

U.S. Department of Education

LESSONS LEARNED

From School Crises and Emergencies

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MANAGING AN INFECTIOUS DISEASE OUTBREAK IN A SCHOOL

Schools may be more susceptible to outbreaks of infectious diseases, such as influenza, colds, hepatitis B, meningitis and measles, than other environments because students can easily transmit illnesses to one another as a result of their poor hygiene skills and the dense populations in schools. As infections may occur and spread rapidly, it is important that school personnel and their partners, such as public health departments, mental health providers and police and fire departments, be prepared to swiftly implement procedures to mitigate the spread of disease, communicate with staff and families, make closure decisions, provide medical and mental health services to staff and students and ensure that the schools are clean and sanitary before a decision is made to reopen schools. This document highlights an infectious disease incident, which resulted in the death of a student, closure of area schools and the operation of an on-site school vaccine clinic.

The Incident

The Tuscan School District is located in a suburban setting with a population of approximately 85,800. The district, comprised of 12,000 students, and specifically the Jefferson Elementary School with a student population of 300, experienced an episode of an infectious disease. Two students, Christopher and Allison, in the same classroom at Jefferson Elementary were hospitalized because of the infections. The hospitalizations, and Christopher's subsequent death, quickly set into motion a coordinated response plan that involved multiple local and state agencies over a six-week period and can be best characterized by the following chronology of events.

Week 1: Christopher's parents informed the school that he was hospitalized for tests because his flu, which had kept him home from school two weeks prior, had worsened, and doctors thought he had contracted meningitis. The school nurse notified the state department of public health (DPH).

Week 2: Christopher's family informed the school that preliminary tests showed that he had meningitis. Immediately after receiving this news, the principal called the district officials and held a staff meeting to share the news. At the beginning of the week, Christopher had a seizure and was transferred to another hospital for more detailed tests and care. A few days later, a second student, Allison, was hospitalized with flu-like

The lessons learned in this document are the reflections of one school district and are based on one infectious disease outbreak. They are suggestions to consider when developing an emergency management plan that incorporates planning for an infectious disease; they are not prescriptive best practices for every school or school district. District, school, student and personnel names have been changed to protect identities.

symptoms. District officials sent a letter, written in collaboration with the state's DPH division of Disease Prevention & Control (DPC), to all families from Jefferson Elementary conveying information about the preliminary diagnoses, how the disease is transmitted and whom to contact at the school with questions. In consultation with the DPH and the school attorney, it was determined that if the students' names, grades and the name of their teacher was not mentioned. the district did not violate stipulations of the Family Educational Rights and Privacy Act (FERPA) or the Health Insurance Portability and Accountability Act (HIPAA). The letter also included notification about a parent meeting to be held at Jefferson and a fact sheet about meningitis. Another fact sheet about encephalitis was distributed in the event that the further tests showed that Christopher had encephalitis. In addition, the parent meeting was announced using the school's automated phone system.

Week 3: Representatives from the state's DPH took the lead on answering questions about the infections during a parent meeting at Jefferson Elementary School. During the meeting, parents expressed frustration that the district had not closed down the school, but health officials assured them that the two cases did not appear to be related, the school was sanitary and there was no documented risk for spread of infections. The media were given limited access to the meeting. The superintendent assumed the role of the public information officer (PIO) for the school district and issued information about community meetings. The DPH was responsible for talking to the media about all health-related aspects of the infection. DPH press releases focused on preventing the spread of the infection. Any information about the type of infection or cause was delayed until conclusive test results were

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available; this also generated frustration among the families.

Despite the reassurance, several parents elected to take their children out of school a few days before they closed for holiday break due to health concerns. The district sent all classroom teachers a letter requesting their diligence about maintaining hygiene in the classroom and encouraging children to wash their hands frequently. The day before a scheduled winter break, Christopher passed away. His death was not shared with students during the school day. The district's crisis intervention team, consisting of school social workers and psychologists, met with the Jefferson staff after school hours that day. That evening, an automated notification system message was sent by the principal to inform families of Christopher's death and the availability of counseling at the school the next morning even though schools were closed. The team also determined how to help staff communicate Christopher's death to the students and how to support students and staff when school reopened. The school principal, crisis intervention team, several staff and some students, accompanied by their parents, attended Christopher's funeral.

Week 4: The state DPH notified the state's center for emergency preparedness and response (CEPR) about tests that showed a preliminary encephalitis diagnosis for both Christopher and Allison. DPH and CEPR discussed the potential need for mass distribution of medicine and setting up a clinic to test all students at Jefferson. DPH notified the Centers for Disease Control (CDC) about the infectious disease outbreak, and CDC worked with the school district to obtain the names of seven other Jefferson students reported as having pneumonia and to seek permission from these seven families to take cultures of their children.

Representatives from the DPH, mayor's office, police and fire departments, state legislature, school district as well as staff from Jefferson met to determine what action should be taken. Decisions were made based on an assumption that Christopher's and Allison's tests would confirm the encephalitis diagnosis. Strategies were established to address prevention of the spread of the disease and treatment for those who might have been infected but did not manifest severe symptoms. During the meeting a decision was made to set up a three-day voluntary clinic at Jefferson to meet with the families, take cultures and distribute medicine.

The city fire chief assumed the role of incident commander because DPH did not have an established incident command system (ICS) in place, and both DPH and CDC wanted the response to comply with the requirements of the National Incident Management System (NIMS).¹

Later that day the mayor, the CEPR director and the fire chief met at Jefferson with the principal and building engineer to plan for all aspects of the clinic. Rooms were designated and the necessary equipment was obtained for the clinic. The Jefferson principal sent another automated notification system message about the plans to conduct a clinic at the school with the goal of answering parents' questions about the disease and the safety of the school environment, offering voluntary throat cultures and blood tests, and distributing antibiotics Saturday through Monday.

During the three-day clinic, the DPH conducted parent briefings every two hours to answer questions and dispel rumors. Nurses obtained student intake information, which included contact information, medical history and other important data. The district crisis intervention team played an integrated role during the clinic and helped to reassure families and students, care for children during the parent debriefings and assist the families completing forms. The American Red Cross and fire department provided food and

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NIMS is a comprehensive system that improves emergency response operations through the use of the Incident Command System (ICS) and the application of standardized emergency procedures and preparedness measures. It provides a consistent approach and a "common language" whereby federal, state and local governments can work effectively and efficiently to prepare for, prevent, respond to and recover from domestic disaster incidents, regardless of cause, size or complexity.

refreshment for all those helping to support the clinic, and law enforcement personnel helped to maintain an orderly environment. Approximately 11,000 regiments of antibiotics were distributed during the clinic. Approximately 97 percent of families received antibiotics; those that did not come were either out of town or elected not to attend

Week 5: The Tuscan School District superintendent sent letters to all families in the school district about Christopher's death, coordinated efforts with the DPH, made recommendations for preventing the spread of the virus and new school procedures for tracking student absenteeism. Automated notification system messages were sent to families about extending the winter break for Jefferson and all other schools in the Tuscan School District, and that schools would open the following Monday. The superintendent is responsible for determining school closures; however, in this particular incident the decision to close schools was made by the mayor in consultation with the school board, CDC and DPH, due to the nature of the infectious disease. Families were encouraged to read letters about personal hygiene and to check the district's and DPH Web sites for updates and additional information. For precautionary reasons, two other neighboring school districts cancelled classes for two days.

Based on the nature of the virus, the district and DPH determined that a mass sterilization or cleanup of Jefferson Elementary School was not needed before schools in the district could be opened again. However, other precautionary measures were established. School nurses received a health advisory from the state public heath office asking to relay information about documented cases of diagnosed pneumonia. The Tuscan School District officials also sent school nurses an e-mail requesting that all students

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temporarily drink from paper cups rather than water fountains. The state's governor issued an executive order to establish and maintain alcoholbased hand washing stations for all students and teachers in the school and asked districts to establish protocols for proper hand-washing procedures. The dispensers and initial supply was provided to the schools; however, replenishing the supplies was the responsibility of each school.

Week 6: As previously announced via the district's automated notification system, all district school buildings opened on Monday for students and staff to resume classes. Before school, the faculty at Christopher and Allison's school met with the crisis intervention team to discuss how to communicate with the children about Christopher's death and Allison's continued absence. Together the team and the classroom teacher decided to keep Christopher's desk in the room and invited his fellow classmates to write and place letters to his family in his desk. All of the students' letters were screened by the teacher and the crisis intervention team to identify any child who might need additional follow-up counseling. Christopher's desk was removed after school on Friday. A psychologist was assigned to Christopher's classroom all day Monday and

checked in periodically during the remainder of the week. A guidance counselor attended to the other second-grade classroom, and a support staff was placed in Christopher's brother's fourth-grade class. Christopher's classroom teacher sent a letter to all families at week's end to let them know that all went well.

All schools received antibacterial soap dispensers, and all health teachers were asked to emphasize proper hygiene in lessons. The DPH issued a series of media releases that addressed encephalitus, meningitus and mycoplasma pneumonia because such diseases as encephalitis and meningitis often have pneumonia-like symptoms (see fig. 1, What is Mycoplasma Pneumonia?) as well as information about the reported cases of pneumonia, CDC involvement and the time and place for the next informational meeting for the community. Schools were asked

to begin real-time tracking and reporting of absenteeism due to severe flu and pneumonia. The chief of the DPH sent e-mails to several school districts requesting their cooperation in a CDC study to determine the effects of school closures on family and student behavior, and then issued a press release about the CDC study.

The superintendent requested and received a waiver from the state education agency regarding the number of compulsory schools days required for the four days that district schools were closed due to the infectious disease.

Week 7: Allison fully recovered and returned to school.

Two months after Allison returned to school the DPH conducted a "hot wash" or after-action debriefing. The meeting provided an opportunity

Example of Department of Public Health Information Provided to Schools Following The Meningitis Outbreak

FIGURE 1: WHAT IS MYCOPLASMA PNEUMONIA?	
SELECTED FACTORS	DESCRIPTION
Clinical Features	The symptoms include upper respiratory tract infections with fever, cough, malaise and headaches that may lead to tracheobronchitis with fever and nonproductive cough. Radiologically confirmed pneumonia develops in 5–10 percent of cases; rare extrapulmonary syndromes, including cardiologic, neurologic and dermatologic findings.
Incidence	Each year an estimated 2 million cases and 100,000 pneumonia-related hospitalizations occur in the United States.
Transmission	Person-to-person transmission by contact with respiratory secretions. Incubation period is one to four weeks.
Risk Groups	Persons of all ages are at risk but rarely children less than 5 years old. It is the leading cause of pneumonia in school-age children and young adults. Outbreaks can occur especially in crowded military and institutional (e.g., college) settings. Outbreaks in these settings can last several months.
Challenges	Diagnosis of acute infections remains difficult; therefore, early recognition of outbreaks has been problematic. Prevention of secondary cases in outbreak by prompt initiation of control measures is also difficult.

Adapted from: CDC, Coordinating Center for Infectious Diseases, Division of Bacterial and Mycotic Diseases, http://www.cdc.gov/ncidod/dbmd/diseaseinfo/mycoplasmapneum_t.htm. This illustration details symptoms and issues of mycoplasma pneumonias because such diseases as encephalitis and meningitis often have pneumonia-like symptoms. (Last accessed on Dec. 18, 2007)

for district administrators, Jefferson staff, and the ICS team to: 1) review procedures implemented in response to the outbreak, 2) determine what aspects of the current emergency management plan should be modified and 3) identify lessons learned from the event. The lessons learned are as follows.

Lessons Learned

Although tragic, the Tuscan School District's experience can provide valuable insight for state and local health officials, school administrators, school nurses, teachers, families and students nationwide as they work to create and implement an all-hazards emergency management plan that includes partnerships with multiple agencies' responses to infectious diseases of all magnitudes by recognizing the following lessons learned.

Revise District and School-based Emergency Management Plans Following an Incident

The Tuscan School District and Jefferson Elementary School had emergency management plans in place prior to the infectious disease incident, which addressed: (1) training for school personnel and students in emergency management procedures; (2) coordination with local law enforcement, public safety, public health, mental health, and local government; (3) a method for communicating school emergency management policies and reunification procedures to parents and guardians; (4) a plan for returning to learning; and (5) the NIMS framework, a unified, standardized national system for managing domestic incidents that is suitable for schools nationwide to use during all phases of emergency management to facilitate local decision-making and improvement.

The district and school-based plans were reviewed and updated to reflect the district's lessons learned Although tragic, the Tuscan School District's experience can provide valuable insight for state and local health officials, school administrators, school nurses, teachers, families and students nationwide as they work to create and implement an all-hazards emergency management plan that includes partnerships with multiple agencies' responses to infectious diseases of all magnitudes by recognizing the following lessons learned.

and the recommendations gleaned from the afteraction hot wash. The revisions sought to establish a more comprehensive infectious disease plan that included such provisions as a strategy for disease surveillance (systematic collection and analysis of data that lead to action being taken to prevent and control a disease). For example, as a result of the incidents at Jefferson school, a state representative proposed legislation that required better schoolbased surveillance systems throughout the state. The bill was passed, which has resulted in a more comprehensive data collection system and clearer protocols for information sharing with the DPH. The creation of consistent reporting procedures and measures across all schools within one district or across the state will allow the rapid detection of unusual changes or trends in student health.

Implement an Incident Command System to Identify Roles and Responsibilities

The Tuscan School District had an established ICS; a standard strategy for handling all school-related incidents, regardless of the agencies or partners involved. The preestablished ICS facilitated the effective establishment of the

vaccine clinic because specific roles and responsibilities were identified for the crisis team, facilities staff, first responders and health officials.

Tuscan School District partnered with DPH officials to develop a common core set of symptoms for the infection that was distributed to families. The DPH indicated that, depending on the scope of the incident, it might be useful for public health officials to send this guidance to media, doctors and pharmacies as well.

Incorporate a Communications Component Into the Emergency Management Plan

Timely and accurate communication is a critical component of the response and recovery phases of the emergency management plan. The infectious disease outbreak underscored for Tuscan School District and Jefferson Elementary School the importance of messages that: (1) correct any inaccurate information released by the media, (2) share actions taken by school administration, (3) provide information about additional safety precautions in place and (4) stress the importance of student and staff well-being and safety. The district led an aggressive effort to provide information that was both immediate and long term and sought to dispel misconceptions, fears and innuendos. Communication actions included: multiple communications with parents via automated phone systems, two formal letters from the administration, one letter from the classroom teacher, disease fact sheets and nine parent meetings. Despite this aggressive outreach, some parents wanted more information, especially at the beginning of the outbreak. Tuscan School District and Jefferson Elementary School learned the importance of collaborating with relevant partners to provide as much available and appropriate information as possible at the onset of the outbreak.

Communication plans should be a framework to deliver accurate, consistent and timely information. Good communication can build credibility and confidence that the district and other public agencies are doing everything possible to keep students safe and healthy. During a crisis or emergency, communication with parents, staff, families, students and the media is important, and each group may require different, yet consistent, messages. The district and school should take appropriate measures to deliver the information, designating someone to talk with the media if the district does not have a public information officer, as outlined in the NIMS. The Tuscan School District did not have a PIO, thus the superintendent assumed the responsibility for talking with the media about all issues related to the school district's response to the incident. All medical and health-related information about the outbreak were handled by DPH staff.

It is essential that the school community know where and from whom to get accurate information. The messages communicated

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about an event require coordination among all partners and agencies involved. In the Jefferson Elementary School incident this was particularly challenging because local, state and federal public health officials each played a role in the response and recovery efforts, as did mental health professionals, and those in police and fire departments, emergency medical services and teachers unions.

Families and the general community are not the only stakeholders that need timely, accurate and consistent information. Other stakeholders that may receive questions or information requests during an infectious disease outbreak, as was the case with the Tuscan School District incident, may include: principals in other schools within the district, superintendents and administrators from neighboring districts, doctors, hospitals, drugstores and other state or local agencies.

Tuscan School District learned the importance of balancing the information needs of other families with maintaining the confidentiality of the children infected with the virus. Working together with the school crisis intervention team, social workers, public health officials and the family of the children infected, the district was able to craft a variety of appropriate messages for multiple audiences. Families and other interested stakeholders called the district offices and Jefferson Elementary School to inquire about the situation and their response to the disease. One prominent lesson Tuscan School District and Jefferson Elementary School learned in this incident was the need to train people who answer the phone to help ensure that consistent messages are delivered to all callers. At the onset of an incident, schools may want to conduct a brief training session to review and provide scripts, questions and answers and

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names and numbers of referrals and resources to those who answer the phones.

Schools also may want to consider revising communications plans to include: (1) a designated media holding center, if needed, (2) identification of appropriate spokespersons, (3) establishment of media briefing schedules, (4) development procedures for writing and approving news releases and (5) messages with consistent content for dissemination by the various agencies.

Establish a Partnership With the Media Before an Event Occurs

In any emergency or crisis situation, schools should determine what information should be accessible by the press. Tuscan School District, for example, decided to limit media access at the three-day clinic. It is important to establish a partnership with the media when developing the communication component of the emergency management plan. Working with media in developing the plan will help create an understanding of the school policies and obtain buy-in of the processes that the district will use to communicate information to the media. In doing

so, the school district officials also need to realize that the media can impact the credibility of the response and recovery strategies and actions.

Throughout the infectious disease outbreak, Tuscan School District and officials from Jefferson Elementary School communicated with DPH to make sure that messages were consistent and demystified the vagueness and ambiguity of the disease outbreak as best as possible. As Tuscan School District learned, one of the challenges of an infectious disease outbreak can be delayed results, findings and recommendations from public health partners because the medical field relies heavily on data and multiple tests to make decisions, and families often want immediate information and become concerned if information is withheld or delayed.

Develop a Continuity of Operations (COOP) Plan

A Continuity of Operations Plan (COOP) or longterm contingency plan ensures that school districts have the capability to continue essential functions across a wide range of crises and emergencies. Tuscan School District did have an established contingency plan in place prior to the outbreak, the intent of which was to continue the performance of essential functions, reduce or mitigate disruptions to operations and achieve a timely recovery and reconstitution of the learning environment.

COOP components that may help districts prepare for, respond to and recover from an incident similar that in the Tuscan School District may include, but are not limited to:

 Maintaining essential functions, goods and services, such as payroll, under a variety of conditions:

- Identifying and providing the support and technology for functions that can be performed from other remote locations;
- Identifying essential people who must continue to work;
- Identifying and delegating authority for closing schools, continuing functions (such as school lunch provision), identifying schools' potential responsibilities and liabilities, granting exemptions to required school days and modifying statewide assessment dates and requirements;
- Maintaining personnel and human resources policies (leave, disability, potential high absenteeism, non-salaried employees) which may involve prior negotiations with officials from employee unions;
- Reviewing policies and contracts, including those pertaining to potentially ordering and warehousing items, such as tissues, soap or hand sanitizer;

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- Identifying financial resources for maintaining a continuous supply of preventive supplies, such as tissues, soap or hand sanitizer;
- Installing backup power systems or sending all records to other locations for quick retrieval for all "core" functions (e.g., data processing, payroll, student records);
- Developing payroll systems in the event of a long-term closure (establishing alternative regional paycheck distribution sites or requesting employees arrange for direct deposit of paychecks);
- Coordinating with elected officials, government leaders, school officials, response partners and business leaders to plan alternative venues for learning to continue if necessary;
- Planning for the needs of students eligible for free and reduced-price meals in the event of a long-term closure; and
- Considering alternative arrangements for students with special health needs that receive physical or occupational therapy at the school during school hours.

Plan for Alternative School Uses

During an infectious disease outbreak there are many alternative uses for schools, such as immunization sites or clinics. When using a school building as an immunization clinic, the Tuscan School District learned that planning is essential. Staff involved in the clinic provided these suggestions:

 Conduct a walk-through of the school with the building engineer to determine appropriate areas and traffic patterns for orienting the families, helping families complete intake During an infectious disease outbreak there are many alternative uses for schools, such as immunization sites or clinics. When using a school building as an immunization clinic, the Tuscan School District learned that planning is essential.

forms, keeping children occupied while they are waiting for medication, preparing the medication and administering the medication.

- Have people who are familiar to the students, families and community members present at the clinic. For example, the Jefferson principal greeted all families when they entered the clinic, the school nurses helped families complete intake forms and the crisis intervention team talked with children while their parents completed intake forms or calmed their fears about the incident.
- Enlist the support of community partners to staff the clinic. For example, the city police helped control traffic outside the schools and maintained security at the clinic, the Red Cross and fire department provided food for those working in the clinic and professionals from community mental health organizations offered counseling for the children or families who appeared anxious about the clinic, the incident or the student who died. Nurses from other schools also helped distribute the correct dosages of medicine for all family members.

Additional considerations may include:

- Provide signage, directional arrows or additional staff to help with moving families through the process.
- Have a central site serve as a check in and checkout desk for all those who are working at the clinic.
- If several parts of the building will be used, provide radios, walkie-talkies and cell phones to avoid delays when trying to locate someone or transmitting a message. If using radios, have people practice how to use them during regularly scheduled fire or other safety drills.
- Determine if the school building requires cleaning or sterilization and if disposal of supplies requires special procedures. Arrange for these services before the clinic is closed in order to restore the learning environment as soon as possible.

Enlist Staff Familiar to Families to Support Response and Recovery Efforts

Individuals in the community can be valuable partners in responding to and recovering from emergencies. Their constant presence and recognition among community members that they are fair, honest and can be trusted will go a long way in helping to reduce the anxiety that families may be experiencing. For example, at Jefferson Elementary School, the school secretary is the primary contact that most families have with the school. The secretary is often the one who answers the phone when parents notify the school of their child's absence from school. Other nonteaching school personnel, such as cafeteria workers, school nurses, bus drivers, school counselors and building engineers, also establish credible relationships with students and families. This

familiarity with the community is also an important asset when establishing accountability procedures for identifying which families attend the clinics or which children may be experiencing symptoms of an infection. Families are more likely to respond to inquiries from, and to share information with, people with whom they are familiar.

Additional Actions for Schools to Consider When Planning for an Infectious Disease Outbreak

In addition to the lessons that emerged from the Tuscan School District's experience, other suggestions that schools and school districts may wish to consider when planning for an infectious disease include: creating memorandums of understanding (MOUs) with mental health professionals and providing guidelines for social distancing.

Create Memorandums of Understanding With Mental Health Professionals

Any type of crisis or emergency involving a school can disrupt the sense of safety that

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teachers, students and their families experience. As Tuscan School District and Jefferson Elementary School learned, the unpredictable nature of an infectious disease outbreak is a source of stress for all, especially when someone is hospitalized, seriously ill or passes away. To supplement the district's crisis intervention team efforts to provide counseling to students, staff and parents, districts may want to partner with local mental health providers. These professionals can step in to help respond and recover from the outbreak. It is important that schools create MOUs with area mental health professionals so that in the event of an infectious disease, or any other incident, there is a clear plan with designated roles and responsibilities for calming fears and anxieties.

Provide Guidelines for Social Distancing

Social distancing refers to procedures to decrease the frequency of contact among people to lessen the risk of spreading an infectious disease. Depending on the type and severity of the infectious disease, closing schools may not be enough to slow the spread. CDC's study of parents' and students' behavior in the Tuscan School District after the outbreak found that students re-congregated in malls, private homes, movie theaters, restaurants or

other places in the community, thereby increasing the risk of the spread of the disease. For this reason it is recommended that, when closing schools, public health partners encourage social distancing for students and issue guidelines for social distancing. These procedures or guidelines, which may be distributed through the school networks, will play an integral role in limiting the transmission of the disease and delaying the spread of the virus.

Conclusion

The Tuscan School District's experience highlights the critical need for creating, implementing and sustaining an all-hazards emergency management plan that includes a plan for infectious diseases. Infectious disease outbreaks can be unpredictable and can escalate quickly. Reducing the spread of the infectious disease requires collaboration among all partners, including the business community and media, to marshal the resources and expertise needed. An all-hazards emergency management plan should include processes for working with community partners, families and media to provide consistent, continuous messages and guidelines for social distancing and resources for families and the community.



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technical assistance via trainings, publications and individualized responses to requests. Lessons Learned is a series of publications that are a brief recounting of actual school emergencies and crises. School and student names have been changed to protect identities. Information for this publication was gathered through a series of interviews with school stakeholders involved in the actual incident.

For information about the Emergency Response and Crisis Management grant program, contact Tara Hill (tara.hill@ed.gov), Michelle Sinkgraven (michelle.sinkgraven@ed.gov) or Sara Strizzi (sara.strizzi@ed.gov).

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