Capitol Hill Hearing Testimony: Handling Casualties Caused by Weapons of Mass

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Good morning. Mr Chairman, Members of the Subcommittee, I am grateful for the opportunity to share my experience as an infectious disease specialist in treating two of the patients who contracted inhalation anthrax. My name is Dr Susan Matcha. I am a physician with the Mid-Atlantic Permanente Medical Group and one of more than 11,000 Permanente physicians nationwide who provide care to more than eight million Kaiser Permanente members in eight states, including Maryland and Virginia, plus the District of Columbia.

In my testimony today, I would like to talk about two areas: my experience treating patients with inhalation anthrax and Kaiser Permanente's response to the anthrax crisis.

As a Permanente physician, I practice as part of a team of infectious disease specialists, alongside numerous other physicians with virtually every specialty and subspecialty represented. Our physicians are used to working together, and we know how to mobilize ourselves as different needs arise. The integrated care we provide to Kaiser Permanente members provides us with broad support and resources. In this instance, this has meant rapid consultation among specialists, the ability to develop and disseminate practice guidelines that effectively communicate our state of knowledge, and coordinated collaboration with the Centers for Disease Control and other public health authorities. Immediately after the tragedies of September 11, the threat of bioterrorism suddenly became real. The seven infectious disease physicians in my department at Kaiser Permanente began reviewing the state of our knowledge about different biological agents. We consulted textbooks, the medical literature, and the CDC Web site to increase our understanding of anthrax as well as other potential agents, including botulism, smallpox, and tularemia.

Kaiser Permanente already had developed clinical practice guidelines for bioterrorism as part of our emergency preparations for Y2K. Our infection control committee, led by one of my infectious disease colleagues, updated them soon after September 11.

While we hope our work has contributed to the public health, my principal responsibility is caring for patients. I would like to share with you a brief chronology of the care provided to the two patients I have personally treated. To protect their privacy, I'll call them Patient #1 and Patient #2.

Patient #1 came to the Kaiser Permanente Woodbridge Medical Center on Friday, October 19. He had been ill for three days with fever, malaise, muscle aches, and sweats. At that time, the Brentwood postal facility was not known to be an exposure site. But the internist who saw the patient was concerned about the severity of the patient's symptoms. Since the patient acknowledged he had never felt that sick before and that he suspected he had been exposed to anthrax—even though a call to the public health department again confirmed that Brentwood was not a known site—he sent the patient to Fairfax Hospital.

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The emergency room physician at Fairfax drew blood for routine tests as well as cultures and also ordered a chest x-ray, which showed some extra shadows in the middle of the chest. Because of these shadows, a CAT scan of the chest was performed. The findings were thought to be consistent with anthrax, and the patient was started on IV Cipro.

Shortly after midnight Saturday morning, I was called about the patient. When I arrived at the hospital, the CDC and health department had already been notified. Within 11 hours, the blood cultures were growing an organism consistent with anthrax. The blood was sent to the CDC and the Virginia Department of Health for confirmatory testing. During this time, I was in constant contact with the CDC. We discussed adding additional antibiotics to the Cipro, which at the time was the only FDA-approved antibiotic for treating anthrax. The CDC made some treatment suggestions based on theoretical evidence and what is known about the behavior of similar organisms. Although I received input from the CDC based on laboratory research, no one had experience treating human anthrax patients.


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Ultimately, as the treating physician, I was responsible for writing the orders and caring for the patient. I ordered rifampin because it works well fighting many gram-positive organisms and has the ability to penetrate white blood cells to kill organisms that have already been engulfed. I also added clindamycin because it has been shown to interfere with toxin production in other bacteria.

With respect to Patient #2, he called our Kaiser Permanente medical advice line on Saturday, October 20. The advice nurse was concerned about his symptoms—headache and fever—and she referred him to a physician in our Falls Church Medical Center urgent care department that afternoon.

The physician there was concerned that Patient #2 might have meningitis and sent him to Fairfax Hospital for a spinal tap. The Fairfax Hospital emergency room physician called me with the results and mentioned in passing that the patient was a postal worker. I asked him to find out exactly where the patient worked. When I heard "Brentwood," where I knew Patient #1 worked, I remembered that anthrax could cause meningitis and

asked him if he had ordered a chest x-ray. He had not. I advised the emergency room physician to obtain blood cultures, and then immediately give the patient a dose of IV Cipro. Once this had been done, the patient was to have a chest x-ray.

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The chest x-ray was difficult to interpret, so a CAT scan was done. The results of the CAT scan were similar to the first patient's. Both showed enlarged lymph nodes in the chest as well as pleural effusions: puddles of fluid in the space around the lungs. Fifteen hours later, Patient #2's blood cultures also returned with a gram-positive bacteria consistent with anthrax. At that point, I added rifampin and clindamycin to his regimen as well.

In addition to the numerous calls I made on that weekend to the CDC and health departments that weekend, I also called the chief of our medical group's infectious disease department, Dr Miriam Cameron, to let her know about the two patients. Together with Dr Adrian Long, President of the Mid-Atlantic Permanente Medical Group, and Marilyn Kawamura, President of Kaiser Foundation Health Plan of the Mid-Atlantic States, she helped organized a conference call so our organization could respond effectively to this anthrax crisis.

The elements of our response included several key steps: establishing an emergency operations center, updating our clinical guidelines, reaching out to our patients, expanding our capabilities, and helping in the community.

Emergency Operations Center

The genesis of our emergency operations in this crisis was Y2K. Kaiser Permanente developed an emergency plan in preparation for what we thought might happen as the year 2000 began. This plan was valuable to us when bioterrorism hit. The manual that was created for Y2K included operating procedures for staffing (medical and administrative), equipment (including a generator with the capacity to run for two weeks), communications (internal and external), and a hotline.

Kaiser Permanente's response to bioterrorism was centralized in our Emergency Operations Center (EOC), which became fully operational on October 23. Early activation of our EOC was vital to our successful and orderly response to this crisis. The EOC provided various avenues of communication: e-mail, voicemail, and phone conferencing that connected the entire Kaiser Permanente Region. We held conference calls several times a day to discuss what we had learned since the last call, the progress of each patient, the volume of patient calls coming in to our advice nurses, and the volume of appointments at our medical centers.

As the number of designated exposure sites and possible exposure sites increased, there was great demand placed on our infectious disease team. We set up a hotline in our EOC for nonurgent questions, which was covered 9 am-5 pm by a nurse who has the latest clinical practice guidelines and access to an infectious disease physician. Emergency calls went directly to one of us for live consultations.

Clinical Practice Guidelines

Clinical practice guidelines describe and instruct the triage and treatment of patients by physicians and advice nurses. The list of designated exposure sites was updated as we received news from public health departments. Different guidelines were detailed for stable and unstable patients; symptomatic and asymptomatic patients. The guidelines listed all phone numbers for public health departments. Any and all other relevant information was included in each update. New information was clearly identifiable. For the benefit of all our physicians as well as the advice nurses, we addressed what symptoms to look for and what questions to ask the patients, such as asking where they worked.

The process we had in place for the use of clinical protocols served us well. The information cascaded down from infectious disease specialists to everyone on the front lines: internists, family practitioners, advice nurses. Our organization's ability and dedication to update and distribute them frequently enhanced the effectiveness of clinical protocols.

Since Kaiser Permanente is used to communicating with multiple jurisdictions and dealing with different sets of rules, it was natural for us to coordinate and communicate with the CDC, the departments of public health, and different political entities. We shared information about our patients, and we shared our clinical protocols. Johns Hopkins University Hospital, Inova Fairfax Hospital, and others used our protocols as their guide for patient diagnosis and treatment.

Reaching Out to Patients

Kaiser Permanente has more than 530,000 patients in Maryland, Virginia, and DC. Each of these patients has a medical record number and an electronic medical record. Through our multiple information management systems, we can track data to help us respond to issues. For example, as soon as we understood that postal workers at Brentwood could be at risk, we identified all our members who work at the Brentwood post office by the telephone exchange they provided to us for their work number.

A cadre of nurses volunteered to contact all 237 Brentwood employees. Nurses asked our members if they had gone to DC General for testing; if they had received their medicine, were they taking it, and how did they feel. People who were not taking the medication, for a variety of reasons including suspected pregnancy, were encouraged to take the medication as appropriate or to come in and see a doctor. Some people were directed to an emergency room. Appointments were offered to anyone with any symptoms.

We can use this system to communicate with all our members or a subset of them. For example, we could call all our members to remind them about flu vaccines—which is something we are currently doing—or for mass immunizations.

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We were able to instantly create a special category in the medical record for this current bioterrorism crisis to identify, collect, and sort anthrax-related information. And we were able to generate hospital admissions and emergency room visit reports that were valuable to us and to the DC Department of Health staff, who said it was the best information they received from any of the area health care providers.

The importance of physicians using the electronic medical record system was reinforced. Most infectious disease physicians were spending time in the hospitals. To make it easier for us, we could dictate our notes and have them entered into the electronic medical records to keep them up to date.

Expanding our Capabilities

Because the anthrax crisis was so fluid, with different parts of the Washington area being affected at different times, we had to be fluid in our staffing at our medical centers and urgent care centers, as well as in area hospitals. Because of the integrated nature of our organization, we were flexible enough to shift people quickly throughout our region and other parts of Kaiser Permanente.

Because we are part of the larger Kaiser Permanente organization, we were able to draw on other resources. Physicians from other regions came to our assistance. We had infectious disease physicians and primary care physicians providing us support in a variety of ways. Some of them saw our HIV patients, others took routine office appointments, supported our advice nurses, and helped in the EOC.

The out-of-state doctors had to be licensed and credentialed very quickly to work with patients. The State of Maryland was extremely cooperative. Our credentialing department processed the paperwork swiftly after the state approved the physicians.

In part because of our resources as a large organization, we were able to obtain large quantities of medication and vaccines. On Friday, October 26, a decision was made to get enough doses of Cipro in case we had to treat all our patients who are postal employees and their families. We needed 10,000 doses, and we had them by Monday, October 29. We also obtained 100,000 doses of flu vaccine. And we already have a plan in place to distribute medication to a large population and will be testing it with the flu vaccine this year.

As the anxiety increased in the general population, our medical centers organized and announced group appointments. These were helpful to our members with justifiable concerns about anthrax exposure as well as those who were concerned but had no significant risk factors.

Patients from the group meetings who wanted to be seen individually were seen individually.

We have posted our guidelines on the Kaiser Permanente Web site, where it is available to physicians across the nation and the general public.

Pitney Bowes management called us for help in the early stages of this crisis. They have many employees who are contracted to the postal service, and some work in the Brentwood facility. These individuals had concerns about anthrax exposure, but could not be seen at DC General because they were not postal employees. We agreed to test 300 workers, some of whom are members of Kaiser Permanente, some who are not. While we were doing blood testing and x-rays, we found a lung mass in one person, hypertension in another, and other conditions of concern unrelated to anthrax. All of these patients were referred to their physicians for follow-up.

To help deal with the emotional trauma our patients were experiencing, we arranged for our mental health providers to be available at all our urgent care centers. In fact, we have had group meetings available almost every evening since the events of September 11.

Helping in the Community

Kaiser Permanente has a long history of community service. It is an integral part of our mission. Prompted by an offer made by one of our leaders, 13 of our Mid-Atlantic Permanente Medical Group physicians volunteered to help the DC Department of Health by providing weekend treatment, evaluation, and counseling at DC General, giving DC Health Department physicians a needed break.

Conclusion

The events of the weekend of October 20th were stressful and humbling. My infectious disease colleagues and I were confronted with a disease that few other clinicians in the world had seen. We felt a responsibility not only to our patients but also to the broader medical community. As a result, we have taken numerous steps to share our clinical experience. We have posted our guidelines on the Kaiser Permanente Web site, where it is available to physicians across the nation and the general public. We have responded to numerous inquiries from clinicians across the country. Finally, we have written an article for the *Journal of the American Medical Association* on what we learned about diagnosing anthrax, and we are currently working on another article to discuss what we learned about the course of hospital treatment. When and if other physicians are faced with anthrax, they will know what we did and what we learned.

Again, thank you for inviting me to speak to the Subcommittee. I would be pleased to respond to any questions you might have. ❖