Improving maternal, neonatal and child health in Myanmar – optimising the role of the AMW cadre. Lessons to support a national scale up.

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Abbreviations

AMW	Auxiliary Midwife
ANC	Antenatal Care
ARI	Acute Respiratory Infection
BHS	Basic Health Staff
CHW	Community Health Worker
EmOC	Emergency Obstetric Care
EPI	Expanded Programme on Immunisation
FP2020	Family Planning 2020
HA	Health Assistant
HMIS	Health Management Information System
JIMNCH	Joint Initiative for Maternal Neonatal and Child Health
LHV	Lady Health Visitor
MDGs	Millennium Development Goals
MMR	Maternal Mortality Ratio
MNCH	Maternal Neonatal and Child Health
MoH	Ministry of Health
PN	Post- natal
RHC	Rural Health Centre
RMNCH	Reproductive, Maternal, Neonatal and Child Health
TBA	Traditional Birth Attendant
VHC	Village Health Committee
WCBA	Women of Childbearing Age
WHO	World Health Organisation

Key messages

- AMWs play an important role in increasing access to essential RMNCH services in Myanmar
- The Ministry of Health's proposal to scale up the number of AMWs in the country to ensure an AMW in every village (where there is currently no health facility) has the potential to significantly extend current access to essential RMNCH services. Ensuring the rationale distribution of AMWs is important to maximise the impact
- The challenges of scale up should not be underestimated. A comprehensive plan to underpin the scale up is critical to a successful process and outcome
- Ensuring that the scale up is based on best practice in terms of the roles and responsibilities of AMWs, particularly in relation to addressing the major health burden at community level, and in optimising roles between different health cadres, is vital in realising the potential of AMWs, and thus access to services for large numbers in the population
- Ensuring AMWs are confident to take on the duties assigned to them is critical in optimising the effectiveness of their role. This includes sufficient practical ,as well as theoretical, training and consistent support and supervision from skilled staff, in particular the midwife
- Ensuring that midwives and other BHS are supported to undertake their roles in monitoring, supervising and supporting AMWs, is an important element for the success of the AMW scale up. This needs to be factored into discussions on optimising the roles of BHS
- A review of the roles and responsibilities of AMWs, as well as a reassessment of their status as volunteers, and the support they receive, is considered an important action to underpin a successful scale up across the country, at this time
- Capturing additional community data within the wider HMIS is critical for supporting enhanced planning and responsiveness to needs at the community level, and thus the overall effectiveness of the wider health system in addressing RMNCH

Background

Addressing reproductive, maternal, neonatal and child health (RMNCH) in the country has been recognised as a priority in the National Health Strategic Plan 2011-2016. It is supported by clear commitments from the Ministry of Health to meet ambitious targets by 2015 towards the MDGs 4 and 5, as well as targets to reach FP2020. These commitments include: reaching 80% of antenatal care coverage; 80% of births attended by a skilled attendant and 70% access to emergency obstetric care. Myanmar has also made a commitment to universal coverage for the expanded programme on immunization (EPI) and to increasing the proportion of newborns who receive essential care at least twice within the first week of life (Every Woman, Every Child, 2014). Most recently the Ministry has undertaken an assessment of newborn health in Myanmar with recommendations for follow up. These and other related commitments sit within a wider plan to ensure universal health coverage by 2030 (MoH, 2014).

Addressing maternal, neonatal and child morbidity and mortality relies on having strong health human resources in place to deliver on the critical interventions needed. Currently, there is an absolute shortage of human resources for health in the country, including in critical cadres, such as the midwife. To address this, recent Ministry of Health plans commit to improving the ratio of midwives to population from 1/>5000 to 1/4000[1]. In addition, the Ministry has identified the scale up of Auxiliary Midwives (AMWs) as an important immediate action to increase access to services. The aim is to reach 1 AMW per village (without a facility), across the country[2], with a significant investment from the Government to support AMW training (MoH, 2013)[3].

With an estimated number of existing AMWs at around 20,000 and a total number of 65,000 villages in the country (MoH, 2013)[4], the challenge of meeting this scale up is considerable, particularly if it is to lead to quality care for populations. Given the length of training and appropriate class size numbers[5], the rate of training of AMWs to reach coverage is clear, even taking into consideration the villages already covered with a facility[6]. Prioritisation of the training and distribution of AMWs will therefore be vital. Ensuring that training and distribution are part of a wider plan to support the scale up, is also central to its success.

This paper assesses the lessons from Merlin's programmes in supporting AMWs as a community frontline health care provider. It aims to identify a number of key recommendations for policy makers within the Ministry of Health as well as development agencies, to support the anticipated scale up of the AMW cadre in the country.

Current trends in maternal neonatal and child health in Myanmar

Over recent years Myanmar has made progress on reaching MDGs 4 and 5. However despite this, and within the South East Asia region, the figures for maternal and child deaths in Myanmar, remain high (Hogan et al, 2010). The Maternal Mortality Ratio (MMR) is estimated to be 200/100,000 live births, though there is significant variation between regions (MMEIG, 2012). Under 5 mortality rate is 62/1,000 live births (Unicef, 2013). Based on current trends, and without significant additional actions, it will be difficult to meet the goals for MDGs 4 and 5 by 2015 (MDG 2013 report).

Current morbidity and mortality figures reflect access to services. The major causes of maternal mortality in Myanmar include postpartum haemorrhage and eclampsia and complications arising from unsafe abortions. Delays in reaching health facilities are a common feature and the overwhelming majority of maternal deaths (88%) occur at home. Ensuring that pregnant woman have access to skilled staff at the right time, is a major factor in reducing deaths.

Over 50,000 children under 5 years of age in Myanmar die each year and nearly half of these are neonates. The principle causes of death in these early stages are prematurity, asphyxia and sepsis. Deaths are most common in babies delivered at home particularly in rural areas. Among neonatal deaths the highest percentage of these occur in the first 7 days of life often as a result of the failure

[1] MoH presentation November 2013

[2] Initially indicated by end 2015

[3] MoH presentation, December 2013

[4] MoH presentation January 2013

[5] A class size of about 30 students is considered appropriate

[6] Based on 2011 figures of RHCs (1716) and SRHCs (7334) it is estimated that around 9000 villages will be covered by a health facility

to recognize the first signs of illness and the subsequent delays in seeking the necessary care (Unicef, 2012).

In children under 5 years, the main direct causes of death are Acute Respiratory Infections (ARIs), diarrhoea and malaria. These are exacerbated by underlying malnutrition which accounts for 50% of these deaths (Unicef, 2012).

Providing access to knowledge on good practices, including exclusive breastfeeding; recognition of early signs of illness or complications of pregnancy, and combining this with prompt treatment and/or referral to higher levels of care, when needed, is vital to saving maternal, neonatal and child lives.

Considerable efforts are needed to scale up access to reproductive, maternal, neonatal and child health services across the country to address needs and reach current commitments. This challenge is multiplied in areas of the country where access to skilled health personnel is limited and communities live some distance from the nearest health facility. This is particularly the case in many geographically and politically marginalised areas of the country.

Addressing the challenge of human resources for health

The Ministry of Health's commitment to increase the availability of midwives and auxiliary midwives is set within a wider human resources for health plan for 2012-2017. This is critical for promoting access to a comprehensive package of essential health services.

Scaling up human resources will take time and considerable investment. In the case of midwives, there is need for enhanced training as well as investments in infrastructure to ensure a facility to work from, and accommodation, to support their roles. In the case of AMWs, a scale up of this cadre to meet the MoH target is also demanding. Ensuring that AMWs are trained, deployed and supported across large geographical areas, often where the health system is at its weakest, requires significant investment, not only in terms of training, but also with regular supplies, and follow up by BHS to support quality outcomes. Making sure that the scale up is based on global best practice and enhances wider efforts to improve access to RMNCH services in the country, is key to the success of this strategy.

Evidence to support the role of community volunteers in improving RMNCH

There is global evidence to support a positive role of community based health cadres in improving maternal and child health.

A recent review of trials assessing the impact of a range of interventions at community level on maternal, neonatal and child health morbidity and mortality found a significant reduction in maternal morbidity; neonatal mortality, stillbirths and perinatal mortality as a result of community based intervention packages, though no reduction in maternal mortality. The review also found increased referrals to health facilities for pregnancy related complications and improved rates of early breastfeeding. The review concluded that there was sufficient evidence to scale up community based MNCH care through community health worker cadres (Lassi et al, 2010).

In addition WHO has reviewed the evidence base for supporting RMNCH interventions within the health system and the opportunities for optimising the roles of different health workers including community based cadres. The aim is to facilitate universal access to key, effective maternal and newborn interventions. A range of practices are recommended for different cadres including lay health workers, auxiliary midwives and auxiliary nurse midwives. (WHO, 2012).

Understanding where AMWs sit within the hierarchy of cadres and responsibilities, particularly in relation to other cadres in the Myanmar context, is a critical aspect of ensuring their most effective contribution.

Lessons from Merlin's programmes

Evidence from Merlin and other programmes supporting AMWs in Myanmar, provides country specific lessons to support the "contextualisation" (WHO, 2012) of global findings and recommendations.

The AMW cadre is one of two[7] cadres supported by Merlin at community level. The AMW has a particular role to play in helping to address the challenges of access to RMNCH services. The roles and responsibilities of the AMWs and CHWs are outlined in MoH guidelines[8].

Merlin trains and supports CHWs and AMWs, and in some cases, a dual function AMW, who is also trained to undertake CHW duties. In 2013 Merlin supported a total of 1152 volunteers across all its programme sites. This included 428 AMWs of whom 144 had a dual function role.

Merlin follows MoH policy in the selection and training of volunteers. AMWs are selected from their communities: they must be literate (have passed 8th standard or studied in middle school as a minimum), reside in the village, and be likely to remain in the village and commit to at least 3 years. In 2013, all AMWs and dual AMW/CHWs were female, though this is not a criteria for selection.

AMWs receive an initial 6 months basic training which includes 3 months theory, followed by practical training that takes place at a Rural Health Centre under the supervision of the Health Assistant (HA), Lady Health Visitor (LHV), and Midwife. Training is complete when the AMW has passed the exam at the end of the theoretical training and has also received approval from the Basic Health Staff (BHS) at the end of the practical training[9]. The 6 month training is designed to enable the AMW to deliver basic obstetric care including pre-natal, natal, post natal and newborn care.

Following training, Merlin provides AMWs with a basic kit of drugs and equipment. Details of the kits are provided in annex 1. The kit is replenished regularly based on consumption data. AMWs also receive on-going mentoring and supervision from Merlin programme staff. Where possible, mentoring and supervision of AMWs is conducted in conjunction with BHS. In addition AMWs are encouraged to attend monthly meetings and participate in update trainings at their respective Rural Health Centre (RHC) location, on a regular basis.

[7] The second cadre is the Community Health Worker (CHW). CHWs and AMWs work alongside each other to provide services at the village level

[8] These guidelines were developed some years ago and would benefit from a review based on more recent local learning and international best practice.

[9] AMWs are expected to have witnessed 20 deliveries before completing their practical training period

Merlin has been supporting AMWs for more than 5 years and has established strong networks of volunteers in all programme areas which now reach across 7 townships in 4 States/Divisions: Ayerawaddy Delta, Chin, Sagaing and Northern Shan[10]. Due to geographical as well as programme implementation differences, the distribution of AMWs per population between the townships, varies. Merlin is supporting between 26% and 76% of villages in a township with an AMW. Based on 2013 figures for population and AMW numbers, the ratio of AMW to population in Merlin supported villages ranges from 1.5/1000 to 3.7/1000 (as outlined in box 1). Merlin's experience suggests that generally AMWs do not work beyond their own village. In some cases AMW's may cover for periods of leave of volunteers in neighbouring villages and AMW services may be accessed by women in adjacent villages. However there remain implications for access to services for villages without an AMW.

Box 1. AMW distribution: % villages in township with AMW and AMW/1000 population in Merlin supported villages across townships:

	% villages	AMW/1000 pop
Hakha	76%	3.7
Homalin	46%	1.5
Htan Tal lan	69%	2.4
Tamu	70%	1.5
Laputta	39%	1.7
Kutkai	26%	2.4

Provision of services by AMWs

The AMWs play an important role in the provision and support of maternal and neonatal care in the areas where they work. They are often the first point of contact for detection of health issues and for promoting onward referral to more specialist care. As such the AMWs have an important role in supporting the BHS in their RMNCH activities.

AMWs have a range of key responsibilities to ensure woman are supported throughout their pregnancy and in the immediate post-natal period. AMWs are expected to identify women of childbearing age (WCBA) and estimate the number of pregnancies that might be expected at village level. For AMWs supported by Merlin, their duties begin with the pre-natal period. This includes counselling on birth spacing, as well as the re-supply of oral contraceptives and condoms, and referral to the midwife for other contraceptive options. The AMWs are expected to identify pregnant mothers as early as possible and give antenatal care within their agreed authority, ideally aiming for at least antenatal care consultations. AMWs refer all registered pregnant woman routinely, as well as when showing danger signs, to the midwife, health centre facility or hospital, depending on the nature of the referral. AMWs also provide health education to pregnant and

[10] Data in this report is provided for 6 townships in 2013 where Merlin implementing

lactating women to promote healthy eating and prevent locally endemic diseases. All pregnant woman are encouraged to prepare thoroughly for delivery with a birth plan. In some cases, AMWs conduct home delivery where there is no skilled provider available, and support the care of newborn babies through a defined set of post natal interventions that include identifying low birth weight and other risk conditions, such as hypothermia, umbilical sepsis and asphyxia, and clearing airways through mucous extraction.

AMWs provide support to infants through education to mothers on good feeding practices such as exclusive breastfeeding (for six months) and the start of supplementary feeding at the age of six months, and monitor the growth and nutrition status of infants in the village on a regular basis. Merlin's experience points to the critical role for this cadre in following the infant for the first 6 months and preferably for the 1000 day period (from conception to the child's 2nd birthday) which has been identified as the critical period for capitalising on the good nutrition and health gains (Black et al., 2013).

Data from across Merlin programme sites for 2013 shows that in the communities supported, AMWs are providing regular and wide-spread services for antenatal care, postnatal care, one- on- one essential breastfeeding support, home deliveries, health education sessions, as well as referrals for emergency obstetric care (EmoC) and other life threatening conditions, including high risk newborn referral. In some programmes there is also a strong emphasis on birth spacing consultations.

Data on services provided by AMWs is recorded in the volunteer daily and monthly reports. In addition, each pregnant woman who is identified by the AMW is allocated her own data collection form (maternal register). She is also given an individual MCH handbook. The maternal register is used to record antenatal visits; information on the delivery in terms of where conducted, and by whom, and post-natal visits. Forms are returned to Merlin following the final postnatal visit. The handbook is retained by the woman. The forms provide a unique set of data about individual pregnancies. In practice not all women being seen by the AMW are being recorded through the maternal register. Monthly records therefore provide a better indication of the total number of women being seen by AMWs at this time. The maternal registers however provide additional and useful information on the progress of pregnancy support for a significant percentage of women. Increasing the coverage of the maternal register is critical as it provides the data to assess which women are receiving the support they and their baby need, and ensure that it is timely and appropriate. This data is critical for ensuring quality of service and monitoring performance of the AMW and the wider health system support.

Based on population figures[11] a total of 13,417 pregnancies could be expected in 2013 across all townships where Merlin works[12]. Taking only those villages with AMWs, the total expected pregnancies is 6029. Merlin's monthly records show that 5797 women were seen by AMWs. This represents 96% of expected pregnancies in the villages where Merlin works. Information on 2155 women is available through the maternal register system (or roughly 1/3 of the estimated total pregnancies in villages covered by AMWs).

[11] Population in townships 536,698; population in AMW villages 241,157

[12] Using an estimate of 2.5% pregnant women in the population across programme areas

In 2013, based on the maternal register data, AMWs ensured that, on average, 96% of registered women received a least 1 antenatal visit. The figure at ANC 2 was 83% but by the fourth visit (ANC4) had dropped to 50%. The data suggests that a sizeable proportion of ANC2 are going onto ANC4 which is positive. However the data also shows that many pregnant woman are reporting late for their first antenatal visit, and in some cases, after 24 weeks. This has implications for the timely recognition of potential complications associated with the pregnancy, and increases the risk to the woman and baby.

According to monthly registers, AMWs in Merlin programme areas also assisted 2681 deliveries (1444 deliveries were recorded in the maternal register). These deliveries took place at home. Estimating the contribution of AMW deliveries to total deliveries is difficult due to the weaknesses in available data. However Merlin maternal register data suggests that AMWs may be supporting over 60% of the total expected deliveries in the villages in which they are working. The average across programme areas is 40% (range between 22% and 68%). The figures for Chin and Sagaing are generally higher than for other areas. Taking into consideration the range, these deliveries represent an important contribution to the total deliveries in the communities in which the AMW is based. The challenge however will be in reaching the MoH's target of 80% deliveries by skilled health personnel. Promoting greater access to skilled birth attendants is vital. AMWs have a key role to play in supporting this. In the immediate term, ensuring that AMWs are trained and confident to recognise problems, or assist in deliveries, is a critical aspect of ensuring timely referral or delivery. It will also be important to assess what is happening in those villages where an AMW is not currently present and support as appropriate, including the provision of information on "dos and don'ts" for Traditional Birth Attendants (TBAs) and their mobilisation to prevent delays in referral.

The maternal register data also shows that on average 84% women are receiving a first post natal (PN) visit, whilst 94% of women are receiving 4 visits. The higher PN 4 figure recorded suggests that a number of the PN 1, PN 2 and PN 3 visits are being conducted with a midwife or other health worker and are not being recorded by the AMW. This needs to be followed up. High quality post-natal support is critical for improving neonatal outcomes.

AMW perceptions of their role

In 2013, Merlin collected feedback from AMWs across all programme areas to better understand the opportunities and challenges of the AMW role. A total of 173 AMWs and dual CHW/AMWs provided feedback, representing 40% of the total AMWs in place. This data provides valuable insights into the role of the AMW, and where additional support may be needed to ensure they are able to provide quality services in their communities in the longer term.

For many AMWs (43%), supporting access to antenatal care is the role that they find most satisfying. This is closely followed by their role in deliveries. However many AMWs (40%) also feel that the

delivery of babies is the most challenging aspect of their role. These findings may be related to training. Only 22% of AMWs feel that they have sufficient knowledge and skills to undertake their roles following the current basic training. While AMWs receive regular support from Merlin staff and Village Health Committees (VHCs), as well as BHS, this does not take the place of the basic skills training needed to underpin their role. In some cases AMWs lack the confidence to put their training into practice, highlighting the importance of supervision and support after training in overcoming these confidence barriers. In addition at village level, AMWs may be "competing" with TBAs. Without the necessary support it is difficult for younger and newly trained AMWs to encourage pregnant woman to consult with them rather than a better-known and trusted TBA, often a close family member, with experience of multiple deliveries. Where TBAs show an ability and willingness for further training, Merlin encourages their training as AMWs, which can help address this issue in some cases.

Similarly for AMWs the provision of health education rates highly in terms of satisfaction (23%), but is also seen as challenging (35%). Again the issues of sufficient training together with the confidence to undertake the activity are highlighted as the challenges they face. In addition AMWs also cite competition for villagers' time for essential tasks, such as working in their fields, as an issue in undertaking health education activities.

In terms of the support provided to them by Village Health Committees (VHCs), where the committees are available and functioning, AMWs see this as predominately around promoting health education activities, as well as supporting EPI and referrals. AMWs also work alongside CHWs in the majority (though not all) cases. Where these community cadres work together, AMWs perceive that there is good coordination between the two groups. Areas where AMWs see that they work most effectively with CHWs include support to referrals and health education.

Perceptions of other key stakeholders

Merlin has also collated viewpoints from key stakeholders working with AMWs within the programmes, principally the BHS (in particular midwives), and Merlin programme staff, to help support a wider picture of the current situation of AMWs.

From this feedback it is clear that Basic Health Staff (BHS) value the AMWs in terms of supporting their own roles. This includes helping to identify high risk pregnancies and also ensuring the timely referral of neonates with pneumonia and other life-threatening conditions. BHS recognise the value of AMWs in being close to the communities, especially in "hard to reach" areas where there may not be a midwife, or where the visits by the midwife are less frequent. BHS however also stress the importance of AMWs working closely with them in their duties. Feedback suggests that this is not always the case at present, and needs to be strengthened.

In terms of training, most BHS felt that the initial theoretical training of AMWs is sufficient but identify the need for more practical training opportunities. However this needs to be explored in more depth.

Merlin also asked its own staff supporting the AMWs on a daily basis, for their views on the key strengths and weaknesses of the role. Merlin staff identify the key roles of AMWs in supporting antenatal care and referrals and undertaking health education. They also identify the need for practical training and close follow-up support post training, to ensure effective performance and greater acceptance by the community.

Some key challenges for the scale up of AMWs

The feedback from AMWs, BHS and Merlin staff, as well as wider learning, highlights some of the challenges with the AMW role at this time. With the ambition to scale up the availability of AMWs to cover every village, it is important that challenges are addressed as far as possible to ensure that the scale up of AMWs makes the optimal contribution to meeting RMNCH goals and targets.

These challenges include issues around the status of AMWs, the parameters of their roles; how they relate to the BHS, as well as the nature of the support they receive.

- **The need to overcome confidence barriers**

A large number of AMW's currently lack the confidence they need to deliver on their roles effectively. This is compounded by being in villages where woman have historically used trusted TBAs to support their deliveries. The AMW training must provide students with sufficient practical experience to allow them to promote and undertake their duties in the village with competence and confidence. A review of the AMW curriculum and training methodology, with a comprehensive training plan, would help support strengthened training. This training, then needs to be linked with enhanced supportive supervision and mentoring by BHS, preferably with opportunities for shadowing midwives in their duties, including deliveries. The VHC and BHS /midwife also have a role to play in introducing the AMWs within their villages and explaining and promoting their services.

- **The challenge of status**

Auxiliary midwives are volunteers and do not receive any formal payments. Like other voluntary community cadres, AMWs have to balance their duties as an AMW with other family and community commitments. This is an ongoing challenge for many of the AMWs, and for the programmes more generally. A recent review of attrition within Merlin's programmes found a 10% loss of AMWs over a 6 month period. The main challenges behind attrition include: lack of support within the village; poor selection of candidates, and migration. Merlin's attrition rates appear favourable however when compared with attrition rates from other programmes, which may be as high as 50%[13]. Given the investment made in an individual AMW, including a training period of 6 months, there is need to recognise the loss of investment that comes with attrition. Action is needed to better select appropriate volunteers and to retain them for an extended period. VHCs can play a role in enhancing the reputation of the AMW within the community and helping to promote retention.

The JIMNCH lesson learning review undertaken in late 2012 highlighted the challenges inherent in the voluntary nature of the community worker cadres, including AMWs, and questioned the sustainability of this as a strategy (JIMNCH, 2013). Feedback from BHS and Merlin programme staff on the appropriateness of the volunteer status of AMWs is mixed. Some consider the volunteer status to be

[13] Anecdotal evidence suggests that attrition rates in some government programmes may be as high as 50%

appropriate but highlight the need to look at incentive options. Others highlight the importance of opportunities for AMWs to train as midwives (or another interim grade), with a salary. In some cases AMWs are already being encouraged to go for midwife training where they meet the requirements. A re-evaluation of the options for supporting AMWs, including recognition of their status and whether to pay them a regular income, is a critical aspect of ensuring their most effective contribution as well as their sustainability.

- **The parameters of their role**

AMWs currently perform a range of duties. These are designated under MoH policy. In some cases the current parameters of their role may prevent this cadre from being fully optimised to address access to essential RMNCH services at community level, including support to neonatal care. Recently attention has been placed on the opportunities to address neonatal mortality due to pneumonia, including at community level (Zaidi et al, 2011). There is also interest in the opportunity for supporting kangaroo mother care in low birth infants, post-discharge at this level (though insufficient evidence to support community initiation at present (Bhutta et al, 2014).

Ensuring that AMWs are used to their full potential is critical. Given that AMWs are based within the communities and therefore have the potential to provide services where BHS are not present, it is important to critically review the optimal roles and responsibilities for this cadre at this time.

- **The need for clarity of roles vis-à- vis other cadres**

Linked to both the status of AMWs and to optimising their roles, is ensuring clarity of roles between all cadres. This is a finding from Merlin's feedback from AMWs, BHS and project staff as well as the JIMNCH lesson learning review. The JIMNCH review however noted that clarifying the roles between midwives and AMWs may be difficult given the potential overlap in their duties and thus competition. A lack of opportunities to communicate can exacerbate these issues (JIMNCH 2013).

Accessing which roles and responsibilities can be assigned to AMWs to ensure coverage as well as effective and quality implementation, and which need to remain with the midwives and/or higher cadres, is a critical aspect of this. The evidence-based recommendations outlined by WHO provide a useful starting point for discussion on the allocation of roles and responsibilities across cadres in the Myanmar context (WHO, 2012).

- **The need for supervision and follow up support**

A key aspect of ensuring that AMWs function effectively is the post-training follow-up monitoring, supervision and support they receive. This key aspect of support is recognised by AMWs as well as by BHS and Merlin staff, as a critical factor in ensuring that the contribution of the AMW is effective. Data from Merlin's programmes highlights areas where the quality of AMW support to RMNCH could be improved. This includes ensuring that all women receive timely antenatal care and are identified for follow up support and referral. Support and supervision by health staff is key to this. This is also a finding from the JIMNCH lesson learning review. The JIMNCH review noted that a lack of monitoring and supervision by health staff can create some unintended consequences in terms of the function of volunteers (such as going beyond their stated roles). In addition without supervision and mentoring, the loss of AMWs to the programme, can start soon after training due to lack of confidence in their skills, though it can also be due to competing demands with livelihood activities (JIMNCH, 2013).

Providing on-going motivation to AMWs is critical for encouraging retention. Support from the BHS, the VHC and wider community, is critical in promoting quality, motivation and retention.

Historically within Merlin programmes, AMWs have been supervised and mentored by Merlin staff. However this is changing with increasing opportunities to work with BHS staff in all townships. Where possible, Merlin is promoting the role of the BHS in supporting AMWs and other volunteers. This is seen as critical for longer term sustainability of the programmes and is in line with MoH policy. While it is important not to overburden the BHS, ensuring that they are clear on their roles in terms of support to AMWs (and other volunteers) and have the necessary opportunities (e.g. time and transport) and tools, to do so, is key to ensuring the effectiveness of the AMW role in the longer term.

- **The need for effective distribution of AMWs**

Ministry of Health policy has been to work towards one AMW per village and this has been re-emphasised by the Ministry's recent target to scale up to one AMW for every village (without a facility) across the country. Feedback from most BHS and Merlin staff consider one AMW per village an appropriate distribution, with the proviso that AMWs should not be posted where there is a hospital, RHC, sub-RHC, and a midwife or other skilled staff, is available, to avoid obvious overlap. The geography and population density across the country however can mean that a policy of one AMW per village can result in differing ratios of AMW to population, with implications for both access to services and maintenance of skills. Feedback from Merlin's programmes suggests that AMWs should ideally cover approximately 12 pregnancies per year. This programme learning needs to be followed up with research to understand the optimal workload for AMWs. However where villages are larger it may be preferable to have 2 AMWs so that they can share the workload and also cover for each other in periods of absence. For smaller villages it may be useful to consider the option of a dual cadre CHW/AMW which has been used in Merlin's programmes to date, and/or assign a cluster of villages.

A scale up of AMWs has the potential to promote increased access to a range of RMNCH services but it is critical that their distribution should take into consideration availability of other key cadres and access to health facilities, and links importantly with clarification around roles and responsibilities across all cadres.

- **The importance of data**

A key aspect of the AMW role is to identify women of childbearing age and those who are pregnant in their village and ensure that they receive timely and appropriate support. The data collected by AMWs is important in providing a picture of what is happening at the village level. This information is vital for monitoring the quality of the service received by women and their babies and ensuring that the health system at all levels, is working for them. Data is critical for highlighting the gaps in the current system – whether it is presentation for the first antenatal visit, referral, or receipt of particular interventions such as micronutrient supplementation.

A scale up of AMWs should go hand in hand with the necessary community data collection to link all women and their babies with the wider health system. Ensuring that AMWs are supported to collect data effectively; capturing additional AMW data as part of the wider HMIS, and feeding this data into planning at township level for decision making, are key to ensuring that the AMW cadre contributes to the improved quality of services delivered at community level.

Costs of training and supporting AMWs

Although AMWs are volunteers, there are costs associated with their training and on-going support which make them a valuable resource to retain and develop.

Data from Merlin programmes provides an indication of the level of investment needed to train and support an AMW to work effectively. This is outlined in table 1 below.

Table 1: Average costs to train and support an AMW in Merlin's programmes

Training costs	
Theory (3 months)	US$ 725 per student (average)[14]
Practical (3 months)	US$ 410 per student (average)[15]
Refresher	US$ 167 per student (average)[16]
Equipment and supply costs	
Basic AMW kit	US$ 105
Replenishment of kit/year	US$ 30
Monthly drug supplies	US$ 30 per month[17]
Supervision costs	Incorporated into other budget lines

The total average cost of training one AMW in 2013 was US$ 1135. This figure covers initial basic training. Additional refresher training is also required which on average was US$ 167 per AMW across 4 programmes. There is considerable variation in costs across programme areas for refresher training based on local costs and requirements.

Once AMWs are trained, equipment and supply costs include the cost for an initial basic kit (US$105), together with the cost of replenishment of the kit on an annual basis (US$30 per annum). In addition there are costs for monthly drug supplies based on consumption, which on average amount to US$30 per month per AMW. It is not possible to estimate supervision costs at this time as they are incorporated into different budget lines. However these costs include salaries for Merlin staff and/or BHS, as well as regular transport costs.

Ensuring that the investment made in AMWs is used optimally is critical to the successful scale up the AMW cadre, whether this investment is by Merlin, the Ministry of Health, or another agency. It also highlights the importance of strategies to incentivise this cadre and the need retain AMWs within the system.

[14] Based on 3 programmes at 2013 exchange rate
[15] Based on 3 programmes at 2013 exchange rate
[16] Based on 4 programmes. Range US$ 56-318 at 2013 exchange rate
[17] Based on consumption patterns

Key recommendations:

The review of the role of AMWs within Merlin's programmes has identified the important contribution that AMWs currently make to supporting maternal, neonatal and child health in programme areas. It has also highlighted a number of areas where their contribution to increasing access to maternal and newborn interventions, can be strengthened.

To support their increased contribution in the future, and the proposed scale up of AMWs across the country, a comprehensive approach is needed. A number of recommendations are put forward for consideration by the Ministry of Health and other key development partners and agencies. These recommendations are inter-related:

1. Ensure adequate selection and training

The AMW cadre will only be effective if students are trained to undertake their duties effectively and with confidence. Selection of the right candidates for training is a vital first step. Reviewing the current selection guidelines, training curriculum and methodology for AMWs, to ensure greater practical training in all areas, including deliveries, could help support the increased effectiveness of the current cadre of volunteers. AMWs would benefit from a further period of intensive post-training follow-up by the midwife or other skilled staff, to reinforce their knowledge and skills.

2. Clarify roles and responsibilities

The optimal contribution of AMWs to RMNCH will depend on ensuring that their roles and responsibilities make best use of their skills and coverage and relate appropriately to other cadres of staff. An assessment of the roles and responsibilities of the AMW and those of other cadres, in particular the midwife, is therefore a critical piece of work at this time. Current initiatives to look at the training of midwives could benefit from a wider review of tasks and responsibilities across cadres, including AMWs. The WHO evidence based recommendations for optimising access, provide a useful starting point which can be contextualised at the country level. Roles and responsibilities can be reinforced between cadres in regular meetings.

3. Review the status of AMWs

Linked to the issue of roles and responsibilities is the need to re-assess the status of the AMW cadre. While there is a long history of volunteerism in Myanmar, there are also challenges with relying on volunteers to provide key activities within communities with the aim of addressing the critical issues of maternal, neonatal and child health. A follow up of the JIMNCH recommendation to review the options to support AMWs, including remuneration should go hand in hand with discussions on roles and responsibilities to ensure that they are aligned. In addition establishing a recognised career path for AMWs to higher skilled cadres, through opportunities for training, should be considered.

4. Review the optimal distribution of AMWs within townships

The proposal to scale up the numbers of AMWs across the country is a welcome initiative to support access to RMNCH services at community level. This initiative will be further strengthened if AMWs are positioned where they are likely to have most benefit and where they will not duplicate the role of other health workers, in particular the midwife. The recommendation to place AMWs in areas without a facility is an important aspect of this rational distribution. Issues of access and maintenance

of skills need to be balanced. Ensuring that the distribution is linked to the agreed roles and responsibilities of AMWs in relation to other cadres will strengthen the positioning.

5. Strengthen the role of BHS in ensuring monitoring, supervision and support to AMWs

The critical role played by supervision and support of AMWs has been highlighted in feedback from AMWs as well as BHS and Merlin staff. The role of the midwife in providing this monitoring, supervision and support, is key. Ensuring that midwives have both the skills as well as the tools and support needed, to undertake this duty effectively is a key aspect of promoting the effective contribution of the AMW cadre to the actions to enhance RMNCH. Ensuring this this is factored into current actions to review and support the role of midwives, is therefore recommended at this time.

6. Incorporate data collected by AMWs into the wider national health management system

The critical role of data and information at the community level is highlighted by Merlin's maternal registers and monthly reports. AMWs can play a role in supporting the wider system to assess, plan and respond to maternal, neonatal and child health needs at the community level. Supporting AMWs in data collection and capturing additional data collected by the AMW at the community level within national data systems, provides the opportunities to improve the quality of the system overall. With the recent advances in mobile technology and the investments being made to extend access to this technology in Myanmar at this time, this provides exciting opportunities to further enhance the role that the AMW can play in improving access to RMNCH care.

Conclusions:

The Ministry's current plan to scale up AMWs across the country is ambitious as well as challenging but could potentially provide dividends for RMNCH in the country. Ensuring that the scale up is based on a strong evidence base for the role of AMWs is critical to the success of this strategy. Merlin hopes that learning from its programmes will help in contextualising the global recommendations on increasing access to reproductive, maternal, neonatal and child health actions, and support best practice in the Myanmar context.

Acknowledging the limitations of this current review, Merlin would encourage additional research and learning from AMW programmes to be undertaken, to support this critical initiative. Some potential areas to be followed up include: the impact of AMWs on the uptake of deliveries by skilled birth attendants; promoting links between AMWs and the wider public health system, and an economic evaluation of community based access to RMNCH.

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Annex 1: Equipment and supplies provided by Merlin

Medical devices, Equipment		
Examination		
Apron, washable	Pcs	1
Adult weighing scale, 260lb	Pcs	1
Spring balance 0-5 kg with sling	Pcs	1
Bowl 600 ml stainless steel	Pcs	1
Brace, brachial perimeter (MUAC), 11.5 red paediatric, polypropylene	Pcs	1
Catheter Urethral simple No 6	Pcs	1
Forceps ,dressing standard 160mm	Pcs	1
Kidney dish 825ml	Pcs	1
Artery forcep straight 6 inches (stainless steel)	Pcs	2
Mucus extractor	Pcs	4
Mackintosh sheet(40"x30")	Pcs	2
Scissors surgical straight 14cm	Pcs	1
Sphygmomanometer, aneroid, adult	Pcs	1
Fetoscope (aluminium)	Pcs	1
Stethoscope	Pcs	1
Tape for measurement 1.5m	Pcs	1
Thermometer(mercury), celcius, accuracy 0.1 degree celcius+prot case	Pcs	1
Tube rectal one eye funnel end 24FR 500mm rubber(Enema Can with latex tube)	Pcs	1
Other		
Case aluminium - 16.5x10x10(inches)	Pcs	1
Flashlight with batteries (2 pcs)	Pcs	1
Nail brush	Pcs	2
Tablet bag resealable,80x100x0.05mm with pictogram	Pcs	50 pcs
Umbrella/Wall clock	Pcs	1
Ruler metallic 30 cm	Pcs	1
Soap Bar for hand wash	Pcs	1
Soap Dish	Pcs	1
Timer (with batteries)	Pcs	1
Towel	Pcs	1
Guidelines and protocols		
AMW manual (Basic, refresher + SMNH)	Pcs	1
Life Jacket (Laputta and the required project)	Pcs	1

Items	Dosage	Unit Form
Aluminium Hydroxide 120mg+Magnesium Hydroxide 250mg	120mg+250mg	Tablet
Ferrous Sulphate 200mg+Folic acid 0.4mg	200mg+0.4mg	Tablet
Levonogestrol+Ethinyloestradiol	0.15mg+0.03mg	Strip/cycle
Mebendazole	500mg	Tablet
Clean Delivery Kit including muscous extractor		Pack
Condom(Male)		Piece
Glove,Examination Latex	M	Piece
Gauze Pads 10m x 10cm, Sterile,	10*10cm	Piece
Povidone Iodine Solution	200ml	Bottle
vitamin B-1 (thiamine hydrochloride) 50 mg	50mg	Tablet
Chlorhexidine digluconate 7.1% (actual 4%) solution, bottle with a dripper	7.1%(actual 4%),10ml	Bottle

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