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ABSTRACT

Objectives: The Malawi Ministry of Health (MOH) and its immunisation partners conducted a training needs assessment in May 2013 to assess the current status of immunisation training programmemes in health training institutions, to identify unmet training needs, and to recommend possible solutions for training of health workers on a regular basis.

Design: A cross-sectional, descriptive study.

Setting: Health training institutions in Malawi, a developing country that does not regularly update its curricula to include new vaccines and management tools, nor train healthcare workers on a regular basis.

Subjects: Researchers interviewed Malawi's central immunisation manager, three zonal immunisation officers, six district officers, 12 health facility immunisation coordinators, and eight principals of training institutions.

Results: All health training institutions in Malawi include immunisation in their pre-service training curricula. However, the curriculum is not regularly updated; thus, the graduates are not well equipped to provide quality services. In addition, the duration of the training curriculum is inadequate, and in-service training sessions for managers and service providers are conducted only on an ad hoc basis.

Conclusion: All levels of Malawi's health system have not met sufficient training needs for providing immunisations, and the health training institutions teach their students with outdated materials. It is recommended that the training institutions update their training curricula regularly and the service providers are trained on a regular basis.

INTRODUCTION

Immunisation is one of the most cost-effective health interventions for developing countries, and it contributes significantly to reducing infant and child mortality from the most common causes of death, including pneumonia, diarrhoea, meningitis, measles, and other vaccine-preventable diseases, thereby achieving the United Nation's Millennium Development Goals (MDG4)(1,2). The increased availability of vaccines and new-vaccine financing in the last ten years has led many developing countries to introduce new vaccines with international support(1); however, relatively little investment has been made to prepare the health workforce that manages and

delivers vaccinations(3).

Immunisation is a technical area covered in pre-service health training. However, a training needs assessment conducted in 12 African countries in 2002-2004 by the World Health Organization (WHO) and its partners (4) revealed that the content is scattered in different parts of the curricula and does not address immunisation as a comprehensive subject. More importantly, immunisation training programmemes are not regularly updated to include new developments in the field (4-6). Moreover, graduates are not well prepared to manage immunisation efforts, nor are they prepared to provide quality service (4,7). Therefore, even though the national health service uses new tools and has introduced new vaccines, the curricula for training

institutions do not contain new vaccines, and it teaches outdated immunisation delivery strategies (4,6).

Healthcare managers and workers providing immunisation services require regular training sessions to remain updated on new vaccines, technologies, and delivery strategies (2). However, such training programmes are not conducted regularly in Malawi's healthcare institutions (7), even though the Ministry of Health is expected to provide such programmes.

The purpose of this training needs assessment was to understand the status of pre-service and in-service training related to immunisation, to identify unmet training needs by healthcare facilities, and to recommend possible solutions for providing regular training sessions. The field work to collect data was conducted in May 2013.

MATERIALS AND METHODS

Study areas: The Malawi health service includes five health zones, 29 districts, and more than 700 healthcare facilities. The training needs assessment was conducted on the central level, in three zonal offices; six randomly selected district offices; and 12 randomly selected healthcare facilities to assess in-service training. For the assessment of the pre-service training, three primary healthcare (PHC) training centres, three nursing schools, one medical school, and one environmental training school were assessed.

Data collection: Relevant data were collected using tailored questionnaires for central, zonal, and district healthcare facilities and training institutions. At the central, zonal, and district levels, interviewees included heads of health offices; at the healthcare facility level, interviewees included immunisation

coordinators and supervisors. At each training institution, the principal was interviewed. Three teams, each comprising two data collectors and one supervisor, collected the data. The data collectors and supervisors were district immunisation officers from districts that were not included in the assessment, and the data were analysed using Microsoft Excel.

RESULTS

A total of 30 professionals were interviewed, including the national EPI manager, three zonal immunisation officers, six district health officers, 12 health facility immunisation coordinators, and eight principals of training institutions.

Pre-service training: Table 1 summarises the findings from the health training institutions studied, and the scope. Time allocated for immunisation training is considered inadequate by 50% of school principals for both theoretical and practical sessions. In the Primary Health Care (PHC) module prepared by Ministry of Health (MOH) in 2009, 12 hours were allocated for theoretical training on immunisation and 24 hours for practical training. Fifty percent of health training institutions had copies of the national immunisation guidelines, but all admitted that they did not update their curricula regularly to include new developments. When asked if graduates could reasonably perform immunisation activities without any in-service training, 37.5% of principals said they were able, 50% said they could benefit from in-service training, and 12.5% said they could not perform immunisation activities without in-service training. Half of the principals reported that the relationship between service providers and training institutions was not optimal.

Table 1
Immunisation training conditions in Malawi health training institutions

S/n	Questions	Response	Response in % (n=8)
1	Is immunisation a stand-alone course?	Yes	37.5%
		No	62.5%
2	Do you think the time allocated for immunisation is adequate?	Yes	50%
		No	50%
3	Do you think all relevant issues in immunisation are adequately addressed in your training programme?	Yes	62.5%
		No	37.5%
4	Is time allocated for practical sessions related to immunisation activities for trainees?	yes adequate	37.5%
		yes not adequate	50%
		No	12.5%

5	Do you have the national immunisation programme guidelines at the school?	Yes	50%
		No	50%
6	How do you rate the competence of the graduates of the school with regard to immunisation services?	Excellent	12.5%
		very good	62.5%
		Good	12.5%
		Fair	12.5%
7	What would be the competence level of trainees on immunisation related activities?	upon graduation they can reasonably perform immunisation	37.5%
		upon graduation they would benefit from in-service training	50%
		they cannot perform immunisation without in-service training	12.5%

The principals reported that programme managerial skills, monitoring vaccine wastage, surveillance of vaccine preventable diseases, and data management skills are not well covered in the pre-service training (Table 2).

Table 2
Priority training needs for Lecturers in training institutes

S/n	Areas of immunisation	high priority (n=8)
a	Data management skills (calculation of vaccine requirement, monitoring vaccine wastage, etc.)	6
b	Programme managerial skills	6
c	Identifying target population for immunisation	6
d	Strategies to increase immunisation coverage: fixed, outreach, mobile...	5
e	Surveillance of vaccine preventable diseases	5
f	Adverse events following immunisation (AEFI)	4
g	Injection safety procedures	4

In-service training: Interviewees were asked if their staff attended any in-service training other than an orientation on new vaccine introduction (Table 3). All zonal and national immunisation officers (100%) have attended some form of immunisation in-service training; however, at the district and healthcare facility level, the proportion of staff trained was much lower: 38% for districts and 27% for healthcare facilities. The trainings were on Reaching Every District (RED), immunisation in-practice (IIP), and surveillance of vaccine preventable diseases. All levels reported participating in training sessions on new vaccine introduction, which lasted for one to two days. All (100%) zonal and 83% of district offices have training

plans, but only half of the zones and one-third of the districts implemented their training plans. The average duration of training varies from two to seven days at the zonal level and two to three days at the district and healthcare facilities.

Training materials, such as mid-level management (MLM), IIP and RED modules, are available in hard and / or electronic copies in all zonal and district offices; however, there are inadequate quantities, and the electronic copies are accessible only to a few people. Most training sessions at the healthcare facility level and half at the district level included practical sessions.

Table 3
In-service training at zonal, district and health facility levels

s/n	Activity	Zone (n=4)	District (n= 6)	HF's (n= 12)
1	What proportions of immunisation officers (supervisors) in your facility have had in-service training on immunisation?	100%	54%	NA
2	What proportion of immunisation workers providing immunisation services (vaccinators) in your facility have had training on immunisation?			27%
3	When was the last time training has been provided in your facility (whether the training was conducted in the facility or elsewhere)?	Last 12 months =100%	last 12 months = 83%	last 12 months = 67% 2-3 years = 33%
4	How often is training organised in your zone, district, health facility?	ad hoc =50% higher level =50%	ad hoc = 100%	ad hoc = 41.7% annually = 25% every 2 years = 16.7%
5	Are there any training materials like MLM , RED , IIP in your facility? -	yes=100%	yes = 100%	yes=58%
6	Are there any plans for immunisation training in your facility?	yes=100%	yes = 83.3% no = 16.7%	na
7	What was the average duration of training on immunisation related issues?	2-4 days = 50% 5-7 days = 25%	2-3 days = 83.3% 5 days = 16.7%	1-3 days =83%

Unmet training needs and priority areas for training at different levels: All levels reported that there are unmet needs for training on immunisation. Supervisory visits, meetings, reports and requests from the lower level were used to identify training needs. Fifty-eight percent of the health facilities reported good and very good collaboration with training institutions, and 33% reported no collaboration.

All levels were asked to list their priority areas for training. All zonal officers reported that programme managerial skills, data management skills, cold chain and vaccine management, vaccine wastage estimation, and adverse events following immunisation (AEFI) are the top priorities for training. The priority training needs at the district level are programme management skills, communication and social mobilisation, data management, and cold chain and logistics management. At the healthcare facility level, data management skills, cold chain and logistics management, programme management, and surveillance of vaccine preventable diseases are top priority training needs.

DISCUSSION

Immunisation coverage has improved in many developing countries in the last ten years(1,2) and

new vaccines have been developed and introduced with international support and co-financed by governments(1). This shows that the overall investment in the product availability is improving; however, there is little investment on the human resource side (3). It is clear that insufficiently trained cadres would not be able to manage the programme well and the consequence is poor quality service, wasted vaccines, and children vaccinated but not immunised. The curricula in training institutions are not regularly updated (4,8). The training needs assessment conducted in 12 African countries in 2002-2004 similarly found that the immunisation content in the curricula was either incomplete or outdated(4), and the graduates are not well-equipped to manage the different health programmes (9). The time allocated for immunisation training at all levels of training institutions is inadequate and not consistent (4,9). The assessment also revealed that the practical component of the training is inadequate; similar findings were reported in the 12 African countries assessment by WHO and in the Nigeria study (4,8). Shorter duration training sessions are associated with reduced effectiveness in the service as has been documented in other studies (10). The Global Vaccine Action Plan stressed that the pre- and in-service training of healthcare workers should be

strengthened not only for technical skills but also for communication to clients (2). When the health workers are not well trained, the quality of the service will be poor and the effectiveness of the expensive vaccines will be questionable.

Managers at different levels of Malawi's healthcare system and peripheral-level healthcare workers should also be trained periodically to update their knowledge on new strategies and tools (2,7,11); however, this is not happening. In Malawi, all healthcare workers have received a brief orientation mainly about new vaccines, but most of these workers have limited knowledge on recent changes in the programme, data management and adverse events following immunisation. Both training institutions and healthcare facilities providing immunisation services lack immunisation guidelines, which they are supposed to use as references. This is also consistent with other studies conducted in the region (4,8). Some of the in-service trainings at the district and healthcare facility level lack practical sessions.

CONCLUSIONS

This assessment revealed that new graduates are not well trained and the training needs of the health system are unmet. The curricula of all health training institutions should be revised to include new developments in the field. This has already begun: in February 2014, the Malawi MOH, in collaboration with Maternal and Child Health Integrated Programme (MCHIP)/United States Agency for International Development (USAID) and WHO, supported all training institutions to update their prototype curricula.

The programme will benefit from regular in-service training of managers and service providers at peripheral level for better quality service. Malawi MOH and partners have started taking action and with MCHIP/USAID financial and technical support, the Ministry held immunisation in-practice training sessions and about 1800 health workers were trained, however the vaccinators in the country are much more than these and there is a need to do more.

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CONFLICT OF INTEREST

The authors have no conflicts to disclose related to this work.

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