

Severity Index for Use in State-based Surveillance of Acute Pesticide-Related Illness and Injury

Purpose: The purpose of the severity index is to provide simple, standardized criteria for assigning severity to cases of acute pesticide-related illness and injury.

Rationale: It is important to assign a severity category to each case of acute pesticide-related illness and injury. An understanding of illness severity will be useful for evaluating the morbidity of acute pesticide-related illness and injury, for assessing its impact on society, and to assist the targeting of limited intervention/prevention resources toward the most pressing pesticide problems.

Description: This severity index is based upon existing systems for ranking severity of poisonings, including pesticide illness.^{1,2,3,4} It takes into account the following: signs and symptoms; whether medical care was sought; whether the individual was hospitalized; and, whether there was lost time from work or usual activities. Severity should only be assigned to acute pesticide-related illnesses or injuries classified as definite, probable, possible, or suspicious. As such, this severity index should be used in conjunction with the Case Definition for Acute Pesticide-Related Illness and Injury Cases Reportable to the National Public Health Surveillance System⁵.

The *Figure* is the flow diagram that should be used as a guide for assigning severity. The *Figure* often refers to the *Table*. The *Table* is a listing of signs and symptoms that correspond to the different severity categories. Many of the signs and symptoms in the *Table* are included in the Standardized Variables for Pesticide Poisoning Surveillance⁶. When using the *Table*, only signs and symptoms related to the pertinent acute pesticide-related illness or injury should be considered (i.e. only consider those signs and symptoms used to classify the acute pesticide-related illness and injury as definite, probable, possible, or suspicious).

The list of signs and symptoms provided in the *Table* is not comprehensive, but instead provides examples to assist in assessing severity. In addition, a given health effect may appear in more than one of the *Table*'s severity columns.

In such instances, the health effect observed as a sign (i.e. a health effect observed and described by a licensed health care professional) will be considered as having greater severity compared to the health effect reported as a symptom (i.e. a health effect perceived and reported by the patient but not observed by a licensed health care professional).

This severity index provides standardized criteria to ensure inter-rater uniformity in assigning severity. However, we recognize that this severity index cannot address all conceivable clinical situations. Therefore, it is not realistic to insist on strict adherence to these criteria. The user must be flexible when using this severity index, given that the user will not infrequently need to employ judgement and experience when assigning severity.

A brief description of each of the four severity categories follows

S-1 Death

This category describes a human fatality resulting from exposure to one or more pesticides.

S-2 High severity illness or injury

The illness or injury is severe enough to be considered life threatening and typically requires treatment. This level of effect commonly involves hospitalization to prevent death. Signs and symptoms include, but are not limited to, coma, cardiac arrest, renal failure and/or respiratory depression. The individual sustains substantial loss of time (> 5 days) from regular work (this can include assignment to limited/light work duties) or normal activities (if not employed). This level of severity might include the need for continued health care following the exposure event, prolonged time off of work, and limitations or modification of work or normal activities. The individual may sustain permanent functional impairment.

S-3 Moderate severity illness or injury

This category includes cases of less severe illness or injury often involving systemic manifestations. Generally, treatment was provided. The individual is able to return to normal functioning without any residual disability. Usually, less time is lost from work or normal activities (≥ 3 -5 days), compared to those with severe illness or injury. No residual impairment is present (although effects may be persistent).

S-4 Low severity illness or injury

This is the category of lowest severity. It is often manifested by skin, eye or upper respiratory irritation. It may also include fever, headache, fatigue or dizziness. Typically the illness or injury resolves without treatment. There is minimal lost time (<3 days) from work or normal activities.

¹ AAPCC, 1992. Toxic Exposure Surveillance System (TESS) Manual. American Association of Poison Control Centers, Washington, D.C.

² Washington Department of Health, 1999. 1998 Annual Report, Pesticide Incident Reporting and Tracking Review Panel. Washington State Department of Health, Office of Environmental Health and Safety, Olympia, WA.

³ EPA, 1998. Expanded Explanation for the new FIFRA 6(a)(2)' 159.814 (5)(i)(A-E) and (5)(ii)(A-E) Exposure Severity Categories.

⁴ Persson HE, Sjoberg GK, Haines JA, de Garbino JP. 1998. Poisoning severity score. Grading of acute poisoning. Clin Toxicol 36:205-213.

⁵ NIOSH, 2000. Case definition for acute pesticide-related illness and injury cases reportable to the national public health surveillance system. Cincinnati, OH: National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention. 2000. Unpublished.

⁶ NIOSH, 2000. Standardized variables for state surveillance of pesticide-related illness and injury. Cincinnati, OH: Cincinnati, OH: National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention. 2000. Unpublished.