A Critical Analysis of HIV/AIDS Training Data for Three Regions in Northern Ethiopia from April 2005-February 2012

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Abstract

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Background: The Ethiopia Federal Ministry of Health (FMOH) demonstrated strong leadership and commitment in using the President's Emergency Plan for AIDS Relief (PEPFAR) funds to develop a health workforce that is sufficient to cope with the HIV/AIDS epidemic in Ethiopia. This support is focused on expanding in-service training to address needs across all the health systems. However, the in-service training efforts-keeping record of what types of training and how many trainings healthcare workers received-of various PEPFAR funded organizations lacks coordination and collaboration.

Method: This study used data from the International Training and Education Center for Health (I-TECH). I-TECH uses Training System and Monitoring and Reporting Tool (TrainSMART) to track data on training programs, trainers, and trainees. The software was developed to accurately track training efforts, evaluate programs, and report activities to various stakeholders. TrainSMART data from HIV/AIDS related in-service trainings in Ethiopia between April 2005 and February 2012 were analyzed.

Results: A total of 7,062 individuals attended a wide range of HIV/AIDS related trainings in Ethiopia from April 2005 to February 2012. Of the total number of trainees, 61% attended one training, 17 % attended two trainings, and 11% attended three trainings. There were 13 individuals who attended 10 or more training sessions. A total of 417 trainees took the same

training more than once. This was most common amongst the mid-level clinicians (4%), laboratory staff (4%), and social service workers (4%), followed by nurses (3%). Taking the same training more than once was more common for the topics of National Comprehensive ART-HIV Care (11%), the HIV Advanced Nurse Specialist Program (7%), Prevention with Positives Training (6%), and PMTCT (5%).

Conclusion: It is important for FMOH and national and international partners to work toward greater efficiency and effective use of training resources. Duplication of training wastes resources, creates loss of opportunity for those who really need training, and results in unnecessary absence of staff from healthcare facilities, impairing a health system that is already understaffed.

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INTRODUCTION

Ethiopia, officially known as the Federal Democratic Republic of Ethiopia is located in the Horn of Africa. It is the tenth largest country in Africa, with an area of 1.1 million sq. km. (472,000 sq. mi) (1). Administrative boundaries are composed of nine regional states, two city administrations (Addis Ababa and Dire Dawa) and 700 *woredas*, also known as districts (1, 2), which are the basic units of planning and political administration. Below districts, there are approximately 15,000 village associations and urban neighborhood associations known as kebeles (5,000 urban and 10,000 rural) (2). Ethiopia is the second most populous country in Sub-Saharan Africa, with an estimated population of 88 million (3). The majority of the population (83.9%) resides in rural areas (1). The average household size is 4.7 persons, and the overall health status of the Ethiopian people is poor. Life expectancy at birth stands at 54 years (53 years for men and 55 for women) (1, 2).

The Federal Ministry of Health (FMOH) works through 11 Regional Health Bureaus (RHBs) (2). Important steps have been taken in recent years to decentralize the health care system in Ethiopia (4). For instance, decision-making processes in the development and implementation of the health system are now shared among the MOH, RHBs, and the *woreda* offices (4) . Also, as a result of recent policy measures taken by the government, the FMOH and RHBs focus more on policy matters and technical support while the *woreda* health offices play a pivotal role in managing and coordinating the operation of the primary health care services at the *woreda* or district level (1, 4).

HIV/AIDS in Ethiopia

The human immunodeficiency virus (HIV) was detected in Ethiopia in 1984 and acquired immune deficiency syndrome (AIDS) was first reported in 1986 (5). The Government of Ethiopia (GOE) has taken various actions since 1985 to control the transmission of HIV and to mitigate the impact of the resulting AIDS epidemic (2). The GOE endorsed an all-encompassing HIV/AIDS policy in 1998 and established the National AIDS Council (NAC) in 2000 (2). The National HIV/AIDS Prevention and Control Office (HAPCO) was established by proclamation in July 2002 as the executive arm of the NAC (2, 4). The national response to the AIDS epidemic in Ethiopia is the sum of these and other collective efforts, notably the GOE, multilateral and bilateral partners, international and local NGOs, associations of People Living with HIV (PLHIV), faith-based organizations, community-based organizations, private sector, and civil society organizations (2, 4).

Ethiopia's HIV/AIDS epidemic has placed substantial demand on the country's already strained resources (6). Although the 2009 HIV point prevalence estimate of 2.3% is lower than many other Sub-Saharan countries, there are still over 1.1 million people living with HIV (PLHIV) in Ethiopia. This is the third highest number of PLHIV in East Africa. Ethiopia's low-level generalized epidemic has wide urban to rural differences in prevalence (7.7% vs. 0.9%, respectively) (2, 6). Prevalence is relatively higher among females (2.6%) than males (1.7%) (2).

Ethiopia joined UN Member States in June 2006 at the UN General Assembly to issue the Political Declaration on HIV/AIDS, which included a commitment to move toward the goal of universal access to HIV prevention, treatment, care and support by 2010 (3) and to work with partners at the country level in order to overcome barriers to prevention, care and treatment (4).

Impact of the President's Emergency Plan for AIDS Relief (PEPFAR) in Ethiopia

The global HIV/AIDS pandemic is one of the greatest health challenges of our time and, recognizing this, U.S. President George W. Bush announced the establishment of PEPFAR in 2003 (7). PEPFAR was an initial commitment of $15 billion over five years (2003–2008) to fight the global HIV/AIDS epidemic. PEPFAR was renewed for another five years (2009-2013) and continues to represent the largest financial commitment ($59 billion) by a single country to responding to HIV/AIDS worldwide (8).

Ethiopia is one of the largest recipients of PEPFAR support (7). PEPFAR supports the GOE's HIV/AIDS programs with activities implemented through the United States Agency for International Development (USAID), the U.S. Centers for Disease Control and Prevention (CDC), the U.S. Department of Defense, Peace Corps, and the Department of State Refugee Bureau. Ethiopia has received 1.4 billion USD in PEPFAR funding to date in order to support comprehensive HIV/AIDS prevention, care and treatment programs (9).

The GOE has demonstrated strong leadership and commitment in using PEPFAR funds to increase social mobilization (10)[1], expand health facilities and services, improve access to antiretroviral therapy (ART), and support innovative efforts to build human capacity for health care delivery (6). Social mobilization efforts have been successful in reaching millions of people at the community level and creating awareness about HIV and available services (11). In the Ethiopian fiscal year of July 2008-June 2009, almost 153,741 people were on treatment and a total of 5.8 million people had received HIV counseling and testing. HIV counseling and testing (HCT) and ART services expanded under PEPFAR funding, with the number of sites providing

[1]*Social mobilization is a dynamic process, which involves all relevant segments of society in dialogue and coordinated action to promote interrelated changes from the individual to the policy level. Social mobilization should make reasonable and appropriate use of local resources and promote capacity building of the local community.*

HCT services growing from 658 in 2005 to 1,596 in 2009 (9, 12). In 2005, only 3 facilities were offering ART, whereas by 2012, these services are available in 511 facilities (9, 12). Prevention of Mother-to-Child Transmission of HIV (PMTCT) service sites also expanded significantly following the infusion of PEPFAR funding, increasing from 32 in 2003 to 1,445 in 2011 (9).

Human Resources for Health (HRH)

Despite improvements in the number of health care delivery sites since PEPFAR funding became available to Ethiopia, the country is one of 57 countries recognized by the WHO to have a health workforce crisis marked by chronic under-production of trained personnel, especially at high- and mid-levels, and low retention related to poorly motivated and underpaid staff. There are 2,151 physicians in the country, a ratio of 1 to 36,710 people and far below the WHO standards of 1 to 10,000 (9, 13-15). In terms of nurses, Ethiopia is above the WHO recommended one nurse per 5,000 people, with one nurse per 4,314 individuals. However, a substantial proportion of these nurses are junior, with only certificate-level qualification (13, 16).

One of the biggest challenges of FMOH is to develop a health work force that is sufficient to cope with the HIV/AIDS epidemic in Ethiopia. Task shifting is one strategy adopted in some countries for increasing human resources in health. Task shifting occurs when certain types of work or tasks of a particular group of health personnel are assigned to a second group that does not traditionally do that work (17). For example, nurses are generally not responsible for direct treatment of patients. However, in settings with a serious lack of doctors, task shifting is undertaken so that nurses assume responsibility of treating patients directly, which means that nurses can diagnosis patients and prescribe medications. Ethiopia is implementing task shifting of HIV/AIDS services to nurses and other cadres of health workers in order to compensate for the shortage of high- and mid-level trained health workers.

Another important component of addressing the shortages in human resources for health is to provide improved technical training for health personnel in the country (18). Building the human resource capacity through training is one of the major milestones or strategies for coping with the multifaceted interventions related to HIV/AIDS prevention, care, support and treatment (19). It is of great importance to optimize the available HRH in places that are not yet fully ready to graduate qualified health professionals specifically trained in certain disciplines (20). Incorporating a structured and appropriately designed and implemented in-service training program can be instrumental in increasing trained professionals at all levels of the health care system (21). In-service training is on-the-job training that is delivered through mentoring, distance learning, workshops, or advance degree or certificate programs. It is typically of limited duration and provides an individual or a group with a specific skill or set of skills (22). In-service trainings are designed to provide healthcare workers with new knowledge and skills required for health programs, refresh pre-existing knowledge through continuing professional education, and offer healthcare workers a professional platform for learning and interacting with fellow workers and experts in related fields. In-service training is of great relevance throughout Africa where there are shortages of trained healthcare workers and where health challenges are vast (23). In the case of HIV management, many healthcare workers still do not have adequate training during their professional education and are not fully capable to deliver HIV-related care (19) without in-service training. PEPFAR placed a heavy emphasis on in-service training for the first five years of funding in Ethiopia, with the key focus for HRH development on strengthening continuing education and in-service training (19).

The expansion of comprehensive HIV/AIDS programs throughout Ethiopia has been aligned with capacity building efforts and task shifting in order to ensure access to HIV

prevention, care and treatment services at all levels. PEPFAR-funded programs by GOE have supported extensive in-service education for health professionals since 2003, including training for medical doctors, health officers, nurses, lab and pharmacy technicians, case managers, and kebele outreach workers. They have also supported the development of national prevention, treatment and care guidelines and protocols and established systems for effective implementation of human capacity building through training and site level support. Such healthcare worker training programs are designed to impact a wide range of professional knowledge and skills relevant to management of HIV/AIDS. Each is designed for one or more specific categories of healthcare professionals. Organizations that work with government to deliver healthcare worker training in Ethiopia include the International Training and Education Center for Health (I-TECH) (24), JPHIEGO (25), Supply Chain Management System (SCMS) (26), Management Sciences for Health (MSH) (27), the International Center for AIDS Care and Treatment Programs (ICAP) (28), Family Health International (FHI) (29), and others.

Training System and Monitoring and Reporting Tool (TrainSMART)

Two of the major challenges with regards to in-service training programs in Ethiopia have been maintaining proper coordination and collaboration among various partners and keeping records on how much and what type of training is offered to healthcare workers (19). Moreover, many of the training offerings are not adequately aligned with and supportive of FMOH plans and priorities and greatly contributed to increase staff absence (19). In part to address these challenges, PEPFAR supported development of TrainSMART by I-TECH. I-TECH is a collaborative program between the University of Washington and University of California San Francisco and maintains an office in Addis Ababa, Ethiopia. I-TECH has played a

critical role in the development of HRH in Ethiopia since it began working there in 2002 and developed TrainSMART in an effort to systematize information gathered regarding training. I-TECH Ethiopia works in partnership with FMOH, universities, NGOs, medical facilities, and other organizations to support the development of a skilled health workforce and well-organized national health delivery systems in Ethiopia. I-TECH works in the three northern regions of Amhara, Afar, and Tigray that account for nearly 50% of the national HIV burden (24).

TrainSMART was originally designed for tracking PEPFAR-funded training since PEPFAR emphasized strengthening of in-service training systems in its first five years. This emphasis included getting the right people into the right amount of training. I-TECH began development on TrainSMART in 2007, and it launched in spring of 2008 (30) as an open-source web-based tracking tool for data collection on training (31). It was developed to allow users to accurately track data on training programs, trainers, and trainees in order to evaluate programs and report activities to various stakeholders. In addition to capturing data on training, trainers and participants, TrainSMART has a robust reporting module that allows users to run various reports automatically, as well as to create and save customized reports based on country specific needs (32). TrainSMART has the capacity to store training information for all HIV/AIDS training events supported by different funding sources. Since the details of the trainings and the participants are input in TrainSMART in a pre-specified standard format, it helps to generate information that can be used to analyze the training programs as per different parameters, for example, by site, time, type and frequency, which helps users make decisions for more resource-efficient, evidence-based planning and implementation of training. It also helps in identifying other issues that need to be addressed for effective and efficient programs. For example, one can see details of the training history of a particular candidate in TrainSMART, providing important

information for making informed decisions regarding his/her need for training. One can also look at training information by facility or region to assess whether there are specific training gaps. TrainSMART can also provide information for deciding if attendance at trainings has been excessive or inappropriate; for example, participants attending trainings not related to their field (i.e., nurses attending trainings designed for laboratory staff or laboratory staff attending training designed only for those healthcare workers providing direct care to patients); or the same person attending a particular training more than the recommended number of times; or participants attending training in places other than where they are supposed to be (i.e., somebody attending a training in a region or facility far from their place of work). It can also help analyze specific trends such as determining whether a particular professional group is more likely to attend unnecessary or repeated training or if such a tendency is related to a particular region, facility or training program. It is of paramount importance in resource-limited settings to make effective and efficient use of resources, and it is essential to have an evidence-based understanding of the problems related to the application of training programs in HRH.

This study was designed to explore to what extent data generated from TrainSMART could be of value to FMOH, GOE and other national and international partners in providing insights into the use or misuse of in-service training resources in Ethiopia.

AIMS

General Objective:

This study aimed to characterize data on HIV/AIDS training events in Ethiopia in order to provide key information for improving planning and coordination of in-service training in the country.

Specific Aims:

1) To analyze data from a sub-set of HIV/AIDS-related trainings in Ethiopia to better understand:
    a. What training is being offered and how frequently?
    b. Who is taking training and from which geographic regions?
    c. Whether there are duplications in attendance by training topic, provider group, and/or region?
2) To develop recommendations for FMOH, RHBs, and other national and international partners to better plan and coordinate HIV/AIDS-related trainings in Ethiopia.

METHODS

TrainSMART data from HIV/AIDS-related trainings in Ethiopia between April 2005 and February 2012 were obtained from I-TECH headquarters at the University of Washington (UW) in Seattle, Washington, USA. The data were initially collected by the I-TECH Ethiopia country office during I-TECH sponsored training events and sent to the I-TECH headquarter to be entered into the TrainSMART database. The categories of data entered into TrainSMART were: Training Information (*training name, start/end date, training organizer, location training level*, *participants, trainers, facilities PEPFAR category, topic, funder, participants, trainers*), Participant Information (*first name, last name, gender, date of birth, facility, phone number, email and qualification*), Trainer Information (*first name, last name, gender, date of birth, facility, phone number, email and qualification*), and Facility Information (*facility name, region, facility type and facility sponsor*). Information entered on type of training, funding agency, category of training audience, site, and dates were linked to a unique identifier for the participant. The data thus derived from TrainSMART for Ethiopian trainings were exported to

Microsoft Excel and then analyzed with STATA version 11.1, an advanced, integrated statistical package that is used for data management, analysis and generation of appropriate outputs, e.g., graphs, tables. TrainSMART cannot be used for analytical tasks that take into consideration multiple variables at the same time. However, it can be used to generate simple reports and is easily exportable into other statistical packages, like STATA.

The purpose of analyzing the Ethiopian training data was to identify the extent to which there occurred repeated training events by individuals and, if relevant, to characterize the repeated training events on the basis of training topics, profession, and other details. Data on the number of training events attended by individuals were first analyzed before looking more closely at topics and professions.

RESULTS

A total of 7,062 individuals attended a wide range of HIV/AIDS related trainings in Ethiopia from April 2005 to February 2012. 61% of trainees attended only one training, whereas 17% and 11% attended two and three trainings respectively (Table 1). There were 13 individuals who took 10 or more training sessions.

Table 1. Number of people and total number of trainings attended

Number of people	Total Number of trainings attended
4,333	1
1,190	2
747	3
370	4
208	5
98	6
64	7
29	8
10	9
6	10
3	11
3	12
1	13

Further analysis was conducted to identify how many times the same training was taken by one person. The data indicated that there were 387 trainees who took the same training twice, and there were 29 individuals who took the same training thrice. One individual took the same training four different times (Table 2).

Table 2. Number of times the same training was taken by a single individual		**Total participants taking the same training more than once**
Number of times	**Total cases**	
1	12,109	
2	387	417
3	29	
4	1	

As shown in Table 2, a total of 417 trainees took the same training more than once. This was most common amongst the mid-level clinicians (4%) and laboratory staff (4%), followed by social service workers (4%) and nurses (3%). Table 3.

Table 3. Number of individuals by professional discipline who took the same training once or more

Qualification of the trainee	**Once**		**Twice**		**Thrice**		**Four times**		**Total**
	No	%	No	%	No	%	No	%	
Community Health Work	41	97.62	2	4.76	0	0	0	0	42
Dental	2	100	0	0	0	0	0	0	2
Laboratory	1,207	95.79	52	4.13	1	0.08	0	0	1,260
Mid-level clinician	2,294	95.7	94	3.92	8	0.33	1	0.04	2,397
Nurse	4,675	96.73	150	3.1	8	0.17	0	0	4,833
Pharmacy	305	98.71	3	0.97	1	0.32	0	0	309
Physician	2,211	97.14	54	2.37	11	0.48	0	0	2,276
Social Services	778	96.53	28	3.47	0	0	0	0	806
Others	596	99.33	4	0.67	0	0	0	0	600
Total	**12,109**	**96.68**	**387**	**3.08**	**29**	**0.23**	**1**	**0.007**	**12,526**

Regarding the regional distribution of the individuals in training, taking the same training more than once was more common among trainees from Gambella (13%), Addis Ababa (6%), Afar (6%), followed by Benshangul Gumuz (5%). Table 4.

Table 4. Number of instances per region in which the same training was taken by the same person once or more

Region	Once		Twice		Thrice		Four times		Total
	No	%	No	%	No	%	No	%	
Addis Ababa	306	94.15	19	5.85	0	0	0	0	325
Afar	1,857	94.41	104	5.29	5	0.25	1	0	1,967
Amhara	5,644	97.73	128	2.22	3	0.05	0	0	5,775
Benshangul Gumuz	18	94.74	1	5.26	0	0	0	0	19
Gambella	7	87.5	1	12.5	0	0	0	0	8
Harar	40	97.56	1	2.44	0	0	0	0	41
Unknown	1	100	0	0	0	0	0	0	1
Oromia	136	98.55	2	1.45	0	0	0	0	138
SNNPR	93	98.94	1	1.06	0	0	0	0	94
Somali	16	100	0	0	0	0	0	0	16
Tigray	3,991	96.35	130	3.14	21	0.51	0	0	4,142
Total	12,109	96.67	387	3.09	29	0.23	1	0	12,526

When the repetition pattern was analyzed in relation to the training type, it was found that taking the same training more than once was more common for the topics of National Comprehensive ART-HIV Care (11%), the HIV Advanced Nurse Specialist Program (7%), Prevention with Positives Training (6%) and followed by PMTCT (5%). Table 5

Table 5. Number of individuals taking the same training once or more by type of training								
Training name	Once		Twice		Thrice		Four times	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**
Provider-Initiated Testing and Counseling	1,443	95.63	62	4.1	3	0.19	1	0.06
PMTCT	1,067	94.59	60	5.31	1	0.08	0	0
National Comprehensive ART-HIV care	365	89.02	45	10.97	0	0	0	0
HIV Advanced Nurse Specialist program	399	92.58	31	7.19	1	0.23	0	0
Prevention with Positive	569	94.05	31	5.12	5	0.82	0	0
HIV Rapid Testing Training	739	96.22	27	3.51	2	0.26	0	0
Syndromic Management	882	97.35	23	2.53	1	0.11	0	0
Comprehensive ART	920	97.46	20	2.11	4	0.42	0	0
Monitoring and Evaluation	393	95.62	15	3.64	3	0.72	0	0

DISCUSSION

This study is the first of its kind to use TrainSMART data to critically assess elements of in-service training on HIV/AIDS in Ethiopia. The data mainly included training events conducted in three northern regions (out of nine) in Ethiopia because these are the regions where I-TECH provides training at the request of FMOH. Although they do not give a complete picture of training in Ethiopia, findings may be generalizable to other regions of Ethiopia.

One of the potential concerns identified in this study was duplication of training opportunities (taking the same training more than once). The study found that a total of 417 trainees took the same training more than once. This was most common among mid-level clinicians (4%) and laboratory staff (4%), followed by social service workers (4%) and nurses

(3%). Inappropriate use of training opportunities is a waste of resources and causes a negative impact in different ways. It also compromises the desired outcomes of training programs and ultimately strains the resources in already resource-limited settings. In a country like Ethiopia where the number of trainings is increasing rapidly and in-service training forms a major part of national health system, even a small proportion of wasted effort means a large loss for the country. At the other end, the health system loses the working days of the participants because of their attendance in unnecessary trainings. It has a direct impact on the health system of the country.

Duplicate attendance might have occurred for several reasons. It is difficult to determine causes since the current study was done only from the data available through TrainSMART without benefit of focus group discussions. Speculating on causes, though, may be useful to GOE.

One possible reason for duplication may be because participants or their supervisors felt "refresher training" was necessary. As is the case elsewhere, health care providers come into HIV trainings with a range of pre-existing knowledge, skills and experience. It is possible that those who took the same time of training more than once needed more in-depth or repeated doses of the training intervention in order to be able to apply the knowledge and skills from the training at their work place.

Another possible reason for duplication could be the advantages of receiving per-diem benefits- travelling allowances- and the opportunity to be away from work. Most trainees receive reimbursed expenses based upon a per diem schedule. Per diem is a daily allowance for expenses, a specific amount of money that an organization gives an individual per day to cover living and traveling expenses. This is generally provided above and beyond their regular salary

and may be much higher than regular earnings. Hence, there is potential for per diem to motivate some individuals to take more training than they need. Financial attraction attached to these opportunities may tempt health professionals to take unnecessary training. Alternately or additionally, training can be a welcome paid break for healthcare professionals who are overworked in their respective institutions. These trainings also represent an opportunity to travel to new places, meet new people, and identify possible growth areas in their professional careers. Hence, it would not be surprising if some health professionals seized upon opportunities to participate in training whether it was strictly needed or not.

Another possible reason for duplication is the lack of coordination among training partners about the various types of workshops being offered. There is a chance for duplication when same or similar trainings are conducted by different organizations, especially with lack of coordination among them. It is essential to have a well-informed coordinating body with the authority in order to address this. Duplication can also happen due to mismanagement. A training institution might be compelled to send participants (including the wrong participants) to trainings in order to fill a training quota; e.g., sending a laboratory profession for required training related to social work. Duplication can also happen when some participants need to retake the training because they did not complete the earlier training or if they felt that the earlier training did not help them learn the skills or get knowledge expected. It may also be possible that participant think they haven't yet taken a certain course they have actually taken because its offered by someone new or the content of the course is similar to another course they took.

Regardless of the cause(s), it is important for FMOH and national and international partners to be assured of greater efficiency and more effective use of training resources. Duplication of training and misuse of per diem wastes resources, creates a loss of opportunity for

those who are actually most in need of the trainings, results in unnecessary absence of staff from healthcare facilities, and impairs a health system that is already understaffed. Misuse of training resources can also cultivate a culture of professional malpractice if individuals pay superiors for providing training opportunities to those who are not qualified or in need of training. Duplication and misuse of per diem also leads to poor learning outcomes for everyone if the wrong people are in attendance at trainings for which they are not qualified. Finally, nominating participants for training on an ad hoc basis hampers the activities of the home institution due to absence of staff. Lack of timely identification of such issues and not addressing them adequately may ultimately also lead to loss of credibility with the funding agencies.

These possible problems can ultimately jeopardize the desired outcomes of government and partners offering training in Ethiopia. It is essential to have a central coordinating mechanism like TrainSMART in order to maximize the benefits of training programs and assure they are available for the people who really need them. The findings of this study suggest that governments should carefully note attendance at trainings not only to avoid duplication of attendance, but also to assure that the job tasks required of an individual worker are appropriately matched to the training topics.

The problems of duplication and mismatch of training topic to position may be occurring in other countries as well. If similar trends occur, losses in terms of financial investment and human resources are potentially significant. From the data in this study, it is clear that those healthcare workers who form the backbone of the health service are precisely the ones who are most likely to be attending duplicate and unnecessary training, e.g., the nurses, mid-level clinicians, and physicians in this study. This study takes into consideration only the issue of repetition of the same training by the same individual as an example of misuse of training

opportunities. However, this is just one aspect of the problem. A comprehensive assessment of appropriate uses of training opportunities should also consider whether the participants are qualified for the training, whether they attended the whole course, and whether they implemented new knowledge and skills upon return to the job. Those who really need repetition of training for legitimate reasons (e.g., inability to complete initial training, inability to fully learn the skills during initial training) need to be clearly identified. It is important to encourage a systematic approach to organizing and evaluating training programs, and this issue has program and policy level implications. An easy to use tool like TrainSMART that strengthens the national health system to address this problem may have significant and long-term benefit for the country.

LIMITATIONS

The results of the study were constrained by several limitations. It included samples from the trainings under the domain of I-TECH only, thus primarily representing trainings in only three regions of Ethiopia. Since all the topics of trainings are not included in I-TECH, such trainings are missed in the study. There is also a possibility that if the names of participants were misspelled then they might have been assigned as separate individuals thus giving incorrect estimates of the possible duplication of trainings. Moreover, this study takes into account the information obtained from TrainSMART only and thus misses other related information from stakeholders (health authorities, trainers, trainees, donors, etc) which are best obtained through qualitative techniques (e.g., focus group discussions, interviews). Without this it is not possible to conclude on the reasons of duplication or other misuses of trainings. The data analyzed was from only trainings offered by I-TECH Ethiopia and not from other organizations or partners offering training in Ethiopia. Hence, the generalization of the findings of the study has to be done with caution.

RECOMMENDATIONS

Despite limitations, attendance at multiple training events on the same topic was observed in this study of training data obtained through TrainSMART in Ethiopia. In order to optimally use the available resources for in-service training in a country with a shortage of healthcare workers and other resource limitations, it is essential that FMOH and national and international partners assure greater efficiency and more effective use of training resources. Hence, the following recommendations are advised from the findings of this study.

1. The comprehensive adoption of tracking software such as TrainSMART would assure evidence-based management of training programs.
2. Follow-up of studies would complement the findings of this study, e.g., focus group discussions with people in Ministry of Health, trainers, donors, trainees and local health authorities.
3. Establish a central database of major in-service training programs in the health sector to help create a robust system for identifying and preventing duplication of in-service training by health professionals.
4. Institute an easy-to-use application of training management for the health administrators who are responsible for coordinating training to enable them to keep track of details of the participants, including appropriate selection, attendance and performance.
5. Encourage approaches that reduce the likelihood of training programs being misused, e.g., implementing distance learning opportunities, implementing post-training examinations, and discouraging high per diem payments.

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