MEDICAL CASE PROFILE

NATIONAL PESTICIDE INFORMATION CENTER
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Medical Cases and Topics for Health Care Providers are based upon inquiries received by NPIC, as well as relevant publications in the scientific literature. They are intended to educate health care providers about pesticide toxicology.

Pesticide Incident Reporting

Scenario:

A group of agricultural workers are transported to an emergency room due to symptoms that developed shortly after re-entering a citrus grove where the insecticide carbaryl (a carbamate, and inhibitor of cholinesterase enzymes) had recently been applied. The workers experienced symptoms including weakness, dizziness, nausea, and vomiting. It was unclear at the time of presentation how much time had elapsed between the insecticide application and re-entry of workers into the field to pick the oranges. In the emergency room the affected individuals received dermal decontamination to reduce the risk of ongoing exposure. Several individuals had blood collected for cholinesterase testing. The majority of the symptoms resolved within the next 12-24 hours. The results of blood cholinesterase tests were within the normal reference range. After the initial clinical management of the symptoms the emergency room physician was seeking information about reporting the suspected pesticide exposure incident so that further investigation could be conducted.

Discussion:

Acute illness associated with exposure to pesticides in the workplace is a significant public health problem, particu-larly among agricultural occupations.[1] Several states have implemented regulations for the surveillance of suspect-ed or confirmed pesticide-related illnesses occurring in or outside of the workplace. Generally, these programs are based within state health departments. States in which suspected or confirmed pesticide-related illness or disease may be a reportable condition can be found here.[2] It should be emphasized that reporting mechanisms and requirements vary considerably by state. In some states, only occupational pesticide illnesses or diseases are reportable. PERC's searchable database provides further information relating to reporting requirements for specific states. Health care providers should be aware of any reporting requirements in the states in which they practice.

When a health care provider reports a suspected or confirmed case of pesticide-related illness to a public health department, the disclosure of protected health information (PHI) may be regulated under the Health Insurance Portability and Accounting Act (HIPAA). The U.S. Department of Health and Human Services and Centers for Dis-ease Control and Prevention have provided guidance to health care providers regarding the HIPAA Privacy Rule and public health practice. Under the HIPAA Privacy Rule, a health care provider may disclose PHI to a public health authority that is legally authorized to collect or receive the information for the purposes of preventing or control-ling disease, injury, or disability including conducting public health surveillance, investigations, and interventions. The health care provider needs to account for each disclosure by date, the PHI disclosed, the identity of the recipi-ent of the PHI, and the purpose of disclosure.

In the case that is the subject of this medical case profile, the measurement of cholinesterase activity in the blood of symptomatic workers did not reveal abnormal findings. However, because the inhibition of cholinesterase enzymes is temporary and reversible after overexposure to carbamates, the accuracy of this biomarker may be limited by the amount of time that has passed since exposure.[3] In one study of workers with occupational exposure to carbaryl, blood cholinesterase levels typically fell within the normal range even though urinalysis showed significant exposure was occurring.4 For this reason, health care providers should be aware of the limitations of these biomarkers of exposure and understand the importance of a thorough occupational and environmental history to clarify details about the circumstances surrounding the exposure. In addition to collecting an exposure history, the early recognition and reporting of suspected pesticide-related illnesses can enhance the ability to conduct incident investigations. The results of these types of investigations may be helpful in reducing health risks from pesticides. The U.S. E.P.A. recently completed an interim reregistration eligibility decision for the use of carbaryl,[5] and several important changes in the use of this insecticide have been required based upon concerns about oc-cupational exposure among pesticide handlers and workers entering recently treated areas. An EPA. fact sheet is available which summarizes these changes.

Health care providers should also be aware of other state agencies responsible for the regulation of pesticides, because these agencies can serve an important role in the investigation of exposure incidents. The lead agency with primary responsibility for regulating pesticide use varies from state to state. The National Pesticide Informa-tion Center (NPIC) website has a resource link to phone numbers, addresses and websites for the primary pesticide regulatory agency in each state and U.S. territory. Depending upon the circumstances surrounding a human ex-posure incident, the state agency might collect environmental samples and additional information relating to the pesticide application.

Many cases of suspected or confirmed pesticide-related illness are not reported to public health departments.[6] As health care providers are frequently one of the first responders in cases of acute and symptomatic exposures, they serve an important role in the recognition and management of pesticide-related illness. In states in which pesticide-related illness is a reportable condition, health care providers also play an important role in surveillance and prevention. By becoming aware of reporting requirements and other agencies responsible for the investigation of suspected pesticide exposures, health care providers can serve an important function in improving public health in the communities in which they practice.

References

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