Surveillance Guidelines for State Health Departments

Reporting Guidelines for WRA

State health departments should encourage health-care professionals to report all diagnosed or suspected cases of asthma that are caused by or exacerbated by workplace exposures or conditions. Reported cases should include asthma caused by sensitizers or irritants and should include cases of reactive airways dysfunction syndrome (RADS).

Surveillance Case Definition for WRA

A. Healthcare professional's diagnosis consistent with asthma. *
AND
B. An association between symptoms of asthma and work. **

*Asthma is a chronic condition characterized by inflammation of the tracheobronchial tree associated with increased airways responsiveness to a variety of stimuli. Symptoms of asthma include episodic wheezing, chest tightness, cough, and dyspnea, or recurrent attacks of bronchitis with cough and sputum production. The primary physiologic manifestation of airways hyperresponsiveness is variable or reversible airflow obstruction. It is commonly demonstrated by significant changes in the forced expiratory volume in 1 second (FEV1) or peak expiratory flow rate (PEFR). Airflow changes can occur spontaneously, with treatment, with a precipitating exposure, or with diagnostic maneuvers such as nonspecific inhalation challenge.

**Patterns of association can vary and include:
(1) symptoms of asthma that develop or worsen after a worker starts a new job or after new materials are introduced on a job (a substantial period can elapse between initial exposure and development of symptoms);

(2) symptoms that develop within minutes of specific activities or exposures at work;

(3) delayed symptoms that occur several hours after exposure (e.g., during the evenings of workdays);

(4) symptoms that occur less frequently or not at all on days away from work and on vacations;

(5) symptoms that occur more frequently when the affected worker returns to work; and

(6) symptoms that are temporally associated with workplace exposure to an agent with irritant properties. Work-related changes in medication requirements can accompany these symptom patterns.

Surveillance Guidelines for State Health Departments (continued)

Surveillance Case Classification Criteria for WRA

C1) Increased asthma symptoms or increased use of asthma medication (upon entering an occupational exposure setting) experienced by a person with preexisting asthma who was symptomatic or treated with asthma medication within the two years prior to entering that occupational setting.
C2) New asthma symptoms that develop within 24 hours after a one-time high-level inhalation exposure (at work) to an irritant gas, fume, smoke, or vapor and that persist for at least three months.
C3) Workplace exposure to an agent previously associated with occupational asthma. *
C4) Work-related changes in serially measured forced expiratory volume in one second (FEV1) or peak expiratory flow rate (PEFR). **
C5) Work-related changes in bronchial responsiveness as measured by serial nonspecific inhalation challenge testing. ***
C6) Positive response to specific inhalation challenge testing with an agent to which the patient has been exposed at work. ****

* Many agents can induce occupational asthma via a specific hypersensitivity mechanism. A comprehensive list of these asthma inducers is used for this criterion. Known asthma inducers have been designated with the letter “A” in the Association of Occupational and Environmental Clinics (AOEC) coding scheme (www.aoec.org/aoeccode.htm).

** Spirometric measurements (e.g., FEV1) can be obtained before and after a person’s work shift (i.e., cross-shift spirometry). However, many cases of occupational asthma can fail to demonstrate a significant cross-shift reduction in FEV1, either because of a delayed bronchoconstrictor response or because of intermittent exposure patterns. Cross-shift spirometry testing on multiple days might help confirm the association with work. Alternatively, PEFR can be measured serially throughout the day on multiple days at and away from work using a portable peak flow meter.

*** Changes in bronchial responsiveness can be measured by serial inhalation challenge testing with nonspecific agents (e.g., using methacholine or histamine). Evidence of work-relatedness is manifested by increased bronchial responsiveness (i.e., bronchoconstriction at lower inhaled doses of methacholine or histamine) following work exposures and decreased or normal bronchial responsiveness after a period away from work.

**** Specific inhalation challenge testing has distinct objectives, including the following: (1) identifying previously unrecognized causes of occupational asthma; (2) confirming a diagnosis of occupational asthma; and (3) identifying the causative agent when more than one allergen is present in the occupational environment and identification of the causative agent is essential for management. Specific inhalation challenge testing is potentially dangerous and should be performed by experienced personnel in a hospital setting where resuscitation facilities are available and frequent observations can be made over sufficient time to monitor for delayed reactions. Specific inhalation challenge testing is usually not necessary for clinical diagnosis of occupational asthma.

Decision Logic for Work-Related Asthma