

# Appendix B: Summary Proceedings from Workgroups

**T**his appendix provides a brief summary of the deliberations of the three workgroups created under this Initiative and a list of their members. The strategies and plans that emerged from the workgroup meetings are the subject of this Implementation Plan.

The workgroups discussed competencies and expected outcomes, and devoted some time to brainstorming sessions on overall strategies and plans of action. Members held small group discussions for the better part of the second day of each meeting, to flesh out the strategies and action items. The groups then reviewed the strategies and decided on next steps. Both short-term (1-3 year timeframe) and longer-term actions (3-5 years) were identified. The meetings were facilitated by Susan West of The National Environmental Education & Training Foundation (NEETF).

**The Education Workgroup** was charged with developing a national strategic plan to enable undergraduate and graduate formal education and training institutions to prepare primary care providers to prevent, diagnose, treat, and refer patients exposed to pesticides. The workgroup was expected to set (and/or select already established) competencies for the educational setting, and to identify strategies on how to achieve those competencies through education, training, and raising student awareness.

**The Practice Workgroup** was charged with developing a national strategic plan for improving the practice of primary care providers in preventing, diagnosing, treating, and referring patients exposed to pesticides. This group, too, was expected to set (and/or select already established) competencies for the practice setting and to identify strategies on how to achieve those competencies through education, training, and raising awareness.

**The Resources Workgroup** was charged with developing a national strategic plan which addresses an effective method of linking, centralizing, and disseminating an array of resources for the prevention, diagnosis, treatment, and referral of patients exposed to pesticides. This plan would also evaluate existing assessments of resources, identify gaps, and begin to develop needed resources for health care providers.

## Key Principles

Key principles and findings emerging from the three 1999 workgroups include:

- **Pesticides must be seen in the context of environmental and occupational health.** All three workgroups expressed the opinion that pesticides are a useful and important focus of attention in themselves; however, pesticides must also be seen as a stepping-stone for the underrecognized and broader issue of environmental and occupational health as a whole.
- **Gaining attention and raising awareness are the primary challenges.** One of the most difficult obstacles is gaining the attention of students, faculty, and primary care providers to the issue of pesticides and/or environmental health. Curricula are crowded, providers are busy, and time is at a premium. Nevertheless, sometimes a single case encounter can have long-lasting effects. Much of the effort of the workgroups was driven by the need to gain attention and raise awareness. Strategies include developing case statements, creating monetary and professional incentives, nurturing pesticide/environmental health “champions” and model practices and convening focus groups to better understand providers’ communication styles.
- **Occupational and environmental histories are gateways.** Few primary care providers ask patients the questions that would be likely to alert them to the possibility of a pesticide-related illness. Although it is important for primary care providers to take occupational and environmental histories, both workgroups recognized that a full occupational and environmental history can sometimes take up the entire patient visit. However, getting primary care providers to ask just a few simple questions — such as ‘Where do you work?’ and ‘Do you think your problems are related to something that happened at work or at home?’ — could go a long way toward uncovering pesticide-related health conditions and raising awareness about the environment in which patients live and work.
- **There is a spectrum of pesticide-related health conditions.** Stereotypes of pesticide illness — insecticides, farmworkers, acute poisoning, cholinesterase testing — may cover an important segment of the population, but they by no means cover the entire field. Students, faculty, and primary care providers must come to understand the wide spectrum of pesticide-related health concerns: low-dose chronic effects as well as acute, high-dose poisonings; effects on children, people with chemical sensitivities, other vulnerable populations; the wide variety of pesticide products on the market; urban, rural, and suburban settings.
- **The need is for credible, convenient, and easy-to-use resources.** The best way to reach already overburdened primary care providers is by ensuring that the resources available to them on pesticide-related illnesses are scientifically credible, easy to access, and provide quick answers to providers’ questions.

- **The importance of understanding the audience cannot be overstated.** Primary care providers work in a wide variety of settings and have varying levels of exposure to pesticide-related health issues. Understanding primary care providers — their backgrounds, level of awareness and knowledge about pesticide issues, and preferred modes of receiving information — is essential to effectively targeting and reaching the audience for this Initiative.
- **Evaluation plays a key role.** There is a strong need for expert evaluation of the resources available to primary care providers on pesticide topics and for ensuring that new materials developed through this Initiative meet stringent evaluation criteria.

# Education Workgroup

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One of the key issues that workgroup members grappled with over the course of the meeting was the need to gain the attention of health care students, faculty, and primary care providers when their time and attention is in high demand elsewhere. Many members noted that there is little time in the basic undergraduate curriculum for pesticide and environmental health material. It would be unreasonable to expect more than a total of 30-40 hours over the course of a four-year degree program; a more modest rise to just 10 hours of instruction would stand a better chance of acceptance. The key is to get the education setting both interested in and comfortable with pesticide issues.

## Making the Case

Workgroup members agreed on the need to “make the case” to medical and nursing schools about the importance of environmental health education and the extent of the problem of pesticide-related health concerns. Even the most supportive faculty challenge why environmental health is important to teach.

*I have been challenged by some of the most supportive faculty who say, “You haven’t made a strong enough case.” We haven’t effectively made the case to incorporate environmental health in general... Until we do that, we’ll always be an afterthought.*

— Madaleine Ochinang, MS

Workgroup members spent considerable time discussing how to spark the interest of faculty and students. One workgroup member noted that environmental poisonings are seldom encountered by medical school students. The best way he has found to motivate medical students is to have them accompany primary care physicians in rural area practices so that they can experience the scope of occupational medicine first-hand. The payoff is that students value this practical type of learning enormously, and that it has a greater impact than hearing lecture after lecture on the same topic. It also combats one of the problems of the practice setting, which is that

primary care providers often do not perceive the agricultural environment as a workplace.

## “Make it Easy for Them to Let Us In...”

How will educational institutions allow material on pesticides/environmental health into their curriculum, and how can the materials be designed to “make it easy for them to let us in?” It is important to identify where in the curriculum the materials should be inserted. Usually the schools have a flow of courses/topics and the group could suggest where a given topic in environmental health would fit. The aim of this Initiative is not to overwhelm medical and nursing students with a vast amount of information.

## **“Teachers Don’t Teach What They Don’t Know...”**

It was noted that “Teachers don’t teach what they don’t know... If you make it relevant to them, they’ll find a way to teach their students.” Several workgroup members raised the issue that many faculty are not comfortable teaching the full range of subjects involved in pesticides. For example, pharmacology professors may lack the clinical expertise to teach about pesticides; other medical faculty may lack the toxicology background. Others agreed that it might be difficult to find enough faculty with competence in pesticides/environmental health. Workgroup members discussed at some length whether faculty should be trained to become comfortable with, or expert at, teaching pesticides/environmental health subjects, or whether it is sufficient for faculty to know of experts in their local area whom they can tap as needed.

Merely making materials available is not sufficient — it is not true that “if you build it, they will use it.” The situations where new material has worked best in medical schools is where there was an advocate or champion who pushed until the material was included in the curriculum. A study at Worcester State College reported that the No.1 barrier to integrating environmental health into nursing curricula — which the deans of nursing schools supported — was the absence of faculty with the knowledge and confidence to carry out that integration.

Several models were discussed, including the 26 NIEHS five-year grants for mid-career funding of environmental health positions, which provided half of the faculty’s salary plus evaluation components, and the 1990-95 faculty development grant program at the University of South Florida that supported curriculum development and research in substance abuse. Faculty spent the first two of the five years becoming experts in their chosen areas — through seminars, courses, networking with other experts, etc.

Workgroup members discussed the “fragile toehold” environmental health courses have in health care education. There is no additional funding for teaching pesticides/environmental health courses and environmental health is not a “revenue generator.” This may have particularly problematic implications for undergraduate education. Increasingly, faculty members need to generate funding to support their own salaries. “Contextual realities” are important. Of the 126 environmental health science centers around the country, possibly 20 are on the verge of disappearing. The workgroup discussed the possibility of developing fellowships around pesticides in specialties that are highly valued within medical schools, since pesticides affect multiple systems in the body. This would require the time of in-house faculty to incorporate existing resources and information into an institution’s curriculum.

## **Convincing the Examination Boards**

One way to motivate change in curriculum, workgroup members agreed, is to convince the medical and nursing examination boards of the importance of environmental health in the coming years, and push them to incorporate environmental health questions on their exams.

This would also be one of the better ways to institutionalize the subject matter over the long-term. Workgroup members felt that some of the boards would be receptive to a concerted effort in this area. For example, the Residency Review Committee for Pediatrics in 1996 adopted two recommendations on children's environmental health.

The workgroup discussed whether public education and K-12 education should also be dealt with as part of this Initiative. The group noted efforts on environmental education becoming incorporated into K-12 education, partly through the support of EPA and the National Institute of Environmental Health Sciences. But while many K-12 schools are teaching ecological effects, there is relatively little being taught about the human health effects of the environment. This is a ripe opportunity, and one which would have advantages down the line, with students entering medical school already having an awareness of pesticides/environmental health issues. Despite the importance of raising awareness and education in the larger educational sphere, however, the workgroup decided that it fell outside the scope of this Initiative, which focuses on educating primary care providers. The group recommended that the issue be addressed in other initiatives.

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## Practice Workgroup

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**L**ike the Education Workgroup, the Practice Workgroup spent a great deal of time discussing how to motivate change. Recognizing that primary care providers are busy and confront a myriad of public health issues and illnesses, what is the best way to gain their attention to ensure that they ask the right questions?

One answer is that providers remember what they see in their practice. If primary care providers do not see enough acute cases of pesticide-related illness, they will not consider it important enough to pay attention. However, this is a classic Catch-22 situation, because if providers aren't aware of pesticide poisoning, they won't recognize the cases. The lack of data in this area makes it hard to convince primary care providers they need to alter their practices. One way for primary care providers to be sensitized to the possibility of pesticide poisoning is to become knowledgeable about the local community.

### What Should Primary Care Providers Know?

Workgroup members noted that we need to limit the demands; primary care providers shouldn't be expected to be toxicologists. Instead, it is often patients who are directing health care providers to focus more on pesticides and environmental health by the questions they bring up. Some workgroup members felt that it would be enough to have primary care providers be aware of the possibility of pesticide-related health conditions, know what questions to ask, and know where to go to get additional help. Others argued that minimum competencies, or practice changes, are needed. For example, a primary care provider shouldn't let a patient walk out of the office without ascertaining the possibility of exposure. The provider shouldn't just ask when a patient last vomited, but ask if the vomiting coincided temporally with something that happened at work. Knowing when to do a cholinesterase test is extremely important for all primary care providers. Such testing, for example, is essential to establish that a person has been harmed for purposes of workers' compensation, so that medical bills are reimbursed.

*How do you know that what you're seeing is not the flu, it's really organophosphate exposure? If you think it's the flu and you never ask any of the questions, this guy is going to walk out of your office and you're still going to think it's the flu.*

— Shelley Davis  
Farmworker Justice Fund, Inc.

Two workgroup members pointed out that getting health care providers to ask a few simple questions would go a long way toward raising awareness of patients' environmental health issues, without requiring these providers to do additional legwork in the community. Two

simple questions might be: (1) Where do you work? and (2) Do you think your problems are related to something that happened at work?

The workgroup devoted an extensive amount of time to the discussion of competencies for primary care providers (see Practice Component B on page 70 for more details). Many workgroup members thought that although “competencies” was an appropriate term for an educational setting, in a practice setting the term implied that primary care providers are incompetent if they don’t remember all of the material. They preferred to use terms such as “knowledge and skill outcomes,” “expected practice skills,” or “content.”

## A Two-Track System?

One important aspect of the question of “what providers should know” is whether primary care providers in certain communities should know more than providers in other areas. For example, should there be different levels of knowledge and skills for primary care providers in agricultural areas compared to providers in urban or suburban settings?

While the issue was not resolved, the consensus appeared to be that all primary care providers should have a certain minimum content level of knowledge and skill related to pesticides/environmental health. On the other hand, it may be that primary care providers in agricultural communities have an added function, going beyond the minimum in recognition, diagnosis, and management of pesticide-related illness to a larger role in prevention and education, and advising their patients about such things as heat stress, prenatal care, and pesticides.

## Making Change Happen

How does change actually happen? Workgroup members discussed the difficulties in bringing about changes in health care. The literature on continuing education shows the need for a multifaceted approach. Continuing education alone has little impact without additional visits to clinics, feedback loops, hands-on workshops, etc. Even in Grand Rounds, occupational and environmental medicine subjects get very poor turnout.

## Other Issues

Workgroup members stressed the need for research in a number of areas, including research on human exposure, biomonitoring, and the extent to which pesticide poisonings are currently being misdiagnosed in primary care practices.

It is important to look at interconnections between the clinical setting, community setting, reporting, and the regulatory context, even though primary care providers may not see these interconnections. For example, it is not clear that primary care providers realize the importance

of their role in reporting cases of pesticide illness both for regulating harmful pesticides and for efforts to make safer pesticides. Upon investigation, some incidents may turn out to have been a violation of the label restrictions; but in some cases, pesticide poisoning occurs with no apparent label violation. That information is extremely important, even if it cannot be proven conclusively.

Another connection that does not generally work well is with workers' compensation systems. Even in Washington State, which is often pointed to as the model for an integrated reporting/surveillance/workers' compensation system (see box on page 86), the system is based on “objective findings.” Most pesticide illnesses yield signs and symptoms rather than objective findings, so patient claims may be denied. Primary care providers need help understanding what the medical rules of evidence are so that patient claims won't be rejected. One model might be Colorado's system of associating occupational categories with subjective symptoms (e.g., carpal tunnel); something similar could be done for pesticides. Health care providers also need to know how to write up their findings, about the statute of limitations for repeat injuries, and where to go for help. Finally, states need to reimburse for relevant diagnostic testing for pesticide illness. At present, only Washington State reimburses for diagnostic evaluations.

Defining workers' compensation requirements related to pesticide illnesses would attract the attention of medical associations and their members; physicians would know that they could get paid for this category of health concern. In the California workers' compensation system, physicians don't get paid if they don't report; such an incentive would likely encourage reporting if it were used more widely. Despite the anticipated difficulties of revising workers' compensation systems, workgroup members agreed on the importance of tackling them. Half a dozen states are the sole insurers on workers' compensation and in those states, the state commission would be the only organization to deal with. It was also pointed out that six states — California, Texas, Florida, Oregon, Washington, and North Carolina — probably cover 70 percent of agricultural workers, and might be the natural focus of attention for this type of effort.

Workgroup members agreed that community health workers are an important part of the health care team. Caseworkers and community health workers are needed to go out and work with vulnerable populations. They can be particularly important in conducting follow up with migrant workers and bringing them back into the health care system. The workgroup raised, but did not reach a consensus on, whether to widen the scope of the Initiative to involve the family, the role of the physician in the workplace, or the role of health professionals in the community.

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# Resources Workgroup

**B**uilding on the ideas of the Education and Practice Workgroups, the Resources Workgroup began its discussion by examining the types of resources that are used in educational and practice settings. The workgroup then undertook a more detailed exploration of key issues relating to resources, including; the credibility of sources of information, defining and understanding the audience, reaching the target audience with appropriate resources, and evaluating the effectiveness of resources.

## Credible Sources of Information

The Resources Workgroup felt strongly that resources created or promoted through this Initiative must be credible and scientifically sound. The group explored the sources of information that health care providers and the public currently use, and the credibility of different information sources in different communities. One workgroup member suggested that the public trusts the universities first, the federal government next, state water agencies

after that, and state agriculture departments after that. In many places, the community health worker plays a key role. There are 78 different names for community health workers in the US, and although they are generally considered “non-professional,” they are the most trusted health care workers and have the highest ability to change behavior. Standards for community health workers are only starting to be developed as community colleges get involved in their training. Unfortunately, environmental health is not generally taught as part of their training.

A related issue that the group considered is sensitivity to local concerns and parlance.

## Reaching the Target Audience

The workgroup’s discussions emphasized the importance of defining and understanding the target audience of primary care providers. Aware that the universe of health care

providers runs into the millions, the group explored ways of segmenting the universe — by type of provider, population served, and practice setting, or by matching types of providers to epidemiologic cases of pesticide use or abuse.

*When I train residents I tell them: you’ll do a lot better if you don’t assume you’re the primary provider. The primary provider is often the grandmother or an elder... The natural system of health care in the community is alive and well. We need to recognize the system, not try to change it, and partner with it to be effective.*

— Angelina Borbon, RN  
Alameda County Lead Poisoning  
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The workgroup devoted considerable time to a discussion of the varying levels of needs of primary health care providers. One workgroup member stated that “it is not clear that we really know what health care providers want and need” in the way of educational and information resources. It will be important to examine the extensive literature on how health professionals learn in order to determine the most effective approaches.

The workgroup explored in detail the Stages of Change model created by Prochaska and DiClemente (Prochaska, 1995). The model looks at behavior change as a process rather than an event, and describes how individuals are at varying levels of motivation, or readiness to change. The model outlines a continuum of behavior change that can be used to help understand where the target audience is on the continuum, and to reach the audience (through targeted messages, strategies, and programs) to ensure behavior change (see Table 6 on page 34 and the discussion of how the model can be adapted to the current initiative).

Workgroup members examined existing resources in an effort to determine “what works” and identify gaps. Members reviewed the guide, “Preliminary Resources Materials,” developed by The National Environmental Education & Training Foundation, and mentioned additional materials. Workgroup members discussed all aspects of providing effective resources — types of resource materials, settings in which they are delivered, delivery mechanisms, modes of dissemination, and motivation for use.

Professional associations could play a big role in reaching member providers. The group discussed the types of technology that providers are most comfortable with, and acknowledged that while health care providers lag behind in their use of the internet, they will no doubt increase their usage over time. Nevertheless, the web can be a “giant disorganized mess of bad data, good data, and it takes time to learn how to use it.” Providers will continue to need quick and easy ways of accessing information. Some members argued that continuing education for health care providers has been shown not to be an effective way to change behavior and that consensus statements of professional associations can take a long time to develop and to have an impact. It is important, however, to approach the target audiences and find out where they obtain information.

## Evaluating Results

Some type of measurement and evaluation effort is certainly needed for this Initiative. Evaluation and measurement are relevant for several purposes — for assessing the “baseline,” i.e., the current state of awareness and involvement of primary care providers, for evaluating the quality of existing resources, for helping to design effective new resources and dissemination strategies, and for determining the success of the Initiative.

Workgroup members noted that a great deal of attention has been given to measuring the degree to which educating health care providers on nutrition, tobacco, and other issues has led to measurable changes in practice as well as changes in patient practices. Even with tobacco, “the whole world is trying to get physicians to counsel their patients who smoke to stop smoking.” Nevertheless, only 30-60 percent of physicians appear to do so, and measuring this activity has been very difficult. The group agreed that qualitative research, including holding focus groups, would be an appropriate tool for this Initiative. It was suggested to begin with a summary of the literature. Several provider associations (clinics, pediatricians, family physicians, etc.) represented on this workgroup could provide a source for focus group participants.

## Other Issues

The role of the public in spurring health care providers’ interest was noted. Increasingly, patients are a big source driving the physicians’ interest in pesticides: “Patients instigate by asking a question that the physician or nurse can’t answer.” Although primary care providers are often concerned chiefly with acute health effects, the public is increasingly leading the way in terms of interest in chronic and behavioral effects of pesticides (e.g., asthma, effects on IQ, etc.).

Workgroup members agreed that pesticides must continue to be seen in the context of environmental health as a whole. The importance of making primary care providers aware of preventive information along with diagnosis and treatment was stressed.

Finally, the group discussed support for the Initiative. “There have been too many programs in government that just go away... If you don’t have the money at the time you need it, it fades away.” It is important that workgroup members go back to their organizations and discuss how the organizations can play a supporting role in implementing the Initiative. The workgroup recommended that the federal representatives develop a broad outline of resource needs and federal commitments, as well as remaining needs for which extramural funding will be sought — from industry, professional associations, and possibly environmental foundations and trusts.

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