Health Promotion & Counselling Nursing I& Nursing II Therapeutic management (Child) & IMCH Therapeutic management (Adult) & Lab

n/a= not applicable; - = missing data