2. First Steps in Surveillance System Design: Objectives, Resources, and the Reporting Rule

2. First Steps in Surveillance System Design: Objectives, Resources, and the Reporting Rule

2.1 Introduction

The design of the surveillance system should be based on the objectives of the surveillance program, the overall goals of the program's parent agency, and the level of resources available to conduct surveillance. Although this manual assumes that the surveillance program will be in the State agency having jurisdiction over health, we recognize that the surveillance program may be placed in a Department of Labor (DOL) or an equivalent agency. This discussion of surveillance system design is general and cannot address the various configurations that exist in different State governmental structures. It assumes that the reader is formally trained with a firm grounding in epidemiology and the general design of disease and injury surveillance systems. Many good resources are available to review the basic principles and practice of surveillance, and the information in those resources is not reproduced here [Teutsch and Churchill 2000; CDC 2001; Maizlish 2000]. The surveillance design described here includes passive case reporting mechanisms coupled with an active case investigation process. Many areas discussed are useful for a State that chooses to develop a surveillance system or to implement short-term surveillance projects. Some options are also provided for States without sufficient resources to conduct full-scale surveillance.

2.2 Objectives of Pesticide Poisoning Surveillance

The primary purposes of pesticide poisoning surveillance are as follows:

- Reduce the incidence of acute pesticide-related illness/injury.
- Identify clusters/outbreaks of pesticide-related illness/injury.
- Identify new pesticide problems and research needs.
- Identify high-risk pesticide active ingredients and products associated with pesticide-related illness.
- Identify groups at risk for pesticide-related illness.
- Document the distribution of acute pesticide-related illness.
- Target regulatory, enforcement, consultative, or educational interventions to prevent and control pesticide-related illness/injury.
- Evaluate the effectiveness of prevention efforts.
- Focus public attention on occupational/environmental health problems.
- Explore the feasibility of generating useful rate estimates and trend data.
- Generate research hypotheses.

At the individual case report level, the surveillance program may also assist health care professionals (HCPs) evaluate the patient's exposure situation and link the HCP with additional resources to help determine the patient's diagnosis.

2.3 Program Staffing and Structure

Running an effective PPSP requires a number of professional skills. The mixture of professionals

who meet the needs of the program varies among the existing programs. Some programs have sufficient resources to maintain a full-time multimember staff that includes program managers, data managers, case investigators, and field staff. Others are staffed more frugally with staff wearing multiple hats or split between various program activities, only one of which is pesticide poisoning surveillance.

2.3.1 Types of Expertise Needed for Surveillance

Surveillance for pesticide-related illness and injury requires program staff to have knowledge in a broad range of areas including the following:

- Toxicology
- Epidemiology
- Medicine
- Data management
- Occupational/environmental health
- Industrial hygiene

Other areas that are important but may be incorporated into the program by collaboration with other organizations include integrated pest management (IPM) and health education. The most successful PPSPs employ persons with training in epidemiology and environmental or occupational health. Employing or contracting with persons who are bilingual and bicultural to conduct interviews and participate in investigations involving non-English speakers is extremely important for program effectiveness. In most regions of the country, this usually means someone who can speak Spanish. In some areas, it may mean the program needs access to an interviewer who speaks Hmong, Mayan dialects, Russian, or other languages.

2.3.2 Ways to Meet Needed Expertise with Minimal Resources and Staffing Levels

It would be ideal for a program to have one person in each of the six main disciplines listed in Section 2.3.1, but most programs acquire this expertise by developing collaborative relationships with partners from other programs or agencies. Some level of medical expertise is certainly critical for effective surveillance. Because of the complexity of pesticide poisoning, a surveillance program should have access to a clinical toxicologist or a toxicologist and a physician familiar with the condition to assist with case or outbreak investigations and case classification. Credibility of the surveillance program is enhanced if a physician is either on staff or affiliated with the program. This may mean the State epidemiologist takes an active role in the program. If a physician is not available within the agency to provide assistance, a contractual arrangement with a clinical toxicologist or emergency physician consultant at a local university or hospital is an alternative solution. The National Pesticide Medical Monitoring Program (NPMMP) (see Appendix G) can also provide assistance to PPSPs and reporting physicians. The NPMMP can be contacted through the National Pesticide Information Center (NPIC). Over time, as surveillance program staff become fully trained and familiar with the toxicology of common pesticide classes, the day-to-day need for clinical expertise may decrease, and the consulting physician will be called on less frequently. The poison control center (PCC) may serve as a close partner to the surveillance program, depending on the relationships established by the health department. The Agricultural Extension Service may also have toxicologists based at the State land grant university who are familiar with the toxicology of pesticides as well as other agriculturally related toxins.

It is not absolutely necessary that staff have *a priori* knowledge about pesticides, although it is certainly helpful. If staff have no knowledge specific to pesticides when hired, they will need to become familiar with the subject quickly. New staff should be encouraged to attend education programs on recognition and management of pesticide poisoning conducted by the surveillance program or another source. Program staff will also need to develop sufficient understanding of pesticide toxicology to conduct case investigations and participate in classification of cases.

If program staff do not have a public health background, an introductory epidemiology course is useful. The CDC has a tutorial program entitled *Surveillance in a Suitcase* [CDC 2000a] that provides a solid grounding in surveillance. It is available on the Internet and complements the book *Principles and Practice of Public Health Surveillance* [Teutsch and Churchill 2000].

2.4 Program Funding Options

Several funding strategies are used by States with PPSPs. In California, the surveillance program managed by CDPR is funded by a tax on pesticide sales. Additional surveillance activities funded through a cooperative agreement from NIOSH are conducted by the Occupational Health Program at the California Department of Health Services. The surveillance program in Washington State is funded with State general funds supplemented by funding from a NIOSH cooperative agreement. Other States are reliant on a low level of general fund money combined with cooperative agreement funds from NIOSH. At times, States have also received funding from EPA and NCEH to support PPSP activities. Programs reliant on Federal funding have limited budgets and staffing compared with programs supported by general funds or sales fees.

2.5 Reporting Requirements and Rules

In the United States, State legislatures possess the authority for requiring disease reporting, which they exercise by enacting laws and statutes. In some States, pesticide poisoning and other conditions are specifically mentioned in a disease-reporting statute. In many States, State and local agencies are, by statute, delegated the authority to enumerate the reportable health conditions. In such cases, adding a reportable condition is most often a rule change rather than a statutory change. This section discusses elements found in statutes and rules that are useful for creating and maintaining a successful PPSP.

Both local and national information about pesticide use and poisonings have been used for justification when developing the reporting rule. At least three U.S. Government Accountability Office (GAO) reports discuss pesticide poisoning [GAO 1994, 1999, 2000]. Many states have found that GAO reports, annual reports from existing surveillance programs, published annual review articles from the AAPCC, and State workers' compensation data are useful resources to support a reporting rule and pesticide poisoning surveillance. Additional information can be obtained from the State agency responsible for enforcing pesticide regulations, which can provide material about complaint investigations that involve human health concerns. The series of articles from the *Morbidity and Mortality Weekly Reports* (MMWRs) listed in Appendix A are helpful examples of the way in which surveillance systems have helped identify particular problems associated with pesticide use. State-level information about calls received by the NPIC also provides some useful background information. The annual reports are available on the NPIC Web site: http://NPIC.orst.edu/reports.htm. (A

link to an example of a pesticide-related illness reporting rule and justification appears in Appendix B.)

States have justified their reporting rule by citing the number of workers with potential pesticide exposure. Background information about migrant and seasonal farmworkers is located in data from the National Agricultural Workers Survey (NAWS) conducted by the U.S. DOL (data can be accessed at the following Web site: http://www.dol.gov/asp/programs/agworker/naws.htm). State- and county-level census data on the number of workers by occupation are available at http://www.census.gov/hhes/www/occupation.html. These census data can be useful for determining the number of workers in occupations having potential pesticide exposure (e.g., farm workers, pest control occupations).

The case definition for reporting purposes is generally broad and does not require a high degree of clinical diagnostic certainty. This approach will increase the sensitivity of the surveillance system for capturing cases of acute pesticide-related illness and injury. Unlike many other reportable diseases and conditions, pesticide poisoning encompasses a broad range of exposure agents and related symptomatology. For most health care providers, the evaluation of pesticide exposure and illness is a rare event. To ensure that the HCP or other source of case reports does not exclude potential cases, often the language in the reporting rule makes clear that cases need not be confirmed to be reported. Many States require that any *suspected* or confirmed case of pesticide poisoning be reported.

The reporting statutes and/or rules from several States, including California, Florida, Missouri, New Jersey, New York, Oregon, Texas, and Washington, are on the Internet (see Appendix B). There are not many major differences across State rules/statutes. The examples listed in Appendix B represent those containing the broad language that is discussed in this chapter.

All States have significant problems with underreporting. State statutes/rules differ in exactly who is required to report. In some States, it is the licensed physician attending the affected patient; in other States, it is any health care provider aware of a case or suspected case. Considering the problems with underreporting, the broader wording is most effective for capturing the largest number of reports.

The PCC serving the State is a critical reporting entity to include in the surveillance program. PCCs often are specifically mentioned in the reporting rule, either by using generalized wording that they can interpret as including them or by developing a memorandum of understanding between the PCC and the PPSP. Similarly, workers' compensation data (both accepted and denied claims) are an important source of data on occupational pesticide poisoning, and kindred efforts should be considered for gaining access to them.

When developing pesticide poisoning reporting rules, consider the following important questions discussed in this chapter:

- Who is required to report, since the range of reporters will affect the completeness of reporting and the complexity of the surveillance system?
- Does the health department have authority to investigate and conduct site inspections of occupational exposure cases?
- Should the rule include a penalty for failure to report?

- Do the agency's existing confidentiality rules provide adequate protections to affected persons?
- Do enforcement agencies that receive referrals have the same confidentiality rules to protect medical information and/or the identity of the affected person? If not, is there an alternative referral approach that can be used?
- How will clinicians, the general public, workers, employers, and other stakeholders be informed of the rule change? How will they be given tools for recognizing, managing, reporting, and preventing pesticide poisoning?

2.5.1 ELEMENTS OF THE REPORTING RULE

This section provides information about the elements contained in an effective reporting rule. Each State has different requirements for these rules and must make decisions and use wording based on their specific needs.

2.5.1.1 WHAT IS REPORTABLE?

Pesticide poisoning is a term easily recognized by clinicians, but it may cause them to limit their thinking to frank acute poisonings, no matter how it is defined in a rule. The term *acute pesticide-related illness and injury* is a more accurate description of what should be reported. In the rule, States specify whether the program is aimed at capturing only acute or both acute and chronic illness and injury. All of the information in this manual is limited to the surveillance of acute pesticide-related illness and injury, but some States may have reasons for wishing to capture both. Indicating that both clinically suspected or confirmed cases should be reported encourages health care providers to report even if they are not sure of the diagnosis.

Pesticide poisoning or *pesticide-related illness and injury*, whichever term is used, should be defined. The definition can make it clear that acute systemic, opthalmologic, or dermatologic illness or injury resulting from inhalation, ingestion, dermal exposure, or ocular contact with a pesticide is reportable. It is also helpful to use and define the terms *case*, *suspected case*, and *pesticide*. The definition for *pesticide* is generally the legal definition used by the State program taken from the State pesticide use laws. States may choose to make it clear that effects include those caused by both active and inert ingredients, and may choose to include *adjuvants* (see Section 2.5.3). (Adjuvants are materials that are added to a pesticide formulation to improve or change properties such as deposition, persistence, or mixing ability. These materials, which may be added by the pesticide applicator before a pesticide product is applied, include wetting agents, spreaders, emulsifiers, foam suppressants, and dispersing agents.) Since clinicians and the public often equate pesticides only with insecticides, confusion can be prevented by adding a statement such as: "Pesticides include but are not limited to herbicides, insecticides, rodenticides, repellents, fumigants, fungicides, and wood treatment products." It is important that educational materials for reporters and the public include information about classes of pesticides that may not be perceived as pesticides (e.g., herbicides, disinfectants, and wood preservatives). This definition is also where the surveillance program should indicate whether it is including or excluding illness and injury resulting from exposure to disinfectants.

In the spirit of having a reporting rule with broad wording, States consider whether to specifically include disinfectants, which are considered pesticides and produce a similar number of poisoning cases as are produced by conventional pesticides. Some programs, especially those with limited resources, may not be able to track disinfectant-related cases. However, including disinfectants in a reporting rule will

facilitate their surveillance when additional resources are secured.

Ideally, making the full spectrum of pesticide-related illness and injury reportable is preferable to limiting reporting to occupational or nonoccupational cases. If jurisdictional or other limitations on resources exist, limiting reporting to occupationally related cases may be useful. Occupational exposures are more likely to be ongoing and have the potential to involve more toxic chemicals. However, having a broad reporting rule often makes it easier to build bridges with the agricultural community and to gain its support for the surveillance program. When surveillance is limited to occupational cases only, it must be made clear to the agricultural community that this surveillance also includes nonagricultural occupationally related cases.

An example of broad wording to define what is reportable is "Report cases or suspected cases of acute pesticide-related illness and injury when there is a history of exposure and a temporally-related illness or injury (laboratory confirmation is not required). For reporting purposes, *pesticide poisoning* includes acute poisoning as well as any subacute illness or condition (dermatologic, ophthalmologic, or systemic) caused by, or suspected of being caused by, pesticide exposure."

The statute/rule either specifies what must be reported in detail (e.g., a listing of name, address, phone number, social security number, sex, date of birth, diagnosis, etc.), or specifies that all information requested on an agency reporting form must be supplied to the health department. If the statute or rule does not clearly describe the agency's access to additional medical information or medical records, requests for medical information may be denied by the HCP or health institution where the affected person was seen. Likewise, the parent agency of the surveillance program should determine whether it has authority to gather information from third parties (e.g., employers and pesticide applicators) during an investigation. Some States have secured this authority through a change of the statute or rule for reporting of pesticide poisoning.

It may be useful to consider requirements for pesticide use reporting at the same time that the illness reporting rule is being developed and the PPSP is being designed. (see Appendix G for information about pesticide use reporting rules and data.) This is considered hazard surveillance, as opposed to disease surveillance. Pesticide use reporting can provide information about when and where hazardous pesticides are used, which can guide intervention efforts. In addition, pesticide use reporting can provide useful denominator data. For each pesticide or pesticide class, rates of pesticide poisoning cases per pound used of the pesticide can be calculated. These analyses would allow the identification of pesticides that poison the largest number of people per pound used. The disadvantages of pesticide use reporting are the time and financial burdens placed on pesticide users who must report this data, and on the State agency responsible for enforcing the rule and processing the data.

2.5.1.2 Who Must Report?

Reporting rules are typically aimed at licensed health care providers or physicians and, in some States, laboratories. A broad statement that is inclusive of a wide range of reporters is desirable, if no legal reasons for limiting the language exist. Some States require reporting by school nurses or school administrators for schools without a nurse. This may be a useful requirement if a State is including nonoccupational poisonings in the surveillance system. It

would not be advisable if the system is interested in capturing occupational cases only. Surveillance systems that capture only occupational cases may confront difficulties when responding to school-based pesticide exposure events. Such surveillance programs can address the concerns of teachers and clerical and maintenance staff who may be ill from a school-based exposure event. However, the program's inability to address the public health concerns of students and their parents will create significant policy problems.

The PCC may be mentioned specifically as a reporting entity, or PCC staff may consider themselves to be health care providers under a broadly stated rule. This issue should be discussed directly with the PCC(s) in the State before developing language for a proposed rule. Similarly, workers' compensation data are an important source of cases, and kindred efforts should be considered for gaining access to it.

If reporting is mandatory, the State may choose to attach penalties for failure to report. This particular issue is often not directly addressed but should be considered. The disadvantage of penalties is that they may set a hostile tone. A clearly stated penalty may create a negative relationship with potential reporters when the State attempts to establish the reporting rule. The Washington statute includes a statement that no action shall result from the failure to report as required by the law, although it does allow the department of health to submit information about nonreporting primary care providers to the applicable disciplining authority [RCW 70.104.055(5)–(6)]†. The California law contains a penalty clause that has been used very rarely to address a health care provider's failure to report. Washington originally proposed a similar clause in their law but changed it to the current wording after representatives of the State medical association made it clear they would not support penalties for failure to report [Baum 2001a].

2.5.1.3 Where to Report

The reporting process is usually standardized for all reportable conditions in a State with the report going to either the State or local health agency. It is easier and will prevent delays if reports go to the agency that will be conducting the investigation rather than to an agency that will only act as a filter or referral center. If reports go directly by the local health department, clear guidelines are needed to ensure reports are transferred to the State PPSP in a timely manner.

Some States stipulate that reporting may be to the Department of Agriculture (DA), the Department of Environment, or some other agency. For example, in Louisiana, reports go to the DA and the Department of Forestry. If reports go to an agency other than a local or State health department, it is critical that laws and rules ensure the appropriate level of medical confidentiality for reports and the portions of investigations that include medical information. (*Note:* Reporting rules requiring health care providers to report to a DA have not routinely resulted in health care provider reports. Most reports received by these systems come from affected persons complaining about pesticide applications made by another person.)

2.5.1.4 When to Report

Prompt reporting is critical if the surveillance program is designed to conduct timely investigations. A rapid reporting and response system permits information to be captured that might otherwise be lost, especially data available from environmental or biological specimens.

†Revised Code of Washington. See RCW in references.

By receiving reports promptly, the public health system can act to prevent additional exposures and illnesses. The range of reporting times in existing rules is from 24 hours to 30 days. Most States encourage telephone or faxed reports to ensure prompt reporting. Some States are moving toward electronic reporting: transmitting data in flat file ASCII or another standardized format has significant advantages in that it can be automated. Data are usually encrypted for security. This is particularly useful for reporters who have large numbers of reports or who provide batched periodic reports of data (e.g., laboratories, PCCs, or workers' compensation departments).

2.5.1.5 HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY RULE AND PUBLIC HEALTH (HIPAA) PRIVACY RULE AND PUBLIC HEALTH SURVEILLANCE

The information in this section was adapted from the CDC publication entitled *HIPAA Privacy Rule and Public Health: Guidance from CDC and the U.S. Department of Health and Human Services* [CDC 2003]. This document is available on the Internet at http://www.cdc.gov/mmwr/preview/ mmwrhtml/su5201a1.htm.

New health information privacy standards have been issued by the U.S. Department of Health and Human Services (DHHS), pursuant to the HIPPA Act of 1996. The new regulations provide protection for the privacy of certain individually identifiable health data, referred to as protected health information (PHI). Balancing the protection of individual health information with the need to protect public health, the Privacy Rule expressly permits disclosures without individual authorization to public health authorities authorized by law to collect or receive the information for the purpose of preventing or controlling disease, injury, or disability, including but not limited to public health surveillance, investigation, and intervention [45 CFR 164.512(b)]. This includes the reporting of disease and injury for public health surveillance. A public health authority is broadly defined as including agencies or authorities of the United States, States (including public health departments and divisions), territories, American Indian tribes, or a person or entity acting under a grant of authority from such agencies and responsible for public health matters as part of an official mandate.

A public health authority at the Federal, tribal, State, or local level does not need disease or condition-specific laws before collection of PHI is authorized. On the contrary, public health authorities operate under broad mandates to protect the health of their constituent population, and they are authorized to receive PHI for the purpose of controlling disease, injury, or disability. A covered entity (that is, a health plan, health care clearinghouse, or health care provider who transmits any health information in electronic form in connection with a transaction [45 CFR 164.103]) may disclose the minimum necessary information to accomplish the intended public health purpose of the disclosure. The covered entity may rely on the public health authority's representation that the information is the minimum necessary to accomplish the intended public health purpose of the disclosure [45 CFR 164.512(b)].

To receive PHI for public health purposes, public health authorities should be prepared to verify their status and identity as public health authorities under the Privacy Rule. To verify its identity, an agency could provide any one of the following:

- If the request is made in person, the requestor presents an agency identification badge, other official credentials, or other proof of government status.
- If the request is in writing, the request is on the appropriate government letterhead.

- If the disclosure is to a person acting on behalf of a public health authority, a written statement that the person is acting under the government's authority is on appropriate government letterhead [45 CFR 164.514(h)(2)].

Public health authorities receiving information from covered entities as required or authorized by law [45 CFR 164.512(a) and 45 CFR 164.512(b)] are not business associates of the covered entities and therefore are not required to enter into business associate agreements. Public health authorities that are not covered entities are also not required to enter into business associate agreements with their public health partners and contractors. Also, after PHI is disclosed to a public health authority pursuant to the Privacy Rule, the public health authority (if it is not a covered entity) may maintain, use, and disclose the data consistent with the laws, regulations, and policies applicable to the public health authority.

Additional information about this topic appears in the CDC publication entitled *HIPAA Privacy Rule and Public Health: Guidance from CDC and the U.S. Department of Health and Human Services* [CDC 2003]. CDC recommends that public health authorities share the information in this document with health care providers and other covered entities and to work closely with those entities to ensure implementation of the rule consistent with its intent to protect privacy while permitting authorized public health activities to continue. Comprehensive DHHS guidance is located at the HIPAA Web site of the Office for Civil Rights http://www.hhs.gov/ocr/ hipaa/).

2.5.1.6 Confidentiality

It is assumed in this discussion that the State already has existing rules governing the confidentiality of personally identifiable medical information collected as part of disease reporting and special studies. This is an area that must be reviewed carefully if reporting is made to an agency other than the one that usually houses information about reportable conditions. For example, departments of labor, business services, or agriculture may not have adequate policies to protect confidential medical information. These issues may be addressed by carefully crafted regulatory language or a memorandum of understanding developed in consultation with the agency's legal counsel.

2.5.1.7 Interagency Cooperation or Sharing of Information

The mechanisms of interagency cooperation on investigations are discussed in Chapter 5. Some States have included statements about interagency cooperation in their laws or rules governing the reporting and investigation of pesticide poisoning (these statements may apply only to pesticide poisoning or apply to all reportable conditions or reportable occupational conditions). Several States have statutes and rules that specify the establishment of interagency boards related to the investigation of human illness associated with pesticide use. Oregon and Washington are two such States.

2.5.1.8 Authority to Investigate

In some States, the health department does not have clearly authorized access to workplaces unless they are establishments that are accessible to the broader public (e.g., retail establishments, schools, etc.). This is something that should at least be reviewed and considered when developing a statute and associated rules for surveillance of pesticide poisoning. To our knowledge, no pesticide poisoning rules exist that address the authority to conduct investigations. In contrast, some States have laws that address the authority to conduct investigations. Often, State health departments without a clear authority to investigate workplaces can gain access through voluntary cooperation. Employers are aware that failure to cooperate with an investigation will

usually result in referral to an enforcement agency that has authority to investigate. (See Section 2.5.2.3 for further discussion of this issue.)

2.5.2 Examples of Reporting Laws and Rules

This section includes excerpts from laws and rules from the following States: New York, Texas, and Washington. These examples were selected for inclusion as they each contain elements that warrant some consideration for a State considering adding pesticide poisoning as a reportable condition.

2.5.2.1 New York Reporting Rule

This State's reporting rule (Visual 2.1) provides for reporting from health care providers and laboratories. It has clear statements about the reporting of cholinesterase analyses and other clinical laboratory testing for pesticides in human tissue. The wording is broad, requiring reports of confirmed and suspected cases. The requirement for laboratory reporting of cholinesterase results does contribute a significant number of reports that are unrelated to pesticide exposure. This is due to the routine evaluation of cholinesterase levels before administration of certain muscle relaxants used in surgery.

2.5.2.2 Washington Law

The Washington law [RCW 70.104 Pesticides—Health Hazards 2002] describing pesticide poisoning surveillance is more detailed than laws in most States. The definition of pesticide is very broad, specifically including spray adjuvants and agents intended to be used with pesticides. The statute includes language that empowers the Department of Health to "investigate all suspected human cases of pesticide poisoning and such cases of suspected pesticide poisoning of animals that may relate to human illness." The law also gives the Department of Health authority to take samples including human or animal tissue specimens for diagnostic purposes with the consent of the exposed person. This statutory provision permitting the department to obtain specimens appears in several other State laws. It is useful since it is very explicit and allows the specimens to be collected as part of the investigation to confirm the diagnosis. Without this explicit statement, States may find it more difficult to collect and analyze such specimens without a more research-oriented protocol; such a protocol may require institutional review board clearance and detailed informed consent. Note that in Texas, unlike Washington State, the statute empowers the health department to collect both biological and environmental specimens.

2.5.2.3 Texas Reporting Law

The Texas law contains a section (see Visual 2.2) on investigations that has a clearly stated right of entry authority for occupational cases, as well as the right to collect and analyze environmental and biological specimens. This wording provides access to the information needed to conduct complete investigations. Subsection (b) of the law might not permit inclusion of farm labor housing as part of an investigation. There may be interagency or constituency reasons why a State might choose not to include similar language in its law or statute. These issues should be explored before proposing language of this type.

2.6 Surveillance Strategy for States with Limited Resources

States with limited resources should consider adopting a completely passive system that uses existing PCC(s) data to report occupational pesticide-related injury and illness incidence as defined in Visual 2.3. This strategy does not require any active case follow-up or management of confidential information since data can be

obtained without identifiers. Similarly, rates for nonoccupational pesticide-related illness and injury can be constructed by changing the demographic group and denominator. This surveillance approach does not require case follow-up, investigation, or a rule change. Other resource-sparing approaches discussed in this chapter include the following:

- Limiting the case definition to collect occupationally related cases
- Following up only on a subset of reports (e.g., severe illness, incidents involving multiple persons)

While these resource-sparing approaches provide an incomplete view of the problem of pesticide poisoning within a State, they do provide options for getting some sense of the scope of the problem, while using fewer resources than a more comprehensive surveillance program.

Visual 2.1. NYCRR Title 10, Volume A, Part 22
Environmental Diseases

(Statutory Authority: Public Health Law,
§§ 225[5][t], 206[l][j])

22.11 Reporting of pesticide poisoning. Every physician, health facility, and clinical laboratory in attendance on a person with confirmed or suspected pesticide poisoning or with and of the clinical laboratory results described in section 22.132 of this Part, shall report such occurrence to the State Commissioner of Health within 48 hours. This report shall be on such forms or in such manner as prescribed by the State Commissioner of Health.

Historical note
Sec. Filed August14, 1990, effective August 29, 1990.

22.12 Reportable Laboratory tests for pesticide poisoning. For the purposes of section 22.11, of this Part the following laboratory tests are reportable to the State Commissioner of Health:

(a) Blood cholinesterase levels that are below the normal range established by the clinical laboratory performing the test in accordance with quality assurance requirements established by the permit-issuing agency.

(b) Levels of pesticides in human tissue samples that exceed the normal range established in accordance with quality assurance requirements established by the permit-issuing agency.

Historical note
Sec. Filed August 14, 1990, effective August 29, 1990.

Visual 2.2. Texas Reporting Law
Communicable Disease Prevention and Control Act, Health and Safety Code, Chapter 84, The Occupational Condition Reporting Act
(§ 84.007. Investigations)

(a) The department shall investigate the causes of occupational conditions and methods of prevention.

(b) In performing the commissioner's duty to prevent an occupational condition, the commissioner or the commissioner's designee may enter at reasonable times and inspect within reasonable limits all or any part of an area, structure, or conveyance, regardless of ownership, which is not used for private residential purposes.

(c) Persons authorized to conduct investigations under this section may take samples of materials present on the premises, including samples of soil, water, air, unprocessed or processed foodstuffs, manufactured items of clothing, and household goods. If samples are taken, a corresponding sample shall be offered to the person in control of the premises for independent analysis.

(d) Persons securing the required samples may reimburse or offer to reimburse the owner for the materials taken, but the reimbursement may not exceed the actual monetary loss sustained by the owner.

Acts 1989, 71st Leg., ch. 678, § 1, eff. Sept. 1, 1989.

Amended by Acts 1997, 75th Leg., ch. 245, § 6, eff. May 23, 1997.

Visual 2.3. Minimum Data Collection for Occupational Pesticide-Related Illness and Injury Surveillance

Below are guidelines for minimum data collection for occupational pesticide poisoning surveillance. Data should be obtained from poison control centers (PCCs) serving the State. Collecting these data will provide a State health agency with information about this condition that is comparable across States.

Data Resources	Poison Control Center data (numerator) BLS Current Population Survey Data (denominator) available at http://www.bls.gov/opub/gp/laugp.htm
Demographic Group	Employed persons aged 16 and older
Numerator	Reported cases of work-related pesticide poisoning defined as: 1. Exposure to an agent included in one of the pesticide generic categories (that is, fungicides, fumigants, herbicides, insecticides, repellents, or rodenticides), AND 2. Reason=occupational OR Exposure Site=workplace, AND 3. Medical Outcome is one of the following: minor effect; moderate effect; major effect; death; not followed, minimal clinical effects possible; or unable to follow, judged as a potentially toxic exposure.
Denominator	Employed persons aged 16 and older for the same calendar year
Measures of Frequency	Annual number of incident cases Annual incidence rate per 100,000 employed persons aged 16 or older
Time Period	Calendar year
Limitations of Indicator	Some States may not have a PCC. In addition, there may be rare circumstances in which a State health agency is unable to obtain data from their State-based PCC; however, under such circumstances it may be possible to obtain less timely PCC data from NIOSH at http://www.cdc.gov/niosh/pestsurv/.
Other Data to Collect from PCCs	Age, sex, pesticide active ingredient, signs/symptoms arising from the pesticide exposures, illness severity, and whether hospitalization/intensive care unit (ICU) treatment was provided.
Additional Guidance	Additional guidance on obtaining the numerator and denominator data are available from NIOSH (http://www.cdc.gov/niosh/topics/pesticides/) or from the Council of State and Territorial Epidemiologists (http://www.cste.org/pdffiles/Revised%20Indicators3.4.04.pdf).