

Innovative package for frontline maternal, newborn and child health workers in South Sudan

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Abstract

Improving maternal, newborn, and child health is a leading priority worldwide. It is a particularly urgent issue in South Sudan, which suffers from the world's worst maternal mortality and among the worst newborn and child mortalities. A leading barrier to improving these health indices is limited frontline health worker capacity. In partnership with the Ministry of Health, the Division of Global Health and Human Rights (Department of Emergency Medicine, Massachusetts General Hospital, Boston, USA) has developed and is currently implementing its novel Maternal, Newborn, and Child Survival (MNCS) Initiative throughout much of South Sudan. The purpose of MNCS is to build frontline health worker capacity through a training package that includes:

1. A participatory training course
2. Pictorial checklists to guide prevention, care, and referral
3. Re-useable medical equipment and commodities.

Program implementation began in November 2010 utilizing a training-of-trainers model. To date, 72 local trainers and 632 frontline health workers have completed the training and received their MNCS checklists and commodities. Initial monitoring and evaluation results are encouraging as further evaluation continues. This innovative training package may also serve as a model for building capacity for maternal, newborn, and child health in other resource-limited settings beyond South Sudan.

Introduction

Improving maternal, newborn, and child health (MNCH) is a leading priority worldwide. However, MNCH-related Millennium Development Goals remain those most at risk of not being achieved. This is particularly true in South Sudan, which is plagued by the world's worst maternal health indices and some of the world's worst newborn and child health indices. The maternal mortality ratio is estimated to be 2,054 per 100,000 live births(1). The infant and child mortality rates are estimated at 102 and 235 deaths per 1,000 live births, respectively. Meanwhile, more than one in four children under the age of five is malnourished and only approximately 10% of children are fully vaccinated (2).

The greatest obstacle to quality maternal, newborn, and child health (MNCH) in South Sudan is a lack of skilled MNCH providers. Recent countrywide assessments have revealed as few as 2-3 dozen practicing skilled MNCH providers (i.e. obstetrician-gynecologists, pediatricians, fully certified nurse midwives) (3). These numbers are not

likely to quickly change in the near future, and increasing the number of providers with such advanced training may not be the best use of limited resources.

The vast majority of births in South Sudan are occurring at home among unskilled birth attendants, such as traditional birth attendants (4). Many of these providers are non-literate and have received no formal education or training. Instead, they must rely on knowledge and skills passed down from previous generations. However, multiple studies have shown that many of these traditional practices may not be effective and may even be unsafe (5,6).

Given the large number of deliveries among unskilled birth attendants, and the anticipated time it will take to build sufficient health infrastructure and a skilled birth attendant cadre, we sought to develop and implement an evidence-based approach to building local capacity among frontline health workers.

MNCS objective

The objective of the MNCS initiative is to develop, implement, and assess an essential package for building MNCH capacity among South Sudan's frontline health workers. In this case, a frontline health worker is any community-based health worker who provides initial primary care for pregnant and laboring mothers, newborns,

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and children (e.g. traditional birth attendant, community health worker, midwife, nurse, and clinical officer).

MNCS package

After a multimodal needs assessment among providers and stakeholders, and under the direction of the Government of South Sudan Ministry of Health, the MNCS team developed an evidence-based package for frontline health workers. This MNCS training package is comprised of:

- A. A participatory training course
- B. Pictorial checklists to guide prevention, care, and referral (e.g., danger signs during pregnancy, bleeding after delivery, newborn resuscitation, child malnutrition.)
- C. Re-useable medical equipment and commodities (e.g., blood pressure cuff, thermometer, newborn breathing bag-mask device).

Implementation of this initiative utilizes a training-of-trainers model, where local trainers are recruited and empowered to teach the frontline health workers.

A. Participatory training course

The MNCS faculty, which included emergency physicians, obstetricians/gynecologists, and pediatricians from Massachusetts General Hospital and Harvard Medical School, developed two training curricula:

- A 5-day curriculum for frontline health workers
- An 8-day training-of-trainers curriculum for our local trainers.

The curricula are identical, except that the trainers receive additional training on how to effectively train and supervise frontline health workers. An outline of the 5-day training curriculum for frontline health workers is shown in Table 1.

B. Pictorial checklists

While our carefully selected local trainers are literate,

the frontline health workers whom they train are most frequently not literate. Therefore, we developed training materials that are predominantly pictorial. These materials include 9 pictorial checklists covering safe pregnancy and delivery, newborn care, and child health. The checklists focus on identifying danger signs, performing appropriate life-saving care, and providing early referral. For example, Figure 1 depicts one of our “healthy pregnancy” checklists, emphasizing the importance of iron, folic acid, de-worming, and tetanus shots for pregnant women. Our best-evidence newborn care checklist is modified, with permission of the American Academy of Pediatrics, from the Helping Babies Breathe initiative (7).

The 9 MNCS checklists cover the following topics:

1. Healthy pregnancy
2. Danger signs during pregnancy
3. Preparing for delivery
4. Danger signs during labor
5. Bleeding after delivery
6. Newborn care
7. Danger signs in children
8. Diarrhea and vomiting
9. Child malnutrition

We also developed a comprehensive Trainer’s Manual (140 pages) and Teaching Flipcharts (108 pages) to provide detailed guidance to trainers as they prepare for and conduct their frontline health worker trainings. Overall, the MNCS training employs a range of participatory teaching techniques, including simulation, role play, checklist review, peer teaching, and small group discussions.

C. Reusable equipment and commodities

The final component of the MNCS package is a backpack filled with critical commodities for frontline health workers. Because of the very limited medical supply

Table 1 MNCS training curriculum for frontline health workers

	Day 1	Day 2	Day 3	Day 4	Day 5
Morning session	Introduction	Review	Review	Review	Review
	Healthy pregnancy	Danger signs during labor	Bleeding after delivery	Newborn care	Dehydration Malnutrition
Lunch					
Afternoon session	Danger signs during pregnancy	Bleeding after delivery	Newborn care	Danger signs in children	Additional practice scenarios
	Preparing for delivery				Testing and wrap up

MAIN ARTICLES

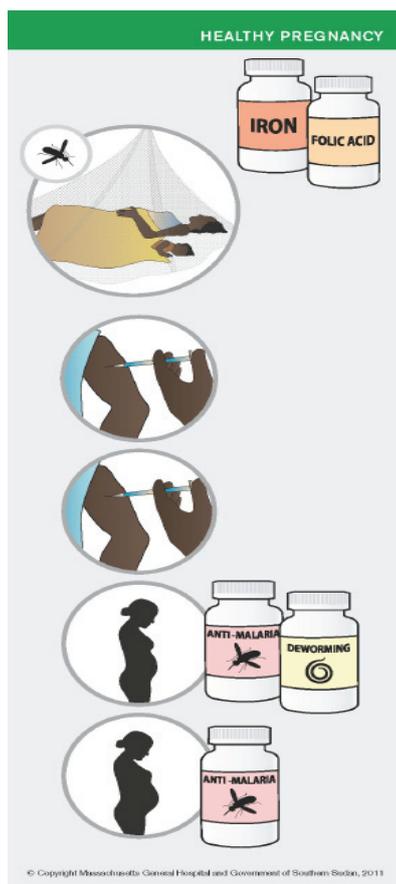


Figure 1. Example of one of the nine MNCS pictorial checklists. Note: The checklists are copywritten and the property of MGH. For further information on all 9 checklists contact Dr. Burke at tfburke@partners.org

chain in South Sudan, it is essential that frontline health workers are provided a basic set of equipment and supplies to do their jobs effectively. These materials were carefully selected to be appropriate and safe for frontline health workers in this setting.

Each frontline health worker receives a durable, water-resistant backpack filled with essential commodities, including: newborn breathing bag-mask device, thermometer, scissors, umbilical cord ties, gloves, etc. The 9 checklists – laminated and bound together with a metal ring – are also carried in the backpack and

brought by the frontline health workers to every delivery and patient encounter. (See printable examples on p100).

Accomplishments to date and next steps

Since November 2010, the MNCS initiative has trained 72 trainers and 632 frontline health workers in 7 of the 10 states of South Sudan. While further monitoring and evaluation is ongoing, our initial data show that after completing the training, trainees exhibit a significant increase in knowledge and skills pertaining to maternal, newborn, and child health care and referral. We are currently analyzing data to determine what impact this intervention has had on trainee practices in their communities.

Our future goals are to expand the MNCS initiative during the coming years and further refine the MNCS model. The Ministry of Health estimates that there are a total of 4,700 frontline health workers in the country. During the next several years, we aim to significantly

increase the number of trainers and frontline health workers trained, increase coverage to all 10 states, and conduct refresher trainings among those already trained. It is also our hope that our MNCS model can be adapted and applied to other resource-limited countries where maternal, newborn, and child health indices may be poor.

Conclusion

Improving maternal, newborn, and child health is a leading priority worldwide and in South Sudan. A limited health worker cadre, however, represents a significant barrier. This innovative, evidence-based, MNCS package aims to address this barrier by building capacity among previously untrained frontline health workers. Dozens of local trainers and hundreds of frontline health workers have now been trained in South Sudan. Initial results from this initiative are encouraging as further evaluation continues.

Acknowledgements

We would like to thank our participating frontline health workers and trainers as well as sincere thanks to the former Minister of Health Dr. Luka Tombekana Monoja, former Undersecretary Dr. Olivia Lomoro, and Director General for Multilateral Relations, Dr. Samson Baba for their unfailing commitment, guiding hand and support.

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