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# **Preservice Implementation Guide**

**A process for strengthening  
preservice education**

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United States Agency for International  
Development

JHPIEGO, an affiliate of Johns Hopkins University, is a nonprofit corporation working to improve the health of women and families throughout the world.

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# PREFACE

This *Preservice Implementation Guide: A Process for Strengthening Preservice Education* has been adapted from the World Health Organization (WHO) document *Integrated Management of Childhood Illness (IMCI): Planning, Implementing and Evaluating Pre-Service Training* (working draft, 2001). The process for strengthening preservice education that this guide describes is aligned with that of WHO, but also presents a broader approach than WHO's focus on IMCI. This guide reflects JHPIEGO's considerable body of experience in strengthening preservice education in more than 20 countries since 1995. This experience encompasses medical, nursing, and midwifery programs and has focused on strengthening reproductive health and maternal and newborn health content. Through these efforts, JHPIEGO has become well versed in the advocacy and policy issues that influence the effectiveness of preservice education, the process of reviewing and strengthening preservice curricula, preparation for and implementation of the strengthened curricula, and evaluation of preservice interventions. This *Preservice Implementation Guide* describes the step-by-step process used to create a positive environment on the national level for strengthening preservice education and the steps taken on the institutional level to improve the existing curriculum and its implementation.

The guide is intended to meet the needs of several audiences:

- It can be used by national authorities, such as ministries of health and education, national professional associations, and licensing bodies, as well as donor organizations, to help them understand the level of effort, resources, and time needed to strengthen preservice education. Guided by this information, these key stakeholders can make informed decisions about the appropriateness of undertaking such an effort and effectively plan for implementation.
- The guide can be used by key individuals at the national and institutional levels to direct the step-by-step process needed to effectively strengthen and implement preservice curricula.
- Finally, those individuals responsible for monitoring and evaluation (M&E) systems within a country can use the guide to identify the vital role of M&E in strengthening preservice education.

Working together, and with the assistance of this guide, national authorities, administrators, staff of teaching institutions, and technical and donor organizations will be able to improve the basic education of healthcare providers. Strengthening both content and teaching practices will ensure that those who graduate are, in fact, well prepared for their role as healthcare providers.

## *Preface*

The editor gratefully acknowledges the valuable assistance of international colleagues and JHPIEGO staff who have contributed to the development of this guide. The efforts of everyone who has participated in JHPIEGO's preservice programs over the years are reflected in this document. We are also indebted to others who reviewed the document and provided suggestions and comments. The editor would like to acknowledge the contribution of Dr. Sue Brechin to the evaluation chapter of this guide. Her knowledge and experience in evaluation were helpful in presenting clear and realistic information on a very complex topic.

This guide has been adapted from the work entitled *Integrated Management of Childhood Illness (IMCI): Planning, Implementing and Evaluating Pre-Service Training* (Working Draft—WHO/FCH/CAH/01.09), which was published in 2001 by WHO. JHPIEGO has been authorized by WHO to adapt the work and to distribute the adaptation in all countries.

JHPIEGO gratefully acknowledges the WHO Department of Child and Adolescent Health and Development (CAH) for allowing us to adapt the above-mentioned guide in order to reflect JHPIEGO's approach to training and the experience we have gained in preservice education over more than 20 years.

WHO does not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use.

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The opinions expressed herein are those of JHPIEGO and do not necessarily reflect the views of WHO or the U.S. Agency for International Development.

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## INTRODUCTION

# THE PRESERVICE STRENGTHENING PROCESS

### WHY PRESERVICE CURRICULUM STRENGTHENING IS NECESSARY

The design and development of a preservice curriculum<sup>1</sup> is a time-consuming and challenging process. Once in place, therefore, it is generally used for many years without major modifications. There are, however, three situations that can lead to the review and strengthening of portions of a preservice curriculum on a more frequent basis:

- Introducing a new healthcare practice or strategy, such as postabortion care (PAC), the national HIV/AIDS strategy, or new family planning methods
- Updating existing technical information and service delivery practices (e.g., the shift to refocused antenatal care in maternal and newborn health programs)
- Addressing the recognition that new healthcare professionals do not have the basic knowledge and skills needed to be competent providers upon completion of their basic education

To adequately respond to one or a combination of these situations, it usually is not necessary to restructure the entire curriculum. Instead, the process of reviewing and strengthening focuses on those technical areas to be added or those identified as weak, and modifications are made within the existing relevant portions of the curriculum. This is the process that will be described in this guide.

### COMPONENTS OF THE PRESERVICE EDUCATION SYSTEM

Efforts to strengthen preservice education frequently focus on the teaching institutions responsible for its implementation. Although these institutions play a critical role, there are other factors and stakeholders that influence preservice education that must be recognized and addressed if strengthening efforts are to be effective. These include:

- **Entrance requirements.** Generally set by the Ministry of Education and/or Health, these requirements determine the background that students bring to their preservice experience, which, in turn, influences the educational objectives that can be achieved.

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<sup>1</sup> Preservice curriculum is defined as all the courses of study offered by an educational institution (e.g., medical school, nursing school).

- ***Service delivery sites.*** Students will develop their skills most fully while at the clinical practice sites. These sites, which are under the direction of the Ministry of Health, must provide adequate opportunities for practice that is consistent with what is being learned in the classroom.
- ***Graduation requirements.*** What students must achieve to successfully graduate from the preservice system is established by the Ministry of Education and/or Health, often with input from professional associations and licensing bodies. The requirements should reflect the roles and responsibilities students will be expected to fulfill when they become healthcare providers.
- ***Licensing requirements.*** National councils or associations, responsible for promoting and guiding a specific profession such as nursing or midwifery, determine what is required for obtaining licensure after graduation and maintaining that licensure over time. They may work with the Ministry of Health in establishing these standards.
- ***Deployment policies.*** How new graduates are used within the healthcare system—the location and type of facility to which they are assigned, the role they fill there, and the length of service in that position—is generally determined by the Ministry of Health and based upon the most urgent needs of the healthcare system. In many instances, the resulting assignments may not be the most appropriate for someone who has just completed her/his basic education.
- There are additional policies and practices unique to each educational system that will influence the quality of preservice education, for example, policies that influence the ability of classroom teachers to maintain their clinical skills.

All of these factors and stakeholders have a role in determining what content is included in preservice curricula, how it is taught, and the importance or emphasis that is given to it. Consequently, to implement sustainable improvement in preservice education, **all** of these elements must be taken into consideration. Change in any one area can have considerable impact on other areas, in both positive and negative ways. The challenge is to identify what is needed to maximize positive effects and avoid those that are negative. Addressing only one factor or including only some of the stakeholders may result in temporary improvements, but often the impact is not sustainable.

The **advocacy and policy issues** identified above require considerable time and effort to address and change successfully. Therefore, understanding the current situation within an existing preservice system is vital to beginning the strengthening process, but having effected change in

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Policy and advocacy issues should be addressed concurrent with the curriculum strengthening process.

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these areas is not. Opening a discussion of the policy issues and initiating an ongoing effort to influence them, **concurrent** with the curriculum strengthening process, is often the best approach. As that process progresses, it highlights weaknesses in policies and related areas, thereby promoting change. Even after the curriculum strengthening is completed, advocacy and policy issues may require ongoing interventions. Key areas for intervention include:

- Accreditation of preservice education institutions
- Accreditation of service delivery sites (particularly the clinical training sites)
- Licensure of healthcare graduates
- Deployment of new graduates
- Certification or re-licensure of healthcare professionals (e.g., continuing medical education)
- Development of comprehensive workforce development plans that coordinate the needs of practicing providers (inservice training) and students completing their education (preservice education)

Working with stakeholders to strengthen these areas will help to create a quality continuum—from new graduate with up-to-date knowledge and skills and a license to provide services at an accredited service delivery site, to the practicing provider participating in continuing education not only to maintain a license, but to improve knowledge and skills in order to continue providing quality services.

## AN OVERVIEW OF THE CURRICULUM STRENGTHENING PROCESS

There is one area, however, that needs to be effectively addressed **before** beginning the curriculum strengthening, if that process is to be successful. Before a country or program begins the process of strengthening preservice education, experience has shown that it is crucial to:

- Review the existing policy and service delivery guidelines that are relevant to the new or updated information to be introduced, both for technical content and for job responsibilities of each cadre of healthcare provider
- Ensure that the guidelines are consistent with international standards (updating and revising the guidelines, if necessary) because they will serve as the basis for the strengthened technical content
- Gain familiarity and experience with the guidelines (by orienting healthcare providers to them or implementing them in model clinical sites, for example)

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Strengthened policy and service delivery guidelines provide the basis for up-to-date and standardized teaching and service delivery practices that are essential to improving the quality of pre-service education.

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Strengthening policy and service delivery guidelines requires considerable time and effort. Once completed, however, the policies and guidelines that result provide the basis for up-to-date and standardized teaching and service delivery practices that are essential to improving the quality of preservice education. With policies and service delivery guidelines in place, the process of strengthening preservice education can be carried out in the following four phases:

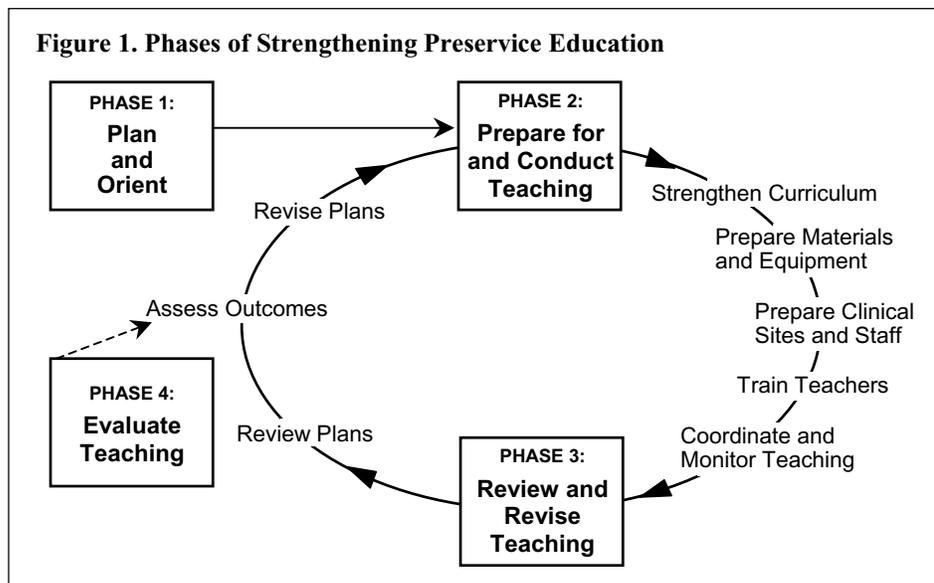
***Phase One – Plan and Orient.*** Achieve consensus among key stakeholders at the national level and plan the preservice strengthening efforts for the country.

***Phase Two – Prepare for and Conduct Teaching.*** Strengthen curricula, educational institutions, and clinical practice sites for implementation of the curricula, and pilot-test the curricula.

***Phase Three – Review and Revise Teaching.*** After implementing the strengthened curricula for 6 to 12 months, assess that experience, make any adjustments needed, and plan for ongoing implementation and expansion to additional schools.

***Phase Four – Evaluate Teaching.*** Assess the ability of students to correctly use the new/updated content after graduation. Their performance when delivering services is assessed to see if they are able to apply their knowledge and skills on the job. Many factors other than their education can influence their performance, and these must be assessed at the same time. This type of evaluation requires significant resources and can be difficult to implement; not all countries will have the need or resources to conduct such an evaluation. Therefore, this guide includes only an overview of this phase. Programs that are able to carry out this type of evaluation are encouraged to obtain more detailed information on evaluation at this level before conducting the evaluation.

The phases incorporate a cyclical process that can be used to gradually and continually strengthen content and teaching methods over time (see **Figure 1**).



Adapted from: World Health Organization (WHO). 2001. *Integrated Management of Childhood Illness (IMCI): Planning, Implementing and Evaluating Pre-Service Training* (working draft).

For each of the first three phases, this guide identifies tasks that should be accomplished at the national level, at the level of the teaching institution, or jointly by both levels. Tasks at the national level aim to create a favorable political environment by achieving consensus among key stakeholders. National-level tasks also support teaching institutions to prepare, implement, and evaluate teaching through the development of a national plan, provision of resources, and assistance with monitoring and implementation. Tasks at the level of the teaching institution aim to create a positive environment for implementing strengthened curricula by orienting opinion leaders and decision-makers; planning for the introduction of new teaching; preparing teaching staff, materials, and clinical practice sites; coordinating teaching among different departments and courses; and monitoring, reviewing, and revising content and teaching methodology.

This guide describes activities that can be implemented to accomplish each suggested task. For each task, the following information is given to help national groups and teaching institutions select and conduct appropriate activities:

- Objectives of the task
- When the task should be undertaken
- Who should be responsible or involved, and their roles and responsibilities
- Description of the task and other relevant information
- Activities that can be used to carry out the task

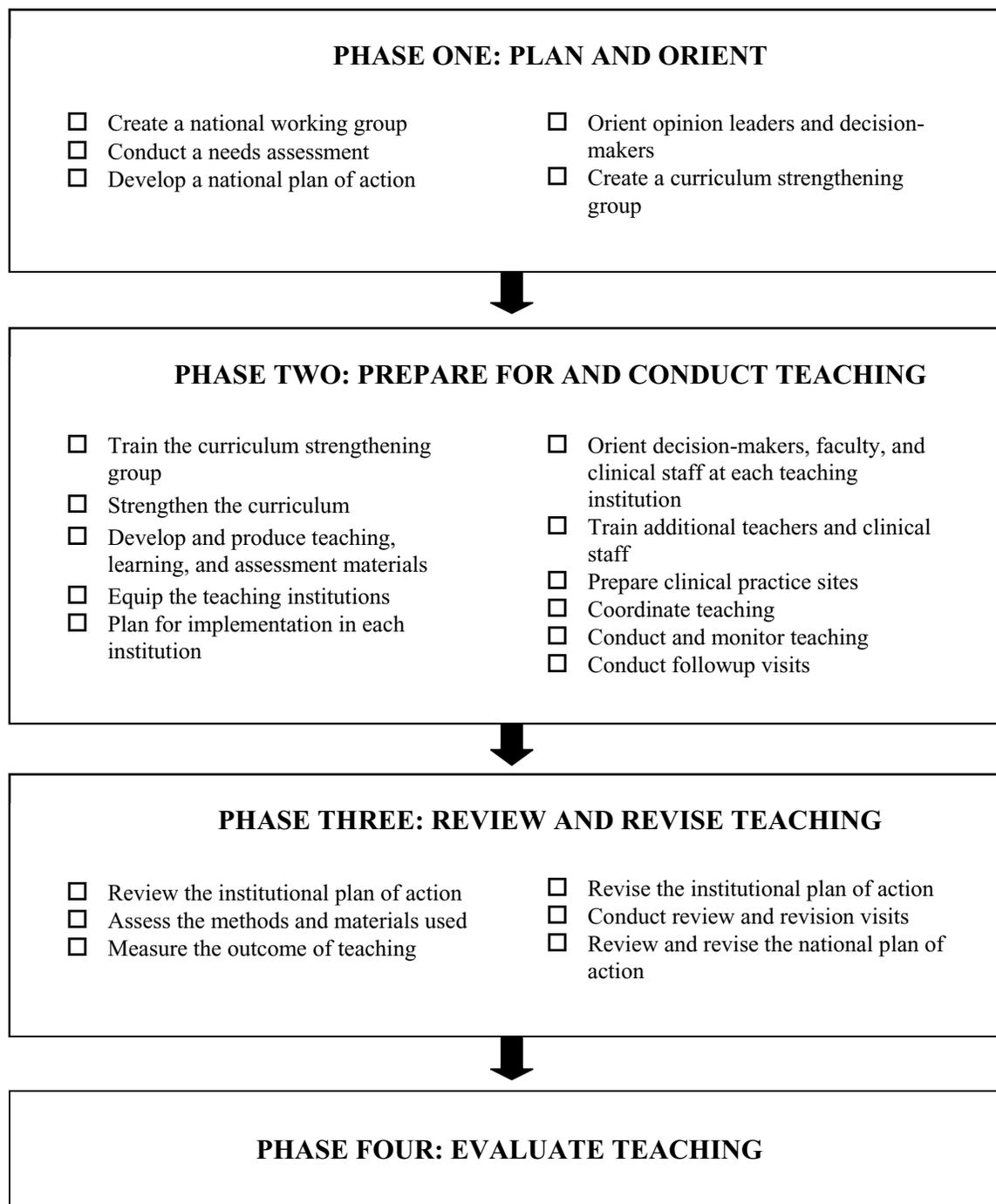
It is important to note that not all tasks and activities described in this guide have to be completed, or completed in the order given. The national groups and teaching institutions should **select appropriate tasks and activities** in accordance with the circumstances, needs, and resources available in their country, and complete them in a sequence that is most appropriate to their situation. As part of the selection process, users of this guide may find that:

- Certain tasks or activities may be **omitted**. For example, in a country with only one medical school, national authorities may choose not to develop a national plan of action for introducing new/updated content into that school, but instead will work directly with the school.
- Some tasks or activities may need to be **repeated**. The national working group may conduct several orientation workshops, for example, each for a different type of audience. Or it may be necessary to conduct the same training course several times to reach all the faculty and clinical staff who must be trained.
- Other tasks may be **combined** or carried out informally. A short orientation meeting may be combined with the creation of a national working group, for example.

Some tasks, however, such as ensuring the support of key stakeholders or decision-makers at the national and institutional levels, or training teachers and clinical staff, **must not be omitted**. It is recommended that national groups and teaching institutions carefully select tasks and activities that suit their situation and are based on identified needs and available resources.

Suggested phases and tasks are summarized in **Figure 2**.

Figure 2. Phases and Tasks in the Curriculum Strengthening Process





## ONE

# PHASE ONE – PLAN AND ORIENT

## OVERVIEW

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Create a national working group

Conduct a needs assessment

Develop a national plan of action

Orient opinion leaders and decision-makers

Create a curriculum strengthening group

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Before changes can be made to academic programs, the rationale for introducing new or updated content into nursing, midwifery, and medical education must be well understood and accepted by key persons both inside and outside the teaching institutions. Once the benefits and consequences of the needed change are understood and accepted, a clear plan for its incorporation into existing academic programs should be devised to guide the change process.

The tasks described in this phase aim to:

- Generate understanding, acceptance, and support of new healthcare strategies (e.g., PAC or IMCI) or updated clinical guidelines (e.g., those for family planning, maternal and newborn health, or HIV/AIDS) among national authorities, the academic community, and members of professional associations
- Create a plan of action that incorporates both national-level interventions and those needed at the level of individual teaching institutions for the introduction of new/updated content and strengthened teaching practices
- Identify the individuals representing each of the institutions participating in the curriculum strengthening process who will be directly responsible for reviewing the curriculum and implementing change

It is essential during this phase to create and sustain a strong link between national groups that are involved with preservice education and the teaching institutions themselves. Tasks in this phase should be completed

before moving on to the next phase of preparing for and conducting teaching in the new/updated content.

## **CREATE A NATIONAL WORKING GROUP**

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The aim of the national working group is to coordinate and facilitate the planning, implementation, and evaluation of the curriculum strengthening process in appropriate teaching institutions and their clinical practice sites.

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A national working group composed of a variety of key stakeholders can be formed to help coordinate and facilitate many of the tasks and activities related to strengthening preservice education. Such a group is often needed if the country has more than one medical, nursing, or midwifery school that will introduce the new/updated content. Experience from many countries has shown the usefulness of a national working group in advancing the implementation of strengthened preservice education.

### **Objectives**

The primary objectives of forming a national working group are to:

- Promote broad understanding and acceptance of the curriculum strengthening process and the new/updated content among national authorities, the academic community, and professional societies
- Obtain and provide guidance on policy and advocacy issues relevant to the curriculum strengthening process
- Identify appropriate partner organizations and involve them in the process of planning, implementing, and evaluating preservice education
- Assist medical, nursing, and midwifery schools to prepare for, implement, review, and evaluate teaching
- Coordinate activities among different implementing partners and teaching institutions

### **When to Form the National Working Group**

Forming a national working group is one of the first tasks that must be accomplished. Many countries have found it helpful to form such a group very early in the curriculum strengthening process so that the group can actively guide and support all steps in that process. In some countries, a group was identified even before the needs assessment was conducted; the group then provided input into the scope and direction of the assessment.

### **Members of the National Working Group**

The members of the national working group should be interested in, and committed to, introducing the new strategy or content into the curricula of

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Identifying a “champion” for the preservice strengthening process who is also on the national working group provides needed leadership and commitment.

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medical, nursing, and midwifery schools. A **focal person** who is responsible for calling meetings, following up on group tasks, and coordinating the group’s activities should be appointed. Also called a “champion” for strengthening preservice education, this person can take a lead role in moving the process forward.

The group should consist of representatives from:

- National authorities (e.g., Ministry of Health, Ministry of Education, licensing/certification boards)
- National task forces
- Nationally recognized experts in the technical area(s) to be strengthened
- The academic community, including national associations of medical, nursing, and midwifery schools, and heads of key teaching institutions
- The inservice training system
- Professional societies
- Partners and donors such as international agencies (e.g., United States Agency for International Development [USAID], WHO, United Nations Children’s Fund [UNICEF], and bilateral development organizations) and nongovernmental organizations
- Implementing agencies that have experience working with preservice education
- Community-focused organizations, such as local health committees, that can provide the perspective of those who use the healthcare system

A membership of 12 to 15 individuals is recommended for the national working group. This size group should permit adequate representation by all the key stakeholders, and allow the group to reach consensus and complete its work efficiently. If, however, there are a greater number of stakeholders who should be included in the group, it is important to expand the membership accordingly. The advantages of having everyone’s support outweigh the challenges of working with a larger group, which can be addressed, for example, by dividing into subgroups to complete specific tasks. The need for additional members may become evident as the group’s work and the curriculum strengthening process progress. New members can be added as appropriate, with the core group members orienting them and providing continuity of effort.

### **The Role of the National Working Group**

The aim of the national working group is to coordinate and facilitate the planning, implementation, and evaluation of the curriculum strengthening process in appropriate teaching institutions and their clinical practice sites. The national working group, therefore, should organize and conduct activities such as orientation of decision-makers and development and

approval of a national plan of action. The group is also responsible for exchanging information and materials among different teaching institutions, and with different partner or support agencies, to effectively define needs, pool resources, and avoid duplication of efforts. The group should meet on a regular basis, as frequently as is appropriate, to keep the members up-to-date on the curriculum strengthening process and provide the necessary guidance and feedback to keep it moving forward. Finally, evaluation results will be shared with the national working group for their review and use in planning the next phase of activities, such as expansion to additional schools.

## **CONDUCT A NEEDS ASSESSMENT**

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The needs assessment will provide information that can be used to orient key individuals to the need for curriculum strengthening, and help them begin to plan the curriculum strengthening process.

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Although some information was gathered as part of identifying the need for curriculum strengthening, more detailed data are required to develop a feasible plan of action. Additional information should be collected about the different types of health personnel who provide services relevant to the new/updated content, the specific job description of the cadre of healthcare provider that will be affected by curriculum strengthening, the teaching institutions that train this cadre of personnel, and the people and associations that influence what is taught in those institutions. This information, gathered in a needs assessment, is used for making important decisions about how and where to introduce new/updated content into nursing, midwifery, or medical education. It can also serve as baseline information for assessing the impact of the curriculum strengthening process in Phase Four, *Evaluate Teaching*.

### **Purpose and Objectives**

The purpose of the needs assessment is to gather information that can be used to orient opinion leaders and decision-makers about the need for curriculum strengthening, to gain a better understanding of advocacy and policy issues, and to begin planning for the introduction of new/updated content into preservice education at the national and individual institution levels.

The objectives of the needs assessment are to identify:

- The roles and responsibilities of the cadre of healthcare provider whose curriculum is to be strengthened (e.g., nurse, midwife, or physician) in providing services related to the new/updated content
- Where and how the cadre of healthcare provider whose curriculum is to be strengthened receives its basic education
- The persons and groups who influence what is taught in institutions that provide basic education to these healthcare providers

- The conditions under which teaching is taking place in the schools (i.e., assess faculty, facilities, resources, current curriculum)
- The conditions in the clinical practice sites used by the schools and their impact on teaching and learning
- Other relevant issues, such as deployment practices and licensing requirements, that play a role in determining educational content and methodologies
- The initial focus of curriculum strengthening, that is, which institutions should be involved in the first round of implementation

A sample list of information to collect and review during the needs assessment is provided in the **Appendix**.

### **When to Conduct the Needs Assessment**

The needs assessment should be one of the first steps in the curriculum strengthening process; it definitely must be completed before any detailed plans are created for introducing the new/updated content into nursing, midwifery, or medical education. Information collected during the needs assessment will help clarify the current gaps in the educational process and will provide guidance on how to begin the introduction of the new/updated content into preservice education. There are often so many nursing and midwifery schools in a country, for example, that it is not feasible to work with all of them initially due to constraints in financial, human, and other resources. A limited number of schools, consistent with the resources available, must be selected for the first round of strengthening. Needs assessment data will guide the selection of the most appropriate institutions. In addition to allowing the most effective use of resources, this phased approach will allow the lessons learned in the first round of implementation to be applied in subsequent rounds and ultimately will improve implementation.

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The needs assessment should be one of the first steps in the curriculum strengthening process.

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### **Who Is Involved in the Needs Assessment**

Members of the national working group, together with individuals experienced in research and evaluation, should participate in the design of the needs assessment. Although the data may be collected by others, these individuals should provide guidance on what information to gather, and where and how to gather it. They should then have a voice in how the data are used to guide the curriculum strengthening process. Input is needed from:

- National authorities such as the Ministries of Health and Education

- Professional associations such as the national obstetrics/gynecology and nursing societies
- Teaching institutions and/or their governing bodies such as the national associations of nursing and medical schools
- Experts in research and evaluation
- Experts in the technical area(s) to be strengthened
- Experienced healthcare providers
- Individuals who use the healthcare system

The last three groups, whether or not they are experienced educators, can provide insights into healthcare provision issues related to the content area. Their insights will help ensure that data are collected to address these issues during the subsequent tasks of curriculum strengthening and teaching.

### **How to Conduct the Needs Assessment**

Some of the information needed to analyze the situation can be collected through meetings, informal interviews, short written questionnaires, documents, and reports. Useful sources of information are the Ministry of Health, Ministry of Education, professional associations such as the national ob/gyn and midwifery societies, and academic bodies such as national associations of medical and nursing schools.

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During the needs assessment, it is critical that teaching institutions and their clinical sites be visited so that teaching and service provision can be observed as they are actually carried out.

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Visits to at least some of the teaching institutions and their clinical practice sites, in order to observe teaching and service provision, as well as determine the resources available, are critically important. Usually at least 1 full day is required to gather the basic information needed; whenever possible, spending several days at an institution and its clinical sites will allow greater opportunities to interact with faculty, healthcare providers, and students, leading to a more complete understanding of what is being taught and how teaching is conducted.

Once the data are collected, they can be synthesized and discussed by the national working group as the basis for the next task—developing a national plan of action.

## **DEVELOP A NATIONAL PLAN OF ACTION**

If more than one teaching institution within a country will participate in the curriculum strengthening process, experience has shown that it is useful to develop a national plan to organize and guide that process.

### **Objectives**

The objectives of developing a national plan for the introduction of new/updated content are to:

- Identify where and how such content should be introduced into a country's preservice education system
- Identify activities, such as orientation of decision-makers and training of teaching staff, that should be facilitated or supported at the national or local level
- Coordinate activities between different persons, groups, and organizations
- Identify what resources (e.g., human, financial) will be needed to conduct different activities
- Estimate when different activities should be conducted (i.e., prepare a timeline)
- Plan for expansion into additional institutions as appropriate, in those instances where only a limited number of teaching institutions is involved in the first round of curriculum strengthening

### **When to Develop the Plan**

Once the needs assessment results are available, the next task is to develop the national plan. The plan should be developed before any activities begin at the level of the teaching institution.

### **Who Should Develop the Plan**

The persons who prepare the national plan should be familiar with the new/updated content, understand what is needed to introduce change at teaching institutions, and have some influence over what is taught. The national working group, or a subgroup of its members, fulfill these criteria and can be responsible for the development of a national plan.

### **Contents of the Plan**

A national plan for introducing strengthened preservice education in a country should:

- Describe how the knowledge and skills to be incorporated address the health needs of the country (i.e., the rationale for strengthening the curricula)
- Identify the types and number of teaching institutions that should introduce the new/updated content in the first phase of implementation

- Suggest the order in which the teaching institutions should introduce the new/updated content (i.e., which teaching institutions should introduce it first, second, third, etc.)
- Identify which types of national opinion leaders and decision-makers should be oriented to the process
- Describe how opinion leaders and decision-makers will be oriented
- Describe how administrators and staff at teaching institutions and clinical practice sites will be oriented and trained, including how training will be sustained over time for incoming new teachers and healthcare providers
- Describe how the strengthened portions of the curriculum (content, teaching methodologies, and materials) will be developed
- Describe the process for identifying and preparing clinical practice sites
- List the types of external assistance that teaching institutions might need in order to plan, implement, review, and evaluate teaching, including assistance to develop or revise teaching, learning, and assessment materials, and to identify and prepare appropriate clinical practice sites
- Describe who will be responsible (i.e., focal persons or working groups) for organizing or facilitating the different activities needed, such as orientation, training, planning, development or revision of materials, preparation of clinical practice sites, followup of teaching institutions, review of teaching, and evaluation
- Identify what resources (e.g., human, financial, and/or in kind) will be needed to conduct the different activities
- Estimate when different activities will be conducted (i.e., the timeline)

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The endorsement of the national plan of action by key stakeholders, such as national authorities and associations, is critical to its success.

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The activities to orient stakeholders and decision-makers described in the next task will be used to **get agreement on or endorsement of** the national plan from persons and groups who are critical to its implementation. It is particularly important to have the plan endorsed by relevant national authorities (e.g., Ministry of Health, Ministry of Education) and associations (e.g., obstetrics and gynecology, pediatrics, national associations of medical, nursing, and midwifery schools). In some countries, a joint strategy or statement between national associations and the Ministry of Health and/or Education may be needed to move forward

with strengthening preservice education. In addition, the plan should be presented to **partners and donors** to request their support.

## ORIENT OPINION LEADERS AND DECISION-MAKERS

Experience has shown that the development and dissemination of up-to-date policies and service delivery guidelines is not sufficient, in and of itself, to bring about change in nursing, midwifery, and medical education. First, national-level opinion leaders and decision-makers who influence what is taught must be aware of and accept the need to change teaching. Then they must support and assist the implementation of accepted changes. Opinion leaders and decision-makers at teaching institutions and clinical practice sites also must understand and accept the new/updated content as well as the plan for its incorporation into existing curricula before they can effectively support its introduction into academic programs.

### Objectives

The objectives of this orientation are to:

- Create awareness among national authorities, the academic community, and professional associations of the need for curriculum strengthening in a specific clinical area as well as the clinical guidelines/content that will be used as a basis for teaching
- Gain understanding and acceptance of the new/updated content to be introduced as a core element of basic education for healthcare providers
- Gain acceptance of mastery learning<sup>1</sup> and competency-based training<sup>2</sup> as the appropriate teaching approach for basic nursing, midwifery, and medical education
- Generate support for and commitment to incorporating the new/updated content into relevant academic programs
- Ensure coordination between the inservice training and preservice education systems

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A key objective of orienting opinion leaders and decision-makers is to gain their understanding and acceptance of mastery learning and competency-based training as the appropriate teaching approach for pre-service education.

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<sup>1</sup> Mastery learning is an approach to learning that is based on the premise that **all** participants can “master” (learn) the required knowledge, skills, and attitudes, provided that sufficient time is allowed and appropriate training methods are used. The goal of mastery learning is that 100 percent of the participants will “master” (learn) the knowledge, skills, and attitudes on which the training is based.

<sup>2</sup> Competency-based training (CBT) is learning by **doing**. It emphasizes how the participant performs (i.e., a combination of knowledge, attitudes, and, most important, skills) rather than what information the participant has **learned**. In CBT, participants’ progress is continually measured against pre-established performance criteria (standards).

- Obtain the endorsement of the national plan by opinion leaders and decision-makers

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A focused orientation is needed so that there is understanding and acceptance of the scientific evidence base for and academic rationale, benefits, and consequences of the new/updated content.

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### **When to Conduct Orientations**

Opinion leaders and decision-makers may already be aware of a new healthcare strategy or technical information that is being introduced to a country. Nevertheless, a more focused orientation is needed so that key representatives of national authorities, the academic community, and professional associations thoroughly understand and accept the scientific evidence base for and the academic rationale, benefits, and consequences of the new strategy or content. This orientation must take place before efforts to incorporate it into the basic education of nursing, midwifery, and medical personnel are begun. And, because another objective of orienting the key stakeholders is to gain their endorsement of the national plan of action, the plan must be completed before orientation can take place.

### **Who Can Orient Opinion Leaders and Decision-Makers**

Persons who have experience with curriculum change, are knowledgeable about the new/updated content, and can clearly explain the rationale for its introduction into preservice education should facilitate the orientation of opinion leaders and decision-makers. Members of the national working group may be the appropriate individuals to take on this task.

### **Target Audience**

The target audiences for this orientation are:

- Representatives of national authorities that have influence on the curricula of nursing, midwifery, and medical schools, such as members of professional licensing boards, the commission on higher education, the training department of the Ministry of Health, and the Ministry of Education
- Decision-makers in the academic community, such as representatives of the national association of nursing schools, the national association of medical schools, heads of nursing, midwifery, and medical schools, and heads of departments such as obstetrics and gynecology and pediatrics
- Decision-makers in the clinical practice sites such as directors of teaching hospitals and community clinics
- Decision-makers in the inservice training system

- Members of professional associations, such as the national societies of obstetrics and gynecology and pediatrics, and the national associations of midwives and/or nurses

In some cases, members of the national working group may also wish to be included in the audience for orientation activities to gain a more in-depth understanding of the new/updated technical content.

### **How to Reach the Target Audience**

**Awareness** of the new/updated content can be created if the target audiences are well briefed about the supporting evidence and rationale for the new/updated content as well as any experience with its implementation in the country. **Dissemination of information** about the new/updated content through articles in local journals, the newsletters of professional societies or associations, brochures, information sheets, and displays at meetings and conferences can help to raise awareness.

To gain **understanding** and **acceptance** of a new strategy or updated technical content as a core element of basic nursing, midwifery, or medical education, and to generate **commitment** to incorporating them into existing teaching schedules, the target audiences need to be well-informed about:

- The clinical content to be introduced, including an overview of the scientific evidence base, technical justifications, and description of its usefulness in clinical practice
- Effective approaches taken in other countries and teaching institutions to incorporate teaching of similar content into the basic education of nursing, midwifery, or medical personnel
- What students should know, and what students should be able to do, after learning the new content (i.e., the learning objectives)
- What the new/updated content can offer to students in terms of new knowledge, skills, and attitudes (i.e., the academic rationale)
- The types of teaching, learning, and assessment methods and materials that are commonly used for mastery learning and competency-based preservice education
- The national plan for curriculum strengthening

This can be accomplished by:

- ***Presentations or discussions*** at meetings or congresses of academic associations, professional societies, and government authorities to develop a deeper understanding of the new/updated content.

Very little time (e.g., 1 to 2 hours) is usually scheduled for presentations or discussions at meetings or congresses. It is important, therefore, to carefully and strategically select the information to present, and allow time for questions and discussion. It is best to give a brief introduction to the new/updated content and its evidence base, and then present what it can offer to students in new knowledge, skills, and attitudes (i.e., the academic rationale).

- ***An orientation workshop*** (or a series of workshops) with members of the target audiences to foster a deeper understanding of the new/updated content and the plan for its introduction into preservice education. These workshops or meetings can be held on the national or regional levels, as well as at teaching institutions involved in the initial phase of introduction.

A more thorough orientation of the target audiences can be achieved through a workshop. Depending on the prior knowledge of the participants, a workshop would require from 1 to 3 days. If the majority of participants have no previous training in the content area, a longer workshop is preferred so that participants receive an adequate introduction to the topic. A longer workshop also allows for a more thorough discussion of the evidence upon which the new/updated content is based. In addition, a workshop should allow sufficient time for presentation and discussion of the national plan for the curriculum strengthening process. Modifications to the plan, based on the feedback from opinion leaders and decision-makers, can then be incorporated as appropriate and necessary. The resulting **endorsement of the national plan** will greatly facilitate its implementation at all levels.

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Understanding and acceptance of new/updated content and commitment to its incorporation into curricula can best be achieved by a thorough orientation of the target audience in a workshop.

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## **CREATE A CURRICULUM STRENGTHENING GROUP**

With the national plan endorsed by opinion leaders and decision-makers, one task remains in Phase One before moving on to Phase Two, *Prepare for and Conduct Teaching*. A group should be formed of those individuals who will be directly responsible for reviewing and strengthening the existing curriculum and then leading implementation within each school. There is a particularly strong need for such a group when more than one teaching institution is involved or when more than one curriculum will be strengthened, for example, when there is no standard curriculum for all nursing schools in a country. In both cases, this group will facilitate the

standardization of strengthening and implementation activities. This group will also be in a unique position to take the lead in monitoring implementation across institutions, as well as in reviewing and revising implementation efforts in Phase Three.

## **Objectives**

The objectives of creating a curriculum strengthening group are to:

- Encourage full participation of classroom and clinical teaching staff in planning, implementing, reviewing, and revising teaching
- Facilitate the implementation of key activities for the preparation, implementation, and review of teaching
- Ensure the ongoing participation and support of national-level stakeholders

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It is important that the curriculum strengthening group include both teachers and clinical staff in order to adequately address both classroom and clinical teaching issues in later stages of curriculum strengthening and implementation.

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## **When to Form a Curriculum Strengthening Group**

Once the national plan of action has been endorsed by key stakeholders and the institutions that will be involved in the first round of implementation have been identified, the members of the curriculum strengthening group should be selected. Because the selection process may involve a large number of teaching and clinical staff within each institution, it should be initiated as soon as it is appropriate. It is impossible to move on to Phase Two until the group has been formed.

## **Members of the Curriculum Strengthening Group**

The curriculum strengthening group should include:

- Two to four representatives of key departments and clinical practice sites from each of the teaching institutions involved in the first phase of implementation. These individuals should be directly involved in teaching students, either in the classroom or the clinical practice site, in areas related to the new/updated content. The selection process should be based on their interest and willingness to actively participate in the curriculum strengthening process rather than on their technical expertise or teaching abilities, as these will be strengthened in Phase Two.

As active teachers, they will be able to provide a realistic picture of the actual challenges faced in teaching and help ensure that these challenges are adequately addressed in later tasks and phases. This is particularly true in nursing and midwifery schools where a lack of coordination between classroom and clinical teaching is common.

Classroom faculty are often unable to maintain their clinical skills and therefore rely upon the staff in the clinical practice sites to help students develop the necessary skills. Unfortunately, the staff is often unprepared for this role, even when given the title of “clinical preceptor” or “clinical instructor.” This lack of preparation, combined with limited coordination between the school and clinical site, often results in students’ completing their education without the skills they need to be competent healthcare providers. Including both classroom faculty and clinical staff in the curriculum strengthening group can help to improve this situation.

- Key individuals from the national level, who may also be on the national working group, such as representatives of the Ministry of Health/Ministry of Education, the licensing authority, and the national professional association for the cadre of health professional (e.g., physician, nurse, midwife) whose curriculum is being strengthened. Including these individuals will increase the likelihood that the specific curricular changes made in the next phase, including assessment requirements and methodologies, will be acceptable on the national level.

The total membership of this group should not exceed 20 to 22 persons. With a larger group, the preparation of its members in Phase Two becomes more complicated and an activity may need to be repeated several times for smaller subgroups, thereby requiring more time and resources. It will also be difficult to reach consensus during the curriculum strengthening activity with a larger group. Conversely, a group that is too small may limit its creativity and vision and affect the development and implementation of the strengthened portions of the curriculum. A larger group, however, will allow adequate representation of all the institutions, agencies, and organizations involved in the curriculum strengthening process, thereby granting legitimacy and credibility to the group as it performs its tasks and activities.

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The group’s members should be carefully selected for their energy and commitment, and the support of their institutions for their active involvement on an ongoing basis.

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### **Roles and Responsibilities of the Curriculum Strengthening Group**

After additional preparation in Phase Two, this group will review and strengthen the appropriate portions of the existing curriculum and develop the package of teaching/learning materials needed for its implementation. Upon completion of that task, the group will be well positioned to coordinate and facilitate other tasks and activities described in this guide, such as:

- Creating a plan of action for introducing the strengthened portions of the curriculum into their teaching institutions

- Training teachers and relevant staff at clinical practice sites
- Preparing sites for clinical practice
- Coordinating teaching among different departments and courses at their teaching institutions
- Monitoring progress in implementing the plan of action both at their institutions and at the national level
- Reviewing and revising teaching after the first phase of implementation

Clearly, this group can play an important and far-reaching role in the curriculum strengthening process—one that is emphasized throughout the remainder of this guide. Their ongoing involvement in implementation at the institutional and national levels can provide an important element of continuity. It will, however, require energy and commitment from each of the members and the support of their institutions and the national level. It is therefore important to select the members of this group carefully, and make certain that they are both interested and able to actively participate throughout the curriculum strengthening process.

*Phase One – Plan and Orient*

## TWO

# PHASE TWO – PREPARE FOR AND CONDUCT TEACHING

## OVERVIEW

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Train the curriculum strengthening group

Strengthen the curriculum

Develop and produce teaching, learning, and assessment materials

Equip the teaching institutions

Plan for implementation in each institution

Orient decision-makers, faculty, and clinical staff at each teaching institution

Train additional teachers and clinical staff

Prepare clinical practice sites

Coordinate teaching

Conduct and monitor teaching

Conduct followup visits

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Strengthening one area of the curriculum can lead to change in other areas.

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The new knowledge, skills, and attitudes as well as the new teaching, learning, and assessment processes that are to be incorporated into the existing curriculum have the potential to spread throughout a teaching institution and transfer to other subjects. Experience has shown, for example, that strengthening the family planning portion of the curriculum can lead to demand for similar strengthening in pediatrics. Several challenges, however, must be overcome when incorporating new content and processes into an academic program. In most medical, nursing, and midwifery schools, agendas are already overcrowded, teaching and student assessments focus on the development of knowledge rather than clinical skills, and coordination among different academic years and courses is limited.

The tasks described in this phase aim to:

- Clearly define where and how new/updated content will be taught within an academic program

## *Phase Two – Prepare for and Conduct Teaching*

- Prepare staff, materials, and clinical practice sites
- Coordinate, implement, and monitor teaching

All of the tasks in this phase are important to the success of strengthening preservice education. Depending on the needs and resources within a country, however, national authorities and teaching institutions may decide to combine certain of these tasks or activities.

The followup visits, described in the last task of Phase Two, have been found to be particularly effective in facilitating implementation of a strengthened curriculum. Conducted by a national-level team of external assessors, they offer opportunities to give feedback and guidance to individual institutions, and provide an overview of the preservice strengthening process at the national level. It is therefore strongly recommended that all countries include followup visits in their efforts.

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Followup visits can help ensure successful implementation of strengthened curriculum, and it is strongly recommended that they be conducted in Phase Two.

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During this phase, teaching institutions should clearly define when, where, and how new/updated content should be taught within an academic program or programs. They should then work with local and national authorities to identify and prepare clinical practice sites, train teachers and clinical staff, and prepare appropriate materials for teaching, learning, and assessment. In addition, they should carefully coordinate teaching among different departments, and monitor teaching to identify any improvements needed.

The role of the national-level authorities during this phase is to support teaching institutions to prepare for, implement, and monitor teaching. This includes assisting schools to train teachers, set up clinical practice sites, and prepare appropriate materials. Followup visits should be organized and conducted by national-level authorities as well. If more than one school in a country will introduce the new/updated content, the national authorities may lead or coordinate several activities in this phase to help share experiences among schools and avoid duplication of effort.

### **TRAIN THE CURRICULUM STRENGTHENING GROUP**

To effectively review and strengthen the existing curriculum, the members of the curriculum strengthening group must have mastery of the new/updated content as well as a thorough understanding of mastery learning and competency-based training. This will require activities focused on each of these areas, even for those members who are also part of the national working group and may have already received an orientation to these topics.

## Objectives

Preparing the curriculum strengthening group helps to ensure that the members have:

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The curriculum strengthening group must master both the new/updated content and competency-based training before reviewing and revising the existing curriculum.

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- The clinical knowledge and skills (if appropriate) needed to assess what is currently being taught in all areas related to the new/updated content
- A thorough understanding of mastery learning and competency-based training and the ability to use the teaching methods most appropriate for the new/updated content
- The ability to apply their clinical knowledge and skills as well as their teaching skills to the review and strengthening of the current curriculum

## When to Train the Curriculum Strengthening Group

As soon as the members of the curriculum strengthening group have been identified, their preparation should begin. The process may take several months to complete, so it is important to begin as soon as possible to prevent future activities from being delayed.

## Who Can Organize and Conduct Training

The training needed by the curriculum strengthening group should be organized by the national working group. Technical experts are needed to fully train the group members in the new/updated content. Those who conduct the clinical training skills activity should be experts in teaching and training. It is recommended that a technical expert also assist with the training skills activity if the training expert is not a technical expert as well. This will help ensure that the examples, models, and teaching methodologies that are emphasized are appropriate for the technical content that will be taught.

## What Training Is Needed

In most instances, two activities will be required to adequately prepare the members of the curriculum strengthening group for their task. They are:

- **Training in the technical content.** For some content areas, such as family planning, this may be primarily an update of existing knowledge and skills. For other areas, such as obstetrical practices, PAC, HIV/AIDS, or IMCI, more in-depth training may be required to ensure that the participants fully understand not only the content but also how it is to be applied in practice. This training may also be

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Training classroom faculty and clinical staff together facilitates the development of a team approach to educating students.

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targeted according to the needs of the participants. For example, classroom faculty who do not have clinical skills or a way to adequately maintain them may only update their knowledge and perform skills with models. Clinical staff, on the other hand, will need to gain the necessary knowledge, as well as develop skills with both models and patients. Nevertheless, training classroom faculty and clinical staff together, whenever possible and appropriate, not only achieves standardization of knowledge and skills between the two groups, but also promotes a sense of working together as a team in the education of students.

The size of the curriculum strengthening group and the technical content to be mastered will determine both the time required for this activity and the number of times it will have to be repeated. A limited amount of content, or content that incorporates a smaller set of clinical skills, such as family planning or PAC, will require less training time than a technical area such as maternal and newborn health, which requires a very broad and complex set of skills. The requirement to work with patients will also influence the time needed for training. Often the opportunities to practice the skills to be mastered are infrequent or difficult to anticipate, so that more time must be spent in clinical practice sites to allow adequate practice for all participants. One week for knowledge updating and 2 weeks for clinical skills training and standardization, when working with patients, are frequently needed for maternal and newborn health, for example, while family planning may take as little as 3 to 5 days for knowledge and skills. Ensuring mastery of such a large set of skills as in maternal and newborn health will also require that fewer participants be trained at one time, so that the training will have to be conducted several times.

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The number and complexity of clinical skills to be standardized will determine the time required to complete this training.

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- ***A clinical training skills course.*** In this course, the participants strengthen or acquire the skills needed to effectively transfer their technical expertise to their students. Again, this course may be tailored to the needs of the participants. Clinical staff who do not give classroom presentations may focus more on working with models and patients, while faculty may give more attention to classroom skills.

The clinical training skills course can usually accommodate as many as 20 to 22 people, the recommended size for the curriculum strengthening group. With that number of participants, 2 weeks of training, incorporating several practice and feedback opportunities for each participant, will be needed.

Although each of these activities should address the specific, and somewhat distinct, needs of classroom faculty and clinical staff, it is recommended that whenever possible an activity that includes both faculty and clinical staff be conducted. Although it may take some creativity to

design and implement it, the advantage of creating a classroom/clinical team that will work together more effectively in the future far outweighs any disadvantages.

## **STRENGTHEN THE CURRICULUM**

Once the curriculum strengthening group has completed its preparation, it is ready to critically review the existing curriculum and make revisions in both content and methodology. To develop materials, prepare clinical practice sites, and train teachers and clinical staff—all of which are needed for effective teaching—when, where, and how the new/updated content will be taught within an academic program must be clearly defined. “When” refers to the years or terms of an academic program. “Where” relates to the courses and clinical practice sites. And “how” refers to the teaching, learning, and assessment methods that will be used.

### **Objectives**

The objectives of curriculum strengthening are to:

- Clearly define when, where, and how the new/updated content will be taught within the curriculum
- Identify the teaching, learning, and assessment materials needed to implement the strengthened portions of the curriculum (and which will be developed in the next task)
- Identify the equipment and supplies needed to implement the strengthened portions of the curriculum

### **When to Strengthen the Curriculum**

This task should be initiated as soon as possible after the curriculum strengthening group is trained, because subsequent tasks are shaped by its results.

### **Who Can Lead Efforts to Strengthen the Curriculum**

Someone experienced in instructional and curricular design should lead this task. If that individual is not a technical expert in the content area, then such an expert must also help lead this task to ensure technical accuracy and appropriateness at all stages.

### **How to Strengthen the Curriculum**

In this task, the curriculum strengthening group applies its updated technical and teaching knowledge and skills to the existing curriculum.

The members will review and revise what is already being taught, incorporating the new/updated content and appropriate teaching methodologies and identifying the materials needed by both students and teachers. This will result in strengthened portions of the curriculum that can then be implemented in each teaching institution. The time and effort needed to accomplish this task will be determined by what is already in the existing curriculum and the amount of new/updated content to be incorporated.

A 2-week workshop, incorporating principles of **instructional design** and their practical application, is recommended to begin curriculum strengthening. During this workshop, review and revision of the curriculum can be completed. Often materials development, the next task, can be started as well. Depending on the amount of content to be updated or added, however, materials development and preparation may need to be completed in additional activities.

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The process of strengthening the curriculum begins with a review of the current job description for the cadre of healthcare provider whose curriculum is being strengthened.

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The process begins with a review of the current job description for the cadre of healthcare provider whose curriculum is being strengthened. Job responsibilities relevant to the new/updated content are identified, and are then broken down into the knowledge, skills, and attitudes needed to fulfill them. That completed, the curriculum is reviewed to identify where each element of knowledge, skills, and attitudes is, or should be, addressed.

Each of these portions of the curriculum should be carefully reviewed, and then assessed with regard to:

- Accuracy and appropriateness of the technical content
- Appropriateness of the learning objectives
- Appropriateness of the teaching methodology
- Appropriateness of the assessment methodology
- Integration of skill development
- Materials needed for teaching, learning, and assessment

Based on this assessment, the necessary modifications are made within the existing curriculum. For the needed knowledge, skills, and attitudes not included in the curriculum, appropriate points for their inclusion are identified and designed. Generally, it is necessary to work within the boundaries of the existing curriculum. For example, when new content is being added to a course, it will not be possible to add time to accommodate the new content; rather, other teaching within the course must be adjusted to allow time for the new content. This can be a challenging and ongoing process.

If a single curriculum is being strengthened—for example, all the nursing schools use a standard curriculum mandated by national authorities—this work can be divided among small groups. If each teaching institution has

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Generally, it is necessary to work within the boundaries of the existing curriculum.

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its own curriculum, however, the members of the curriculum strengthening group from that institution will have to complete this review, assessment, and strengthening for their entire curriculum. This is also true if the curricula for different cadres of healthcare providers, such as nurses and midwives, are being strengthened at the same time. It is especially challenging to combine physicians and other cadres of healthcare providers for curriculum review and strengthening activities in light of the different approach that is often needed for each. Medical schools, for example, may focus on the internship year only, while nursing and midwifery schools may make changes throughout their multi-year curricula. In situations where more than one cadre or curriculum is being addressed, members of the curriculum strengthening group will focus only on their own cadre or institution. Thus, there will be fewer individuals among whom to divide the work, and completing the strengthening process will require more time.

When updating or adding an extensive amount of content, such as maternal and newborn health, integrating content into numerous different courses, such as HIV/AIDS, or working with a number of distinct curricula at the same time, another approach may be used. Using the job descriptions, core competencies are defined and broken into knowledge, skills, and attitudes. This information is then used to design a broad outline of what is to be taught, how it is to be taught, and how it is to be assessed, both in the classroom and clinical setting, to achieve that core competency. There is no detailed review of existing curricula, but rather, teachers are expected to incorporate this outline into the appropriate portions of appropriate courses throughout what is often a multi-year curriculum.

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A well-designed or strengthened curriculum allows students to integrate the knowledge and skills from different courses and apply them in a realistic clinical setting.

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Even when the new/updated content is limited and well defined, as is the case with family planning, it affects or is affected by teaching that takes place in other portions of the curriculum. As the content becomes broader, such as obstetrical skills, or involves introducing completely new material, the situation becomes even more complicated. Fortunately, it has been shown that much of the content of even new strategies such as PAC or IMCI can be incorporated into existing subjects and activities within an academic program. The challenge, however, is to integrate the activities of different departments and courses rather than fragment them. At some point, the student must learn to integrate the knowledge and skills learned in different courses or subjects, and practice them in the clinical environment where they are normally applied. The more extensive or specialized the new/updated content is, the greater the challenge in achieving this integration.

For example, physical examination skills, infection prevention, interpersonal relations, and the technical content of family planning are taught in different courses in most curricula. Integration of these areas

should first occur in the classroom portion of the curriculum during which family planning is taught. A well-designed or strengthened curriculum will ensure that physical examination, infection prevention, and interpersonal relations will all have been taught **before** students study family planning. Then, when they arrive at the family planning portion of the curriculum, the focus will be on applying the previously mastered knowledge and skills to the specific situation of providing family planning services. The clinical rotation or practice that accompanies the classroom teaching should then provide students with the opportunity to practice the integrated skill of **family planning service delivery** rather than just the individual skills on which it based.

## **DEVELOP AND PRODUCE TEACHING, LEARNING, AND ASSESSMENT MATERIALS**

During the previous task of strengthening the curriculum, one of the objectives is to identify the teaching, learning, and assessment materials needed to implement the strengthened portion of the curriculum. Once that is accomplished, the curriculum strengthening group can move on to the task of developing the materials identified.

### **Objective**

The objective of materials development is to develop and prepare the materials needed for teaching, learning, and assessing the new/updated content.

### **When to Develop Materials**

This task should be initiated as soon as the curriculum review and revision have been completed. This can be a lengthy task to complete, and implementation of the strengthened curriculum cannot begin until the needed materials are developed, produced, and disseminated.

### **Who Can Lead Materials Development**

Someone experienced in instructional design and materials development should lead this task. If that individual is not a technical expert in the content area, then such an expert must also help lead this task to ensure the technical accuracy and appropriateness of all materials developed.

### **The Process of Materials Development**

The curriculum strengthening group now applies its updated technical and teaching knowledge and skills to developing the materials needed to implement the strengthened portions of the curriculum. The time and effort needed to accomplish this task will be determined by the amount

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The curriculum strengthening group also applies its updated technical and teaching knowledge and skills to developing the materials needed to implement the strengthened portion of the curriculum.

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and types of materials identified in the curriculum as well as the amount and quality of materials already available for use or adaptation. In many situations, this task can be started in the same activity during which the curriculum is reviewed and revised. Often, one or more additional activities are then needed to complete the materials development. All materials that are developed should:

- Be consistent with the national service delivery and clinical guidelines
- Correspond to the learning objectives
- Support teaching, learning, and assessment methods to be used by teachers and clinical staff
- Be available and affordable to students, clinical staff, and teachers

National and school authorities will need to determine how to create an affordable and sustainable supply of materials. These materials must be produced in sufficient quantities so that students, clinical staff, and teachers have ready access to them. If the materials are not readily available, the implementation of the strengthened portions of the curriculum will be adversely affected, thereby limiting its impact. The following different strategies have been used to address this need:

- Some countries have established revolving funds for the production of materials; an initial outlay of money from the government or another source is used to produce the materials, which are then sold at cost. All funds from purchases are then used to produce more materials for sale, which, when sold, fund further production, and so on.
- Other countries have sought donor assistance to provide materials on an ongoing basis or to provide funds to produce the initial batch of materials. Income generated from their sale is then used to produce more materials, which are sold to produce more materials, and so on.
- Still others have found it necessary to ask students to purchase the materials; packaging the materials according to the course or year of study in which they will be used will make it more feasible for students to purchase them as needed, rather than all at once.
- In most countries, schools also keep multiple copies in the libraries for student use. Some even provide an unbound copy to facilitate students' photocopying the portions that they would like to keep.

Frequently, some combination of all of these options is used to make the materials as widely available and inexpensive as possible. The members of

the curriculum strengthening group can provide valuable information regarding the feasibility of each option in their own institution.

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A standardized learning package of materials helps achieve consistency in the transfer of knowledge and skills and in objective evaluation of student performance, not only within a teaching institution, but across institutions as well.

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A **standardized learning package of materials** helps achieve consistency in the transfer of knowledge and skills and in objective evaluation of student performance, not only within a teaching institution, but across institutions as well. Just as the curricula of different schools or cadres of healthcare providers may vary in the amount and type of strengthening they need, the package of materials needed for their implementation may also vary. Nevertheless, the similarities are usually greater than the differences, and standardization should be encouraged, especially in the teaching, learning, and assessment materials. For example, the procedure for inserting an IUD should be the same, regardless of the type of healthcare provider performing the procedure; the checklist for this skill should be the same for all. Consequently, when working with several curricula or cadres at the same time, it is often possible to divide and share the materials development work and move it forward more quickly.

A standardized learning package should include:

- ***A reference manual or text***, used by teachers, clinical staff, and students, that presents accurate, up-to-date information on the technical content. This may be an existing local or international textbook, if appropriate, or it may be a collection of handbooks, guidelines, journal articles, or other sources of information. In some cases, a textbook may even be written as part of the materials development process. All other materials are based on this content.
- ***Materials for the student***, which will be used to facilitate the transfer and development of knowledge, skills, and attitudes. These materials include:
  - A syllabus or introductory document that clarifies roles and responsibilities of teachers, clinical staff, and students, presents the learning objectives for the package, describes the teaching, learning, and assessment methodologies and materials, and presents a description or schedule of the classroom and clinical sessions during which the learning package will be implemented. This is usually a supplement to the syllabus that is part of the existing curriculum.
  - Case studies, role plays, learning guides and checklists, and exercises.
- ***Materials for the teacher***, which will be used to facilitate the transfer and assessment of knowledge, skills, and attitudes. Many of these

materials will be used by the clinical staff and preceptors as well. These materials may include:

- The same syllabus that the students receive
- Lesson plans
- Overhead transparencies or slides/presentation graphics
- Computer-based presentations
- Case studies, role plays, learning guides and checklists, and exercises
- Answer keys to the case studies and exercises
- Instruments for assessing student knowledge, skills, and attitudes

Assessment instruments and a plan for their systematic application are of particular importance. Assessment of students is routinely conducted in most teaching institutions to track student progress and determine whether each student is ready to move forward in the course of study. Such assessment focuses heavily on knowledge. Skills are assessed, but often based on the number of procedures performed rather than on the student's ability to perform each step in that skill correctly and competently. With this approach, students often do not receive the kind of feedback that will allow them to improve their performance, nor are they assessed individually on each of the key skills needed to master a clinical area. Assessment instruments designed for use in the strengthened curriculum that embody principles of competency-based training should address these gaps in assessment practices. Learning guides and checklists, which describe the steps in a procedure and the order in which they should be performed, should also be a key part of the learning package.

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Assessment instruments are needed that can provide feedback on performance during practice and demonstrate a student's readiness to move forward in the course of study.

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It is important, therefore, to define the purpose of each assessment activity. Will the assessment measure student knowledge (i.e., understanding of a subject) or practical skills (i.e., the ability to do something)? Will it help students improve their performance by providing feedback (i.e., formative assessment) or determine if a student should move to the next stage of studies (i.e., summative assessment)? A sound educational strategy such as mastery learning will involve frequent activities for formative assessment to make sure that students have opportunities to practice and improve the knowledge, skills, and attitudes that will be included in a summative assessment.

And finally, when academic advancement depends on passing examinations, students will focus their studies on learning the material that will be covered in the exam. Conversely, if material is taught but not included in the exam, students will see no reason to concentrate on this content. For this reason, it is essential to prepare materials for assessing the new/updated content—both knowledge and skills—and

to incorporate those materials into standard assessment activities. For the same reason, it is important to have assessment of the new/updated content included in graduation and licensing examinations as well.

- ***Audiovisual materials***, such as videos, flipcharts, posters, and other teaching or job aids, which further facilitate the transfer of knowledge, skills, and attitudes in the classroom and the clinical practice areas.

Traditionally in preservice education, more attention is given to developing materials for use in the classroom. The clinical practice portions of the curriculum are not well-designed or supported with materials. Consequently that clinical time is not used effectively to ensure that students develop the skills they need to be competent healthcare providers. Therefore, when strengthening curricula it is important not only to improve the design of the clinical practice portions of the curriculum and develop the materials needed for effective teaching and learning in the clinical practice sites. It is important also to share those materials with the clinical sites and train the staff, especially the preceptors or those directly involved in teaching students, in their use. In a number of countries, healthcare delivery practices have been improved simply by making these types of materials available to the staff who then use them to monitor and improve their own performance as providers. As a result, the staff become strong role models for the students during their clinical practice experiences.

## **EQUIP THE TEACHING INSTITUTIONS**

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Equipping the institutions can require a great deal of time and resources, and therefore must be started early to avoid delaying implementation of the strengthened curriculum.

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When the curriculum strengthening group reviews and revises the existing curriculum, it will also identify the equipment and supplies needed to effectively implement the newly strengthened curriculum. What is needed will be determined by the knowledge and skills to be mastered, as well as the teaching methodologies to be used. Some institutions will have the equipment they need, while others will not. Information about what is already available at the teaching institutions will have been collected during the needs assessment and should be used to guide the purchase and distribution of additional equipment and supplies.

### **Objective**

The objective of equipping the teaching institutions is to provide each teaching institution with the models, medical equipment and supplies, and audiovisual equipment needed to implement the strengthened portions of the curriculum.

## **When to Equip the Institutions**

Because purchasing and shipping of equipment and supplies can be time-consuming, and progressing to implementation of the strengthened portions of the curriculum must await their arrival, the process of equipping the institutions should begin as soon as the needs have been determined. The need for some standard equipment and supplies, such as overhead projectors and other audiovisual equipment, may be clear following the needs assessment. Other more specialized needs, such as for anatomic models, may not be apparent until after review and revision of the curriculum are completed. The institutions can be equipped in phases in such cases, which may be more financially feasible as well.

## **Who Can Equip the Institutions**

The national working group, or a subgroup of its members, should take the lead in equipping the institutions, as a coordinated effort at the national level will be the most effective in accomplishing this task. Not only is this group well positioned to identify what is needed, but it is also the best prepared to address the financial and logistical issues involved.

## **The Institutions' Needs**

Although equipping the teaching institutions may seem to be one of the most straightforward tasks to be accomplished in the curriculum strengthening process, it may also be one of the most challenging. In most countries, teaching institutions are routinely supplied with only the most basic equipment and supplies. The needs assessment will undoubtedly find that much of this equipment is old and poorly functioning. The incorporation of mastery learning and competency-based training into the strengthened portion of the curriculum will require new and different equipment and supplies than are usually found in these institutions. The equipment and supplies most frequently needed include:

- Writing boards or flipcharts with paper and pens
- Overhead projectors
- Pre-made transparencies and/or transparency film and pens
- Video cassette players and monitors
- Appropriate videos
- Anatomic models appropriate to the skills being taught, such as breast and pelvic models, childbirth simulators, and resuscitation models
- Medical equipment needed for the skills being taught, such as sphygmomanometers, stethoscopes, vaginal speculae, forceps, scissors, injection equipment, and ambu bags
- Infection prevention supplies, such as protective clothing, plastic buckets, gloves, and chlorine solution
- Medical supplies, such as gauze, cotton, and alcohol

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Equipping the institutions is one of the most challenging tasks, requiring considerable resources, and is best coordinated at the national level.

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The equipment and supplies must also be available in quantities appropriate to the size of the school and the number of students. One childbirth simulator, for example, is not adequate for a midwifery school of 60 students. Students in this situation will not have enough opportunities to practice with the model, skill assessment cannot be performed efficiently, and the model will quickly become worn out from constant use. Several such models will be needed if students are to master childbirth skills according to the principles of competency-based training.

Therefore, equipping multiple teaching institutions requires considerable financial resources. Few educational systems will have such resources immediately available, even if they are strengthening only a limited number of institutions initially, and will have to look to a number of sources for assistance. For this reason, the national working group is in the best position to direct this task, as many potential sources of assistance may already be members of the group or be known to members of the group. By pooling whatever resources are available and matching them to the overall needs of the involved institutions, the national group can also oversee their appropriate use and equitable distribution. Possible sources of assistance include:

- International donor agencies (e.g., USAID, United Nations Population Fund [UNFPA], UNICEF)
- Bilateral development organizations
- Nongovernmental organizations
- Private foundations

Some sources may prefer to donate funds, while others will donate equipment or supplies. For this reason, it is important that the national working group coordinate and monitor efforts so that the needs are prioritized and met, efforts are not duplicated, and key items are not overlooked. Because many similar needs for equipment and supplies will be identified as part of preparing the clinical practice sites, the national working group may find it more effective to combine the needs for schools and clinical sites when approaching donors and partners for assistance.

## **PLAN FOR IMPLEMENTATION IN EACH INSTITUTION**

Once the curriculum has been strengthened, it is essential that a plan for its implementation in each institution be developed. This plan is guided by the national plan, but is specific to the needs and conditions found in each institution.

## **Objectives**

The objectives of planning for implementation are to:

- Determine how the strengthened portions of the curriculum will be introduced into the existing academic program
- Identify additional activities at each institution, such as orientation of decision-makers, teachers, and clinical staff and training of teaching staff, that are needed to support implementation
- Identify additional steps or interventions, such as ensuring availability of materials, that are needed to support implementation
- Decide what preparations are needed at the clinical practice site(s)
- Identify who at the national and/or local levels will be responsible for carrying out these activities

## **When to Plan for Implementation**

Although general planning may begin at any time after an institution agrees to take part in the first phase of implementation, a detailed plan of action can be developed only after the curriculum strengthening activities are completed, or at least well underway, and needs are more clearly identified. In many cases, as part of the curriculum strengthening activities, a model plan is developed and then tailored by each institution to its specific situation. This modification can take place while materials development and production are being completed and teaching institutions are being equipped.

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A detailed plan of action can be developed only after the curriculum strengthening activities are completed, or at least well underway.

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## **Who Can Develop the Plan**

When there is a model plan of action, the curriculum strengthening group develops it. The adaptation of the model plan or the development of a plan specific to a particular teaching institution can be carried out by that institution's representatives in the curriculum strengthening group. Their work as part of that group will give them unique insights into what additional work is needed in the school and the clinical practices sites to prepare them for implementation. They may need to consult with additional representatives from their institutions to put their plan of action in final form.

## **The Content of the Plan**

The activities included in the plan of action are based on and guided by the national plan. Generally, the need to orient additional decision-makers,

faculty, and clinical staff, train additional teachers and clinical staff, and prepare the clinical practice sites will have been recognized and included in broad terms within the national plan. Additional activities to support implementation can now be identified, as appropriate, and a detailed plan for implementation of all the activities can be developed for each school.

A decision must be made about whether it is appropriate to conduct these activities on a national or local level, and who will be responsible for carrying them out. Some activities, for example, may involve only a few individuals from each institution and so are best conducted on a national level. Others, such as training faculty, may have to be conducted at each institution as they involve larger numbers of individuals. Regardless of where they are conducted, most of these activities will require that the national level provide some input and support, for example, with preparation of the clinical practice sites, because individual institutions will not have the resources or authority to make the necessary changes.

An important component of the detailed plan for implementation is a clear description of the process by which the strengthened portions of the curriculum will be introduced into the existing curriculum. Depending on the extent of the new/updated content's impact on the curriculum and the resources available, it may be possible to make all of the necessary modifications to teaching at the same time. In this situation, all affected courses, in all terms or years of the curriculum, will begin to implement their new/updated content at the same time, as soon as all the necessary conditions are in place.

It can be difficult, however, to introduce extensive changes, such as strengthening all maternal and newborn health content, into several different years of a program at the same time. For this reason, some schools may choose to stagger the introduction of such teaching. For example, a medical school might focus on the ob/gyn rotation in the internship year initially and then work backward to incorporate relevant theory and practice into earlier years of the program. Or a midwifery school might start strengthened teaching in first-year classes, and then work forward in the program to introduce it into subsequent courses and clinical practice, thereby progressing along with the students. In these situations, the plan should indicate which years, terms, courses, or academic areas will implement the changes first, second, third, and so on.

The plan of action should:

- Be tailored to the needs and resources of each individual teaching institution

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It is important that the plan of action describe the sequence in which the strengthened portions of the curriculum will be implemented.

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- Identify how decision-makers, faculty, and clinical staff at each institution will be oriented to the strengthened portions of the curriculum
- Identify how teachers and clinical staff at each institution will be trained in the technical content, teaching skills, implementation of the strengthened portions of the curriculum, and use of the package of materials
- Identify how the clinical practice sites will be prepared
- Identify mechanisms for creating a sustainable supply of materials, trained teachers, and clinical staff at each institution and clinical practice site
- Describe the roles and responsibilities of the national and local levels in organizing and conducting these activities
- Identify resources that will be needed to carry out these activities and who will supply them
- Describe the process by which the strengthened portions of the curriculum will be introduced
- Outline how implementation of the strengthened portions of the curriculum will be monitored, followed up, and later reviewed and revised in Phase Three at the institutional and national levels
- Include a budget and a timeline for each institution

Orientation of decision-makers, training of teachers and clinical staff, preparation of clinical practice sites, monitoring of implementation and followup visits by national-level teams are described in more detail in the following sections of this chapter.

As described in the next task, this plan of action will be presented to the decision-makers, faculty, and clinical staff at each institution during the orientation. They will be asked to provide feedback and **endorsement** of the plan, as well as to make a commitment to its implementation.

## **ORIENT DECISION-MAKERS, FACULTY, AND CLINICAL STAFF AT EACH TEACHING INSTITUTION**

As has been noted, introducing new/updated information usually has an impact on more than one course or department. Therefore, before beginning implementation of the strengthened portions of the curriculum, it is important to orient the faculty and clinical staff who will be directly

involved to its content and methodology, as well as the plan for its implementation.

### **Objectives**

The objectives of orientation are to:

- Ensure that decision-makers, faculty, and clinical staff responsible for implementation of the strengthened portions of the curriculum accept and understand it before its introduction
- Ensure that all essential tasks and activities relevant to an individual institution have been included in the plan of action

### **When to Conduct Orientation**

Orientation should take place as soon as a draft plan of action has been developed. Undoubtedly, many faculty and clinical staff will have heard about the upcoming changes, and providing them with as much information as possible early in the process will help to gain their support. The plan of action should not be considered final until the decision-makers, faculty, and clinical staff have the opportunity to review it and provide feedback, which may lead to its modification. This is another reason for conducting orientation and sharing the plan as soon as possible.

### **Who Can Orient Decision-Makers, Faculty, and Clinical Staff**

The most appropriate individuals to conduct orientations are the school representatives who serve in the curriculum strengthening group. They have detailed knowledge of the strengthened portions of the curriculum, as well as the plan of action, having participated in the development of both. It is often helpful to include one or more individuals from the national working group as well, to lend support and share the national-level commitment with individuals at each institution.

### **Target Audience**

The target audiences for this task are:

- Opinion leaders and decision-makers in the teaching institution
- Decision-makers in the clinical practice sites
- Faculty members from all the courses and departments involved in implementing the strengthened portions of the curriculum
- Clinical staff from the clinical practice sites

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Orientation of decision-makers, faculty, and clinical staff should be conducted as early as possible in order to create awareness, understanding, and acceptance of the new/updated content and gain endorsement of the plan of action.

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Some of these individuals may have been involved in earlier orientations at the national level. They should also be included in this orientation because it will provide them with more detailed information about what will happen in their own institution and their roles and responsibilities during implementation. It will also give them an opportunity to have a voice in planning implementation, thereby increasing their commitment.

### **How to Reach the Target Audience**

The purpose of this task is to **create awareness, understanding, and acceptance** of the new/updated content among those who will be implementing the strengthened portions of the curriculum. Similar to the orientations at the national level, this orientation will explain the rationale for the changes, help them understand the process by which the changes will be made in their institution, and generate their **commitment** to implementing the changes within their teaching. It will also obtain their **endorsement of the plan of action**. They should be informed about:

- The clinical content to be introduced and its scientific evidence base
- What students should know, and what they should be able to do, after learning the new content (i.e., the learning objectives)
- What the new/updated content offers to students in terms of new knowledge, skills, and attitudes (i.e., the academic rationale)
- The types of teaching, learning, and assessment methods and materials that will be used
- The plan of action for their institution

In most instances, a 1-day meeting or workshop is adequate for this purpose. Only an overview of the technical content and relevant teaching issues should be given, as additional training in both areas will be provided in the next task of this phase to those directly involved in implementing the strengthened portions of the curriculum.

### **TRAIN ADDITIONAL TEACHERS AND CLINICAL STAFF**

Once the times, places, activities, and materials for teaching are defined, it will be clear which teachers and which staff from the clinical practice site(s) need to be trained. These teachers and clinical staff should receive training in both the technical content and use of teaching methods that are most appropriate for that content.

## **Objectives**

The objectives of training are to ensure that teachers and clinical staff involved in implementation:

- Have a thorough knowledge and understanding of the technical area
- Are able to correctly perform the clinical skills and procedures relevant to the technical content (if appropriate)
- Have a thorough understanding of mastery learning and competency-based training and the ability to use teaching methods that are most appropriate for the new/updated content and are included in the strengthened portions of the curriculum
- Are well oriented to and knowledgeable about use of the standardized learning package of materials

## **When to Conduct Training**

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Training of teachers and clinical staff should focus on the specific content, methodologies, and materials needed to implement the strengthened portions of the curriculum.

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It is advisable to begin training teachers and clinical staff once the strengthened portions of the curriculum are developed and orientation has taken place. This will allow the training to be targeted to the specific content, methodologies, and materials needed to implement the strengthened portions of the curriculum and increase the motivation and commitment of those being trained. Depending on the size of a teaching institution, it can take several months to train **all** involved teachers and clinical staff, so it is best to begin the training as soon as appropriate. In addition, the teaching institution should develop a strategy for the ongoing training of incoming or new classroom and clinical teaching staff.

## **Who Can Organize and Conduct Training**

At most institutions, the number of teachers and clinical staff to be trained will fill more than one training activity. Therefore, it will be more efficient for the individual institutions to organize the training courses for their own teachers and clinical staff, rather than having the national level centrally coordinate and conduct training for all institutions. The representatives of the school in the curriculum strengthening group can act as organizers and trainers. Assistance may be needed from the national level, however, in identifying additional trainers, providing materials, and the like.

National-level trainers brought in to supplement internal resources also must be very familiar with the area in which they will be teaching. Technical experts are needed to conduct training in the new/updated content, while those who are teaching training skills must be familiar with the strengthened portions of the curriculum and the standardized learning

package. A technical expert may also be needed to assist with the training skills activity to help ensure that the examples, anatomic models, and teaching methodologies are appropriate for the technical content that is being taught in the curriculum.

### **What Training Is Needed**

To prepare teachers and clinical staff for their role in the implementation of the strengthened portions of the curriculum, two training activities will be needed. These are the same two activities that were conducted to prepare the curriculum strengthening group. They are:

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Teachers and clinical staff must be trained in **both** the new/ updated content and clinical training skills.

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- ***Training in the technical content.*** For some content areas, for example, family planning, training may be primarily an update of existing knowledge and skills, while for other areas, such as obstetrical practices, PAC, HIV/AIDS, or IMCI, it may require more in-depth training so that the participants fully understand not only the content but also how it is to be applied in practice. This training may also be targeted according to the needs of the participants. For example, classroom faculty who do not have clinical skills or a way to adequately maintain them may update only their knowledge and perform skills with models. Clinical staff, on the other hand, will need to gain the necessary knowledge, as well as develop skills with both models and patients. Nevertheless, training classroom faculty and clinical staff together, whenever possible and appropriate, not only ensures standardization of knowledge and skills between the two groups, but also promotes a sense of working together as a team in the education of students.

The number of faculty and clinical staff to be trained as well as the technical content to be mastered will determine both the time required for this activity and the number of times it has to be repeated. A limited amount of content, or content that incorporates a smaller set of clinical skills, such as family planning or PAC, will require less training time than a technical area such as maternal and newborn health, which requires a very broad and complex set of skills. The need to work with patients will also influence the time required for training. Because the opportunities to practice the skills to be mastered are often infrequent or difficult to anticipate, more time must be spent at clinical practice sites to allow adequate practice for all participants. One week for knowledge updating and 2 weeks for clinical skills training and standardization, when working with patients, are frequently needed for maternal and newborn health, for example, while family planning may take as little as 3 to 5 days for knowledge and skills. Ensuring mastery of such a large set of skills as in maternal and newborn health will also require that fewer participants be trained at one time, and that the training therefore be conducted several times.

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Linking the classroom and clinical portions of the curriculum is facilitated by training teachers and clinical staff together.

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- *A clinical training skills course* in which the participants strengthen or acquire the skills needed to effectively transfer their technical expertise to their students is also necessary. Again, this course may be tailored to the needs of the participants. Clinical staff, who do not give classroom presentations, may focus more on working with models and patients, while faculty may give more attention to classroom skills. The strengthened portions of the curriculum and the standardized learning package of materials should serve as the basis for this course, so that participants become knowledgeable about and confident in using them.

Generally, about 20 participants can be effectively trained in clinical training skills during a 2-week activity that incorporates several opportunities for each participant to practice and receive feedback on her/his skills. While very effective, such group-based activities are not a very efficient approach to training the large numbers of individuals needed for preservice education. An alternative approach is to use a self-paced, computer-assisted learning package. In this approach, a computer delivers part or all of the instruction on clinical training skills using multimedia to convey and demonstrate the content in an interactive manner. The computer is also programmed to assess the participants' progress through the material and provide feedback. Use of the computer allows individuals to move through the content at their own pace and when it is most convenient for them. When all of the participants have completed the computerized content, they can then come together for several days to practice and receive feedback on their training skills, just as they would during the 2-week, group-based activity.

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Alternative learning approaches, such as self-paced, computer-assisted learning, can be an efficient way to train the large number of teachers and preceptors needed for preservice education.

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Although each of these activities should address the specific and somewhat distinct needs of classroom faculty and clinical staff, it is recommended that whenever possible an activity that includes both faculty and clinical staff be conducted. Although it may take some creativity to design and implement, the advantage of creating a classroom/clinical team that will work together more effectively in the future far outweighs any disadvantages.

The commitment to teaching is also reinforced by giving the trained clinical staff the title of **clinical preceptor**, even if they receive no other compensation for taking on this role. The term clinical preceptor, or preceptor, will be used throughout the remainder of this guide when referring to the trained clinical staff responsible for teaching students.

## PREPARE CLINICAL PRACTICE SITES

Experience has shown that students should learn and practice clinical skills in an environment where national guidelines and protocols are actually used on a routine basis. It is therefore essential to carefully select appropriate healthcare facilities to prepare as clinical practice sites.

### Objectives

The objectives of preparing a clinical practice site are to help ensure that:

- Administrators of the site understand and support the new/updated content
- Clinical staff are able to deliver services according to national guidelines and protocols
- Appropriate patients, supplies, and equipment are available for clinical practice

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Identification and preparation of one or more sites where students can practice service delivery as outlined in national guidelines and protocols should begin as early as possible in the curriculum strengthening process.

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### When to Prepare Clinical Practice Sites

It may take considerable time—6 to 12 months is common—and resources to orient administrators and prepare the staff, supplies, and equipment needed to teach and practice the new/updated content at a health facility. For this reason, identification and preparation of one or more sites where students can practice service delivery as outlined in national guidelines and protocols should begin as early as possible in the curriculum strengthening process. Identification of possible sites can begin at almost any time; if potential sites are identified before the needs assessment takes place, they may then be included in the assessment. The information gained will be very useful in making the final site selection and guiding preparation.

### Who Can Prepare Clinical Practice Sites

Key persons from the teaching institution, who themselves are trained in the new/updated content, should work together with administrators and staff from healthcare facilities to prepare clinical practice sites. When multiple clinical sites are needed, additional outside resources—human, financial, and physical—may need to be found. National, regional, or district authorities may also be needed to help in making the necessary supplies and equipment available, as well as in endorsing the necessary changes in service delivery practices if they have not yet been widely disseminated.

## **Criteria for an Effective Clinical Practice Site**

To help ensure that students are provided with the opportunity to practice their developing skills in an environment where guidelines are supported and used on a routine basis, clinical practice sites should, to the extent possible, meet the following criteria before receiving students:

- They provide the same level of care as the sites where students will work after graduation.
- The administration and staff are supportive of the new guidelines and protocols.
- Staff are trained in the guidelines and protocols.
- Patients are routinely managed according to the guidelines and protocols.
- Staff are receptive and prepared to receive students.
- They have a sufficient caseload of appropriate patients.
- They have enough space to accommodate the number of students who will practice there.
- They have sufficient supplies of the drugs and equipment needed.
- Lodging and other accommodations are available for students, when necessary.
- Students can practice full service provision, not just isolated skills.

## **How to Prepare Clinical Practice Sites**

Trained persons from the teaching institutions should identify clinical sites that already meet the criteria outlined above as closely as possible. The staff at a teaching institution should then work with national or regional authorities to strengthen these sites even further. To accomplish this they will need to:

- ***Orient administrators, supervisors and clinical staff.*** Administrators, supervisors, and clinical staff at a health facility must understand and accept the new/updated content before they can effectively support its teaching. Depending on when this orientation takes place, some of these individuals may have been included in other orientation activities, but typically there are additional staff at each facility who also need orientation. This orientation should include an overview of not only the new/updated content and its scientific evidence base, but also the process of curriculum strengthening and the role of the clinical staff in teaching.
- ***Train clinical staff.*** Staff in the clinical areas that will receive students should have their own knowledge, skills, and attitudes strengthened so that they can perform according to the national service delivery guidelines and thus be strong role models. Often this training requires ongoing support to make certain that it is put into practice. Regular

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Ongoing support is often needed to reinforce training at the clinical practice sites and maintain a positive learning environment for students.

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and periodic visits by the trainers and faculty, as well as supervisors and national authorities, to reinforce teaching, assist with problem solving, and provide encouragement will help create a positive environment for student practice. Another advantage of regular visits is that faculty will get to know the clinical staff very well, thereby facilitating the selection of the staff members most suited to take on a more active teaching role in the curriculum strengthening process.

- ***Ensure that necessary supplies and equipment are available.*** Staff from the teaching institution and clinical practice sites should work with national authorities to make sure that drugs and supplies needed for clinical practice are consistently available at the health facility. Clinical practice sites should also be supplied, whenever possible, with appropriate anatomic models for use in maintaining staff skills after training as well as for ongoing student practice. Although the national healthcare system may be able to provide drugs and supplies, providing models is often beyond its capacity. Therefore, when equipping the teaching institutions, the needs of the clinical practice sites should also be addressed. Donors are often willing to help provide the models to the clinical practice sites as well as to the schools.

## **COORDINATE TEACHING**

Teaching institutions frequently incorporate elements of new/updated content into different years or terms of an academic program. Even when the new/updated content is limited to a single course, the teaching that supports it often takes place in different terms or years. This requires staff in different departments, courses, and clinical practice sites to coordinate their teaching activities in order to present an integrated approach. This coordination requires careful planning as well as mechanisms for sustaining interaction both inside (e.g., among departments and courses) and outside (e.g., with health facilities) a teaching institution.

### **Objectives**

The objectives for coordinating teaching are to help ensure that:

- Administrators and staff of relevant departments, courses, and clinical practice sites understand and carry out their respective roles in relation to teaching the new/updated content
- All essential elements of the new/updated content are covered within an academic program
- Teaching in one department or course complements, and does not contradict, what is taught in other areas of the academic program

## **When Is Coordination Needed**

Coordination among relevant departments, courses, and clinical practice sites should begin when the plan of action is being developed for the implementation of the strengthened portions of the curriculum, as described earlier in Phase Two. Coordination should be strengthened as orientation of decision-makers, faculty, and clinical staff is conducted and preparations for teaching, both classroom and clinical, are made. And it should continue at different levels of intensity for as long as the new/updated content is taught in a school.

## **Who Can Coordinate Teaching**

The representatives from each institution in the curriculum strengthening group can lead the coordination of teaching in their school. As members of the group that reviewed and strengthened the curriculum, developed the materials needed for teaching and learning, and developed the plan for its implementation in their school, they are well prepared for this role. Most probably, other key faculty from relevant departments were involved in developing the plan of action and they can now assist with coordination as well. Preceptors from clinical training sites should also be involved in coordinating teaching.

## **The Need to Coordinate Teaching**

Regardless of the amount of new/updated content to be introduced, it will undoubtedly have an impact on other courses within the curriculum. Introducing a new healthcare strategy, such as PAC or IMCI, or updating a large content area, such as maternal and newborn health, will affect many courses throughout the curriculum. A more limited focus on a single technical area, such as family planning, also will have an impact on at least a few other courses. In many instances, teaching will not only be integrated vertically throughout different departments or technical areas, but also horizontally across different years or terms of a program.

It is therefore critical that all relevant departments, including clinical practice sites, understand and carry out their respective roles in teaching the new/updated content. Teaching activities should be carefully coordinated so that all elements of the new/updated content are covered, and the teaching in one department or year is consistent with what is taught in another department or year.

When service delivery practices for maternal health are being updated, for example, confusion could arise about the use of folate by pregnant women with malaria, if the course on antenatal care teaches that all pregnant women should be given iron and folate tablets, while the infectious disease course indicates that folate should not be taken at the same time as

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The staff of relevant departments and courses and the preceptors at the clinical practice sites should communicate regularly throughout the planning, preparation, and implementation of the strengthened portions of the curriculum.

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antimalarial drugs. And if in that same antenatal class, students are taught that the objective of antenatal visits is no longer to identify risk factors for each woman, but risk identification remains the focus at the clinical practice site, learning and practice will be hindered.

In the case of family planning, it is important that students be taught sound infection prevention practices in their introductory courses, so that they can then apply their new knowledge and skills to family planning service provision. For example, the same method for the correct disposal of used needles and syringes should be taught in basic courses on nursing practice and in the family planning portion of the curriculum. Otherwise, valuable teaching time will be spent in discussing and resolving the differences in what is taught in each course. Students should observe and practice this same method of sharps disposal in the clinical practice site as well.

Similarly, after introduction of the IMCI strategy, students may become confused if the department of pharmacology teaches that certain drugs are appropriate for the treatment of acute diarrhea, while the department of gastroenterology teaches that no drugs should ever be given to a child with acute diarrhea. Or, if students learn in fourth-year theory that only x-ray positive cases of pneumonia should be treated with antibiotics, they will be confused if they learn in fifth-year clinical practice that children with fast breathing but no chest x-ray taken can be classified as having pneumonia and treated with antibiotics.

To facilitate coordination across departments and courses over time, the teaching staff and the preceptors in the clinical practice sites should communicate regularly throughout the planning, preparation, and implementation of the strengthened portions of the curriculum.

### **How to Coordinate Teaching**

The following types of activities are suggested to coordinate teaching:

- ***Form a small committee to act as a coordinating team.*** As mentioned earlier, the committee should comprise the institution's representatives in the curriculum strengthening group as well as other key faculty members from other departments or courses involved in implementing the strengthened portions of the curriculum. Representatives of the clinical practice sites or the preceptors also should be included. This team should meet regularly to discuss the implementation process, monitor for potential problems and identify strategies for avoiding them, resolve difficulties that arise, and communicate with the other institutions and the national level to share information, ideas, and progress reports. As least one member of the team should attend all staff meetings at which the implementation process will be discussed.

- ***Add the implementation process to the agenda of regular staff meetings.*** The implementation of the strengthened portions of the curriculum could be included on the agendas of regular staff meetings at the teaching institution and clinical practice sites to stimulate discussion of achievements and difficulties with teaching. After these meetings, the coordinating team must be informed about important issues discussed and decisions made.

## **CONDUCT AND MONITOR TEACHING**

Conditions are now set for implementation of the strengthened portions of the curriculum. This is usually best begun at the start of a new school year or term; making changes after a course is underway may be disruptive and unsettling for faculty, students, and clinical practice sites. Monitoring should begin at the same time as implementation.

Monitoring is the process of gathering information about teaching for practical judgment and decision-making. It is a continual process that aims to answer the questions, “How well are we doing?” and, “How can we do better?” The feedback collected through monitoring should lead to corrective action if problems are identified, and influence the way that teaching is planned or carried out in the following year or term of the academic program. Although often done informally, monitoring is most effective when there is a system in place to receive and use the data collected.

### **Objectives**

The objectives of monitoring are to:

- Assess whether teaching is being implemented according to the institution’s plan of action
- Identify achievements and difficulties with new teaching
- Specify actions needed to sustain achievements and overcome difficulties

### **When to Monitor Teaching**

Monitoring of teaching should begin when implementation of the strengthened portions of the curriculum begins, and should take place throughout a year or term. Waiting until the end of a course to gather information and ask students, preceptors, and teachers for feedback may prevent early identification of problems and implementation of modifications needed to ensure that the learning objectives are met.

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Monitoring of teaching should begin when implementation of the strengthened portions of the curriculum begins, and should take place throughout a year or term.

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## **Who Can Monitor Teaching**

At each institution, the teachers and preceptors themselves can monitor teaching as it takes place in both the classroom and clinical practice sites. They should share the results of their monitoring with the individuals or team responsible for coordinating teaching at their institution, who will then help them solve problems and share information with other faculty and clinical site staff.

Monitoring should also take place at the national level as described in the next, and final, task of Phase Two, “Conduct Followup Visits.”

## **The Monitoring Process**

Monitoring is conducted to identify shortcomings in the implementation of the plan of action, and to adapt implementation accordingly. The information collected should be used to improve the content, methods, and materials used for teaching as well as to assist the process of reviewing and revising the school’s plan of action in the next phase. This is most effectively accomplished when there is a system in place to receive and use this information. Therefore, the plans of action at both the national and institutional levels should include what monitoring information should be collected and how, with whom it is to be shared and how, and how it will be used at each level—institutional and national. A system for storage and retrieval should also be developed; it can be as sophisticated as a computerized system, but even a simple paper-based system will facilitate the ongoing use of monitoring data to improve implementation.

When implementing the strengthened portions of the curriculum, staff should be prepared to make slight adjustments to teaching content, methods, and materials to meet the identified learning objectives. They should review monitoring information as they collect it so that they can take action, as necessary, to sustain teaching and overcome difficulties. Teachers and preceptors can resolve many difficulties by themselves. Other difficulties, however, may require broader action (i.e., by more than one department or by national authorities). For this reason, it is important for teachers and preceptors to pass on monitoring information to those responsible for coordinating teaching in their institution and to the national level so that these issues can be immediately addressed or included in the review and revision process (Phase Three).

Two main types of monitoring information can be collected:

(a) quantitative data to answer questions such as how many students completed the term, how many hours were spent on new/updated content, how many sessions were conducted, and what were the results of student assessments; and (b) qualitative data such as suggestions from students, preceptors, and teachers on how to improve the content, methods, and

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Monitoring is most effective when there is a system in place to receive and use the data that are collected.

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The plan of action should describe what monitoring information is to be collected, how it should be gathered, how it is to be used, and with whom it should be shared.

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materials used for teaching. The plan of action should provide guidance about what type of information should be collected at various points during implementation.

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Systematically collecting and documenting monitoring data as implementation progresses will facilitate followup visits and tasks in Phase Three, *Review and Revise Teaching*.

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Quantitative and qualitative data can be collected on four aspects of teaching:

1. **The content of teaching.** To answer questions such as: Does the content build on the existing knowledge and abilities of students? Do students find the new knowledge and skills useful and applicable?
2. **The context of teaching.** This includes questions such as: Is the new teaching supported by the institution's deans, directors, teachers, preceptors, and staff at clinical practice sites? Does the teaching correspond with what is taught in other related courses? Are necessary resources and equipment available for teaching?
3. **The process of teaching.** To answer questions such as: How many students completed the term? How many hours and sessions were spent on teaching the new/updated content? What was the ratio of students to faculty? Did students benefit from the methods used for teaching, learning, and assessment? Was information presented in a clear and understandable way? Were appropriate (e.g., relevant, understandable) teaching, learning, and assessment materials used?
4. **The outcome of teaching.** Do students demonstrate the expected levels of knowledge and skills?

Although this may appear to be a large amount of detailed information for ongoing collection, most teachers and preceptors already informally gather and monitor a great deal of it. Other pieces may be included in standard administrative records or other sources. The ongoing followup visits by faculty from the teaching institutions to the clinical practice sites, recommended to reinforce and maintain the training the staff have received, are a good opportunity to collect information on the teaching taking place there. Several possible methods for more formally and systematically collecting this information are suggested below.

It is strongly recommended that all data collected for monitoring be thoroughly documented for use by the national-level followup teams and in the next phase, *Review and Revise Teaching*. Much of the same information will be needed to complete those tasks, and having it readily available will prevent duplication of effort. Some of the information collected during monitoring, which would, in fact, be difficult or even impossible to recreate later, will contribute to a more complete and accurate review of the implementation process and thereby improve future implementation.

## **How to Collect Monitoring Information**

As mentioned above, teachers and preceptors should start to collect monitoring information as soon as they begin to implement the strengthened portions of the curriculum.

Possible ways to collect information include:

- ***Written questionnaires.*** Questionnaires can be developed and administered to measure student, preceptor, or teacher satisfaction with the content, context, process, and outcome of teaching. Written questionnaires tend to be more objective and easier to administer than interviews. However, they provide little opportunity to probe for more information or to complete partial answers.
- ***Discussions or interviews with students, preceptors, and teachers.*** Individual or focus group interviews are useful for in-depth exploration of ideas or issues. To reduce bias and increase the objectivity of the results, interviewers should be carefully selected. For example, students may feel intimidated and provide less candid responses if their own teachers interview them. For this reason, it would be more effective to recruit and train a student to conduct interviews with fellow students, and possibly even with other teachers.

Even informal discussions may provide valuable information on how implementation is progressing. Teachers and preceptors should make note of relevant comments for this purpose. It is important, however, to do so in such a manner that students and colleagues are not afraid to speak openly because they are concerned about how their remarks may be interpreted or used.

- ***Observation of teachers, preceptors, and students.*** Teaching sessions can be observed and possibly recorded by members of the coordinating team. It is important for the observer to know in advance what questions s/he wishes to answer about the teaching content, context, and process. The ongoing followup visits to the clinical practice sites are a good opportunity to observe the preceptors as they work with students.
- ***Periodic visits by a national-level followup team.*** These visits, which are described in detail below, have proved to be very beneficial to many institutions. Conducted several times during the first phase of implementation, such visits by individuals from outside the institution can offer new insights and points of view. The teams can use monitoring information already available at the institution and collect new or additional data that will contribute to assessing progress of the implementation process at the national level. Such visits, by indicating

national-level interest in the institution's efforts, also contribute to maintaining the motivation of the institutions, regardless of the challenges they are facing.

Teachers and preceptors should **review the results of the information collected to identify any actions needed**. Teaching staff, both teachers and preceptors, can monitor and adjust their own teaching. They can also meet periodically to discuss achievements and difficulties with teaching, and identify actions needed to sustain achievements and overcome difficulties. Having teachers and preceptors review results together will promote communication and problem solving. When reviewing the results of monitoring, teachers and preceptors will find it useful to refer to the school's plan of action for introducing the strengthened portions of the curriculum.

## **CONDUCT FOLLOWUP VISITS**

As teaching institutions and clinical practice sites implement the strengthened portions of the curriculum, they need followup and support. This can best be provided by a national-level team that periodically visits each of the implementing institutions and its clinical practice sites to monitor progress, identify difficulties, assist with problem solving, and provide feedback.

### **Purpose and Objectives**

The purpose of the followup visits is to assess and support the implementation of the strengthened portions of the curriculum at both the institutional and national levels.

The objectives of the followup visits are to:

- Ensure standardized implementation of the strengthened portions of the curriculum at the national level
- Assess and provide feedback to teachers and preceptors on their teaching and clinical skills
- Assess the availability and use of resources needed to implement the strengthened portions of the curriculum
- Identify problems in implementing the strengthened portions of the curriculum and develop solutions
- Identify what support is needed from the national level to overcome difficulties and sustain achievements

## **When to Conduct Followup Visits**

The first followup visits should take place within 3 to 6 months after the institutions begin implementing the strengthened portions of the curriculum. This will give them time to get implementation underway, and also allow a timely response to any difficulties or problems that must be solved with outside assistance. Additional visits should take place at intervals of 3 to 6 months, as resources allow. Every effort should be made to conduct the visits when institutions are actually implementing a strengthened portion of the curriculum. For example, visiting a nursing school that has strengthened the family planning portion of the curriculum when surgical nursing is being taught will not be very fruitful.

## **Who Can Conduct Followup Visits**

Teams of three to five individuals are ideal for followup visits. To visit each institution and its clinical practice sites at the recommended intervals, several such teams may be needed, especially when multiple institutions are participating in the first round of implementation.

All followup team members should have strong interpersonal skills and be interested in and available to take on this role. At least one member of the team must be proficient in clinical training skills, and at least one other must be expert in the new/updated content, including the appropriate clinical skills. In addition, the team should be selected to include representatives of the key stakeholders for that cadre of healthcare provider (e.g., the nurses' association when visiting nursing schools). Members of the followup team must have a clear understanding of the curriculum strengthening process, and consequently, team members are often members of either the national working group or the curriculum strengthening group. To maintain the objectivity and impartiality of the team, no one from the institution being visited should be a member of the followup team.

## **The Role of the Followup Team**

Because followup team members are “outsiders” to the institutions they visit, they can offer new insights and perspectives. These visits are an opportunity for institutions to share information with the team and for the team to share what it has seen and learned during other visits. The visits also enable the team to see first hand the challenges being faced at an institution and assist with problem solving, including identification of further interventions or assistance needed from the national level. The visits are especially useful for members of the team who represent national bodies, such as the Ministry of Health, who are not directly involved in implementation.

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Followup visits are most effectively conducted by teams with expertise in training skills, the new/updated content, and the curriculum strengthening process.

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Because followup teams come from outside the institution, they can make objective observations, offer new perspectives, and assist with problem solving, as well as facilitate the flow of information among institutions.

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The followup team can serve as a clearinghouse for information on the process of implementation, difficulties encountered, and strategies for their resolution. This combining of institutional experiences and the national-level perspective will benefit not only the implementation currently underway, but also the future expansion into additional schools. The team can also report back to the national working group periodically, either in writing or at meetings, to keep the group informed about progress and gain its commitment to providing additional support.

Finally, institutions report that such visits motivate them to continue with implementation, regardless of the challenges they are facing. They appreciate that representatives of the national level are interested in what is happening and are prepared to assist them.

For all of these reasons, it is highly recommended that followup visits be included in **all** preservice strengthening efforts.

### **How to Conduct Followup Visits**

Visits will take a minimum of 1 to 2 days per institution. Additional time may be required if there is a large number of teachers and preceptors to assess, or numerous problems that require attention from the team. The team will need quantitative and qualitative data on the same four aspects of teaching identified in “Conduct and Monitor Teaching”:

1. **The content of teaching.** Does the content build on the existing knowledge and abilities of students? Do students find the new knowledge and skills useful and applicable?
2. **The context of teaching.** Is the new teaching supported by the institution’s deans, directors, teachers, preceptors, and staff at clinical practice sites? Does the teaching correspond with what is taught in other related courses? Are necessary resources and equipment available for teaching?
3. **The process of teaching.** How many students completed the term? How many hours and sessions were spent on teaching the new/updated content? What was the ratio of students to faculty? Did students benefit from the methods used for teaching, learning, and assessment? Was information presented in a clear and understandable way? Were appropriate (e.g., relevant, understandable) teaching, learning, and assessment materials used? Do teachers and preceptors use appropriate classroom and clinical teaching skills? Do teachers (if appropriate) and preceptors have the necessary clinical skills?
4. **The outcome of teaching.** Do students demonstrate the expected levels of knowledge and skills?

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Many institutions attribute their success at implementing a strengthened curriculum to the support and motivation provided by followup visits. This alone is sufficient reason always to include followup visits in the preservice strengthening process.

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Much of this information should have been collected during monitoring and should be provided to the followup team. If it has not been collected or is not accessible, then the team will have to collect at least some of it again, thereby lengthening the time needed for each visit and limiting both the quantity and quality of data available to them.

When the institution’s monitoring information is available to the team, the additional information gathered is often determined by potential problems identified before implementation began, actual problems that were identified during monitoring, and other areas, such as student performance, that may be of particular interest at the national level. The team is particularly focused on identifying what is required from the national level in order to solve problems and sustain achievements.

Regardless of how many teams are formed, a standardized approach should be used during followup visits. The same data collection instruments and methodologies should be used to collect the same information from each institution visited. This will allow a more comprehensive data collection and analysis effort, from which national-level problems and issues can be identified.

As with monitoring, suggested ways to collect information include:

- ***Written questionnaires.*** Questionnaires can be developed and administered to measure student, preceptor, or teacher satisfaction with the content, context, process, and outcome of teaching. Written questionnaires tend to be more objective and easier to administer than interviews. The team may be able to follow up with some or all of the respondents in order to probe for more information or complete partial answers before ending their visit, or on subsequent visits.
- ***Discussions or interviews with students, preceptors, and teachers.*** Individual or focus group interviews are useful for in-depth exploration of ideas or issues. As a team of “outsiders,” the followup team is well positioned to reduce bias and increase the objectivity of the results because teachers, preceptors, and students may feel more comfortable being candid with them than they would if dealing with their colleagues, teachers, or fellow students.

Even informal discussions may provide valuable information on how implementation is progressing. Teachers and preceptors should make note of relevant comments for this purpose. It is important, however, to do so in a manner that encourages students and colleagues to speak openly (i.e., they should not be concerned about how their remarks may be interpreted or used).

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A standardized approach to conducting followup visits will allow data collected at each institution to be pooled and analyzed to identify national-level problems and monitor overall progress.

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Feedback should always be provided at the end of each followup visit, with a special focus on problem solving.

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- **Observation of teachers, preceptors, and students.** Teaching sessions can be observed and possibly recorded by members of the followup team. It is important for the observer to know in advance what questions s/he wishes to answer about the teaching content, context, and process. The observer must also be an expert in the area that is being observed (e.g., classroom teaching skills or specific clinical skills).

An important aspect of these visits is the feedback that is provided at the end. Although this does not have to be highly detailed, it should not directly compare one institution with another. It should acknowledge each institution's strengths and weaknesses, and provide information on how the implementation process has progressed among all the institutions as a whole. Particular attention should be given to problem solving for the areas found to be weak and to the actions and resources needed to sustain or strengthen teaching in the future.

## THREE

# PHASE THREE – REVIEW AND REVISE TEACHING

## OVERVIEW

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Review the institutional plan of action

Assess the methods and materials used

Measure the outcome of teaching

Revise the institutional plan of action

Conduct review and revision visits

Review and revise the national plan of action

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Introduction of change is a cyclical process. No initial plan of action can cover all aspects of change that are needed, or foresee all difficulties that might be encountered during implementation. For this reason, teaching institutions, with assistance from national authorities, should monitor the introduction of new/updated content and strengthened teaching practices as described in Phase Two. In addition to monitoring, a more in-depth review of implementation should take place. This review will assess the appropriateness, relevance, and effectiveness of teaching, and incorporate elements of process and outcome evaluations. The results will provide the basis for the modifications that need to be made to the institutional plan of action to sustain or strengthen teaching. Revision of institutional plans of action can also lead to revision of the national plan of action.

Review and revision should be conducted **periodically**, after **each** round of teaching. Although it can be done more frequently—and should be, if monitoring indicates there are major problems in the implementation process—generally it is first conducted upon completion of the first term or school year in which the strengthened portions of the curriculum have been implemented. The review and revision process can be carried out in several days, or over several weeks. During the process, monitoring information gathered in Phase Two, if available, is reviewed and additional information is collected where needed. Decisions are then made about how to revise each institution’s plan of action, as well as the national plan of action, if necessary.

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Review and revision should be conducted periodically, after each round of teaching.

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The tasks described in this phase aim to:

- Review the implementation of a school’s plan of action

- Identify actions and resources needed to sustain or strengthen teaching, at both the institutional and national levels

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Review and revision visits **must** be conducted if followup visits were not included in Phase Two.

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The first three tasks of Phase Three, “Review the Institutional Plan of Action,” “Assess the Methods and Materials Used,” and “Measure the Outcome of Teaching,” can be completed in any order or at the same time. They can also be combined into a review and revision visit conducted by a national-level team of external assessors. Review and revision visits are similar to the followup visits conducted in Phase Two, and the same team can carry out both types of visits. If followup visits were conducted as part of implementation and monitoring, a review and revision visit may not be necessary because the institutions will already have information and feedback from external sources. If, however, followup visits were **not** conducted, it is important that each institution receive a review and revision visit in order to benefit from the fresh perspectives and objectivity of external assessors in this third phase of the preservice strengthening process.

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Careful collection and storage of monitoring data in Phase Two will limit the amount of information that must be collected in Phase Three.

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Much of the data needed for review and revision will have been collected as part of monitoring in Phase Two and should not need to be collected again. To ensure that such data are accessible, it is important to incorporate monitoring and review activities, whenever possible, into the existing system that a teaching institution uses to monitor and evaluate teaching. The introduction of new/updated content can also be taken as an opportunity to strengthen the process that a school uses for monitoring and evaluation.

## **REVIEW THE INSTITUTIONAL PLAN OF ACTION**

In Phase Two, staff at a teaching institution, guided by their representatives in the curriculum strengthening group, develop a plan of action for introducing the strengthened portions of the curriculum into their academic program. Periodically during implementation, the staff at the teaching institution should review their plan of action to identify what has been achieved and what still needs to be done. After the first round of teaching, however, a more in-depth review of the plan of action is needed.

### **Objectives**

The objectives of reviewing the plan of action are to:

- Identify which elements of the plan were achieved and which were not
- Determine why certain activities were incomplete or delayed
- Identify what additional actions are needed to overcome difficulties

## When to Review the Plan of Action

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Although the plan of action guides implementation on a daily basis, an in-depth review is needed at the end of the first round of teaching.

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Although the plan of action will be used to guide the implementation process on a regular basis, a more in-depth review of the plan and progress made should be conducted at the end of the first round of teaching, usually 6 to 12 months after implementation has begun.

## Who Can Review the Plan of Action

The individuals or team responsible for coordinating and monitoring implementation, with assistance from additional teaching staff, should review the plan of action. In addition, the staff may request assistance from the national working group, from the followup team, or from persons with teaching experience and knowledge of preservice education and the new/updated content.

## Areas to Be Reviewed

When reviewing the plan of action, staff at a teaching institution should identify the main **achievements**, **difficulties**, and **actions needed** in the following areas:

- **Orientation.** Were activities to orient opinion leaders and decision-makers carried out as planned? Are additional or different types of orientation activities needed? If yes, describe.
- **Training of teachers.** Were all relevant classroom teachers trained in the new/updated content? Did the training prepare them to perform correctly, when appropriate, according to the national guidelines? Did the training give them adequate knowledge of the new/updated content to share with students in the classroom? Were they also trained in teaching skills and how to implement the strengthened portions of the curriculum? Did this training prepare them adequately? Is any additional training needed? If yes, explain.
- **Preparation of clinical practice sites, including clinical staff.** At the health facilities where students practice, do decision-makers and staff understand and support the new/updated content? Are clinical staff trained in the new/updated content? Is the manner in which services are provided consistent with the new/updated content and the national guidelines? Are the clinical staff trained in how to teach and supervise the students? Are staff available to help the students? Do they allow students to deliver services under supervision, rather than just observe? Are the appropriate drugs, equipment, and supplies available? Is there a sufficient number of patients? Are any additional preparations needed? If yes, explain.

- **Materials for teaching, learning, and assessment.** Were all necessary materials for teaching, learning, and assessment obtained or developed? Are the materials understandable, affordable, and easily available to students, preceptors, and teachers? Are additional or different materials needed? If yes, explain.
- **Placement of teaching.** Did teaching start as planned in all relevant departments, courses, and academic years? Is there a clear link between the new/updated content and related areas of teaching? Should the new/updated content be introduced in additional subjects, years, or departments? Are there additional supporting areas of the curriculum that need to be strengthened? If yes, explain.
- **Implementation of teaching.** How many hours were spent on teaching the new/updated content in each relevant course and year? How many hours of teaching were conducted in classroom sessions? How many hours did each student spend in clinical practice? During clinical practice, did each student have an adequate opportunity to practice new skills with patients? What was the average ratio of students to teachers in the classroom and to preceptors in clinical practice sessions? Were students assessed for knowledge and skills in the new/updated content? If yes, how were they assessed? Did each student receive feedback from teachers and preceptors to improve her/his knowledge and skills? Were questions or problems on the new/updated content incorporated into standard examinations? Is each student formally assessed for her/his **skills** related to the new/updated content? Are additional or different activities or methods needed for teaching the new/updated content? If yes, explain.
- **Coordination of teaching.** Was a coordinating team created at the school? If yes, do members of the group represent all departments, courses, and clinical practice sites that are implementing the new/updated content? How frequently did the coordinating team, or staff from relevant teaching units and clinical practice sites, meet to discuss achievements and difficulties with teaching? Was this enough? Why or why not? Did students find any contradictions in teaching between different departments and courses? Did students find any contradictions between teaching in the classroom and in the clinical practice sites? Should the coordinating team be redefined or strengthened? If yes, how?

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The review of the plan of action should include the orientations and trainings conducted, the preparation of clinical practice sites, the materials used for teaching, and the placement, implementation, and coordination of teaching.

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Many of these questions will already have been answered or the information needed to answer them will already have been collected during monitoring. If the data have been well documented and are available to whoever is reviewing the plan of action, efforts in this task can then focus on filling the gaps and then using all of the data to identify strengths and weaknesses during the first round of implementation.

## **How to Gather Information**

In addition to reviewing monitoring data from Phase Two, the following activities are suggested to facilitate the review:

- **Individual review.** Representatives from relevant departments, courses, and clinical practice sites should review the plan of action and note their achievements and difficulties with its implementation. They should also propose possible activities that could be carried out to overcome difficulties. This information should then be shared with those individuals responsible for reviewing the plan of action.
- **Review meetings.** The individuals or team responsible for coordinating implementation could call a meeting of representatives from different departments, courses, and clinical practice sites to discuss achievements and difficulties with implementation of the plan of action. The objective of the meeting would be to create and agree upon a list of achievements and difficulties as well as a description of activities that could be implemented to overcome difficulties and strengthen teaching. Again, the results of the meeting should be shared with those responsible for reviewing the plan of action if they were not included in the meeting.
- **Review and revision visit.** When followup visits have not been conducted in Phase Two, institutions may find a visit by a team of external reviewers or assessors helpful during Phase Three. Even when followup visits were conducted, the institutions may identify additional information they wish to have collected by external reviewers. A teaching institution, therefore, may request members of the national working group, the followup team, or other qualified persons to assist in reviewing the plan of action, as well as assisting with other tasks in this phase. Before the visit, representatives from relevant departments, courses, and clinical practice sites should review the plan of action individually (see “Individual review” above). The results of individual review should then be shared with the external reviewers. These results can then be used by the reviewers, along with interviews and focus group discussions they conduct with teachers, preceptors, and students to answer the main questions described above. Additional information on how to conduct review and revision visits is provided later in this chapter.

## **ASSESS THE METHODS AND MATERIALS USED**

To sustain or improve teaching, it is important to determine whether teachers, preceptors, and students understand, accept, and are able to use the methods and materials prepared for teaching, learning, and assessment.

Therefore, in addition to reviewing the plan of action, a process evaluation of teaching should be carried out.

### **Objectives**

The objectives of assessing the methods and materials used for teaching, learning, and assessment are to:

- Verify that the methods and materials cover the learning objectives specified for the new/updated content
- Determine if students, preceptors and teachers understand, accept, and are able to use the methods and materials

### **When to Assess Methods and Materials**

As they conduct teaching and monitor implementation (Phase Two), staff at a teaching institution and its clinical practice sites should request feedback from students and fellow teachers and preceptors about the methods and materials used for teaching, learning, and assessment. If additional information is needed, it can be collected at the time of review and revision of teaching.

### **Who Can Assess Methods and Materials**

Teachers and preceptors, with assistance from the individuals or team responsible for coordinating implementation within a teaching institution, should collect feedback from students and fellow teachers and preceptors about the methods and materials used for teaching throughout implementation. If additional information is needed during review and revision, staff may request assistance from the national working group, the followup team, or other persons with teaching experience and knowledge of preservice education and the new/updated content, to collect this information.

### **Areas to Be Assessed**

Both the technical and educational value of materials should be assessed. **Technical evaluation** validates that the content is technically correct, up-to-date, written in the appropriate technical terms, and detailed enough to meet learning objectives, but does not contain irrelevant information that detracts from the clarity and usefulness of the materials. **Educational evaluation** verifies that materials are easy to read and understand and structured so that they facilitate learning and enable students to attain the specific objectives for which the materials were selected or prepared.

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Both the technical accuracy and the educational appropriateness of materials need to be evaluated.

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In the assessment of methods and materials, information is needed to answer two main questions:

- ***Are essential learning objectives included in the methods and materials?*** Are essential elements of the new/updated content—listed as **learning objectives** in the syllabus of the learning package that was developed—included in the materials used for teaching, learning, and assessment? In addition, are the essential elements actually taught in both classroom and clinical practice sessions? For example, if a learning objective states that “after completing the family planning portion of the course, students should be able to counsel women about their family planning options,” information about the counseling process as well as the technical information to be shared with the woman during counseling should be included in the materials. Furthermore, teaching should include opportunities for students to experience and practice counseling women in a family planning clinic.
- ***Do students, preceptors, and teachers understand, accept, and use the prepared methods and materials?*** Do teachers, preceptors, and students feel that the information in the teaching, learning, and assessment materials is presented in a clear and understandable way? Do teachers and preceptors feel that the methods or materials are useful and can be applied in their teaching? Do students report that the methods and materials were effective in helping them to understand and use the new/updated content? Are teachers, preceptors, or students confused by any of the methods or materials used?

As in the previous task, “Review the Institutional Plan of Action,” many of these questions will already have been answered or the information needed to answer them will already have been collected during monitoring in Phase Two. If these data have been well documented and are available to whoever is assessing the methods and materials, efforts in this task can then focus on filling the gaps and then using all of the data to identify strengths and weaknesses in the methods and materials used up to this point.

### **How to Assess Methods and Materials**

The following activities should be implemented to assess the methods and materials used for teaching:

- ***Monitor ongoing teaching.*** As described in “Conduct and Monitor Teaching” (see Phase Two), feedback can be gathered from students, preceptors, and teachers through questionnaires, interviews, focus group discussions, and observation of classroom and clinical practice sessions. This feedback should include responses to the two main questions above. Staff within the teaching institution and its clinical

practice sites can gather feedback from teachers, preceptors, and students. The followup visit team will also have received feedback on methods and materials. In addition, external persons who are requested by the school to conduct a review and revision visit could collect further information.

- **Review materials used.** Materials used for teaching, learning, and assessment should be reviewed to determine if essential elements of the new/updated content are adequately covered. Teaching staff should check the content of materials to ensure that they include information that supports the learning objectives defined. In addition, they may request persons from outside the teaching institution who are experienced in instructional design to assist them in reviewing materials during a review and revision visit.
- **Conduct a review and revision visit.** As noted in the previous task, when followup visits have not been conducted in Phase Two, institutions may find a visit by a team of external reviewers or assessors helpful during Phase Three. Even when followup visits were conducted, the institutions may identify additional information they wish to have collected by external reviewers. A teaching institution, therefore, may request members of the national working group, the followup team, or other qualified persons to assist in assessing the methods and materials used, as well as assisting with other tasks in this phase. Before the visit, representatives from relevant departments, courses, and clinical practice sites should collect as much feedback as possible from students, preceptors, and teachers, especially if such information was not gathered as a part of monitoring implementation. During the visit, additional information can be collected through interviews, focus group discussions, review of materials, and observation of teaching. Additional information on how to conduct review and revision visits is provided later in this phase.

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A review of materials by an outside assessor experienced in instructional design can be very helpful in objectively assessing their educational appropriateness. If the assessor is familiar with the new/updated content, s/he can also evaluate their technical accuracy.

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## MEASURE THE OUTCOME OF TEACHING

A review of implementation should include an evaluation of the effectiveness of teaching. This means measuring student performance after participating in classroom or clinical sessions that include teaching on the new/updated content. It answers the question, “Were the expected outcomes achieved with regard to students’ knowledge and skills in the new/updated content?” This is also called outcome evaluation.

### Objectives

The objective of measuring the outcome of teaching is to determine if students demonstrate expected knowledge and skills after participating in classroom and clinical practice sessions.

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The outcome of teaching can be measured at any time after students complete a session, rotation, or term that includes the new/updated content.

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## **When to Measure the Outcome of Teaching**

The outcome of teaching can be measured at any point. Students can be assessed for knowledge and skills at any time during or after participation in classroom or clinical practice sessions where new/updated or relevant content was incorporated. It is not necessary to wait until students complete several years or terms of instruction.

## **Who Can Measure the Outcome of Teaching**

Teachers and preceptors routinely measure the outcome of teaching as they implement the curriculum. In instances where assessment beyond that conducted during teaching is needed, teachers and preceptors may request assistance from the individuals or team responsible for coordinating implementation within their teaching institution, the national working group, the followup team, or other experienced individuals.

## **How to Measure the Outcome of Teaching**

The outcome of teaching can be assessed in the following ways:

- ***Review the results of previous assessments.*** Staff at a teaching institution, or a qualified person from outside the school, can review the results of formative and summative assessments conducted during teaching. They should determine if the results satisfy expressed expectations, identify where performance is weak, and suggest how teaching methods and materials could be modified to improve student performance.
- ***Assess a sample of students.*** If the results of previous assessments are not available or if more information is needed, staff at a teaching institution, or a qualified person from outside the school, can assess the knowledge and skills of a sample of students. This assessment could be done as part of a review and revision visit. It is essential that anyone conducting the assessment know the objectives of teaching, as well as the national guidelines and the new/updated content, to be able to adapt or develop assessment methods and tools to reflect what was taught. For example, if care of antenatal women was incorporated into a session on nutrition, the assessment should include only the elements of antenatal care related to nutrition, such as the need for iron and folate supplements and encouraging an adequate dietary intake.

In addition, staff may wish to evaluate teachers and preceptors to determine if they received adequate training.

## REVISE THE INSTITUTIONAL PLAN OF ACTION

The review of the plan of action, combined with an evaluation of the methods, materials (process evaluation), and outcome of teaching (outcome evaluation), should lead to the identification of actions and resources needed to sustain or strengthen teaching. To help ensure that these actions are taken and resources provided, the plan of action as well as the timeline and budget for implementation should be revised.

### Objectives

The objectives of revising the plan of action are to:

- Incorporate actions and resources needed to sustain or strengthen teaching into the plan of action
- Guide future activities to improve implementation of the strengthened portions of the curriculum

### When to Revise the Plan of Action

Once information about the implementation process, the methods and materials used for teaching, learning, and student assessment, and the knowledge and skills of students after participating in teaching (see tasks above) is collected, the plan can be revised.

### Who Can Revise the Plan of Action

The same individuals who developed the original plan—usually the school’s representatives in the curriculum strengthening group, with assistance from representatives of relevant departments, courses, and clinical practice sites who have also been responsible for coordinating and monitoring teaching—should revise the plan of action. In addition, assistance may be requested from qualified persons outside the teaching institution, such as the national working group and the followup team. These persons can contribute lessons learned from other teaching institutions that have introduced the new/updated content, and can help to identify important resources that will be needed to implement the revised plan, especially those that are needed from the national level. They can then share this information with the national working group.

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When revising the plan of action, administrators and staff should discuss the **achievements** and **difficulties** faced in implementing the initial plan of action.

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### The Revised Plan of Action

The plan of action is revised to ensure that teaching will be sustained or strengthened. The revised plan of action for implementation of the strengthened portions of the curriculum should include a budget and

timeline. It should also indicate how the plan should be monitored and eventually evaluated.

When revising the plan of action, administrators and staff should discuss the **achievements** and **difficulties** faced with the implementation of the initial plan. They should consider feedback received from teachers, preceptors, and students about the methods and materials used for teaching. And they should review the results of any assessments of student knowledge and skills in the new/updated content. They should agree on the actions needed to overcome difficulties or strengthen teaching. This will then be incorporated into the new plan of action. The new plan should be circulated to staff for comments and suggestions. When the plan is in final form, it should be endorsed by relevant decision-makers.

## **CONDUCT REVIEW AND REVISION VISITS**

In several tasks in Phase Three—“Review the Plan of Action,” “Assess the Methods and Materials Used,” and “Measure the Outcome of Teaching”—conducting review and revision visits by outside experts is suggested as one way to collect the information needed to revise the plan of action. As described in those tasks, and assuming followup visits have been conducted, it is up to each institution to decide if such a visit is needed and make the necessary arrangements. In countries where followup visits have **not** been conducted, however, review and revision visits are **essential** in order to better understand what is happening at each individual institution and gain a national-level perspective on progress of the preservice strengthening process overall.

### **Purpose and Objectives**

The purpose of the national-level role in review and revision is to ensure that teaching institutions overcome any difficulties they encounter in implementing the strengthened portions of the curriculum so that they may reach their stated objectives for teaching.

The objectives of conducting review and revision visits are to:

- Describe the achievements and difficulties experienced with the introduction of the strengthened portions of the curriculum
- Assess whether teaching is achieving the stated objectives
- Identify the actions and resources needed to overcome difficulties and strengthen teaching

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When followup visits are **not** conducted in Phase Two, it is **essential** that review and revision visits be included in Phase Three. This will ensure that revision of the institutional and national plans of action is based on objective data systematically collected by assessors not directly affiliated with the institutions being visited.

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## **When to Conduct Review and Revision Visits**

As part of the review and revision of teaching, these visits should take place after the first round of teaching is completed, usually 6 to 12 months after implementation begins. It is beneficial to have each institution compile its monitoring data and, in some cases, collect some additional information prior to the review and revision visit.

## **Who Can Coordinate and Conduct Review and Revision Visits**

A team of outside assessors, including representatives from the national working group, the curriculum strengthening group, and other individuals experienced in the technical content area, teaching, and preservice education, can be formed to conduct these visits. The followup team, if there is one, is uniquely prepared to take on this role. When review and revision visits are optional, each institution may be responsible for arranging their own visits. If followup visits were not conducted, thereby making review and revision visits an essential task in Phase Three, the national-level group should be responsible for coordinating and conducting the visits.

## **How to Conduct Review and Revision Visits**

Many problems cannot be adequately dealt with at the institutional level; they require national-level input. Systematically involving the national level in the review and revision process will promote a clearer understanding of and commitment to the resolution of these problems, particularly if information from monitoring has not been shared with the national level, or followup visits by a national-level team were not conducted in Phase Two.

As with the followup visits, using a standardized methodology in all institutions allows a more comprehensive data collection and analysis effort from which **national-level** problems, issues, and lessons learned can be identified. This analysis can then be used to the benefit of all schools currently involved in implementation and can guide effective expansion to additional schools in the future.

Depending on the number and extent of activities to be conducted, the review and revision visit could take from 1 to 5 days. The length of the visit will be determined by how much information has been shared earlier and how much the institution is able to gather ahead of time. It may include one or a number of activities related to gathering feedback from teachers, preceptors, and students, and identifying activities and resources needed to sustain or strengthen teaching. Before the visit, representatives from relevant departments, courses, and clinical practice sites should review the plan of action and collect feedback and assessment information

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Standardizing data collection during review and revision visits will facilitate the identification of national-level problems and lessons learned, and generate a more accurate picture of the progress of the preservice strengthening process overall.

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from students, preceptors, and teachers to share with the team during the visit.

In some cases, the same team can visit all of the schools, while in others, a number of teams are formed so that all institutions can be visited in a shorter period of time. In all cases, however, the same data collection instruments and methodologies are used to collect the same information from each of the institutions. The information gathered is often determined by potential problems identified before implementation began, actual problems that were identified during monitoring, and other areas, such as student performance, that may be of particular interest at the national level.

As with followup visits, an important aspect of these visits is the feedback that is provided at the end of the visit. Although this feedback does not need to be highly detailed nor should it directly compare one institution to another, it should acknowledge the school's strengths and weaknesses as well as provide information on how the implementation process has progressed among all the schools as a whole. Particular attention should be given to problem solving for the areas found to be weak and to the actions and resources needed to sustain or strengthen teaching in the future. This discussion between the national team and teaching staff will assist with revision of both the institution's plan of action and the national plan of action (see the next task).

The following types of activities may be conducted during a review and revision visit:

- Review with key staff the implementation of their plan of action to identify achievements and difficulties
- Collect feedback from students and teachers on the quality of teaching, learning, and assessment
- Observe classroom or clinical practice session(s)
- Assess the knowledge and skills of a sample of students, preceptors, and/or teachers
- Meet with key staff to provide feedback on the findings of the visit and identify actions and resources needed to sustain or strengthen teaching

A variety of methods can be used, such as written questionnaires, interviews, and focus group discussions, to collect feedback from teachers, preceptors, and students. In addition, the review visit may include different methods to assess the knowledge and skills of students, preceptors, and teachers.

## **REVIEW AND REVISE THE NATIONAL PLAN OF ACTION**

The final task of Phase Three is the review and revision of the national plan of action, if needed, to reflect the review and revision conducted at each institution. This revision will guide further implementation of the strengthened portions of the curriculum in those schools where they have already been introduced, and help ensure more effective implementation in additional institutions as preservice strengthening efforts move into an expansion phase.

### **Objectives**

The objectives of reviewing and revising the national plan of action are to:

- Identify which elements of the plan were achieved and which were not
- Determine why certain activities were incomplete or delayed, or why certain elements of the plan were not effective
- Incorporate any actions and resources needed at the national level to sustain and strengthen teaching
- Guide ongoing activities and expansion efforts in order to improve implementation of the curriculum strengthening process

### **When to Revise the National Plan of Action**

Review and revision of the national plan can take place only after each institution has completed its own review and revision process and shared the results of those efforts with the national level. National-level review and revision visits, if implemented, must also be completed and all data analyzed.

### **Who Can Review and Revise the National Plan of Action**

The national working group, who developed the original national plan of action, should review and revise it, based on information from the institutions and their followup visits, as well as any data from review and revision visits.

### **Areas for Review and Revision**

As in the review of the plan of action at each institution, the purpose of the review of the national plan of action is to identify which elements of the plan were achieved, and what actions are needed to sustain or strengthen teaching. In particular, the national working group should identify the

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Revision will guide further implementation of the strengthened portions of the curriculum in those schools where they have already been introduced, and help ensure more effective implementation in additional institutions as preservice strengthening efforts move into an expansion phase.

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main **achievements, difficulties, and actions needed** in the following areas:

- **Orientation.** Were activities to orient opinion leaders and decision-makers carried out as planned? Are additional or different types of orientation activities needed? If yes, describe.
- **Training of teachers.** Were all relevant classroom teachers trained in the new/updated content? Did the training prepare them to perform correctly, when appropriate, according to the national guidelines? Did the training give them adequate knowledge of the new/updated content to share with students in the classroom? Were they also trained in teaching skills and how to implement the strengthened portions of the curriculum? Did this training prepare them adequately? Is any additional training needed? If yes, explain.
- **Curriculum strengthening activities.** Did all involved institutions have adequate and appropriate (faculty and clinical staff) representation in the curriculum strengthening group? Was the group adequately prepared for their tasks? Based on feedback from the implementation process, did they effectively strengthen the appropriate portions of the curriculum? Did they effectively develop the package of materials needed to implement the strengthened portions of the curriculum? Are additional or different materials needed? If yes, explain.
- **Preparation of clinical practice sites, including clinical staff.** At the health facilities where students practice, do decision-makers and staff understand and support the new/updated content? Are clinical staff trained in the new/updated content? Is the manner in which services are provided consistent with the new/updated content and the national guidelines? Are the clinical staff trained in how to teach and supervise the students? Are staff available to help the students? Do they allow students to deliver services under supervision, rather than just observe? Are the appropriate drugs, equipment, and supplies available? Is there a sufficient number of patients? Are any additional preparations needed? If yes, explain.
- **Resources.** Were all necessary materials for teaching, learning, and assessment obtained or developed? Are the materials understandable, affordable, and easily available to students, preceptors, and teachers? Is there an affordable and sustainable supply?
- **Implementation of teaching.** Did teaching start as planned in all relevant departments, courses, and academic years? Based on feedback from the implementation process, is there a clear link between the new/updated content and related areas of teaching? Should the

new/updated content be introduced in additional subjects, years, or academic programs? Are there additional supporting areas of the curriculum that need to be strengthened? If yes, explain.

During clinical practice, did each student have an adequate opportunity to practice new skills with patients? What was the average ratio of students to teachers in the classroom and to preceptors in clinical practice sessions? Were students assessed for knowledge and skills in the new/updated content? If yes, how were they assessed? Were questions or problems on the new/updated content incorporated into standard examinations? Was each student formally assessed for her/his **skills** related to the new/updated content?

- ***Assistance and coordination.*** Was there adequate assistance from the national level in conducting orientations and training activities in preparation for implementation? Was there adequate assistance from the national level when individual institutions requested help with problems? Was there adequate sharing of information among the institutions and the national level? Did the national level adequately respond to the information it received, particularly when problems were identified? Was external assistance sought and used appropriately? Was this assistance coordinated at the national level?

To answer many of these questions, the national working group needs access to the information gathered during monitoring and during the earlier tasks in this phase. Passing that information along to them throughout the implementation process, either in written reports or through presentations during the group's meetings, will facilitate their role in reviewing and revising teaching. Without information, they will not be able to revise the national plan of action in such a way that it will improve implementation in the future, which is the purpose of this task. The revised plan should have a budget and timeline, as well as monitoring and review activities. It should also detail how implementation will be expanded to additional institutions. If the revised national plan is quite different from the original plan, it is recommended that it be shared with decision-makers and opinion leaders for endorsement.

## FOUR

# PHASE FOUR – EVALUATE TEACHING

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Monitoring is defined as a **continual** process of gathering information about teaching for practical judgment and decision-making. Evaluation is concerned with the **periodic** assessment of the overall process and final results of strengthened teaching.

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Phase Two of this guide describes how to monitor the introduction of new teaching in order to identify shortcomings in the implementation of a plan of action in a timely manner and adapt the implementation accordingly. Monitoring is defined as a **continual** process of gathering information about teaching for practical judgment and decision-making. It includes collecting information about the content, context, process, and intermediate outcomes of teaching. Phase Four, *Evaluate Teaching*, is concerned with the **periodic** assessment of the overall process and final results of strengthened teaching. Many of the same indicators, techniques, and tools that are used for monitoring can and should also be used for evaluation.

There are four main types of evaluations. These are evaluation of the process, final outcomes, effectiveness, and impact of new teaching (see **Table 4-1**). **Process** refers to the changes made in the way an academic program is taught, the methods and materials used, and how teachers and students respond to those methods and materials. **Outcomes** refer to the final results of teaching, particularly in terms of student knowledge, skills, and attitudes (i.e., competence). Outcomes can be evaluated by testing the students during or at the end of a course or academic program. **Effectiveness** assesses the ability of students to apply knowledge, skills, and attitude to their work after graduation (i.e., performance). It can be evaluated by finding out how well students are doing after they have left the teaching institution and started work. Finally, **impact** concentrates on improvements in the health status of a population that may or may not be related to changes in the quality of care provided by graduates.<sup>1</sup>

Process and outcome evaluation were briefly described in Phase Three, *Review and Revise Teaching*. Two tasks in that phase, “Assess Methods and Materials Used” and “Measure the Outcome of Teaching,” are essentially process and outcome evaluations, conducted after each round of teaching. The results are then used to revise the institutional and national plans of action. But countries or institutions may also want to look at process and outcome issues over a larger time span (e.g., the changes made over a complete academic program or throughout the entire

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<sup>1</sup> There are various evaluation frameworks used to evaluate training and performance. The following resources are useful for different perspectives on performance evaluation:

- Kirkpatrick D. 1998. *Evaluating Training Programs: The Four Levels*. Berrett-Koehler Publishers: San Francisco, CA.
- Bertrand J, R Magnani, and J Knowles. 1996. *Evaluating Family Planning Programs with Adaptations for Reproductive Health*. The Evaluation Project, Carolina Population Center: Chapel Hill, NC.

*Phase Four – Evaluate Teaching*

preservice strengthening process, and the effect they have had on students’ knowledge, skills, and attitudes). For this reason, additional information on process and outcome evaluation is provided in Phase Four.

**Table 4-1. Evaluating the Results of New Teaching**

KEY CHARACTERISTICS	TYPE OF EVALUATION			
	Process	Outcomes (Competence)	Effectiveness (Performance)	Impact (Quality)
<b>Process of Evaluation</b>	Describing changes made to the teaching and learning process	Assessing if learning objectives were achieved	Observing service delivery by new graduates	Applying a continuous, cyclical audit
<b>Basic Question</b>	How did they learn it?	Can they do it?	Do they do it?	How well do they do it?
<b>Responsibility for Formal Evaluation</b>	Teaching institutions, national academic associations	Teaching institutions, national academic associations	Licensing authorities, professional associations, societies, employers	Health systems, organizations, hospitals, services, clinics
<b>Responsibility for Routine or Informal Evaluation</b>	Teachers and instructors	Teachers and instructors	Self (professional), patients, peers (coworkers)	Groupings of healthcare providers: colleagues, teams, managers, planners

Most teaching institutions have experience in reviewing and evaluating the process and outcomes of teaching, particularly in relation to student competence at the end of an academic program. To evaluate the effectiveness of teaching, however, the performance of new healthcare professionals must be assessed in their work environment after graduation. An evaluation of the effectiveness of strengthened teaching determines whether students are able to correctly apply their new knowledge, skills, and attitudes after graduation. The results of an effectiveness evaluation should demonstrate to teaching institutions, funding agencies, and national authorities that the resources invested in strengthening teaching produced the expected effect. In addition, the results should be used to identify areas where teaching could be strengthened further.

Because professional performance is much more difficult and costly to measure than student competence at the end of an academic program, an effectiveness evaluation is typically beyond the capacity and resources of a single teaching institution. National coordinating groups such as licensing authorities, professional associations, or other societies should lead the evaluation with the cooperation and assistance of teaching institutions. Moreover, it is recognized that not all countries have the need or the resources to conduct this type of evaluation. For this reason, an evaluation of effectiveness is considered an important but optional task in this phase.

No instructions are given in this guide for evaluating impact, because this type of evaluation is extremely challenging, complicated, and costly to conduct and analyze. Impact should be evaluated only where evaluation capacity is high and the results may be used regionally or even globally.

Regardless of how, where, or what type of evaluation is conducted, it is critical for the national working group to share evaluation results with all relevant teaching institutions. In addition, it is essential for teaching institutions to contribute to evaluation efforts, and to use evaluation results to strengthen their teaching.

## PROCESS AND OUTCOME EVALUATION

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An evaluation of **process** asks the question, “Is teaching being implemented in the most effective way?”

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An evaluation of **process** asks the question, “Is teaching being implemented in the most effective way?” Process evaluation is not concerned with precise measurements of success or failure. It is concerned with describing the changes made to the teaching and learning process to identify ways to improve the knowledge, skills, and attitudes acquired by the end of an academic program. If new teaching is continually monitored, reviewed, and revised, problems with process should be identified along the way.

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An evaluation of **outcomes** looks at the ability of students to apply knowledge, skills, and attitudes in an ideal setting when tested.

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An evaluation of **outcomes** looks at the ability of students to apply knowledge, skills, and attitudes in an ideal setting when tested (i.e., competence). Outcomes are the direct result of changes in teaching. If students are competent at the end of an academic program, it is assumed that this will lead to changes in behavior in practice (i.e., performance). An evaluation of students at the end of an academic program should measure how much students have learned and to what extent they have achieved the revised learning objectives (i.e., key performance indicators).

- **Process: Describe and assess the changes made.** This evaluation focuses on describing the actual changes made to teaching, learning, and assessment. It also assesses how students, preceptors, and teachers react to those changes. As described in the Phase Two task “Conduct and Monitor Teaching,” process information is best collected through ongoing monitoring of teaching activities.

An evaluation of process should answer the following questions (see Phases Two and Three for suggestions about how to collect this information):

- **To achieve the revised learning objectives, what changes were made in the way the academic program is taught?** The answers should provide a brief description of the changes made to the content, context, and process of teaching. This includes the organization, flow, and relationship of different courses within the

academic program; the abilities of entering students; the settings where teaching is conducted; and the resources and equipment available for teaching. In addition, this activity should try to determine whether teachers, preceptors, and students were informed about and understood: (a) the aims and objectives of the teaching; (b) the approaches and procedures used for teaching, learning, and assessment; (c) the roles and responsibilities of administrators, teachers, and students; (d) the organization of activities and timetable; and (e) ongoing developments and changes. Sources of information are teachers, preceptors, administrators, students, course documents, and student records.

- ***To achieve the revised learning objectives, what changes were made to the methods and materials used for teaching, learning, and assessment?*** The responses should describe the changes made in the way teaching, learning, and assessment are implemented, and the changes made in support materials (e.g., textbooks, handouts, visual aids, observation checklists) for teachers, preceptors, and students. Sources of information are teachers, preceptors, administrators, students, course documents, and student records.
- ***How did teachers, preceptors, and students react to the revised program, methods, and materials?*** Feedback should be collected from teachers, preceptors, and students to identify their reaction to the changes made in the program and the methods and materials used for teaching, learning, and assessment. Feedback must be collected in a way that is likely to lead to valid judgments, rather than basing judgments on rumor, intuition, or what one student says. Methods for collecting feedback should include more than handing out a questionnaire to students at the end of a session or course. For suggestions about what types of feedback to collect and how to collect it, see the tasks “Conduct and Monitor Teaching” in Phase Two and “Assess the Methods and Materials Used” in Phase Three of this guide.
- ***Outcomes: Assess student competence at the end of the academic program.*** This evaluation assesses student competence at the end of the academic program. The same methods and tools can be used as those described in the task called “Measure the Outcome of Teaching” in Phase Three of this guide. It is important to note, however, that Phase Three focuses on monitoring intermediate outcomes of teaching in order to guide the review and revision process. An evaluation of final outcomes should concentrate on assessing a group of students in a key set of skills at the end of their course of study.

To evaluate outcomes, it is important to:

- Assess a group of students who have completed the full academic program with the planned changes incorporated into the teaching.
- Conduct a special assessment of this group of students to measure the key performance indicators (i.e., key knowledge, skills, and attitudes). Do not rely on the results of assessments that were conducted earlier in the course of study.
- Measure key performance indicators that are carefully selected based on the revised learning objectives of the academic program. If an evaluation of the effectiveness of new teaching will be conducted, the same key indicators should be used.
- Conduct the assessment in an ideal environment with no constraints in equipment, supplies, and other support.

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The results of process and outcome evaluations should be shared with the national working group, which in turn can share them with teaching institutions, funding organizations, donor agencies, and other relevant stakeholders.

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***How will the results be used?*** The results of process and outcome evaluations should be shared with the national working group, which, in turn, can share them with teaching institutions, funding organizations, donor agencies, and other relevant stakeholders. The information and results should be used to identify activities and resources needed to sustain or further strengthen teaching, and to revise the institutional and national plans of action. In addition, the results of any evaluation should be used to justify resources spent, advocate for continued or additional resources, and assist with national planning for preservice education on other technical topics.

The following activities are suggested for using the results of evaluations:

- ***Interpret the results of evaluations.*** Persons who review the results of evaluations should compare the expected results of strengthened teaching with the actual results described in an evaluation report. They should then identify the gaps between what was expected and what was actually achieved, and try to determine the causes of those gaps. Finally, they should decide what actions might be needed to reduce those gaps. When identifying what actions are needed, answer the following questions: What were the successes or strengths? How could they be extended? What were the problems or limitations? How could they be addressed?
- ***Plan for future changes in teaching.*** The actions identified to reduce gaps should be incorporated into a plan of action for strengthening teaching. This could happen during the review and revision phase (Phase Three) when a teaching institution revises its plan of action, or it could happen in Phase Two as part of the process of monitoring and

refining activities. It is important to recognize that action should be taken and then to formalize that action as an addition or revision to a plan of action. When planning for future changes, answer the following questions: What action should be taken? What changes should be implemented? When? By whom? What is needed (resources, further learning or development, additional information) to help effect these changes?

- **Use results for evidence and advocacy.** Share the results of evaluations with partners, funding organizations, and technical agencies to demonstrate what was achieved and what is still needed.

## EVALUATION OF THE EFFECTIVENESS OF TEACHING

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Before a complicated and costly effectiveness evaluation is conducted, the outcomes of strengthened teaching must be assessed to verify that students actually gained the expected knowledge, skills, and attitudes.

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Teaching is **effective** if students are able to apply the knowledge, skills, and attitudes gained during their education in their real work environment after graduation. It is important to remember that the service setting in which graduates are working may either facilitate or hinder the application of what they have learned. In addition, before a complicated and costly effectiveness evaluation is conducted, the outcomes of strengthened teaching must be assessed to verify that students actually gained the expected knowledge, skills, and attitudes before graduation.

An evaluation of the effectiveness and cost of strengthened teaching should answer the following questions:

- Are students able to apply their new knowledge and skills to their work after graduation?
- How much did it cost to introduce strengthened teaching?
- How much will it cost to sustain strengthened teaching?

The purpose of this type of evaluation is to determine if students are able to apply what they have learned to their work after graduation. As shown in **Table 4-1**, evaluation can assess a continuum of results ranging from outcome to effectiveness to impact. The farther to the right in the table, the more valid the evaluation. Outcome, or whether the learning objectives were achieved, is easiest and least costly to evaluate. The results may not be robust enough, however, to convince stakeholders that a change actually occurred in the practices of healthcare providers. Impact evaluation is complicated, expensive, and can only suggest a probability that new teaching led to changes in the quality of care, as there are many other factors that may influence it—positively or negatively—along with the strengthened teaching. An evaluation of effectiveness, or graduates' performance, is one of the most valid, reliable, and feasible ways to

identify strengths and weakness in a teaching program, and to justify or advocate for the use of resources for strengthening teaching.

Nevertheless, it is difficult to achieve a rigorous evaluation of effectiveness. A robust evaluation requires the definition and use of key performance indicators—measures that can be seen. In addition, it must show change in comparison to something, usually to another group of students who did not receive the intervention. The comparison group could be one that completed the academic program at the same teaching institution before the strengthened teaching was introduced, or a group that completed a similar academic program at a different teaching institution that did not implement the strengthened portions of the curriculum.

Evaluation designs for evaluating effectiveness include:

- ***Case intervention and control.*** This design compares the outcome of two different groups of graduates, one that received strengthened teaching and one that did not. The control group must be very carefully selected to ensure that all aspects of the groups' experience (e.g., type and length of academic program, time of graduation, learning environment) were similar in every way except for the absence of strengthened teaching. The null hypothesis is that performance is the same between the two different groups. However, the evaluation is expected to show a difference in the performance of graduates with and without strengthened teaching. This design is useful for advocacy, but is difficult and expensive to carry out. The advantage is that no baseline data are needed; the difficulty is in identifying an appropriate control group.
- ***Longitudinal (i.e., before and after).*** This design compares the performance of a group of graduates before the strengthened portions of the curriculum are incorporated into a teaching program to the performance of a group of graduates after their incorporation. To document change in performance, comparable information should be collected as a baseline before a teaching institution begins to revise its teaching. In Phase One, a needs assessment is conducted which, if designed and conducted appropriately, should provide the required baseline data. The advantage of this design is that there is no need to identify a control group. The challenge, however, is that there must be comparable baseline information.
- ***Against a standard.*** This design is more useful for implementers than for funding organizations. It can be used to make a plausible argument that the skills measured against the standard are due to the change in the academic program. Graduates' performance is measured against the standard of the national clinical guidelines. Normally, this is

sufficient for self-evaluation to determine whether teaching is achieving its expected results. However, it may not be sufficient to convince national officials, partners, and donors to keep investing in the process.

### **Collection and Analysis of Information**

Performance can be measured by observing graduates on the job, interviewing them, interviewing their managers or supervisors, and, in certain situations, analyzing health statistics. Performance evaluations should occur after graduates have had sufficient opportunities to apply their knowledge, skills, and attitudes on the job (e.g., 2 to 12 months after graduation).

Regardless of how information is collected, the evaluation should always determine if a graduate has had the opportunity to practice new skills. Has the graduate been working in a position that allows her/him to use the skills? For how long? The key factor of practice can greatly enhance performance if it is present, and can significantly hinder performance if it is not.

The following are possible methods for collecting information about performance:

- ***Observation of performance on the job.*** Direct observation is the most valid method for measuring performance, but it is also the most time-consuming and costly. It answers the question, “Are graduates able to perform the skills they developed during the academic program?” Both graduates and supervisors should be notified in advance of an observation. During the observation, evaluators should watch graduates as they perform specific tasks, and record their observations using a tool that collects targeted information on key skills (i.e., key performance indicators). The data collected should indicate areas where the course or academic program should be modified. When compared with the observations of a baseline or control group, the data should demonstrate differences or changes in the performance of the two groups.
- ***Graduate self-reports or interviews.*** New graduates can provide information on the usefulness of the course to their current job functions as well as their ability to apply specific knowledge, skills, and attitudes in the workplace. Questions should focus on the key skills (i.e., key performance indicators) that were incorporated into the academic program as well as any constraints that graduates face in applying those skills. Evaluators should ask graduates how confident and capable they feel to perform key behaviors/skills. To collect this information, it is best to use a Likert rating scale that provides a

5-point range such as “very confident” to “not at all confident” or “very capable” to “not at all capable.” It is useful also to collect some limited information about the activities conducted in the facility where the graduates work, to provide a context in which to assess their performance. In addition, **critical incident studies or interviews** can ask recent graduates to describe five or six recent events related to specific behaviors/skills that they felt unable to handle (i.e., critical incidents). Some of the critical incidents may be very unusual or rare. If several graduates report difficulty with similar situations, then clearly the objectives, methods, and materials used for teaching the subject should be reviewed.

- **Supervisor reports or interviews.** The aim of questioning managers or supervisors is to determine if they observed a change in the performance of new graduates with regard to key behaviors/skills. If they did perceive a change, further questions should be asked to find out if the change solved any problems or filled previously unmet needs for healthcare provision. In some areas (e.g., a district hospital), supervision is carried out almost continually. In other areas, (e.g., when healthcare providers work alone in remote villages) supervision is very limited. Therefore, the value of supervisors’ reports or interviews will vary from one situation to another. Any report can be made more useful if supervisors are asked to comment on specific points. Supervisors can look for changes in the way healthcare providers do a particular job, and they can identify tasks that new graduates do well or badly.
- **Analysis of health statistics.** Health statistics are usually available for details such as the number of children immunized, number of live births, number of infant deaths, and number of cases of disease. If statistics are available, they can help to identify problems and possible areas where academic programs could be strengthened.

### Cost Estimates

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It is always helpful to estimate the cost of introducing and sustaining new teaching.

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Regardless of whether or not effectiveness is assessed, it is always helpful to estimate the cost of introducing and sustaining new teaching. The resources used should be estimated for all tasks that were carried out to introduce and sustain new teaching. It is difficult to estimate a cost per graduate, because many of the costs incurred should produce results for many cycles of teaching to come. For this reason, it is useful to estimate the one-time “introduction costs” as well as the “recurrent costs” that will continue to sustain new teaching. Costs can be estimated for activities at the national level and activities at the level of individual teaching institutions. In addition to monetary or financial resources, costs may also include other resources such as materials, facilities, supplies, and staff time.

Introduction costs might include estimates for:

- Conducting a needs assessment
- Holding orientation meetings with decision-makers
- Training teachers, preceptors, and staff at clinical practice sites
- Planning meetings (where learning objectives are defined and a plan of action is developed)
- Preparing clinical practice sites
- Developing or revising materials for teaching, learning, and assessment
- Holding coordination meetings with relevant departments
- Monitoring and reviewing teaching methods and materials
- Evaluating the process and outcome of strengthened teaching

Recurrent costs might include estimates for:

- Training of teachers, preceptors, and staff at clinical practice sites
- Holding review and revision meetings (where implementation of a plan is reviewed, learning objectives are refined, and the plan of action is revised)
- Procuring supplies and equipment needed for teaching
- Procuring supplies and equipment needed for clinical practice
- Periodically updating or revising materials for teaching, learning, and assessment
- Holding coordination meetings with relevant departments
- Monitoring and reviewing teaching

### **Use of the Evaluation Results**

Typically, the results should be used to determine to what extent the desired effect has been achieved, identify discrepancies that still exist in job performance, and, if needed, plan for additional revision and strengthening of teaching. The results should be shared as widely as possible with the national working group, teaching institutions, licensing authorities, academic associations, professional associations, nongovernmental organizations, international organizations, funding agencies, and other key stakeholders. Whenever possible, assistance should be given to help others interpret the results of the evaluation.

## APPENDIX

# CONDUCTING A PRESERVICE NEEDS ASSESSMENT FOR CURRICULUM STRENGTHENING

When a needs assessment of the preservice education system is conducted before curriculum strengthening begins, it is important to gather as much information as possible about the existing curriculum and its implementation. The following types of information should be gathered and analyzed before the national plan of action is developed. This information can be collected through meetings, informal interviews, questionnaires, documents, reports, and, most important, through direct observation of teaching institutions and their clinical practice sites.

## POLICY

- Who determines the content of preservice education? What is the role of the Ministry of Health? The Ministry of Education?
- What are the requirements for entry into the educational institution? Who determines what they are?
- Do students pay for their education?
- What are the graduation requirements? Who determines them? What is the role of the Ministry of Health? The Ministry of Education? The national professional associations or councils (e.g., the national association of nurses and midwives)?
- What are the licensing requirements? Who determines them? What is the licensing process? Is licensure a one-time event, or is relicensure required? If relicensure is required, at what intervals and with what requirements (continuing education, reassessment of skills, payment of a fee)?
- What is the job description of the cadre of health professional in question? What in the description is relevant to the new/updated content area to be addressed in the curriculum strengthening process? What is missing?
- How are new graduates deployed? Who is responsible and what are the criteria for deployment? Do graduates “owe” a prescribed amount of time in service to the public healthcare system?

## **TEACHING INSTITUTIONS**

- How many teaching institutions are there for the cadre of health professional whose curriculum is being strengthened? How are they distributed around the country?
- Do they all use the same curriculum, or does each have its own? If there is only one curriculum, how uniformly is it implemented across the institutions?
- When was the curriculum developed or most recently updated? Does the curriculum include both knowledge transfer and skills development? Are appropriate teaching methodologies used?
- How and where within the curriculum is the content to be strengthened currently addressed?
- What is the range of class size?
- How many classroom teachers are there at each institution? How many are there for the content area to be strengthened?
- What are the most commonly used teaching methodologies?
- What audiovisual equipment is available and functioning on a regular basis?
- What reference materials are available to the teachers? To the students? Are they available in the library only or are students able to buy them?
- What anatomic models are available for skill development? How do students have access to them?
- Are skills assessed using models, role plays, or other means before moving into the clinical practice area?
- Is skill assessment part of the graduation requirements, or are they knowledge-based only? For licensing/registration?

## **CLINICAL PRACTICE SITES**

- How many clinical practice sites does the teaching institution use for teaching the new/updated content? What types of facilities are they (e.g., hospitals, outpatient clinics, wards)? Where are they located?

- How many students are sent to each site for practice? Are they accompanied/supervised by a teacher at all times?
- Who is responsible for teaching students in the clinical practice areas? Are there designated clinical preceptors or instructors who are employed by the school? Are the classroom teachers and the clinical preceptors the same individuals? Are there clinical staff who are designated clinical preceptors? If yes, are they given any formal preparation or compensation for that role?
- What is the relationship between classroom teachers and clinical preceptors? Do they share information about the students' learning objectives and performance? Are students allowed to practice skills while at the clinical site, or do they only observe?
- Is the students' time in the clinical practice site structured well, or are they left without direction or assignments?
- Is there an adequate and appropriate patient caseload for the skills that students are supposed to learn?
- Is there adequate space in the clinical area for the number of students?
- Is there a conference room or other large room that can be used for meetings, practice with anatomic models, and other learning activities?
- Is the clinical practice site adequately stocked with equipment and supplies?
- Are services provided in accordance with the national service delivery guidelines and standards? If not, what areas need to be improved and how?
- Are the clinical practice sites similar to the sites where students will be providing services after graduation?
- Are clinical staff receptive to receiving, teaching, and supervising students?

*Conducting a Preservice Needs Assessment*