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Linking Training and Performance
An Evaluation of Diarrhea Case Management Training
in the Philippines

by Lawrence J. Casazza and Scott Endsley

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An Evaluation of Diarrhea Case Management Training
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INTRODUCTION

This Occasional Operations Paper is another in a series that the PRITECH Project, funded by the U.S. Agency for International Development, will be publishing periodically. The papers focus on programmatic experiences in the field and on lessons we have learned. The PRITECH Project has full-time field staff operating in country and regional offices in Africa, Asia, and Latin America. Our field staff, in collaboration with their national colleagues, have operational experiences and ideas to share with their colleagues through these papers. Although the experiences derive from a particular country situation, we hope that lessons learned can be useful to CDD program managers elsewhere.

We believe that, by sharing our experiences working with national CDD programs throughout the world since 1983, we may give you new ideas for your programs. We encourage you to let us know about your experiences. We hope that you find this series interesting and useful — and that you enjoy a sense of sharing in the many struggles and successes of CDD programs throughout the world.

BACKGROUND

This paper presents the methods and results of a collaborative evaluation of the training efforts of the Philippines national control of diarrheal diseases program. It represents the combined effort of participants from the PRITECH Project, Quality Assurance Project, the Division of Control of Diarrheal and Acute Respiratory Diseases Programme of the World Health Organization (WHO), and most importantly, the diarrheal diseases program of the Philippines Department of Health. This evaluation attempted to link results obtained from assessment of actual training courses in diarrheal case management with evaluation of the subsequent performance of the health worker in the field.

This evaluation design was innovative in two respects: it attempted to measure not only acquired knowledge but also acquired skills of health workers through use of simulated cases; and it attempted to link documented skills attainment during training with actual performance in a health facility. Moreover, it attempted to identify factors beyond training that may affect the quality of case management in health-care settings.

Since the establishment of WHO's Programme for Control of Diarrhoeal Diseases in 1980, considerable progress has been achieved in reducing mortality due to acute dehydration. Today, more than 125 national diarrheal disease control programs are active worldwide. A cornerstone of these efforts is the training of health workers in correct case management of diarrhea in children. The WHO has produced and distributed standardized training materials for different levels of health workers, including a comprehensive curriculum for diarrhea training units. Diarrhea training units, or DTUs, are publicly funded centers for training trainers and health workers in diarrheal case management. They are usually located in health facilities that see large numbers of diarrheal cases, to allow sufficient hands-on training. There are now 275 DTUs in more than 88 countries. Since 1987, there has been a 38 percent increase in the number of health workers trained.

Box 1. Global efforts in training, 1991

- 126 national programs for the control of diarrheal disease
- Training curricula include
 - DTU case management
 - Supervisory skills
 - Program management
 - Distance learning
 - Small hospital case management
 - Medical and nursing schools
 - Pharmacists and drug sellers
- 275 diarrhea training units in 88 countries
- Training coverage (in 126 countries)
 - 19 percent included case management
 - 31 percent included supervisory skills

THE NEED FOR EVALUATION

The Philippines national program for diarrheal diseases control has been one of the global leaders in promotion of oral rehydration therapy. Since the establishment of the National Rehydration, Treatment, and Training Center, in Manila in 1985, the national program has had an active, national-level training program in diarrheal case-management training. There are now three national DTUs as well as seven regional DTUs. Despite these intensive training efforts, evidence from supervisory visits indicated that case management by health workers might not be as good as expected.

The Philippines Department of Health requested that the PRITECH Project conduct an evaluation of the DTUs. To meet this request, PRITECH collaborated with the WHO, the Quality Assurance Project, and the Philippines diarrheal disease control program. Together, they designed and implemented a two-phase evaluation: first to assess the quality of training in DTUs (Part A), and then to assess the performance of DTU graduates upon return to their home facility (Part B). Part A was conducted in September 1991 and Part B in January and February 1992.

Q U A L I T Y	<i>DTU TRAINING COURSE</i>	<i>POST-COURSE COMPETENCE</i>	<i>PERFORMANCE (4-8 Months Later)</i>
	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
			NOT ACCEPTABLE
		NOT ACCEPTABLE	ACCEPTABLE
			NOT ACCEPTABLE
	NOT ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
			NOT ACCEPTABLE
		NOT ACCEPTABLE	ACCEPTABLE
			NOT ACCEPTABLE
	NO FORMAL COURSE		ACCEPTABLE
NOT ACCEPTABLE			

Figure 1

METHODOLOGY

The evaluation design was comprised of two parts, and followed the analytic paradigm presented in figure 1. The fundamental premise of training is that good training produces skilled health workers upon graduation, who are capable of performing adequate case management upon return to their health facility. Case management is the clinical assessment, treatment, and counselling for children with diarrhea.

But two questions arise from this training premise. Does the actual training, which follows the prescribed curriculum, lead to skilled graduates? And how are the workers' skills affected by a variety of extrinsic factors upon return to the health facility? This last question can be schematically represented in the behavior model shown in figure 2. This model proposes that there are both intrinsic and extrinsic factors that have an impact on the quality of diarrhea case management.

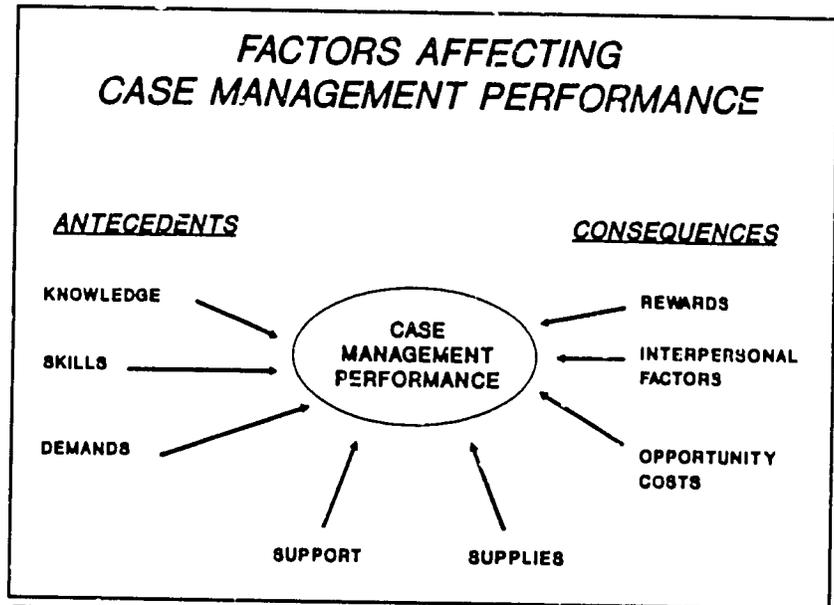


Figure 2

Furthermore, these factors may precede or result from the case-management performance.

The instruments designed to collect information for the evaluation are shown in figure 3. The two columns on the left were applied in Part A, the one on the right to Part B.

I N S T R U M E N T S	OB. CHECKLIST	WRITTEN EXAM	CASE OBSERVATION
	- practice - case presentations - class exercises - planning sessions	FACILITATOR EVALUATIONS	HEALTH WORKER INTERVIEW
	DIRECTOR INTERVIEW	CASE SIMULATIONS (5)	SUPERVISOR INTERVIEW
	TRAINEE EVALUATION		CASE SIMULATION
			FACILITY INVENTORY

Figure 3

The two national-level DTUs that were chosen for Part A of the evaluation had much experience using WHO's DTU curriculum. The quality of the training was assessed using detailed standardized course observations and participant questionnaires. The level of knowledge and skill of each trainee was assessed through written pre- and post-tests, instructor evaluations, and exercises in action plan development, and case simulations. The simulation exercises included a series of five standardized case simulations designed to measure assessment, treatment, and counselling skills.

In Part B, a modified version of the WHO Health Facility Survey¹ was used to examine the quality of case management in the health facility, as well as to identify intrinsic and extrinsic factors that may have an impact on the quality of performance. Some of the factors identified are listed in box 2.

When selecting health facilities for Part B, attempts were made to identify facilities in which a graduate who were trained since 1990, using a curriculum similar to that observed during Part A, could be located. The survey of the health facilities included the observation of health workers managing actual childhood diarrhea cases, interviews with health workers and their supervisors, another standardized case-management simulation, and an inventory of materials and supplies related to diarrhea case management. The case simulation exercise was a composite of four of the five case simulations used in Part A.

Box 2. Factors affecting health worker performance

Formal training
External supervision
Internal supervision
Training coverage
In-service training
Facility equipment
Information resources
Facility procedures
Health worker satisfaction
Rewards and punishments

¹ WHO Programme for the Control of Diarrhoeal Diseases. 1990. *Health Facility Survey Manual: Diarrhoea Case Management*. CDD/SET/90.1. Geneva: WHO.

RESULTS

During Part A, groups of 13 to 15 participants were observed and tested during training courses at two national DTUs. Figure 4 shows the main differences between the two courses. Both courses were judged to be "adequate" in terms of content and methods of instruction, although one DTU course had too few patients available for practical training.

<i>PART A: COURSE EVALUATIONS</i>		
	DTU I	DTU II
<i>LECTURES</i> A. CONTENT B. OBJECTIVES	50% acceptable not clear	100% acceptable clear
<i>PRACTICALS</i> A. NB. OF CASES B. SEVERE CASES	54 3	8 0
<i>CASE PRESENTATIONS</i>	acceptable	acceptable
<i>PHYSICAL SETUP</i>	optimal	complex

Figure 4

It was determined from written pre- and post-tests that all participants improved their knowledge in case management and diarrhea prevention. Participants of the two courses differed, however, in the adequacy of the applied knowledge demonstrated during the case simulations. Figure 5 shows the results from the participants of each course on the case simulations. Performance in clinical assessment and treatment was judged satisfactory for trainees in the course with more exposure to hands-on practicals, but was weaker for trainees who were in the course with fewer patients. In the latter, more time was available for additional lectures and role plays about communicating with mothers. So, trainees in this course demonstrated better counselling skills in simulations. The evaluation shows that it is difficult to replace experience and confidence gained in managing actual cases with any other training method. The results of the case simulations strongly suggest that the better skills in assessment and management of diarrhea are associated with more extensive practical experience with patients.

PART A: SIMULATION SKILLS POST-TEST

Case Nb.	DTU I			DTU II		
	DX	RX	ADVICE	DX	RX	ADVICE
CASE 1	100%	100%	---	58%	87%	---
CASE 2	100%	100%	---	83%	58%	---
CASE 3	100%	93%	---	---	---	---
CASE 4	---	40%	0%	---	42%	17%
CASE 5	---	43%	0%	---	83%	42%
A/G.	100%	75%	0%	71%	63%	30%

Figure 5

Action plans, specifying training and service modifications to be made upon return to the home facility, were developed by trainees as part of the DTU curriculum. Part A also found that the designs of action plans were well-developed in both DTUs. This was confirmed during Part B, when nearly all (91 percent) of the DTU graduates reported having been able to implement some or all of their action plans.

During Part B, 17 health facilities in five regions were visited. One hundred and eleven health workers were interviewed, and 106 of these participated in the case simulations. Forty-two actual cases of diarrhea were observed being managed, 30 of these being managed by health workers who had also been interviewed and given the case simulation. But only 11 of the 27 health workers trained in Part A were evaluated in Part B, thus pointing out the logistical complexity of following up a specific subsample of trainees observed during a given training course. Box 3

Box 3. Key characteristics of Part B

Health facilities (17 visited)

- 80 percent were hospitals (60 percent regional or provincial)
- 76 percent had trained department heads
- 100 percent had ORT units
- 30 percent (five) had DTUs
- 41 percent had adequate drug supplies
- 64 percent had adequate ORS supplies
- 41 percent were adequately equipped
- 82 percent had adequate IV supplies
- 75 percent had adequate staffing

Health workers (111 interviewed)

- 86 percent were female
- 71 percent were physicians
- 69 percent had previous experience
- 75 percent were formally trained (of which 67 percent at a DTU)
- 70 percent routinely treated children with diarrhea
- 83 percent had trained other workers
- 20 to 25 percent were satisfied with space and equipment
- 40 percent were satisfied with their supervision
- 5 percent prescribed antidiarrheals

summarizes some of the key characteristics of the health facilities visited and the health workers interviewed.

The key findings to note in box 3 were that all of the facilities had ORT units, and that three-quarters of pediatric department heads responsible for these units had been trained in diarrhea case management, as were three-quarters of the medical staff reporting to the department heads. But only a fourth of these facilities were judged to be adequate in the areas of basic ORT equipment, ORS supplies, staffing, and staff motivation.

CASE MANAGEMENT PERFORMANCE		
<i>Observation and Simulation</i>		
OBSERVATION		
Doctors Who Treat Diarrhea Routinely		
	DTU Trained	Non-DTU Trained
History	80%	48%
Clinical	82%	80%
Treatment	100%	86%
Counseling	8%	16%

SIMULATION		
Doctors Who Treat Diarrhea Routinely		
	DTU Trained	Non-DTU Trained
History	74%	80%
Clinical	72%	80%
Treatment	89%	87%
Counseling	28%	16%

Figure 6

The health workers' diarrhea case management was excellent, regardless of their previous training (see figure 6). Sixty to 80 percent of health workers performed adequately on assessment and treatment of cases, based on knowledge testing, case observation, and case simulation. Counseling performance was considerably weaker. The lack of significant differences between groups of workers (that is, those trained at DTUs and those not) was interpreted as reflecting the extensive in-house training (or "echo training"). Sixty-seven percent said that they had organized formal echo training upon return from the DTU course; 83 percent said that they had given training to another worker, formally or informally.

Beyond training itself, other factors that were found to affect case management performance significantly included: practicums in training, internal supervision, and adequate training coverage (defined as more than 50 percent of the health workers that see

children with diarrhea having been trained).

As can be seen in figure 7, adequate practical experience in assessment, treatment, and counselling during training is significantly associated with better performance in the health facility. This reinforces the strong, underlying tenet of the WHO DTU curricula, which is that participants learn by doing.

An unexpected finding from Part B was that *internal*, but not *external*, supervision was associated with improvement in case management. The external supervision system for diarrheal disease control in the Philippines is focused on supervising health facilities as opposed to health workers' performance. Upgrading of health worker skills is seen as a function of department heads and others trained in case management. Performance levels were highest in facilities in which there were a majority of health workers who had been trained and in which echo training was occurring.

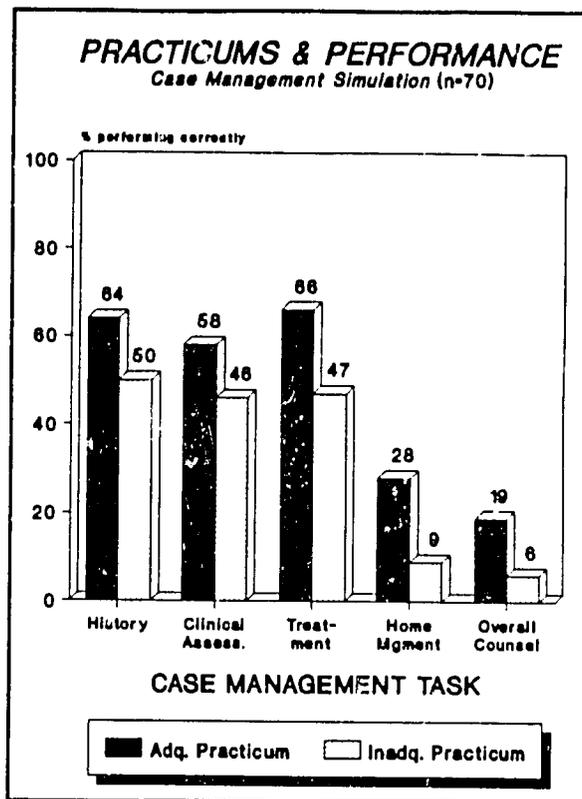


Figure 7

LESSONS LEARNED

This evaluation attempted to link training with performance. Even in the Philippines, which has relatively good record-keeping, it was difficult to prospectively follow up graduates of the DTU courses observed during Part A. However, retrospective data on training were gathered through interviews, which, coupled with course evaluations, may allow national program managers to draw conclusions regarding the impact of training on performance. As independent activities, course evaluation and performance evaluation are both important functions that national programs can use to improve training and to identify possible interventions to improve and sustain performance in health facilities. The following are some of the lessons learned from this exercise.

1. Health worker performance is influenced by internal supervision.

It is intriguing to note that this limited evaluation showed that the internal training and support activities of health facilities — in contrast to facility supplies and external activities, such as supervision — make a difference in the quality of performance. Internal supervision in this context consists of the presence of an immediate supervisor who occasionally observes the worker treat cases and a knowledgeable resource person available for consultation on a complicated case. The development of distance learning materials and a training curriculum for small health facilities could improve this in-house learning.

2. Case simulation exercises for diarrhea case-management training warrant further development.

Given the finding that one of the two DTU courses had difficulty finding sufficient numbers of patients for practical experience, case simulations — both as a training approach and as an evaluative approach — need further development. This evaluation was not a good validation of simulation because the levels of actual case performance were so high. A different sampling strategy for health facilities would allow wider variance in performance, and would possibly permit validation of simulation as a substitute for observation. Simulations as a training approach have been successfully used in other interventions, such as lactation management training and training for the management of acute respiratory infections.

Box 4. Future applications

Training evaluation

Course assessments

Periodic external evaluations (training and program reviews)

Performance evaluation

Skills competency testing

Health facility surveys

Supervision

Program reviews

Training reviews

3. The methodology developed for this strategy has potential future applications for training, evaluation, and supervision.

The potential future applications of this evaluation methodology are summarized in box 4.

The methods used in Part A could be standardized to provide a mechanism for monitoring and evaluating case-management training courses at all levels. In this way, course organizers can evaluate their own programs and then improve components for which deficiencies are found. The methods used in Part B could, in a revised form, be used for monitoring and evaluating the performance of workers during supervision, periodic health facility surveys, and focused program reviews. A modified form of Part B has been recently used in the focused program reviews in Kenya and Cameroon. Finally, based on the experience of the Philippines training evaluation, the WHO is currently revising the health facility survey protocol to address more comprehensively those factors that have an impact on training.

New and improved ways are needed to evaluate training of health workers systematically in developing countries, and to monitor and evaluate their performance in their work settings. As we continue to identify and address the factors that contribute to the quality of performance, it will become possible to design more appropriate interventions to improve health services.