

Merlin disease code: 09894 Pesticide-Related Illness and Injury, Acute

[Paper case report form](#)  
Merlin extended data required

## Clinical criteria for case classification

Any acute adverse health effect resulting from exposure to a pesticide product (defined under the Federal Insecticide Fungicide and Rodenticide Act [FIFRA<sup>1</sup>] with the exception that disinfectants are excluded) including health effects due to an unpleasant odor, injury from explosion of a product, inhalation of smoke from a burning product, and allergic reaction.

Symptoms typically involve one or more of the following:

- Systemic signs or symptoms (including respiratory, gastrointestinal, allergic, and neurological signs/symptoms),
- **Or** Dermatologic lesions,
- **Or** Ocular lesions.

## Laboratory criteria for case classification

One or more of the following:

- Detection of pesticide, pesticide metabolite(s), or toxic response to pesticide in clinical specimen (e.g., blood, urine), which may include one or more of the following:
  - Detection above laboratory reference range of pesticide or pesticide metabolite(s) in clinical specimen,
  - **Or** detection of biochemical response to pesticide in clinical specimen,
  - **Or** at least 20% decrease in plasma or red blood cell (RBC) cholinesterase (ChE) levels relative to non-exposed baseline blood specimens,
  - **Or** plasma or RBC ChE level >15% below the laboratory reference range in the absence of baseline specimens;
- **Or** detection of pesticide in environmental sample (e.g., foliage residue, analysis of suspect liquid);
- **Or** detection of pesticide on clothing or equipment used by the case subject.

## Epidemiological criteria for case classification

Not applicable.

## Case classification

Provided below (criteria A, B, and C). Scores are either 1 or 2, and are assigned based on all available evidence. The classification matrix follows the criteria section (Table 1). The matrix provides the case classification categories and the criteria scores needed to place the case into a specific category.

Confirmed and probable cases (see the classification matrix) are reportable. Suspect (i.e., possible and suspicious) cases are only reportable for only occupationally (work-related) exposed or cluster (two or more related cases) associated cases.

A. Documentation of Pesticide Exposure:

A1. Laboratory, clinical, or environmental evidence corroborates exposure (one or more of the following must be satisfied to receive a score of A1):

- Analytical results from foliage residue, clothing residue, air, soil, water, or biologic samples.
- Observation of residue and/or contamination (including damage to plant material from herbicides) by a trained professional<sup>2</sup>.
- Biologic evidence of exposure (e.g., response to administration of an antidote such as 2-PAM, Vitamin K, or repeated doses of atropine).
- Documentation by a licensed health care professional of a characteristic eye injury or dermatological effects at the site of direct exposure to pesticide product.
- Clinical description by a licensed health care professional of two or more post-exposure health effects (at least one of which is a sign) characteristic for the pesticide.

A2. Evidence of exposure based solely upon written or verbal report (one or more of the following must be satisfied to receive a score of A2):

- Report by case.
- Report by witness.
- Written records of application.
- Observation of residue and/or contamination (including damage to plant material from herbicides) by someone other than a trained professional.
- Other evidence suggesting that exposure occurred.

B. Documentation of Adverse Health Effect

B1. Two or more new post-exposure abnormal signs and/or test/laboratory findings reported by a licensed health care professional (this is B1 score).

B2. One or more of the following must be satisfied to receive a score of B2:

- Two or more new post-exposure abnormal signs reported (when new post-exposure signs and test/laboratory findings are insufficient to satisfy a B1 score, they can be used in lieu of symptoms towards satisfying a B2 score).
- Any new illness or exacerbation of pre-existing illness diagnosed by a licensed physician, but information on signs, symptoms, and/or test findings are not available or are insufficient for a B.1 or B.2. score.

C. Evidence Supporting a Causal Relationship Between Pesticide Exposure and Health Effects

C1. Causal relationship between pesticide exposure and health effects exists (one or more of the following must be satisfied to receive a score of C1):

- Health effects (in criteria B) are characteristic for the pesticide and the temporal relationship between exposure and health effects is plausible.
- Health effects (in criteria B) are consistent with an exposure-health effect relationship based upon the known toxicology (i.e., exposure dose, symptoms, and temporal relationship) of the putative agent from commonly available toxicology texts, government publications, information supplied by the manufacturer, or two or more case series or positive epidemiologic studies published in peer-review literature.

C2. Insufficient toxicological information is available to determine causal relationship between exposure and health effects. This includes circumstances where minimal human health effects data are available, or where there are less than two published case series or positive epidemiologic studies linking health effects to exposure to the particular pesticide product/ingredient or class of pesticides (this is C2 score).

Table 1 - Case classification matrix

Classification criteria	Confirmed	Probable		Suspect	
				Possible	Suspicious
A. Exposure	A.1	A.1	A.2	A.2	A.1 or A.2
B. Health Effects	B.1	B.2	B.1	B.2	B.1 or B.2
C. Causal Relationship	C.1	C.1	C.1	C.1	C.2

Suspect (i.e., possible and suspicious) cases which are not part of a cluster (two or more related cases) or occupationally related pesticide exposures (typically limited household exposures) no longer need to be reported.

## Criteria to distinguish a new case from previous reports

Not applicable.

## Comments

The Florida Poison Control Network (800-222-1222) can provide emergency information to physicians and the public. For information regarding Florida pesticide laws and regulations, contact the Florida Department of Agriculture and Consumer Services, Bureau of Compliance Monitoring at 850-488-3314. For information regarding this case definition, contact the Bureau of Epidemiology.

For information concerning regulation and use of pesticides, contact the U.S. EPA's Office of Pesticide Programs at 703-305-5336. For information concerning Florida pesticide laws and regulations, contact the Florida Department of Agriculture and Consumer Services, Bureau of Pesticides at 850-617-7917.

1. Pesticides are defined under FIFRA as any substance or mixture of substances intended to prevent, destroy, repel or mitigate insects, rodents, nematodes, fungi, weeds, microorganisms, or any other form of life declared to be a pest by the Administrator of the U.S. EPA and any substance or mixture of substance intended for use as a plant regulator, defoliant, or desiccant. Pesticides include herbicides, insecticides, rodenticides, fungicides, disinfectants, wood treatment products, growth regulators, insect repellents, etc.
2. Trained professional may be a plant pathologist, agricultural inspector, agricultural extension agent, industrial hygienist, or any other licensed or academically trained specialist with expertise in plant pathology and/or environmental effects of pesticides. A licensed pesticide applicator may also be considered a trained professional.