

What You Should Know about the Emotional Impact of Chemical Terrorism

Chemical terrorism is the intentional use of a toxic chemical agent to cause physical and psychological damage to an adversary's population. The terrorist seeks to attack the basic sense of well being of the general public by inflicting physical injury, loss of life, and destruction of property. A chemical attack may be overt, with the terrorist announcing the release, or it may be covert, where the attack becomes clear only after people become ill and require emergency care.

Chemical agents are poisonous substances that are toxic to people, animals, and plants. The main types of chemical agents are those that affect (1) the nervous system (nerve agents), (2) the respiratory system (choking agents), (3) the circulation system (blood agents), or (4) the skin (blister agents). Chemical agents are absorbed into the body by inhalation (being breathed), by exposure to the eyes or skin, or—less commonly—by the intake of food or water. Unlike some biological agents, chemical effects are not contagious and do not result in an epidemic. The effects are, however, quite rapid, typically occurring in just minutes.

Chemical agents can take the form of a vapor, aerosol, liquid, or solid, depending upon the temperature and the pressure under which they are stored. Some, like the nerve agent sarin, are odorless, while others, like cyanide, have a distinctive smell. Chemicals agents that potentially could be used by terrorists include common household chemicals like chlorine, industrial chemicals like cyanide, or nerve agents like those once produced for military use.

Chemical agents could be sprayed from aircraft, combined with a conventional explosive, or dispersed in a liquid form. As the chemical enters the lungs, a range of effects, from mild illness to death, can follow very quickly. The ability of these invisible agents to cause injury vary widely and may last from a few seconds to hours, depending upon the type of agent, the manner of release, and the degree of exposure.

Chemical agents are classified as either *persistent* or *non-persistent*, depending on how long they are thought to be a health risk. Persistent agents are liquids that evaporate about as easily as motor oil and remain a hazard for more than twenty-four hours. Non-persistent agents, such as sarin, are liquids that evaporate easily, like water. When a nerve agent evaporates, it can form a cloud of vapor that can be deadly if inhaled. While chemical agents can be lethal, they are not easy to produce

or deliver to large numbers of people in a lethal concentration. They are easily dissipated outdoors.

The incident that first highlighted the mental health impact of terrorism on an entire population, took place in Tokyo in 1995. The religious cult, Aum Shinrikyo, released the nerve agent sarin simultaneously in five subway stations near the hub of the Japanese government. About 1,000 people required hospitalization and 12 died. Some 5,000 people sought treatment in Tokyo's emergency rooms immediately after the attack. The fact that about 4,000 of these people—who had no exposure and were not at medical risk—sought emergency medical treatment, led to the term “the worried well.” This term now refers to people who have no health problems, but are convinced that they are ill. “Worried well” was an unfortunate and inaccurate term to use at the time, since these Tokyo residents, though not exposed to sarin, were exposed to terrifying media images. As their fears were understandable, given the lack of general knowledge of chemical agents and their effects at the time, the use of the term “well” hardly seems appropriate.

The response of the citizens of Tokyo illustrates the profound psychological impact of chemical agents, which are unfamiliar, terrifying, and potentially lethal. Up until recently, the public, emergency responders, and health care professionals were relatively uninformed about the nature of chemical terrorism and ill prepared to manage potentially large numbers of victims. Lack of knowledge can be made worse by repeated media images and reports that state, “There is enough sarin on one penny to kill many thousands of people.” As there is evidence that people tend to overestimate their personal risk from unknown threats, such language does not help individuals or parents gauge the actual risk to themselves or their families.

The choice and effectiveness of a particular chemical agent as a weapon of terrorism depends upon a variety of factors. Can the agent easily be “weaponized”? Is the agent highly lethal? Are many individuals likely to die after being exposed to the particular chemical? Are the agents easily obtainable, manufactured, or transported to the target country? How quickly available are the range of effective treatments and can the exposed population be decontaminated against the agent?

The primary emergency response strategy is to remove individuals from contact with the toxic chemicals and decontaminate them. Decontamination is a highly effective strategy in which contaminated clothing is removed and the chemical residue is washed from the skin with water. After exposed individuals are decontaminated, medical care is given as needed. Children are of special concern because their higher breathing rates and proximity to the ground—where many agents are more concentrated—make them more vulnerable to chemical agents. They may also be at increased risk from the hypothermia that can result from the decontamination process.

The goals of terrorists are only accomplished if (1) they succeed in undermining a nation's confidence in its ability to protect its citizens and (2) if citizens change their

behavior and daily lives in response to fears. Our state, local, and federal agencies are making strides toward reducing the threat of chemical terrorism. US government resources, including the Metropolitan Medical Response System and HRSA (Health Resources and Services Administration), the Hospital Preparedness Program, and the Centers for Disease Control and Prevention, along with the American Red Cross and others, are working to improve the capacity of first responders and emergency response agencies to respond to chemical terrorism. The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 has resulted in funding to help states build their local public health departments and hospitals, the largest public health and emergency medical care investment in our history.

For more information on chemical agents, use the link below:

<http://www.bt.cdc.gov/agent/agentlistchem-category.asp>

Readiness: Before an Act of Chemical Terrorism

Although there is no way to predict an act of chemical terrorism, there are some things to keep in mind about all possible acts of terrorism and disaster:

- Consider making a [Family Preparedness Plan](#) similar to the plan you would have if you lived in an area prone to earthquakes, tornadoes, attacks, seasonal wildfires, or other natural disasters. All family members should know the Family Preparedness Plan. It should include:
 - An [Emergency Supply Kit](#)
 - A Family Communications Plan:
 - Fill out and carry a [Family Preparedness Wallet Card](#) so that key phone numbers are always handy.
 - Make sure your child knows names and phone numbers of local and long distance family or friends.
- All family members should know their child's school emergency plan and afterschool program plans for emergencies involving the intentional or accidental release of toxic chemicals. Learn what school officials will do and what they expect of parents during such an event.
- All family members should know their community's emergency medical plan. Learn about the capacity of your community's emergency medical system to provide rapid medical treatment to children.
- Children's sense of being protected comes from a predictable daily routine and the consistent presence of caretakers. The more you can adhere to normal day-to-day patterns, such as bedtimes and mealtimes, the safer your child will feel.
- Be prepared to limit your child's exposure to repetitive and frightening media images that are broadcast during a disaster. While you may gain important information from watching television, you also risk needlessly traumatizing your child.

- Learn about steps you may need to take, such as personal cleaning and handling of clothing. Use this link for more information about decontamination: <http://www.bt.cdc.gov/planning/personalcleaningfacts.asp>
- Learn about the likely emergency response strategies that your community might use such as “shelter in place,” evacuation, or decontamination. For more information, please see:
 - <http://www.bt.cdc.gov/planning/shelteringfacts.asp>
 - <http://www.bt.cdc.gov/planning/evacuationfacts.asp>

In the actual event of a warning of an act of chemical terrorism, parents and families can get information from the Centers for Disease Control and Prevention at www.bt.cdc.gov.

Response: During an Act of Chemical Terrorism

A chemical attack, especially an unannounced “covert” attack, may not immediately be evident. A covert release of a chemical weapon may not be detected until a number of people develop symptoms, which typically will occur quickly. Most likely there will be sirens, police, emergency medical vehicles, and fire trucks responding to the defined scene, where the chemical agent was released.

Unlike some biological weapons, chemical agents are not spread from person to person and do not have secondary effects outside of the area of release. In the atmosphere, most chemical agents dissipate rapidly and have limited impact.

At Home

Once you suspect that you or your family members have been exposed to a chemical agent:

- Get information to answer the key questions, “Have I or my children been exposed?” and “How at risk am I or is my family?” by contacting your primary care provider or local emergency room. For more information contact the Centers for Disease Control and Prevention at <http://www.atsdr.cdc.gov/tfactsd4.html>, or your local and state departments of public health.
- Use these sources to assess the risk to you, your family, and your community by finding out:
 - The name of the specific chemical agent type (nerve, choking, blood, blister). Be prepared for possible delays in the identification of the exact chemical agent. Think through how you will get the following information:
 - How the agent is being transmitted to the population.
 - Where and when the attack occurred.
 - How one can protect self and family.

- What are specific recommendations of your community's Department of Public Health, hospital, or emergency management agency.
 - What are procedures the government is planning to use, such as “decontamination,” “shelter in place,” or evacuation.
- Follow-through on public health recommendations.
- Limit children's viewing of television without the presence of an adult who can interpret information and calmly answer questions. Adults should also guard against excessive media exposure, as reports about the risks can be confusing and anxiety provoking.
- Use the information you gain from your research to answer your children's questions. Remember that children need varying amounts of information depending upon their age. Take time to talk calmly and openly when they show interest or concern.
- Listen to your younger children's worries, but give them just enough information to answer their questions. Children vary in how much information they need. Do not overload them with long answers, but let them know they can ask questions whenever they wish.
- School age children will need you to correct misinformation they have heard at school and from friends. Also they will be reassured by knowing their school's safety plans.
- Adolescents will have a more sophisticated understanding of terrorist threats, but might not accurately assess the real dangers and might be hesitant to limit their social activities. Older teenagers might start to think about their potential involvement in the military.
- Activate your personal support system: talk to your neighbors, friends, and religious or civic leaders. Taking care of yourself will enable you to take better care of your loved ones.
- Remember: in the case of a chemical attack, you must be exposed to the chemical agent to become ill. No exposure, no illness.

At School

A chemical attack could occur while your child is at school. Become familiar with your school's emergency plan and resources. School and after-school program plans should include:

- How will the school or after school care communicate with you should an event occur.
- How and to what location children will be evacuated.
- How “sheltering in place” will occur, if needed.
- How reunification between parents and children will take place; where and how children can be picked up.
- What the school's steps are for seeking medical care.
- What the provisions for the children with special needs are in the event of evacuation or “sheltering in place.”

- How the school or program will communicate with parents in the event of an emergency.

Be sure that all children have a [Family Preparedness Card](#) in their backpack to help with emergency communication.

Recovery: After a Chemical Attack

A chemical attack most likely will not have a clear beginning or ending. The timing of each will depend upon the extent of the area exposed to the agent, the lethality of the agent, and the availability and effectiveness of treatment.

What will linger—beyond the physical results of chemical terrorism—will be the psychological impact: the undermining of our national confidence and the continuing fear of another attack. Individuals will feel more helpless to protect their loved ones. Children will question whether their parents and teachers can keep them safe.

After an act of terrorism or natural disaster, most families can be expected to recover over time, particularly with the support of relatives, friends, and organizations. The length of recovery will depend upon how frightening the experience was, whether evacuation from home was necessary, and the extent of injury or loss. Some families will return to their normal routines fairly quickly, while others will have to contend with ongoing medical issues, the loss of a loved one, or other results of the attack.

Children's functioning will be influenced by how their parents cope during and after the event. Children often turn to adults for information, comfort, and help. Parents and teachers should try to remain calm, answer children's questions honestly, and respond as best they can to requests.

In the days following an act of chemical terrorism, continue to monitor yourself and your family. If anyone appears to have persistent fears, sadness, anger, irritability, or acting-out behaviors, seek an evaluation from a mental health professional with expertise in posttraumatic stress.

Children's Reactions

Children react differently, during and after an act of terrorism or other crisis, depending on their age, developmental level, and prior experiences. Some will respond by withdrawing, while others will have angry outbursts. Still others will become agitated or irritable. Parents should attempt to remain sensitive to each child's reactions. The following are typical reactions children might exhibit following any act of terrorism or other disaster:

- Fear and worry about their safety or the safety of others, including pets
- Fear of separation from family members
- Clinging to parents, siblings, or teachers
- Worry that another attack will come
- Increase in activity level
- Decrease in concentration and attention
- Withdrawal from others
- Angry outbursts or tantrums
- Aggression to parents, siblings, or friends
- Increase in physical complaints, such as headaches and stomachaches
- Change in school performance
- Long-lasting focus on the attack, such as talking repeatedly about it or acting out the event in play
- Changes in sleep patterns
- Changes in appetite
- Lack of interest in usual activities, even playing with friends
- Regressive behaviors, such as baby-talk, bedwetting, or tantrums
- Increase in risky behaviors for teens, such as drinking alcohol, using harmful substances, harming themselves, or engaging in dangerous activities
- What You Can Do to Help Your Child

Parents should spend time talking to their children, letting them know that it is okay to ask questions and to share their worries. They should answer questions briefly and honestly and be sure to ask their children for their opinions and ideas. Issues may come up more than once, and parents should remain patient and open to answering the same questions more than once. Although it will be hard finding time to have these conversations, parents can use regular family mealtimes or bedtimes to talk. They can let children know what is happening in the family, at their school, and in the community. For younger children, after talking about the attack, parents might read a favorite story or have a relaxing family activity to help them feel more safe and calm.

To help children's recovery, parents should:

- Be a role model. Try to remain calm, so your child can learn from you how to handle stressful situations.
- Monitor adult conversations. Be aware of what adults are saying about the attack. Children may misinterpret what they hear and be unnecessarily frightened.
- Limit media exposure. Protect your child from graphic images of the attack, including those on television, on the Internet, and in the newspaper.
- Reassure children that they are safe. You may need to do this frequently, even weeks after the attack. Spend extra time with them, playing games outside, reading together indoors, or just cuddling. Be sure to tell them you love them.

- Calm worries about their friends' safety. Reassure your children that their friends' parents are taking care of them, just the way they are being taken care of by you.
- Tell children about community recovery. Reassure children that things are being done to clean up the chemical agent and get medical help for people who have been hurt.
- Take care of your children's health. Help them get enough rest, exercise, and healthy food. Be sure they have a balance of quiet times and physical activities.
- Maintain regular daily life. Even in the midst of disruption and change, children feel more secure with structure and routine. As much as possible, keep to regular mealtimes and bedtimes.
- Maintain expectations. Stick to your family rules about good behavior and respect for others. Continue family chores, but keep in mind that children may need more reminding than usual.
- Be extra patient once children have returned to school. They may be more distracted and need extra help with homework for a while.
- Give support at bedtime. Children may be more anxious at times of separation from parents. Spend a little more time talking, cuddling, or reading than usual. (You will want to start the bedtime routine earlier so children get the sleep they need). If younger children need to sleep with you, let them know it is a temporary plan, and that soon they will go back to sleeping in their own beds.
- Keep things hopeful. Even in the most difficult situation, it is important to remain optimistic about the future. Your positive outlook will help your children be able to see good things in the world around them. This will help get them through even the most challenging times.

Therapy for Children

If children have difficulties for more than six weeks after the chemical attack, consult a mental health professional for an evaluation. If the clinician recommends counseling, keep in mind that Cognitive-Behavioral Therapy (CBT) has the strongest evidence for helping children recover from a disaster. Therapy for children should typically include:

- Family involvement
- Awareness of developmental level and cultural/religious differences
- Assessment of preexisting mental health problems and prior traumas and loss
- Explanation and normalization of the child's psychological reactions to the attack
- Teaching ways to manage reactions to reminders of the attack
- Teaching problem-solving and anger management skills as needed
- Helping to maintain normal developmental progression

What Parents Can Do to Help Themselves

Parents may have a tendency to neglect their own needs during a crisis. In order to be able to take care of their children, parents must take care of themselves. Here are some things parents should keep in mind:

- Take care of yourself physically. Eat healthily, get enough sleep, and get proper medical care.
- Support each other. Parents and other caregivers should take time to talk together and provide support as needed.
- Put off major decisions. Avoid making any unnecessary life-altering decisions during this stressful post-attack period

What Teachers Can Do to Help Their Students

Teachers can play an important role in helping their students recover. Returning to school is important, in and of itself, in promoting the welfare of children and families. Try the following suggestions to assist you in your work with children, adolescents, and families:

- Take care of yourself emotionally. You and your family may have had a stressful experience and may have suffered losses and stresses like those of your students. To be able to support them, you must have support yourself.
- Take care of yourself physically. Eat healthily, get enough sleep, and get proper medical care.
- Communicate with others. Make sure that you, with fellow teachers, schedule ongoing times to talk together and give each other support. Teachers might consider covering for each other, if something comes up that must be taken care of.
- Put off major decisions. Avoid making any unnecessary life-altering decisions during this stressful, post-attack period.
- Put aside the time to take care of the personal needs of your own family. Even though you may be very committed to your students, take special time with your own family members or friends.

If you have a lot of emergency-related responsibilities, talk with your school administrators about temporarily altering your work schedule.