

## Preparing Hospitals, Doctors, and Nurses for a Terrorist Attack

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### Introduction

During the Cold War, a nuclear attack was the primary threat to American citizens. Hospital administrators and doctors were told to prepare for an enormous number of casualties, even though high-ranking officials whispered in private that there was really very little that the U.S. health care system could do. No amount of planning, they argued, could prepare the health care system for the mass casualties and chaos stemming from a nuclear exchange.

With the end of the Cold War, and beginning with the terrorist attacks on September 11, 2001, the threat to American civilians has changed. Biological, chemical, and nuclear (“dirty bomb”) terrorism now constitute the relevant threats. Although this form of warfare can produce large numbers of casualties, the U.S. health care system can conceivably cope with these casualties, and save lives, if it is prepared. Planning is vital in the new era because, unlike during the Cold War, the health care system can make a difference.

Several key state and federal agencies are now actively coordinating our response to a potential terrorist attack, including, for example, the Federal Emergency Management Association (FEMA), the Centers for Disease Control (CDC), state public health departments, and local law enforcement. Their activities are important. But in the event of a terrorist attack with a weapon of mass destruction, the first people to deal with the situation will be the doctors and nurses at local hospitals. These people

must be prepared in a way that agencies are not. Their quick and organized response is vital, for in many cases of biological, chemical, and nuclear terrorist attack, treatment must be received within hours if it is to be effective.

Before looking at how hospitals, doctors, and nurses might prepare for an attack, several trends in U.S. health care need to be discussed, for they influence the planning process.

### 1. Patient self-prescription

Over the last ten years, American drug companies have marketed their products directly to consumers. This has emboldened consumers to make judgements about their course of treatment. In doctors’ offices, many patients now feel confident to ask for a drug even before their doctors bring it up in conversation. If their doctors recommend against the drug, today’s patients expect to hear a good reason why. The doctor-patient relationship is far more democratic than it once was.

The medical knowledge now available to patients through drug company advertisements, popular magazines, and the Internet tempts some patients to self-treat. This proved to be a serious problem during the anthrax scare that followed September 11. Consumers started to hoard the drug Ciproflaxin, which is a drug of choice in the treatment of anthrax. A few people took prophylactic doses. Some consumers obtained the drug through the Internet, others through subterfuge, and a few demanded the drug from their doctors,

who simply caved in to the pressure.

This unexpected consumer demand, combined with pre-September 11 production trends, led to a national shortage of Ciproflaxin. Some hospitals removed the drug from their formularies to help maintain their supply.

Hospitals and doctors need to factor this trend into their calculations when determining drug supplies for their population base. In the event of a terrorist attack, civilians who have grown used to treating themselves will likely show great determination in obtaining these drugs.

The trend toward self-treatment not only increases the risk of a drug shortage during the crucial period right after a terrorist attack, but it is also potentially dangerous. Drugs used to treat a Sarin nerve gas attack, for example, have powerful physiological effects. In a layman's hands, they are dangerous.

Doctors and nurses need to be prepared to deal with the consequences of mass self-treatment.

To prepare for the hysteria and panic that will likely follow a biological, chemical, or nuclear terrorist attack, citizens need to be assured that sufficient quantities of drugs are available to treat them. Doctors may want to decentralize the supply of these drugs to improve consumer confidence: if people know that a supply of life-saving medication is housed at several nearby facilities and not simply at the pharmacies of major medical centers, they likely will be calmer. Finally, doctors need to talk with their patients beforehand about the role of medical treatment in the event of a terrorist attack. Solid information will prevent a patient's imagination from inventing some horrific scenario, which only increases panic behavior.

## **2. Turf battles between health care professionals**

Over the past twenty years, there have been a large number of "turf" battles between doctors and their co-professionals. Nurses, for example, have encroached on the prescription power traditionally reserved for physicians. In some states, nurses have won the right to diagnose and treat patients without a doctor in a supervisory role. Physicians have vigorously fought this trend. The struggle for autonomy and control can also be seen among ophthalmologists and optometrists, anesthesiologists and anesthesiologists, and psychiatrists and psychologists.

These battles are important ones. Quality of care and patient safety hang in the balance.

However, doctors and their co-professionals need to come up with a separate arrangement in case of a terrorist attack. While doctors have good reasons to preserve control of patient care, a terrorist attack is likely to produce mass confusion and a shortage of health care providers. Nurses and other co-professionals will have to act quickly and independently, much more than during peacetime. Because the agents used in biological, chemical, and nuclear terrorist attacks are finite, as are their treatments, nurses and other health care professionals can be taught to manage the consequences of a terrorist attack if no supervising physician is present.

The autonomy that is to be given nurses and other co-professionals during a terrorist attack must be discussed well in advance. Doctors hesitate to do this. Understandably, they fear that it will prejudice their position in the debate over how much autonomy co-professionals should have during peacetime. But doctors and nurses must have this discussion as part of a response plan. It should be understood by both parties that a terrorist attack is an unusual and unlikely event, and that the freedom given to co-professionals during a crisis should not be taken as a sign of how things should proceed at other times.

## **3. Malpractice issues**

It is sad, but true, that the first instinct among some physicians these days who confront a medical emergency in a public space is to avoid involvement. This is because doctors fear being sued if they intervene as Good Samaritans.

Doctors have good reason to fear this. In Maryland, for example, doctors volunteering during school lacrosse and football games only recently were insulated against law suits. The fact that the sons and daughters of legislators participated in these games was probably no small incentive to pass such legislation. But Maryland doctors, and doctors in many other states, are not protected against lawsuits in cases of charitable care (cases where doctors are not paid). Doctors do have some protection if they assist during an emergency, but the laws are not uniform across the country. To the extent that such laws exist, many doctors, exhibiting a degree of paranoia, simply do not trust them.

In case of a terrorist attack, many doctors will be needed—immediately, and in unconventional situations. In terrorist attacks resulting in mass casualties, there probably will be a shortage of health care providers, which will make the participation of

volunteer doctors even more important. For this reason, the federal government should pass very specific and clear legislation protecting doctors who help during terrorist attacks. It may seem unreasonable to have to reassure (almost handhold) an entire class of professionals, but America's lawsuit culture has made many doctors nervous. It would be tragic if their anxiety caused them to hesitate during a terrorist attack.

#### **4. The role of public health**

In the early twentieth century, public health was equated with community health. Sanitation, food inspection, and the control of epidemics were viewed as legitimate areas of government involvement because they benefited the general public, not simply one or two interest groups. In the 1970s, however, popular attitudes toward public health began to change. It came to be seen as the provision of health care for the poor, including free clinics, drug rehabilitation, teen pregnancy counseling, and the like.

Public health advocates encouraged this trend by joining their political fortunes to an expansionist welfare state and concentrating their attention on the health of society's disadvantaged. This strategy provided a useful way of obtaining project-specific federal money, but in the long run it had a ruinous effect on the nation's public health activities. As public health became synonymous with health care for the poor, the average person no longer saw it as a common social enterprise, which is one reason why it has fallen down the public's list of priorities.

Planning for biological, chemical, and nuclear terrorist attacks is a public health priority. It requires the cooperation of not just state and federal agencies, and health care professionals, but an entire citizenry. People must become involved on the local level, and hospitals and doctors need to be in contact with the neighborhoods they serve if a response to an attack is to proceed quickly and effectively.

This does not mean being in contact with a neighborhood's elected officials. When a terrorist attack occurs, such officials, who may or may not be in the neighborhood at the time, probably will be dealing with governmental agencies to manage the response. Instead, an extra-political neighborhood leadership team should be organized in advance, to facilitate a system of communication between medical professionals and the people who live in an affected area.

All of this must be arranged beforehand, to preempt panic behavior and move people quickly into treatment. All of this requires a citizenry that is engaged in public health matters, and one that sees public health not just as a concern of the inner-city poor or medical researchers, but of everyone.

### **Responding to biological, chemical, or nuclear terrorist attacks**

In the event of a chemical or nuclear terrorist attack, people probably will swarm into their local hospital emergency rooms. But a biological terrorist attack may be subtle; many people will not even know that they have been infected or that they have become victims of an attack.

The effectiveness of individual doctors and nurses in dealing with a terrorist attack depends on their being prepared adequately. Over the years, the U.S. health care system has perfected its trauma response program, and by doing so has saved thousands of lives. In a trauma situation, doctors and nurses go into action almost by instinct, without having to think, "What do I do next?" The same thing must happen during a terrorist attack if lives are to be saved.

#### **Biological attack**

Bioterrorism is the deliberate release of harmful pathogens into a community. The most likely agents to be used are anthrax, smallpox, botulism, plague, and tularemia. Additional possible agents include viruses such as Lassa and Ebola. With the exception of smallpox, viral hemorrhagic fevers, and viruses causing encephalitis, bioterrorism agents can be treated with antibiotics or toxin antagonists if properly diagnosed. In cases of smallpox and other viral infections, quarantine is key.

#### **Recognition**

The response of an individual doctor to a bioterrorist attack begins with recognizing the disease. It is not enough to train emergency-room doctors in the recognition of likely bioterror diseases. Nor would it suffice to introduce a knowledge of bioterror agents into the curricula of the nation's medical schools, because today's medical students will not graduate and treat patients until several years from now. Instead, all doctors and health care professionals must be made aware of the signs and symptoms of bioterror diseases. They must also be given a con-

tact with whom they can consult on a suspicious case. At Stanford University Medical School, for example, this contact is called the Infectious Control Practitioner.

The diseases resulting from bioterrorism can be confused easily with other disorders. Coughing, vomiting, fever, and rashes are non-specific signs. Prior to public awareness that an attack has occurred, it is unlikely that the victim of a bioterrorist attack will come to an emergency room complaining that he or she is the victim of such an attack. Instead, patients will call up their primary doctors with complaints about specific symptoms. In fact, the first doctors to encounter diseases resulting from a bioterror attack might be specialists in fields other than infectious diseases. Gynecologists, for example, are the primary care doctors for many women. For these reasons, all practicing physicians must be given basic instruction in how to identify bioterror diseases.

Equally important, each physician or nurse must have a contact with whom to discuss a patient's case. Right now, the typical course for physicians who encounter an unusual case that might be an infectious disease is to consult an infectious disease specialist. Yet physicians hesitate to follow this course. They fear being viewed by their colleagues as unduly alarmist, a fear that dates back to medical school, where they were humorously warned, "Don't look for zebras among horses" (in other words, don't look for a rare disease when the symptoms can be explained by the most common one). Doctors also want to avoid adding the cost of a consultation to a patient's bill, especially when the cost probably will seem unnecessary in hindsight, both to the patient and to the insurance company.

Hence, it is important to implement a mechanism that allows doctors to consult with specialists without risking their reputations and without causing a large bill to be passed on to their patients. A delay in diagnosing a bioterror event, especially in cases of communicable diseases like smallpox, is far more dangerous to society than a high number of false alarms.

Having a single contact for professionals is important for another reason. If a single contact person, rather than a myriad of infectious disease specialists, receives inquiries from doctors, that individual will be in a position to know if there has been a rapid increase in the number of previously healthy persons suffering from similar symptoms,

or an increased number of patients expiring within several days after admission to the hospital with the same disease. These epidemiological observations are essential to diagnosing a bioterror event.

Currently, such mechanisms for recognition exist in university medical schools and hospitals but are less common in community hospitals. It is estimated, for example, that of the more than 10,000 health care professionals in Maryland, fewer than 1 percent can recognize anthrax or smallpox. This needs to change. Community hospitals and clinics must be made ready.

Just as important in the recognition of a bioterror attack are the laboratory equipment and trained technicians needed to confirm the presence of a disease. Because bioterror diseases are so rare, they are seen as unimportant by most community hospital laboratories. A major delay in identifying the diseases resulting from an attack would not only increase the mortality rate for those who are infected, but, in the case of a contagious disease, also result in sick people being sent home where they would infect others, thereby spreading the disease.

Many pathologists who run community hospital laboratories, however, prefer to keep up only with advances in their specialties and with those diseases relevant to the patient population that their hospital normally serves. Also, many privately owned hospitals are nervous about investing time and resources in laboratory ventures that do not produce a profit.

This has to change. It is unreasonable to expect hospitals and doctors to take on this duty alone. Bioterror preparation is a public health concern, not simply an adjunct to private medical practice. The rigid division between public health and "private" health, which has a long tradition in the United States, is an impediment to dealing with the new threat. Public health monies and equipment should flow directly into the laboratories of private, community hospitals.

Traditionally, the link between private medicine and public health has been less direct. It has consisted of doctors reporting infectious diseases like tuberculosis or syphilis to the public health authorities. Currently, public health authorities also connect with private medicine through the Medicaid program, through the nation's university hospitals (which sometimes have their own departments of public health), or through clinics for the inner-city poor. In the era of bioterror, these indirect links to private community hospitals are insufficient. A

much more serious partnership between the public health authorities and private community hospitals is necessary, because these hospitals are where most Americans seek care and where, in many cases, the first victims of bioterror will be identified.

### **Reporting the disease**

Once a bioterror disease is diagnosed and confirmed, it must be reported to the public health authorities, to nearby hospitals, and to physicians. Communication among these three parties is essential. Doctors in the area need to know when a bioterror-related disease has been diagnosed so that they can be more vigilant when examining their patients. Hospitals also need to inform their emergency rooms to be on the lookout for the relevant symptoms.

Sadly, the current system of communication among hospitals, physicians' offices, and public health authorities is poor. Handwritten records, rather than computer files, are still the norm for some doctors. Hospitals' medical-records departments are infamous for their delays in sending out requested information. To this day, many doctors spend time developing a medical history for their patients in piecemeal fashion, tracking down labs and consultation reports in different locations, never really knowing whether all the relevant information has been collected.

There are several reasons for this poor system of communication. First, doctors and hospitals look upon this communication system as incredibly inconvenient but not necessarily a drain on income, and only rarely a cause of patient morbidity. Second, doctors and hospitals value their autonomy as separate branches in the health care system, and they have grown used to dealing with each other as independent entities. The situation is similar to the relationship between neighboring cities that may respect one another but which also insist on doing things their own way. Until recently, the Baltimore City and Baltimore County vaccination registries used different computer languages, preventing the two from talking with each other. Thus, when a child moved from the city to the county, the local schools could not easily find out whether the child had been vaccinated. Doctors and hospitals often face similar breakdowns in communication.

A third reason for poor communication is patient privacy. Patients are suspicious of computer files that contain their entire medical histories and which can be downloaded easily and quickly.

This is true even in the case of dangerous communicable diseases. Gay activist groups have protested compulsory HIV reporting, on the grounds that infected individuals risk public exposure and prejudicial treatment.

These privacy issues are important, and the current structure of private-practice medicine is a stable and successful one. But an effective response to bioterror requires that reporting be quick. At present, hospitals vary in terms of which diseases they require their health care workers to report. Even when the intent to report is there, some community hospitals and doctors' offices do not have the high-speed communication systems needed to broadcast and receive reports. The same is true of some local public health authorities. Recently, it was noted that fewer than half of the nation's local health agencies possess Internet connections. Some even lack fax or secure telephone capability.

Just as the nation's roads and bridges are part of its national security system, so also are high-speed communication links between doctors, hospitals, and public health authorities. In order to make the relevant authorities aware of a bioterror attack, to get potentially infected people into treatment quickly, and to calm a nervous population with reliable information, high-speed communication links are essential and well worth the investment. If the private sector lacks sufficient resources to develop this system, government must help.

### **Chemical attack**

Several chemicals might be used in a terrorist attack, including nerve gases (such as Sarin), cyanide, phosgene, and mustard gas. Unlike a bioterror attack, a chemical attack is immediately apparent. Individuals present dramatic signs and symptoms, including extreme shortness of breath, muscle weakness, convulsions, and sometimes total loss of consciousness. Treatment must be quick if it is to be effective.

After a chemical attack, it is likely that paramedics and other mobile emergency personnel will be the first health care workers to see the victims. Doctors will enter the situation when casualties are rushed to the nearest health facilities. Because time is of the essence in treating a chemical attack, a community hospital will be the facility of choice, if it is close to the site of the contamination. For this reason, community hospitals must be as prepared as university medical centers and major

trauma hospitals to receive large numbers of casualties.

Management of a chemical attack requires not only pharmacological support but also decontamination. A receiving area consisting of a “dirty side” and a “clean side” must be set up in advance. The demarcation between dirty and clean areas must extend through the entire treatment apparatus, including the ambulances used to transport patients. All casualties must enter through a common entry point, and decisions will have to be made regarding who should be decontaminated and sent to the clean area for further treatment, and who should be treated immediately.

Management of a chemical attack requires a novel use of hospital space, workers assigned to clean and dirty areas, and physicians with sufficient experience to place victims in appropriate categories for treatment. At present, most community hospitals do not have such a plan, nor have they discussed with their medical staff how they will proceed in the event of a chemical attack in their area.

Such planning is essential. In 1988, several Iranian villages were bombarded by mustard and nerve gas. The existence of a chain service system for treatment, including a practical triage system and a mechanism that allowed rapid treatment with antidotes, has been credited with drastically reducing the morbidity and mortality rates.

Planning not only saves the victims of a chemical attack, but it also protects hospital personnel. For example, when a patient experiences cessation of breathing and heartbeat, doctors instinctively begin cardiopulmonary support, which may include mouth-to-mouth resuscitation. In a chemical attack, however, mouth-to-mouth resuscitation can cause the rescuer to absorb the poison. This is one of many principles hospital staff must learn in order to manage a chemical attack safely.

America’s community hospitals and doctors are not adequately prepared for a chemical attack. No one has compelled them to become so, and many of them assume that major trauma and university medical centers will constitute the frontline if a chemical attack occurs.

This is why public health authorities have to lead on the issue. They must bring the experience of the military to bear on how community hospitals and doctors plan and prepare. Community hospitals and doctors are happy to help; they simply need to be told that they are needed, and what they should do.

### **Nuclear (“dirty bomb”) attack**

A “dirty bomb” is a radiological weapon consisting of a conventional explosive packaged with radioactive material that scatters when the bomb explodes. The conventional explosive is responsible for most of the injuries and deaths from a dirty bomb, but the radiation can also cause severe illness and death, and, in the long run, a slightly increased cancer risk. That is why victims of some radiation bombs will be told to take potassium iodide to protect their thyroid glands. Radiation bombs are categorized as weapons of terror because they cause tremendous panic among the civilian population even though the physical damage they cause may be slight.

Community hospitals and physicians have focused less on the consequences of a radiation bomb than they have on the consequences of a biological attack. According to a recent survey of 5,000 hospitals by the American Hospital Association, only 54 percent of the nation’s hospitals have a nuclear terrorism component in their disaster plans, and only 27 percent expect to add one to their plans within the next year. Hospitals and doctors assume, as they did during the Cold War, that any nuclear attack would be a totally destructive one, and that there would be little that they could do to ameliorate its effects. They also assume that any injuries caused by a radiation bomb’s conventional explosive would be channeled through the existing trauma system, which bypasses many community hospitals.

However, the terrorist attacks on the World Trade Center and the Pentagon proved that community hospitals will *not* be bypassed in such an emergency. Victims of these attacks went to the nearest community hospitals. Hence, community hospitals must be prepared to handle a radiation bomb attack.

Traditional hospital disaster plans assume an influx of large numbers of trauma victims, not radiation victims. That is why a hospital’s anesthesiologists and surgeons are an essential part of such disaster plans. Planning for a radiation bomb attack, however, requires a slightly different staffing emphasis. In the event of an attack, personnel will be needed to provide decontamination, radiological monitoring, decorporation (removing radioactive materials that have been incorporated into the body), and security.

Security and decontamination personnel will be essential. Hospitals and doctors assume that local

fire departments will handle the decontamination, but in the event of a radiation bomb attack, firemen probably will be busy at the scene, which means that the hospital will be the major site for decontamination. If decontamination fails to proceed in an orderly fashion, the entire hospital will be contaminated.

As in the case of a chemical attack, doctors and other health professionals must be educated not only to save victims but also to help these professionals protect themselves. For example, many doctors will naturally reach for common X-ray shielding to wear while managing radiation bomb victims. Such outside wear, however, gives a false sense of security: gamma rays pass right through it. Most injuries caused by a dirty bomb attack will fall into the category of conventional trauma, but the radiation consequences would be sufficiently severe that hospitals and doctors must plan to deal with them.

## **Conclusion**

International terrorism poses a new kind of threat to America's civilian population. This new threat, however, is one that the U.S. health care system can plan for and respond to.

Doctors and hospitals are eager to do their part. But to do so, they will need leadership, access to knowledge and resources, and a more serious partnership with the nation's public health and military authorities.

Good doctors try to look several steps ahead when making judgments about treatment. It is in their professional nature to do so. The nation's civil authorities and entire health care system will have to manifest that same reflex today if we are to cope with a terrorist attack involving a weapon of mass destruction. Planning probably will save more lives than drugs. Right now, we are still unprepared.

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