

Outbreaks, Epidemics, and Other Infectious Disease Emergencies

Why Children Are Especially Vulnerable

Children are particularly vulnerable to rapid spread of infectious diseases and exposure to toxic substances for several reasons. Young children, especially infants and toddlers, have a natural curiosity that leads to frequent and wide-ranging handling of objects and surfaces and a tendency to put their hands and objects in their mouths without concern about washing first. Since their immune systems are still developing, and because children are smaller than adults, they often have a more pronounced reaction to infections and other substances. Sometimes, this is referred to as a higher physiologic dose/effect per unit exposure.

Children are highly vulnerable to aerosolized biological or chemical agents because they normally breathe more times per minute than adults. As a result, they receive larger doses in the same period of time. Also, because such agents are heavier than air, they accumulate close to the ground, in the breathing zone of children. Children are more vulnerable to agents that act on or through the skin because their skin is thinner and they have a larger skin surface-to-body mass ratio than adults. Children are more vulnerable to the effects of biological and chemical agents that produce vomiting or diarrhea because they have smaller body fluid reserves than adults, increasing the risk of rapid progression to dehydration or shock. Most importantly, children are dependent on others for their care (eg, they would not be especially good about rehydrating themselves without guidance). For these and other reasons, children need direct supervision (by sight and sound) especially during and after an outbreak or emergency situation.

Types of Infectious Disease Emergencies

When a strange type of illness occurs, or an unusual number of individuals develop an illness or symptom, the situation may be an outbreak, an epidemic, another type of infectious disease emergency, an environmental issue, or an incident of bioterrorism. A number of circumstances may call for temporary closure of child care facilities and suspension of school classes. Although public health officials may suspend school classes or close child care facilities in the event of large community-wide outbreaks such as a severe influenza pandemic, they rarely close single facilities. This is because schools and child care centers can serve as an important link in communication between public health and the involved families. Also, parents often put their children in other programs in the area and thus contribute to the spread of the

problem to multiple facilities. Administrators of single facilities may elect to suspend operations voluntarily when illness among staff and students reaches levels that jeopardize their ability to conduct operations safely or efficiently. Although this is an administrative decision, discussions with parents, health consultants, and public health officials should be held before a final decision is made.

An **outbreak** is a sudden rise in the occurrence (the number of cases) of a disease. Some outbreaks are expected each year, like influenza, hand-foot-and-mouth disease, and bronchiolitis. Other outbreaks need to be reported to the public health authorities, especially those where public health officials can advise about control measures and help ensure accurate communications among health professionals, child care personnel, and parents. An outbreak of an unusual or severe illness must be reported to public health authorities immediately. For example, an unusual illness would be if, on the same day, 2 children in the same group had severe vomiting, or an unusual rash and fever. Check the individual Quick Reference Sheets in this book to see when an outbreak should be reported. If a program quickly realizes that an outbreak of an illness or symptom is occurring, the number of people who become ill may be reduced with special attention to good hygiene and sanitation practices. Also, outbreaks can result from environmental problems. Public health officials can help determine the cause and identify next steps.

An **epidemic** is the occurrence of more cases of disease than would be expected in a community or region during a given period. The term is similar to an outbreak, but it usually is used to describe an unusual frequency of illness in a group of people that is not explained by the usual seasonal increases. The term outbreak might be used when a single case of an unusual disease occurs. A **pandemic** is an epidemic that spreads through human populations worldwide. Because there have been previous situations where a pandemic influenza has happened, public health officials are engaged in ongoing efforts to prepare for this type of a situation.

The term **bioterrorism** is used to describe a situation in which a biological agent is intentionally released to cause illness. The biological agent involved in bioterrorism may be a living germ or a poison, such as anthrax, ricin, or botulism toxin. If a group of children and adults become ill with similar symptoms at the same time, the public health authorities should be notified. They will consider bioterrorism as one of the possibilities as well as the more likely event of an outbreak of common infectious disease. Public health officials

are likely to be more sensitive to such reports if there are signs of certain rare infections (like anthrax or smallpox) that are unusual as “natural” occurrences.

Symptom Records

Conducting daily health checks and keeping symptom records on a regular basis is a good way for child care professionals to identify the potential for an infectious disease emergency or outbreak. Child care facilities typically document enrollment and attendance, yet not all perform regular health checks and track the symptoms of the children in their care. Some programs use a sign-in sheet, which the parents complete, at the entrance to the facility; others have a classroom log. A good tool for tracking illness is “Enrollment/Attendance/Symptom Record,” Appendix F, page 414 in *Caring for Our Children*, 2nd Edition.

When an outbreak is suspected, the first thing to do is to have a health professional provide expert advice about what is happening. Maintaining an ongoing relationship with a child care health consultant is another effective preventive practice. Often, the first ideas about the diagnosis are corrected as laboratory tests and further symptoms become available to the health professionals. Once the diagnosis is clear, the health professionals should be informed about the child’s participation in a group care setting and what that means for exposure of other children. The ill child’s health professional may be able to offer some advice to the program staff about what to do. In cases where public health notification is required, the child care staff must find a public health professional who will take responsibility for managing the situation.

Parent Notification

Providing clear, accurate, and helpful information to parents as soon as possible is crucial. Sharing written policies with parents when they enroll their child, informing them of routines practices (eg, hand washing, sanitation, symptom monitoring), and letting them know how they will receive information about illness or infections, will help them understand what to expect. Yet, notifying parents about their child’s exposure to a potential infection, outbreak, or epidemic without causing alarm or prompting inappropriate action is challenging. The content of such communications will depend on the situation. Sometimes, it will be necessary to provide information to parents before the cause of certain symptoms is known or a diagnosis has been made. Parents will require clear and accurate information about what they need to do for their own child. The Quick Reference Sheets in this book can provide that information once the cause of the outbreak is known. Depending on the scope of the

outbreak, notification may need to be conducted by center, school, or district administrators, and should include assistance from local and state public health officials.

Tracking Procedure

Every day, someone should look at the records of symptoms to detect patterns of illness promptly—in each group of children and in the facility overall. You can help control an outbreak if you step up sanitation and hygiene at the first sign of a sudden increase in frequency of a particular type of illness or symptom. In addition, someone on the staff should review the daily illness/symptom records about once a month, noting differences in patterns between groups of children in the facility. Such differences might indicate that a particular group needs to pay more attention to sanitation and hygiene measures to prevent disease. While important, tracking and surveillance should not be considered to be a substitute for observation at the time the situation occurs. When outbreaks or emergencies occur, quick identification of, and appropriate response to, unusual circumstances is critical.

Corrective Action

When children in a group seem to have similar symptoms that suggest a contagious disease is spreading, the program should consult with its health consultant or medical advisor. This individual can help develop a plan of action to minimize the spread of illness among children, staff, and families. This plan of action may include the following:

- Immediate training of caregivers
- Enhanced hygiene and sanitation practices
- Implementation of symptom/screening guidelines
- Modified exclusion and isolation guidelines, especially when children become ill at child care
- Use of prophylactic medicines and other preventive measures
- Onsite immunization clinics (and checking or verifying immunization records/status)
- Recommendations regarding the use of gloves or masks
- Communication to parents about risks and weighing their options in different scenarios

In a serious situation, such as a pandemic, the federal government, the governor, and/or the state health director may declare a state of emergency. For additional information and a child care checklist, visit www.pandemicflu.gov. The first point of contact in any situation should be the local health authority. The local health authority will know how to engage the appropriate public health professionals for the situation.

All caregivers and teachers who care for children, and other child care and school professional staff, should plan ahead and ensure that they have arrangements for their own children to be taken care of in the event of a child care or school closing. Although these events are infrequent, it is wise to collaborate in advance with other community planners to promote communication, minimize confusion, and identify appropriate actions and responses.