

Executive Summary

Pesticides are ubiquitous in our society in both agricultural and urban environments. We use pesticides in our homes, schools, in our workplaces, and in our communities. Due to the widespread dissemination of pesticides, and the potential for related illness and injury (especially among farmworkers and pesticide handlers), health care providers should be prepared to recognize, manage and prevent pesticide-related health conditions in their patients and communities. Communities expect that their primary care providers will be prepared to deal with pesticide-related health conditions, as well as other environmental-related illnesses, but often times they are not.

This report, an Implementation Plan for the *National Strategies for Health Care Providers: Pesticides Initiative*, sets out a strategic direction for the nation to improve the recognition, management, and prevention of pesticide-related health conditions. It will lead to health improvements in both agricultural and urban sectors. The Implementation Plan's vision is for all primary care providers on the front lines of our health care system to:

- Possess a basic understanding of the health effects associated with pesticide exposures as well as broader environmental exposures; and
- Take action to ameliorate such effects through clinical and prevention activities.

The Implementation Plan sets forth a three-pronged approach to move toward the vision, and includes both short and long-term components. The Implementation Plan will be used to build national consensus on this issue and to gain funding and resource support to implement and evaluate the entire initiative.

This Initiative — the *National Strategies for Health Care Providers: Pesticides Initiative* — began in 1998 and is a partnership between the US Environmental Protection Agency (EPA) and The National Environmental Education & Training Foundation (NEETF), in collaboration with the US Department of Health and Human Services (DHHS), the US Department of Agriculture (USDA), and the US Department of Labor (DOL). From the outset, this national interagency initiative has been conceived of as a long-term effort. Sustained funding will be needed to ensure the success of the Implementation Plan, and multi-stakeholder involvement is necessary from federal agencies, academic institutions, professional organizations, foundations, farmworker and farm groups, industry and trade associations.

Pesticides Education: A Model for Environmental Health Issues

This Implementation Plan focuses on pesticides as an important model which can easily be expanded to incorporate other toxic agents and other related initiatives in the field of environmental health. To avoid duplication of effort, this Implementation Plan will be integrated into the broader context of other national efforts to educate health care providers about occupational and environmental health, including children's health protection, drinking water, nursing and environmental health, Healthy People 2010, and NEETF's Health & the Environment Program. This Implementation Plan reflects the landmark reports from the Institute of Medicine, National Academy of Sciences (1988, 1995) that set broad recommendations on environmental health in medicine and nursing, as well as the extensive efforts by key stakeholders across the country to address this issue. It is hoped that this Implementation Plan will pave the way for the strategic next steps needed to move forward a common national vision for environmental health awareness, education and training to health care providers.

The Initiative's Driving Forces

This Initiative received its impetus from a number of sources.

The Worker Protection Standard

A primary contributor is EPA's Worker Protection Standard, designed to reduce pesticide exposure to agricultural workers, mitigate exposures that occur, and inform agricultural employees of the hazards of pesticides. The regulation, implemented in 1995, mandates that millions of farmers, pesticide applicators, and farmworkers be educated. This in turn was expected to create additional demand for services from health care providers.

After the first year of full implementation of the Worker Protection Standard, EPA held nine public meetings to evaluate the progress of implementation and hear the experience of the people most affected by the regulation. One clear message from the public meetings was the need to improve the recognition, diagnosis, and management of adverse health effects from pesticide exposures by all primary health care providers.

Although the primary populations affected by pesticides are the 3 to 4.5 million farmworkers in America and the million or more pesticide applicators, pesticides are widely used in the urban sector, and rural populations not directly involved in farming also may be at risk for exposure to pesticides. Urban and suburban exposures to insecticides, fungicides, rodenticides and other pesticides in the home and workplace are affecting the population at large. Health care providers in urban settings are even less likely to "think pesticides" in taking patient histories or diagnosing illnesses.

Other Forces

In the field of environmental health, the need for improvements in health care provider training has been expressed by health professional groups, academic institutions, government and community organizations. In 1994, the American Medical Association adopted a resolution urging Congress, government agencies, and private organizations to support improved strategies for the assessment and prevention of pesticide risks. These strategies included systems for reporting pesticide usage and illness, as well as educational programs about pesticide risks and benefits. In addition, two Institute of Medicine (IOM) committees addressed the general issue of environmental health education, focusing on nurses and physicians, respectively. Both committees recommended an integration of environmental health issues throughout training and clinical practice for health care providers. Also, in 1999 an IOM committee on environmental justice recommended enhancing health professionals' knowledge of environmental health as well as environmental justice issues.

Definition of Environmental Health

A common definition of environmental health has been adopted for purposes of this Initiative. Environmental health is defined as: "Freedom from illness or injury related to exposure to toxic agents and other environmental conditions encountered in the home, workplace, and community environments that are potentially detrimental to human health" (adapted from the Institute of Medicine's report, *Nursing, Health and the Environment* (Pope et al, 1995)). Pesticide exposures do occur in workplace settings, so environmental health in the context of this Implementation Plan is an overarching category that includes occupational health exposures.

Building the Initiative – A Collaborative Approach

To ensure that collaboration and integration at the federal level could be incorporated at all stages of the Initiative, EPA established a Federal Interagency Planning Committee in November 1997 whose initial membership included representatives from DHHS, USDA, and DOL, as well as EPA. Beginning in February 1998, through a cooperative agreement, the Initiative also involved NEETF as a non-federal collaborative partner. NEETF brings the expertise of working with a national coalition of health organizations involved in environmental health through its Health & The Environment Program, and has played a major role in coordinating the Initiative with EPA and the federal partners. Several other federal agencies have since joined the Initiative and other interested federal partners are welcome to participate.

Expert Panel and Workgroups

EPA, the Federal Interagency Planning Committee, and NEETF are committed to involving a wider group of key stakeholders through all stages of this Initiative. This commitment began with the development of this Implementation Plan. In April 1998, an Expert Panel was

convened to identify strategies for educating health care providers on how to recognize, diagnose, manage, and prevent adverse health effects from pesticide exposures. This workshop reflected the collaborative nature of this Initiative and the need to involve a wide group of stakeholders in this issue (US EPA, 1998).

An even wider involvement of key stakeholders took place through three workgroup meetings (Education, Practice, and Resources) held in May and August 1999 (summaries of the Expert Panel and workgroup meetings are presented in Appendices A and B, respectively). Workgroup members, as liaisons to their organizations, have brought important perspectives to this effort and have ensured that their organizations are kept abreast of the Initiative. These key stakeholders will play a further role in outreach and consensus building within their organizations and constituencies to move the overall Initiative forward.

Strategic Outreach Meetings to Build Consensus

With the assistance of stakeholders who participated in the Expert Panel and/or the three workgroups, the Federal Interagency Planning Committee will conduct strategic outreach meetings with key professional organizations and decision-making bodies to secure official endorsements. Efforts are currently underway to participate at various national conferences for the purposes of publicizing the Implementation Plan and the upcoming national forum (see page 10), and to begin developing support among stakeholders.

Sustained Funding and Support

To ensure that sustained funding is available for the implementation and evaluation of both short and long-term components of this Initiative, funding and resource support must come from various sources, including federal agencies, professional health organizations, foundations, academia, industry, trade associations, environmental, farm and farmworker and community-based organizations. It is this type of resource sharing and collaboration that will determine the success of this Initiative and create a win-win situation for all parties.

Summary of the Implementation Plan

Objectives

The main purpose of this Implementation Plan is to clearly articulate a plan to improve the recognition, management and prevention of pesticide-related health conditions. This Implementation Plan also serves as a model for broader efforts to educate health care providers about the spectrum of health conditions associated with environmental problems. The four main objectives of the Implementation Plan are to:

- Raise awareness of the arguments why primary health care providers should be educated about and trained in ways to address health effects from pesticide exposures.
- Identify the target audience for the Initiative and explain how strategies are designed to reach segments of the audience at different stages of their “readiness to change.”

- Set forth an agenda to build national consensus on this issue and gain funding and resource support to implement the Plan and evaluate the Initiative over a ten-year period from various sources including federal agencies, academia, professional health organizations, foundations, farmworker and farm groups, industry, and trade associations.
- Articulate a three-pronged strategy and a set of required elements for educational settings, practice settings, and necessary resources and tools.

Strategic Framework

Given that primary care providers are educated and trained in different settings, the Implementation Plan specifically sets out a three-pronged strategy for effectively reaching them in these settings (see Table 1). The first prong addresses a provider’s formal education, such as medical school or nursing school. The second prong targets the practice setting in which a provider works and participates in professional development. The final prong articulates the resources and tools that providers need to deal effectively with pesticide-related health conditions in their practices and communities. Specifically, the three prongs of the strategy are as follows:

- 1. Educational Settings:** Create significant institutional change in educational settings (e.g., medical schools, nursing schools, residency and practicum programs) so that students in the health professions are prepared to recognize, manage, and prevent pesticide-related health conditions across the United States.
- 2. Practice Settings:** Change the practice of primary care so that pesticide-related health conditions are recognized, effectively managed and prevented in practice settings (e.g., community clinics, hospitals, workplace clinics) across the United States.
- 3. Resources and Tools:** Create new resources for educational and practice settings that take into account existing resources, evaluate their quality and suitability for different audiences, and assure their availability through an information gateway.

For both the educational and practice settings, the Implementation Plan recommends a similar set of component projects and activities (see Figure 1). These components serve as a framework for the cohesive implementation of the three-pronged strategy. This Implementation Plan intentionally presents the same conceptual framework for both settings so as to ensure consistency in approach. However, the Implementation Plan distinguishes between the settings because they often involve different decision-makers and approaches. The components for the settings are:

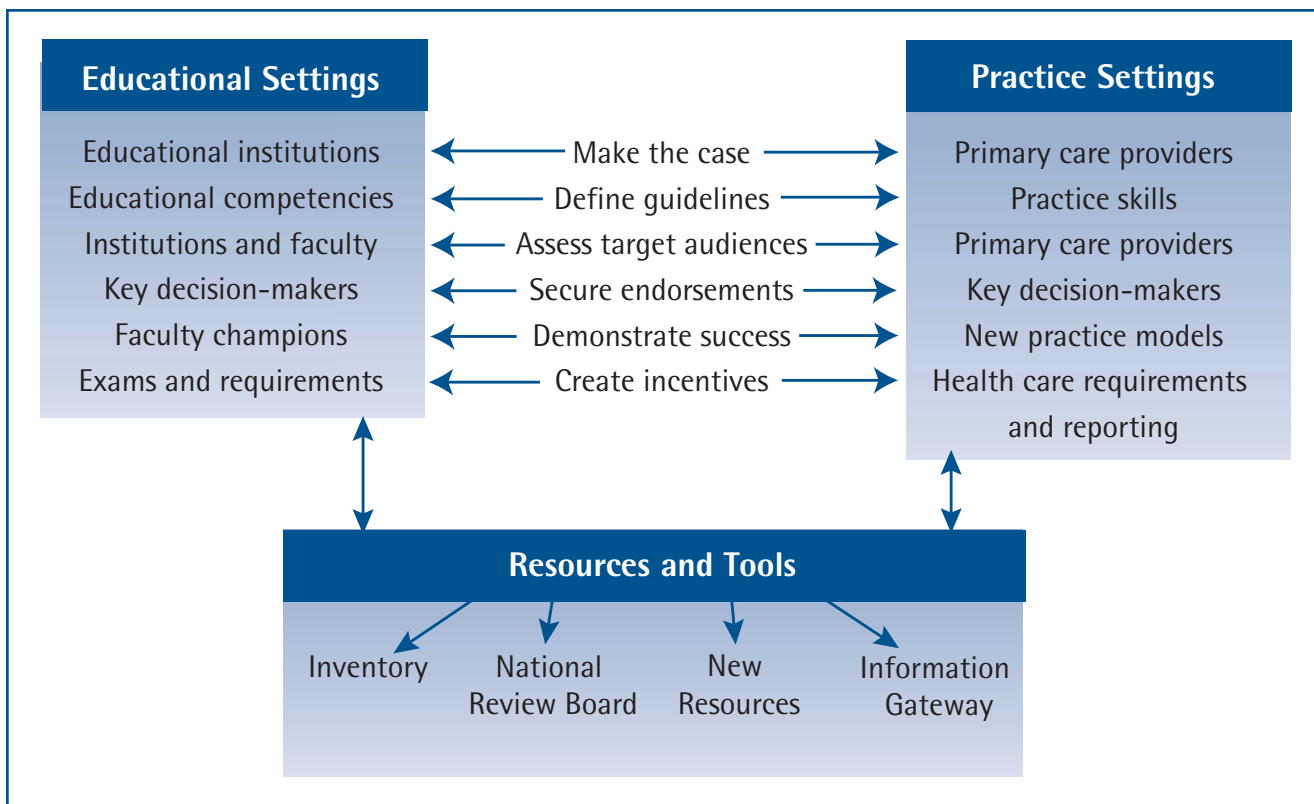
- Make the case for change
- Define guidelines for educational competencies or practice skills
- Assess target audiences in each setting

Table 1: Components of the Implementation Plan

Educational Settings	Practice Settings	Resources and Tools
<p>Component A: Make the case for change in educational settings — Develop an effective case statement to convince decision makers about the need for environmental health and pesticide education in medical and nursing educational institutions.</p> <p>*Component B: Define competencies and integration strategies for curricula — Produce National Guidelines that recommend competencies specific to the recognition, management and prevention of pesticide exposures, for all basic and advanced training in medicine and nursing; define accompanying content areas; suggest methods of integration into curricula; and provide access to relevant resource materials.</p> <p>*Component C: Assess educational settings — Conduct an assessment of the target audience of educational institutions to determine (a) amount of existing coursework, (b) faculty members' current knowledge and comfort level with teaching pesticide-related topics, and (c) how faculty and educational institutions will best respond to educational programs and information resources. This assessment will be comprised of a literature review and a range of needs assessment analyses.</p> <p>Component D: Secure official endorsements — Ensure the integration of the core competencies outlined in the National Guidelines into educational institutions by securing the official endorsements of key professional organizations and decision-making bodies.</p> <p>Component E: Strengthen and build faculty champions — Create and support faculty champions within medical and nursing schools to teach environmental health and pesticide education in the curriculum, and to bring about change within their institutions.</p> <p>Component F: Create teaching incentives — Influence the appropriate boards, organizations, and institutions that create board exams to include several key competencies on pesticides and environmental health.</p>	<p>Component A: Make the case for practitioners — Develop an effective case statement to convince primary care providers about the need to incorporate environmental health and pesticide awareness into their practice settings.</p> <p>*Component B: Define practice skills and guidelines — Produce National Guidelines that recommend practice skills and guidelines for the recognition, management, and prevention of pesticide exposures for all practicing health care providers; define accompanying content related to expected behavior; suggest methods of integration into practice and training settings; and provide access to relevant resource materials.</p> <p>*Component C: Assess knowledge and skills of practitioners — Conduct an assessment of the target audience of primary care providers to determine: (a) providers' current knowledge; and (b) how providers will best respond to educational programs and information resources. This assessment will be comprised of a literature review and a range of needs assessment analyses.</p> <p>Component D: Secure official endorsements — Ensure the integration of the expected practice skills into practice settings by securing the official endorsements of key professional organizations and decision making bodies.</p> <p>Component E: Demonstrate model programs — Mobilize practice settings to become population-specific and to incorporate environmental considerations (specifically pesticides) into prevention, education, diagnosis, and treatment. Achieve incremental, site-specific improvements in identification, early intervention, and prevention, as well as in measures of practice-specific health outcomes. By 2010, half of all primary health care practice settings in the United States should incorporate environmental considerations in prevention, education, management, and referral.</p> <p>Component F: Create incentives for change — Identify and promote a number of incentives to incorporate appropriate prevention, recognition, and management of pesticide-related health conditions into health care practices.</p>	<p>Component A: Inventory existing resources — Determine what educational and information programs and materials for health care providers exist in educational and practice settings and what gaps should be filled.</p> <p>*Component B: Establish a national review board — Create a national body to determine assessment criteria and to evaluate existing resources, with the goal of identifying, selecting, and assessing the ideal resources that primary health care providers use in both educational and practice settings for prevention, diagnosis, treatment, and referral of pesticide-related health conditions.</p> <p>*Component C: Create an information gateway — Establish a print, telephone, and web-based gateway through which primary health care providers can access information and educational resources.</p> <p>Component D: Develop teaching/learning resources for educational settings — Identify and develop new content resources, tools, and methods for faculty in educational settings.</p> <p>Component E: Develop new resources for practice settings — Identify and develop new content resources, tools, and methods for health care providers in practice settings.</p>

* Priority Project

Figure 1: Framework of the Implementation Plan



- Secure key endorsements
- Demonstrate success through faculty champions and practice models
- Create incentives for change.

The Implementation Plan also outlines a process to develop the resources and tools necessary to ensure the success of the entire initiative:

- Inventory resources
- Establish a national review board and conduct evaluation of resources
- Create an internet-based information gateway
- Create new resources.

Table 2 provides a listing of the anticipated work products to be produced in this Initiative. The projects and products can only be attained through partnerships among federal and

state agencies, professional health organizations, academia, foundations, industry, farm and farmworker groups, environmental groups and trade associations. The Federal Interagency Planning Committee encourages interested parties to come forward with their ideas for implementation.

Table 2: Initiative Work Products

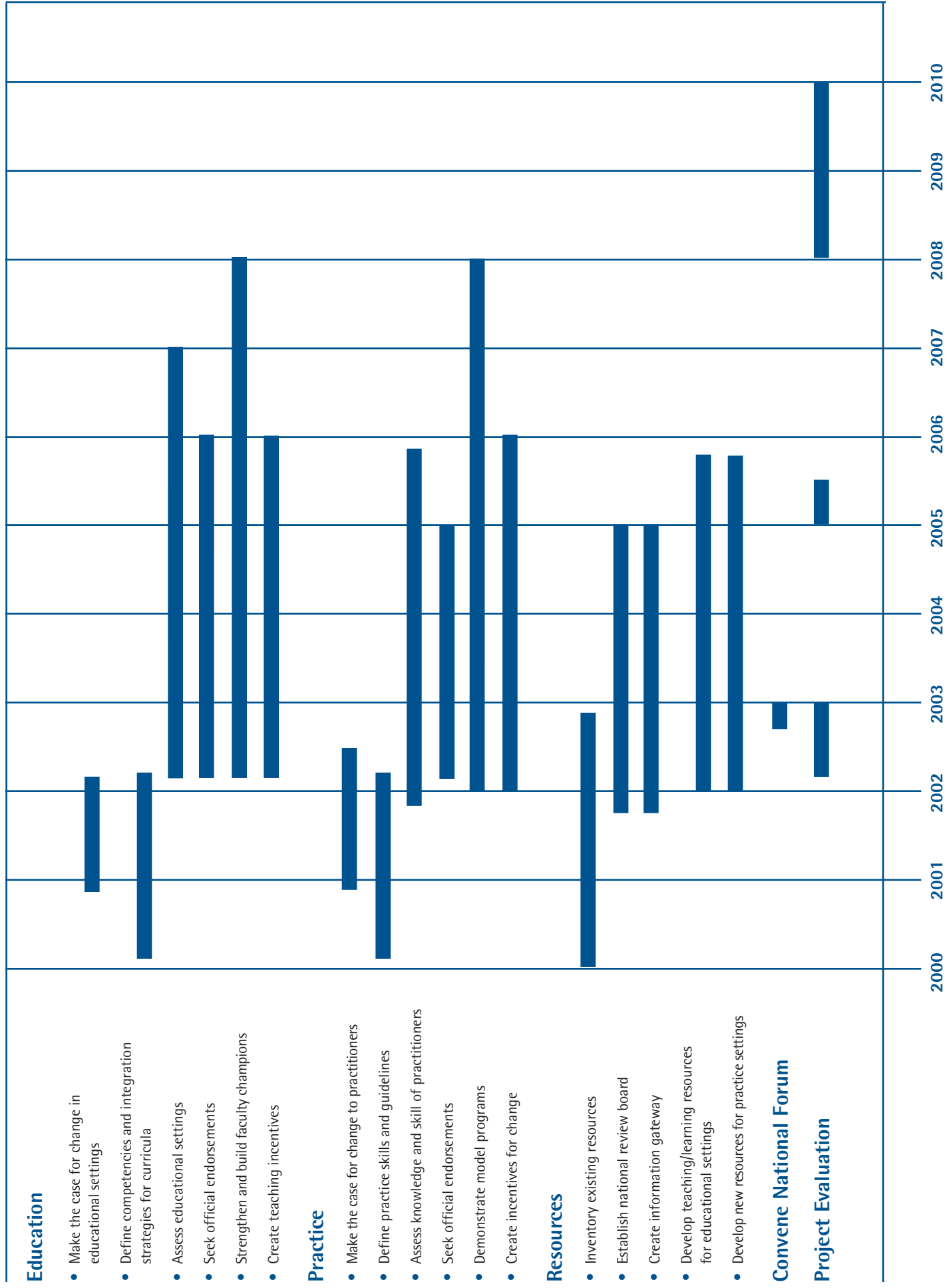
<ul style="list-style-type: none">■ Case Statement for Educational Settings (p. 41)■ Case Statement for Practice Settings (p. 67)■ National Pesticide Competency Guidelines for Education (p. 44)■ National Pesticide Practice Skill Guidelines (p. 70)■ Report on Knowledge, Attitudes, and Skills of Educators and Practitioners (pp. 52, 74)■ Organizational Position Papers Endorsing The Plan (pp. 55, 77)■ Request for Applications/Proposals to Support Faculty Champions (p. 58)■ Request for Applications/Proposals to Support Practice Models (p. 80)■ Network of Successful Faculty Champions (p. 59)■ Network of Successful Practice Models (p. 80)■ Sample Questions for Educational Examinations (p. 61)■ New Monetary, Legal, Community-Based, and Peer-Professional Incentives (p. 83)■ Inventory of Resources (p. 90)■ National Review Board for Resource Materials (p. 92)■ Recommended List of Resources (p. 92)■ Gateway of Resources (print, telephone, internet) (p. 94)■ New Resources and Materials (pp. 97, 99)
--

Timeline and Priority Projects

A timeline for implementation of the Implementation Plan is provided in Figure 2. As the timeline shows, several projects have already been initiated, and four component areas will receive priority attention. They are:

- **National Pesticide Competency Guidelines for Education, and National Pesticide Practice Skill Guidelines:** These two model documents will recommend competencies for students and practice skills for practitioners to achieve, respectively, the recognition and management of pesticide-related health conditions and exposures. Work on the National Guidelines was initiated in February 2000.

Figure 2: Timeline for Implementation Plan Activities (dependent upon funding)



- **National Review Board:** The National Review Board will determine assessment criteria and evaluate existing resources, with the goal of identifying, selecting, and assessing the ideal resources that primary care providers use in both the educational and practice settings.
- **Information Gateway:** The information gateway will be a print, telephone, and web-based resource through which primary care providers can easily access information and educational resources about pesticides.
- **Audience Assessment of Educational Settings and Primary Care Providers:** The assessment report will document the knowledge, attitudes and skills of health care provider faculty and practitioners on pesticides and environmental health.

Request for Participation and Public Comment

This Implementation Plan is a working document and will be widely shared and disseminated among stakeholders in professional associations, health organizations, educational institutions, government agencies and other groups. To gather as much input as possible, the Federal Interagency Planning Committee in 2000 distributed widely more than 4,500 copies of the draft Implementation Plan to stakeholders for public comment. This final Implementation Plan reflects those public comments. A summary of issues raised via public comment and the responses by the Federal Interagency Planning Committee is included (see Appendix C). Further questions about the Implementation Plan can be directed to NEETF at pesticides@neetf.org

National Forum 2002

The Implementation Plan will be the subject of a national forum scheduled for 2002 in Washington, DC. The national forum will be held over two days with an audience of 150-200 health care providers and stakeholders, including key decision-makers from various agencies and organizations. The forum will launch this national Implementation Plan, showcasing pesticides as a model for other environmental health issues. Progress on the priority projects initiated at the time of the event — the National Guidelines, audience assessment, information gateway, and national review board — will be featured at the forum, in addition to a broad range of educational models, practice models, and resources.

The forum will provide an opportunity to secure endorsement from key stakeholders, pave the way for the strategic next steps needed to move a common national vision forward for environmental health outreach to health care providers, and build a nationwide network of health care providers committed to incorporating environmental health into primary care education and practice.