

The Competency-Based Approach to Training

P A P E R # 1 • S E P T E M B E R 1 9 9 5

Prepared by: Richard S. Sullivan, Ph.D.
Director, Training Office

U.S. Agency for International Development

JHPIEGO Strategy Papers are designed to summarize JHPIEGO's experience in reproductive health, with a focus on education and training. The papers are intended for use by program staff of JHPIEGO, USAID and its cooperating agencies and other organizations providing or receiving technical assistance in the area of reproductive health training.

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Throughout the world, millions of students go to school every day. These students study subjects such as science, language and mathematics in courses usually scheduled to last the duration of the school year. Because progression through the various subjects in school is time-based, at any given time during the year the teacher is expected to be at a specific point in the textbook or course content. While not every student may progress at the same rate, the schedule typically requires everyone to move at the same rate as the teacher. Tests are administered periodically to ensure students understand the concepts and principles. Test scores often are compared to determine the grades of the students. Unfortunately, when a student does not do well on a test there often is little time for individual assistance as the teacher must move on in order to adhere to the established time schedule.

While traditional, time-based approaches to education have met with varying levels of success over the years, it is an ineffective system when the goal is to train individuals to perform specific, job-related skills. For example, an active, certified airline pilot is attending a 3-week training course to learn to fly a new type of aircraft. Will attending all sessions during the course ensure the pilot can fly the plane? Of course not! If the pilot is unable to attend 2 days of the course, does this mean the pilot cannot fly the plane? Probably not. After 4 days, the pilot does poorly on a written test. Should the pilot immediately fail the course or should the pilot continue with assistance and be given the opportunity to be tested again? If the pilot can pass all written tests does this indicate that the pilot can fly the plane? No! In addition to assessing knowledge, an evaluation of the pilot's skills also is required.

Obviously, the time-based educational system used in schools and universities is not appropriate when conducting training. A more appropriate approach is competency-based training (CBT).

What is CBT?

In a traditional educational system, the unit of progression is time and it is teacher-centered. In a CBT system, the unit of progression is mastery of specific knowledge and skills and is learner- or participant-centered. Two key terms used in competency-based training are:

- **Skill**—A task or group of tasks performed to a specific level of competency or proficiency which often use motor functions and typically require the manipulation of instruments and equipment (e.g., IUD insertion or Norplant® implants removal). Some skills, however, such as counseling, are knowledge- and attitude-based.
- **Competency**—A skill performed to a specific standard under specific conditions.

There appears to be substantial support for competency-based training. Norton (1987) believes that competency-based training should be used as opposed to the “medieval concept of time-based learning.” Foyster (1990) argues that using the traditional “school” model for training is inefficient. After in-depth examinations of three competency-based programs, Anthony Watson (1990) concluded that competency-based instruction has tremendous potential for training in industry. Moreover, in a 1990 study of basic skills education programs in business and industry, Paul Delker found that successful training programs were competency-based.

A competent clinician (e.g., physician, nurse, midwife, medical assistant) is one who is able to perform a clinical skill to a satisfactory standard. Competency-based training for reproductive health professionals then is training based upon the participant's ability to demonstrate attainment or mastery of clinical skills performed under certain conditions to specific standards (the skills then become competencies). Norton (1987) describes five essential elements of a CBT system:

- Competencies to be achieved are carefully identified, verified and made public in advance.
- Criteria to be used in assessing achievement and the conditions under which achievement will be assessed are explicitly stated and made public in advance.
- The instructional program provides for the individual development and evaluation of each of the competencies specified.
- Assessment of competency takes the participant's knowledge and attitudes into account but requires actual performance of the competency as the primary source of evidence.
- Participants progress through the instructional program at their own rate by demonstrating the attainment of the specified competencies.

Characteristics of CBT

How does one identify a competency-based training program? In addition to a set of competencies, what other characteristics are associated with CBT? According to Foyster (1990), Delker (1990) and Norton (1987) there are a number of characteristics of competency-based programs. Key characteristics are summarized in **Table 1** on page 3.

Advantages and Limitations of CBT

One of the primary advantages of CBT is that the focus is on the success of each participant. Watson (1990) states that the competency-based approach "appears especially useful in training situations where trainees have to attain a small number of specific and job-related competencies" (page 18). Benefits of CBT identified by Norton (1987) include:

- Participants will achieve competencies required in the performance of their jobs.
- Participants build confidence as they succeed in mastering specific competencies.
- Participants receive a transcript or list of the competencies they have achieved.
- Training time is used more efficiently and effectively as the trainer is a facilitator of learning as opposed to a provider of information.
- More training time is devoted to working with participants individually or in small groups as opposed to presenting lectures.
- More training time is devoted to evaluating each participant's ability to perform essential job skills.

While there are a number of advantages of competency-based training, there also are some potential limitations. Prior to implementing CBT, it is important to consider these limitations:

- Unless initial training and followup assistance is provided for the trainers, there is a tendency to "teach as we were taught" and CBT trainers quickly slip back into the role of the traditional teacher.

- A CBT course is only as effective as the process used to identify the competencies. When little or no attention is given to identification of the essential job skills, then the resulting training course is likely to be ineffective.
- A course may be classified as competency-based, but unless specific CBT materials and training approaches (e.g., learning guides, checklists and coaching) are designed to be used as part of a CBT approach, it is unlikely that the resulting course will be truly competency-based.

Models and Simulations in CBT

Models and simulations are used extensively in competency-based training courses. Airplane pilots first learn to fly in a simulator. Supervisors first learn to provide feedback to employees using role plays during

training. Individuals learning to administer cardiopulmonary resuscitation (CPR) practice this procedure on a model of a human (mannequin).

Satur and Gupta (1994) developed a model which facilitates skill development in performing and evaluating coronary anastomoses with an angioscope. The results of their study indicate that models are proving invaluable as a training tool. George H. Buck in a 1991 historical review of the use of simulators in medical education concluded that “Given the developments in this technology within the last 50 years, it is possible that the use of simulators will increase in the future, should the need arise to teach new concepts and procedures at set times to large groups of individuals” (p. 24). Researchers in two different experimental studies involving training people to perform breast self-examinations (BSE) compared

Table 1—Characteristics of Competency-Based Training Programs

- Competencies are carefully selected.
- Supporting theory is integrated with skill practice. Essential knowledge is learned to support the performance of skills.
- Detailed training materials are keyed to the competencies to be achieved and are designed to support the acquisition of knowledge and skills.
- Methods of instruction involve mastery learning, the premise that all participants can master the required knowledge or skill, provided sufficient time and appropriate training methods are used.
- Participants’ knowledge and skills are assessed as they enter the program and those with satisfactory knowledge and skills may bypass training or competencies already attained.
- Learning should be self-paced.
- Flexible training approaches including large group methods, small group activities and individual study are essential components.
- A variety of support materials including print, audiovisual and simulations (models) keyed to the skills being mastered are used.
- Satisfactory completion of training is based on achievement of all specified competencies.

several methods and found that using models was the most effective training method (Campbell et. al., 1991 and Assaf et. al., 1985). In a multicenter evaluation of training of physicians in the use of 30-cm flexible sigmoidoscopy, Weissman et al (1987) found that they were easily trained by first practicing on plastic colon models.

Norton (1987) believes that participants in a competency-based training course should learn in an environment that duplicates or simulates the work place. Richards (1985) in writing about performance testing indicates that assessment of skills requires tests using simulations (e.g., models and role plays) or work samples (i.e., performing actual tasks under controlled conditions in either a laboratory or a job setting). Finally, Delker (1990) in a study of business and industry found that the best approach for training involved learner-centered instruction using print, instructional technology and simulations.

Evaluation and Assessment in CBT

Evaluation in traditional courses typically involves administering knowledge-based tests. While knowledge-based assessments can certainly be used in CBT to measure mastery of information, the primary focus is on measuring mastery of skills. In keeping with this, Thomson (1991) reports that the decision to recognize a performance as satisfactory and to determine competence should be the basis for success of a competency-based program. Moreover, Foyster (1990) argues that assessment in competency-based programs must be criterion-referenced with the criterion being the competencies upon which the program is based. Finally, Richards (1985) indicates that simulation and work sample performance tests should include a checklist or some type of rating scale.

Implications for Using CBT

In a 1990 study of three operating competency-based programs, Anthony Watson identified a number of implications for organizations considering implementing a CBT system:

- Organizations must be committed to providing adequate resources and training materials.
- Audiovisual materials need to be directly related to the written materials.
- Training activities need to match the objectives.
- Continuous participant interaction and feedback must take place.
- Trainers must be trained to conduct competency-based training courses.
- Individuals attending training must be prepared for CBT as this approach is likely to be very different from their past educational and training experiences.

JHPIEGO's Approach to CBT

JHPIEGO Corporation has adopted a competency-based approach to conducting clinical training in selected reproductive health practices. Based on the principles summarized in this paper, JHPIEGO's approach to CBT involves key activities which occur during the design, delivery and evaluation of training courses. These activities are summarized here and explained in detail in JHPIEGO's *Clinical Training Skills for Reproductive Health Professionals and Advanced Training Skills for Reproductive Health Professionals* reference manuals.

The key activities around which JHPIEGO's competency-based training is built include design, delivery and evaluation activities. The components of each are summarized in **Table 2 and Table 3**.

Transfer of Training

JHPIEGO uses a four-step process to transfer specific clinical skills and knowledge from experts to service providers. These steps are part of the process of developing a family planning training system within a country. The four steps include:

- Standardizing provision of clinical services and modifying and adapting JHPIEGO training materials as necessary
- Training service providers to provide these services competently, according to the approved standards

- Identifying and preparing proficient service providers to function as clinical skill trainers so they are able to train other service providers
- Identifying and preparing clinical skill trainers to function as advanced and eventually master trainers so that they are able to train other clinical skill trainers, evaluate training and develop or revise course materials

The **first step** is to standardize the clinical skill(s) to be used in the delivery of family planning services. For example, in a country there may be a need to train clinicians to perform IUD insertions and removals. The first activity conducted is to identify and observe a group of clinicians who are performing these procedures. The steps the clinicians perform are observed and compared to the standard approach outlined in JHPIEGO's competency-based IUD learning guides and checklists. This observation process gives JHPIEGO trainers an idea of the skill levels of those

Table 2—Design Activities

- Identification of the specific clinical skills (e.g., IUD, Norplant implants, counseling, infection prevention or minilaparotomy) that will form the basis of a competency-based training course.
- Identification of the conditions (e.g., using models, role plays, clients) under which the skills must be demonstrated.
- Development of the criteria or standards to which the skills must be performed.
- Development of the competency-based learning guides and checklists which list each of the steps and sequence (if necessary) required to perform each skill or activity.
- Development of reference manuals which contain the essential, need-to-know information related to the skills to be developed.
- Development of models (e.g., Zoe pelvic model, Norplant implants training arm) to be used during training.
- Development of training objectives which outline what the participant must do in order to master the clinical skills.
- Development of course outlines which match a variety of training methods and supporting media to course objectives.
- Development of course syllabi and schedules which contain information about the course and which can be sent to

Table 3—Delivery and Evaluation Activities

- Administration of a precourse questionnaire to assess the participants' knowledge and attitudes about course content.
- Administration of precourse skill assessments using models to ensure participants possess the entry level skills (e.g., able to perform a pelvic exam if learning to insert IUDs) to complete the course successfully and role plays to determine the level of their communication (counseling) skills.
- Delivery of the course by a trainer/facilitator using an interactive and participatory approach.
- Transfer of skills from the trainer to the participants through clinical and counseling skill demonstrations using slide sets, videotapes, models, role plays and finally, clients.
- Development of the participants' skills using a humanistic approach, which means participants acquire the skill and then practice until competent using anatomic models and role plays.
- Practice of the skills following the steps in the learning guide until the participant becomes competent at performing the skill. During this time the trainer functions as a coach providing continuous feedback and reinforcement to participants. Only when participants are assessed and determined to be competent on a model do they work with clients.
- Presentation of supporting information and theory through interactive and participatory classroom sessions using a variety of methods and audiovisuals.
- Administration of a midcourse questionnaire to determine if the participants have mastered the new knowledge associated with the clinical skills.
- Guided practice in providing all components of the clinical service.
- Evaluation of each participant's performance (i.e., knowledge, attitudes, practice and clinical skills) with clients. The evaluation by the trainer is performed using competency-based checklists. The participant is either qualified or not qualified as a result of the knowledge, attitude and skills assessments.
- Presentation of a statement of qualification which identifies the specific clinical service the individual is qualified to provide.

who will be trained to be service providers. As necessary, JHPIEGO's learning guides and checklists are modified to meet the specific service delivery standards or norms within the host country. The standardized procedure then forms the basis for the service provider training courses conducted within the country.

The **second step** is to train a specific group of service providers to perform the standardized clinical

skills. The clinical skills course is based on a training package (see **Figure 1**) consisting of a reference manual, supporting audiovisuals, anatomic models, and trainer and participant handbooks (which contain the learning guides and checklists based on the standardized procedure). Following the clinical skills course, these competent service providers provide clinical services to clients. After providing services for a period of time, a group of the most proficient service providers who have demonstrated an interest and

willingness to become clinical trainers undergo training skills training.

The **third step** in the transfer process is to prepare a group of proficient service providers to be clinical skill trainers. These service providers attend a clinical training skills course which also is based on a training package. During this course, participants will have their clinical knowledge updated and skills assessed and standardized to ensure they are proficient at performing the clinical skill. Participants will then learn how to demonstrate clinical skills, transfer knowledge and skills during training, function as clinical coaches, and use competency-based learning guides and checklists to assess participant performance. Following the clinical training skills course these clinical skill trainers conduct service provider training courses. During their first service provider course they either co-train with an advanced (or master) clinical trainer or are observed by a training skills trainer.

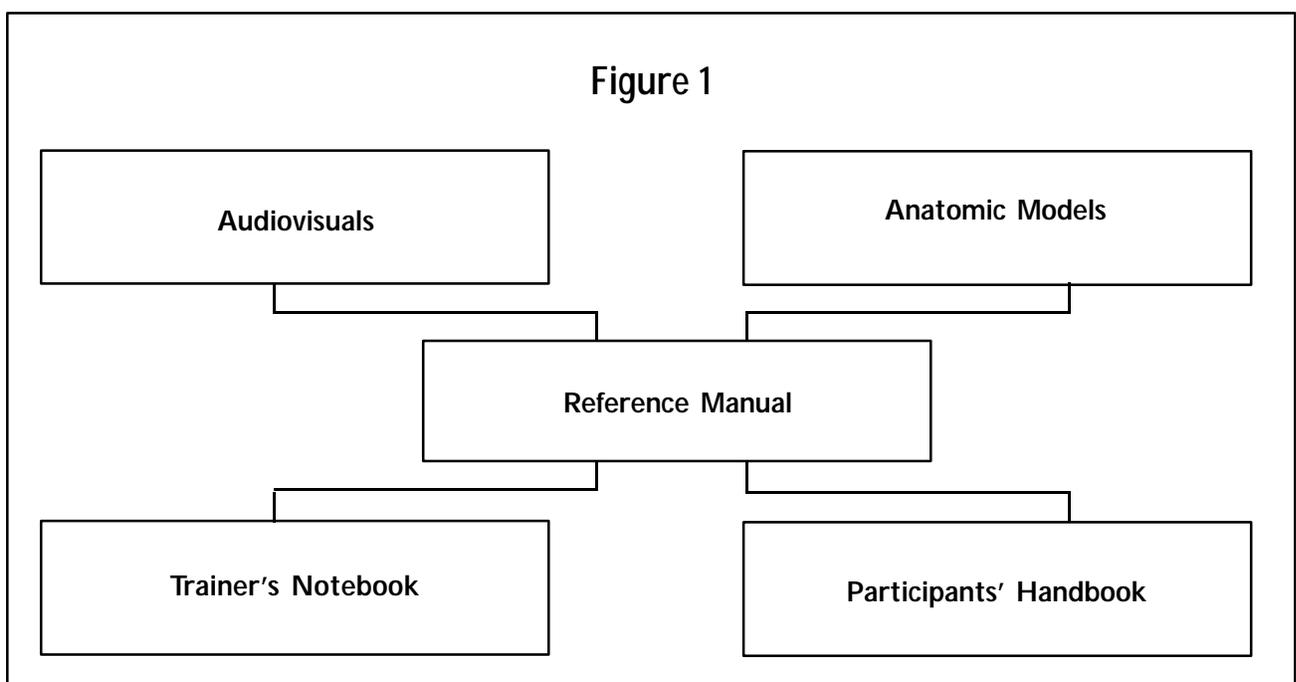
The **final step** in the process of transferring skills is to prepare a small group of proficient clinical skill trainers to become advanced trainers. These clinical skill

trainers attend an advanced training skills course which is also based on a training package. During this course, participants learn how to conduct needs assessments, design training courses, facilitate the group dynamics occurring during a course, and evaluate training. Following the advanced training skills course these advanced trainers conduct clinical training skills courses. During their first several training courses they cotrain with a master trainer. After successfully delivering several training skills courses these individuals can be qualified to function as a master trainer.

Summary

Based on the concepts and principles presented in this paper, the key features of JHPIEGO's approach to training include:

- Development of competencies (knowledge, attitude and practice) is based on national standards.
- Quality of performance is built into the training process.



- Emphasis of the training is on development of qualified providers, not on the number of clinicians undergoing training.
- Training builds competency and confidence because participants know what level of performance is expected, how knowledge and skills will be evaluated, that progression through training is self-paced, and that there are opportunities for practice until mastery is achieved.

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