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A Summary of Results and Lessons from HIV Training Evaluations

Introduction

The USAID Health Care Improvement Project (HCI) was asked by the USAID Office of HIV/AIDS to assess the effect of HIV training programs on health worker and organizational practices. Too often, training programs have measured short-term effects, such as increases in knowledge or skills immediately following the training, when evidence of improved practices over a longer time is needed. Therefore, this evaluation program looked at multi-component training approaches likely to have a longer term impact on practices and that included such components as on-the-job training, supervision, job aids, take-home brochures, whole facility training, and quality assurance in addition to traditional training workshops.

We view evaluation as a learning process that can assist the training program implementers, the local and country health authorities, and the funders of HIV training programs. Different stakeholders can have different legitimate objectives for trainings, ranging from immediate to long-term, and from proximate impact (e.g., proper counseling of mothers at the facility), to outcomes influenced by many factors beyond the control of the trainers (e.g., adherence to treatment regimens), and sometimes even as a component of a broad, long-term impact (such as redirecting the entire health sector in a country).

The primary objective of this evaluation program was learning-for-improvement aimed at program implementers. As such, the evaluations conducted were: (1) collaborative efforts of the HCI technical staff and the training program implementers, and (2) fast-turnaround evaluations that program implementers can use quickly to modify and improve the programs.

Training health workers to improve the quality of care relies on several factors that may or may not be part of the training itself, including:

- *Norms* at point of service delivery (so health workers know what they are to do),
- Workers are *competent* to implement those norms (usually included in training programs),
- Workers are *motivated* to implement the norms,
- Workers have the *resources* to implement the norms,
- There are effective *organizational processes* that enable the norms to be implemented.

The failure of any one of the five factors may prevent improvements in the quality of care, although training typically addresses only the second factor (“competency”). Further, when the goal of training is to improve health care or health outcomes that are dependent on family or community behavior, the impact is influenced by an even longer list of factors apart from the training.

Training program evaluations can address different stages of program testing and implementation:

- Efficacy of the training program on trainee and organizational practices or client outcomes.
- Effectiveness and sustainability of the training program in a small-scale trial.

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- Effectiveness and sustainability of the training program in a large-scale implementation.

The HCI HIV training evaluation program addressed aspects of small and large-scale effectiveness, but did not address efficacy. For a broader conceptual framework that encompasses the effort reported here, see Habicht et al¹ and Victora et al.²

Activities to Date

Four evaluation activities were undertaken by HCI: two in Tanzania and two in Uganda. Each has resulted in a written report; these are listed below. In addition, a review of selected literature was prepared prior to the field evaluations to inform the methodology used.

1. Evaluation: Uganda ART training for nurses.

Katz K, Stuart L, Akol A, Tagoola A, Wamala P, Headley J. 2010. Evaluation of a Ministry of Health ART Training Workshop in Uganda. *HIV Training Evaluation*. Published by the USAID Health Care Improvement Project. Bethesda, MD: University Research Co., LLC (URC).

2. Evaluation: Uganda HIV patient monitoring tools training.

Kyeyagelire R, Burkhalter B, Livesley N, Namuwenge N. 2010. A Rapid Evaluation of the Uganda MoH Training Program on the Use of HIV Patient Monitoring Tools. *HIV Training Evaluation*. Published by the USAID Health Care Improvement Project. Bethesda, MD: University Research Co., LLC (URC).

3. Technical memo: Quality assessment of Tanzania PMTCT counseling impact evaluation data.

Tanzania Data Assessment Team. 2010. Data Quality Assessment of the Impact Study of the Tanzania PMTCT Infant Feeding Counseling Training Program. Published by the USAID Health Care Improvement Project. Bethesda, MD: University Research Co., LLC (URC).

4. Evaluation: PMTCT infant feeding counseling training program scale-up in Tanzania.

Luseno W, Nyambo M, Burkhalter B, Ngonyani M, Rumisha D. 2010. Evaluation of the Scale-up of the PMTCT Infant Feeding Counseling Training Program in Tanzania. *HIV Training Evaluation*. Published by the USAID Health Care Improvement Project. Bethesda, MD: University Research Co., LLC (URC).

5. Literature review:

Burkhalter B. 2010. Review of selected literature: HIV training evaluation & performance measurement. Published by the USAID Health Care Improvement Project. Bethesda, MD: University Research Co., LLC (URC).

Summary abstracts of the reports are in the Appendix.

Lessons Learned about HIV Training Programs

I. Workshop curricula. The WHO-based curricula used by the two Uganda training workshops appeared to be well-conceived and well implemented. Both training workshops were implemented according to the planned schedule and were very well-liked by the trainees. In the Uganda ART training, scenario tests of relevant trainee problem-solving skill increased pre-workshop to 1-2 months post-

¹ Habicht JP, Victora CG, Vaughan JP. Evaluation designs for adequacy, plausibility and probability of public health programme performance and impact. *Intl J Epidemiology* 1999; **28**:10-18.

² Victora CG, Habicht J-P, Bryce J. Evidence-based public health: Moving beyond randomized trials. *Am J Public Health* 2004; **94**(3): 400-405.

workshop. In the Uganda HIV patient monitoring tools training, trainees said they learned a lot at the workshop, but record-keeping performance in trainee facilities did not increase pre-to-post workshop.

2. Job aids. Well-tested job aids can be an important component of a training program. The Uganda HIV patient monitoring training program had better performance in facilities with the new records than facilities without them.

3. Systems problems. Difficult systems problems beyond the current scope of the two Uganda trainings hindered the trainings from having much impact on performance back in the facilities of the trainees. Two months after the Uganda ART training, the majority of the facilities of the trainees were either not certified to provide ART or had never provided ART to any patients because they had never received antiretroviral drugs. (Perhaps this problem has lessened with more time.) The home facilities of the trainees in the HIV patient monitoring training faced a slew of issues related to HIV patient monitoring that were not part of the workshop curricula, including clinical staff overload, lack of supervision, and lack of correct forms.

4. Scale-up is difficult. The Tanzania infant feeding counseling training program evaluation found that the national scale-up of the PMTCT infant feeding counseling training and its associated job aids and mother take-home materials is not proceeding well or very advanced in Iringa Region where the evaluation was undertaken. The scale-up is both needed and ambitious, but it appears that many components required for a successful scale-up are inadequate, including leadership, a sound plan, and adequate financial and other resources.

Lessons Learned about Evaluation Methodology

5. Learning-for-improvement. The view that the purpose of evaluation is to learn and improve is very attractive to training program implementers.

6. Involve program implementers. Involving program implementers as full partners for the full course of the evaluation is not always easy. On the positive side, the director of the Uganda HIV Patient Monitoring Training, although deeply disturbed by the lack of impact of her training program on patient monitoring performance, maintained a strong commitment to search for ways to modify the program so that it would have a positive impact, and in Tanzania, the Ministry of Health assigned a senior person to assist in the Iringa field data collection and assist in making use of the findings. On the negative side, the director of the Uganda ART Training was very involved in planning the evaluation but decided he should take a strong neutral position at the end of it.

7. Rapid turnaround. In all cases, rapid turnaround had a positive response. The most difficult phase seems to be data analysis and write-up. Verbal discussions with program implementers and short memos to them during this phase proved helpful.

8. Performance measures. The scenarios used in the Uganda ART Training evaluation appear to be a useful option as a proxy for direct measurements of the quality of care. The “Measuring Practices” section of the Literature Review reveals that all of the different methods for measuring the quality of care have biases or complications of some sort, so the experience with the scenarios is meaningful. The quality of written records, such as were used in the Uganda HIV Patient Monitoring evaluation, has the great advantage of being objective and less costly because both pre- and post-training quality can be measured in a post visit. Measurements based on mother recall, such as was attempted in the Tanzania Impact Study of PMTCT Infant Feeding Counseling, are beset with potential problems and if used need to be carefully managed and controlled.

9. In-depth interviews. The value of in-depth interviews was clearly demonstrated in the Uganda HIV Patient Monitoring evaluation. The interviews provided a list of site characteristics that might influence the quality of the patient records produced after the training, and an analysis of these characteristics

against site patient monitoring performance identified which characteristics were highly correlated with performance.

10. Multiple influences on performance. The Uganda evaluations partially confirmed that quality of care is influenced by factors other than trainee competence (such as norms, resources, tools, organizational processes, leadership, systemwide coordination). To achieve longer-term trainee and organization practice changes, modifications in these other factors may be needed.

11. Start simple and familiar. Simple evaluation methodologies, particularly ones that are familiar to the program implementers, are more likely to gain the involvement and support of program implementers than complicated, unfamiliar methods. In support of this conclusion, the Uganda HIV Patient Monitoring Training evaluation had always given the same knowledge test to trainees at the start and end of the workshop as part of the workshop agenda. The implementers of the training were fascinated by the proposal to give the same test several days apart to non-trainees to see if their knowledge also improved without the training. It did, and generated healthy discussions about evaluation. Also supporting this conclusion was the experience of the Tanzania PMTCT Infant Feeding Counseling Impact study. That study relied on a very intricate matched program-control design. The analysis of the data quality undertaken as part of this HIV Training Evaluation Program showed that the design had not been achieved; probably because the resources available for the data collection, including the time and attention of the Principal Investigator, were nowhere near what was needed to fulfill the complicated study plan.

12. Monitoring scale-up. The slow progress and low performance so far of the Tanzania PMTCT Counseling Scale-up suggests that simple monitoring activities with influence should be part of large scale-up activities, perhaps with dedicated funding.

APPENDIX: SUMMARIES OF THE HIV TRAINING EVALUATIONS CONDUCTED BY HCI

I. Evaluation of the Ministry of Health ART Training Workshop in Uganda

The HIV Training Section of the Uganda Ministry of Health (MoH) trains clinicians in ART management based on WHO guidelines and curriculum. HCI (under the leadership of Family Health International and MoH) conducted an evaluation of a MoH training workshop on the patient management of ART held in September, 2009 in Soroti, Uganda. The evaluation targeted nurses and midwives who participated in the workshop and focused on the ART chronic care portion of the training. The evaluation used a combination of surveys and in-depth interviews to measure trainee knowledge and practice and investigate factors that might have influenced the effectiveness of the training, including:

- A pre-training scenario in which respondents identified best clinical practices in HIV case studies;
- A post-training scenario similar to but different from the pre-training scenario;
- A post-training knowledge test on HIV related topics;
- A post-training in-depth interview of trainees.

All workshop participants took the pre-training scenario on the first day of the training and were asked to take a similar scenario about six weeks later at their home health facilities. Those who agreed were administered the post-training scenario, the post-training knowledge test, and the in-depth interview.

Thirty-five participants showed up for the training, but five were sent home because they had already attended a similar training, and another five did not complete the pre-training scenario, resulting in a final pre-training sample of 25. Many of the trainees who completed the workshop were not able to apply what they had learned because their facilities were not yet eligible to provide ART or had not yet received antiretrovirals. As a result, only 13 trainees who had completed the training had used the learning. The post-training knowledge test and in-depth interviews were administered to these 13, and 8 of these completed the post-training scenario so that it could be compared to their answers on the pre-training clinical practice scenario.

Results:

- 25 workshop participants completed the *pre-training* scenario. Their average age was 36-37 years, most were female, nearly all were nurse/midwives, with 12 years work experience on average. The average correct score of the 25 trainees who completed the scenario was 3.3 out of 9 questions (37%).
- Of the 25 questions on the *post-training* knowledge test, the average correct score was 16 (64%). Questions having the lowest percent of correct responses were the appropriate management of common opportunistic infections, including chronic papular itching and TB, or the major side effects of two ARV drugs, Zidovudine and Nevirapine.
- Eight trainees took both the pre- and post-training clinical practice scenarios and had provided ART since the training. Their percentage of correct responses more than doubled at the post-training evaluation, from 32% on the pre-training scenario to 67% on the post-training scenario.
- The 13 in-depth interviews found: (1) most participants felt the training was useful and sufficient to enable them to provide good quality care, (2) most felt the workshop influenced the way they provide care, mentioning that it improved counseling skills and ability to administer ART most often, (3) many said some training topics needed more time, (4) many felt more time was needed for practice sessions, (5) over half said their workload had increased since the training and said they needed additional training.

- Eleven of 13 participants said they received all eight job aids/handouts distributed during the training. Of those that used the tools, almost all felt that they were very useful. The participant manual and ART cards were the job aids reported being used by the most number of respondents.

Discussion/Recommendations:

- The average post-training knowledge score of 64% and scenario score of 67% are reasonably good, though show there is still a need for improvement.
- A longer term follow-up period would give training participants more time to assimilate and implement the tremendous amount of material they were exposed to during the workshop. Good supervision and reinforcement of material would also likely help participants.
- Five of the original training participants were sent home because they had already done a similar training before, 14 were from facilities not yet eligible to provide ART, and four said their facility had not yet received any ARVs at interviews 6 weeks after the workshop. To ensure cost-effective training, the MOH may want to coordinate the various inputs required to enable effective ART (such as ART facility certification, ARV supply, and provider training) so as to minimize the time between training and application of the learning, and other possible activities such as refresher training when ART certification or ARV supplies are delayed.
- The evaluation was small in scope and the sample size decreased over time for various reasons. More information could be obtained with a larger scale evaluation that includes more participants from different geographic areas, different types of providers, and both short- and longer term follow-up.

2. Evaluation of a Uganda MoH Training Program on the Use of HIV Patient Monitoring Tools

The Uganda MoH has adapted the WHO-developed HIV/AIDS patient monitoring tools so that Uganda health workers can record encounters with HIV/AIDS patients, track services provided, ensure that needed services are provided, and provide data on these practices to the district level. The four tools include two cards for recording pre-ART and ART care and two registers for recording pre-ART and ART care for all HIV patients. The MoH runs four-day regional workshops to train clinicians and health record staff to use these tools accurately and completely, and to distribute the new tools to attendees. The workshop gives the same knowledge test to all attendees at the beginning and end of the workshop. HCI (under the leadership of URC and the MoH) evaluated such a training workshop that was attended by representatives from 23 health facilities in August 2009. The knowledge test given by the MoH to trainees at the start and conclusion of the training was also given twice, four days apart, to a comparison group of 12 similar persons who did not attend the training.

A stratified sample of 10 of the 23 facilities was selected for evaluation. Data were collected at the sample facilities using a retrospective record review and interviews with facility in-charges and medical superintendents. Pre-training performance was measured as the “quality” of patient records (that is, how well they were completed) in June and July 2009 and post-training performance on the same tools the following September and October. Although the quality of each record could be determined, the individual who filled out the record could not be, and therefore the pre-to-post change in quality was ascertained for the facility, not for individual workshop attendees. The timeliness of quarterly reporting of HIV data by facilities to the district MoH offices was also assessed. The interviews gathered information on why health workers might not follow the instructions from the training.

Results:

- 74 of the 75 invitees from the 23 health facilities attended the workshop. The training was facilitated by eight program officers from the MoH STD/AIDS Control Program. The training was well

implemented, on schedule, and gave all participants a training manual and the new tools.

- The training group's performance on the knowledge test increased 10.0 percentage points over the four days while that of the comparison group increased 5.9 percentage points. The 4.1 percentage point difference was not statistically significant.
- The accuracy and completeness of 1,087 medical records (583 before the training and 504 after) from the 10 sampled facilities averaged only a 2 percentage point improvement pre-to-post: 69% pre-training versus 71% post-training. The quality of pre-ART and ART registers showed an average pre-to-post improvement of 6.3 percentage points, but that for pre-ART and ART care cards decreased slightly. Pre-to-post gain varied substantially over the 10 sampled facilities.
- Analysis of the interview data in combination with the pre- and post-training record quality at each facility found that the following factors were associated with higher performance and/or gains in performance: support provided by the facility in-charge, support provided by an external partner, having a sufficient supply of cards and registers, and having someone at site responsible for data and records.
- Little change was seen in the timeliness of reporting care-related data to district MoH offices: four facilities were on time before the training and six after.

Discussion/Recommendations:

- The training is not sufficient to ensure adequate use of the tools; the MoH should ensure adequate stocks of these tools at facilities, each facility should assign a staff member to be responsible for data management, and assign a staff member to supervise record and data management functions.
- Trainings should stress that use of the tools is a team effort requiring the participation of different persons, including nurses, clinicians, records personnel, and expert clients. A team approach should be fostered in efforts to improve performance, perhaps by training the whole team as a unit.
- Trainings should be followed up by on-site coaching to support participants in the proper use of information provided in the training.
- Since a substantial variation in performance gain among facilities was associated with the facility characteristics noted above, the training should cover these factors, their relationship to better performance, and how to achieve them.
- This evaluation was conducted only a month after the training; subsequent studies could investigate whether health facilities perform better over a longer period and whether proper use of the tools leads to improved quality of care for patients.

3. Assessment of the Quality of Data from the Impact Evaluation of the Tanzania PMTCT Infant Feeding Counseling Training Program

A program to strengthen infant feeding counseling as part of a program to prevent mother-to-child transmission (PMTCT) of HIV was pilot tested in Tanzania and is now being rolled out to over 5,000 PMTCT sites in the country as part of the national PMTCT program. A study of the impact of the counseling program on infant health and nutrition was undertaken by the Ifakara Health Institute in 2008. Ifakara collected partial data for a sample of mothers and infants during home visits at 1 and 6 months after the delivery from several matched program and comparison sites in northern Tanzania.

URC, Ifakara, and EnCompass helped to clean and analyze the quality of the data collected by the 2008 study and concluded that, in part due to the abrupt termination of the impact study, the quality of the data is not high for several reasons (including incomplete data, small samples, very uneven distribution of samples across sites, and non-comparability of program and comparison sites and samples) and therefore not appropriate to use to assess the impact of the program. Nutritional status and recent

health history at 6 months after delivery had very little missing data, but analysis of the very small samples found no significant differences between program and comparison infants. Most of the program mothers still had the take-home brochure at the 1-month home interview. Future impact studies of the program may benefit from the data and this discussion of the methodological inadequacies found in this data.

4. Evaluation of the Scale-up of the PMTCT Infant Feeding Counseling Training Program in Tanzania

In 2007, the Tanzania Ministry of Health and Social Welfare (MOHSW) officially incorporated an infant feeding counseling training program into its PMTCT program and is in the process of scaling up the infant feeding training to over 5,000 sites in the country, including hospitals, health centers and dispensaries. The infant feeding counseling training was pilot tested in northern Tanzania and includes several components, including a five-day training of nurse counselors, one-day training of associated facility staff, a three-hour orientation of supervisors and managers, job aids for the counselors, and take-home brochures for mothers. The national scale-up, launched in 2008 and funded by PEPFAR, operates through implementing partner organizations in each region of the country and, as such, is fairly decentralized.

The HCI evaluation of the scale-up of infant feeding counseling training was performed by URC, University of North Carolina at Chapel Hill, and the Tanzania MOHSW and took place in one of Tanzania's 25 mainland regions, Iringa Region. A sample of Iringa facilities that had received the initial training was visited and several types of information obtained, including dates of trainings for nurse-counselors, other facility staff, and supervisors, whether there had been any subsequent training for new staff since the initial trainings, and the availability and use of job aids and brochures.

Results:

- A total of 22 staff in 10 (56%) facilities had received the five-day training-of-trainers training. Of these, 68% were nurses, 18% were doctors, and the remaining 14% were other staff. A total of 69 staff in 13 (72%) facilities had received the five-day counselor training. The majority of those trained as counselors were nurses (56%).
- About 79 staff in seven (39%) facilities had received the one-day orientation and only one facility in-charge had received sensitization. Among those who had received orientation, most were nurses (46%) and clinicians (11%).
- Out of the 18 facilities that had staff trained in infant feeding counseling, 33% had a complete set of job aids, 61% had a partial set, and 6% had no job aids in their facility.
- Although there are six mother take-home brochures, antenatal attendees are not given all brochures. Rather, brochures are given out to antenatal attendees according to their feeding choice. However, all women received a brochure with information on nutrition during pregnancy and breastfeeding. Take-home brochures to be disseminated among pregnant women were currently completely out of stock in 75% of facilities. Almost all facilities reported that they did not have a procedure to order more materials.
- Except for one hospital, all facilities reported that no refresher training had been conducted. New staff in only one facility and new supervisors in only one facility had received training, orientation or sensitization for the infant feeding counseling.
- No specific guidelines for monitoring the PMTCT infant feeding counseling program have been developed and no corrective actions have been taken to resolve problems, such as replenishment of materials.

Discussion/Recommendations:

- Training of infant feeding counselors is not keeping pace with the scale-up of the PMTCT program. There is a great need to speed up the implementation of infant feeding counselor training, especially among doctors and clinicians, who are more senior than nurses and who may be in a position of allocating resources for roll-out of the program at their facility.
- Clear guidance needs to be provided during training of counselors on how to order replenishment materials. Additionally, facilities need to be encouraged and assisted to put in place a system for the replenishment of materials.
- Refresher training or regular debriefing among infant feeding counselors in facilities should be conducted to review guidelines and protocols pertaining to counseling and the distribution of take-home materials.
- The MOHSW, NACP, and TFNC should continuously emphasize the importance of the PMTCT infant feeding counseling program to regional and district staff. They should also actively provide assistance and support for training of additional staff. Furthermore, a system for monitoring the implementation and results of infant feeding counseling needs to be strengthened at the facility, district, and regional levels.

5. Selected Literature Review: HIV Training Evaluation and Performance Measurement

This brief literature review summarizes articles and books that contribute to the methodology and analysis of the HIV Training Program evaluations. It includes articles and reports of evaluations of specific health provider training programs, reviews of evidence on the measurement of health provider performance (particularly related to client-provider interaction), and general books and papers on training evaluation methodology. For most of the works on evaluations of specific training programs, it organizes information into four categories:

- Description of the training program
- Evaluation methodology
- Results of the evaluation
- Comments about the article or report

Some important conclusions and observations from this review include: The HIV Training Evaluation program that HCl is undertaking should measure trainee and organizational practices rather than trainee reactions, attitudes, knowledge and skills. Outcomes are valuable but difficult to measure and attribute causality. Provider performance in client-provider interactions is very difficult to assess without bias, and often costly. Many factors other than the training itself can influence practice and outcomes, including interventions and trainings that are only partially or not well implemented.

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