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Emergency Response, Public Health and Poison Control: Logical Linkages for Successful Risk Communication and Improved Disaster and Mass Incident Response

Valerie A. Yeager

INTRODUCTION

The 2002 *National Strategy for Homeland Security* established a broad mission to find ways to improve homeland security.¹ In addition to preventing and mitigating disasters, the 2002 *National Strategy for Homeland Security* highlighted the need to develop complimentary systems to avoid duplication and increase collaboration and coordination.² Progress toward these objectives will ensure more effective responses to all hazards faced by Americans and contribute to the overall mission of improved security. This essay explores the possibilities of linking emergency response and public health with the poison control system for increased collaboration and coordination during disasters and emergencies. If successful, these linkages will ensure that we are more capable of effectively preventing, responding to, and recovering from disasters and emergencies. The provision of accurate public information and active surveillance, prevention of avoidable surges in medical need, continuity of response operations, mitigation of public anxiety, and cost-savings for the health care system make Poison Control Centers a natural ally for disaster response agencies and public health.³

Disasters and Emergencies Require Consistent and Accurate Public Information

Recent natural disasters like Hurricanes Katrina and Rita, terrorist events such as the Oklahoma City Bombing and the events of 9/11, and public health incidents such as Salmonella and Escherichia coli (*E. coli*) outbreaks all required effective risk communication and safety guidance during and after the events.⁴ Currently, however, Americans do not have a consistent mechanism for the timely and repeated delivery of trustworthy public safety and health information.⁵ Most Americans rely on information translated through mass media before, during, and after a disaster or emergency incident; but the inherent flaw in this system is that we cannot ensure the consistent and accurate translation of crucial public safety and health information.

As in most countries, Americans endeavor to discern between the factual and sensationalized information delivered through mass media. Additionally, people experiencing extreme anxiety or fear during a disaster or emergency incident will want assistance making health-related decisions, but the mass media cannot answer individual questions.⁶ When we experience extreme anxiety and fear, we seek reliable, trustworthy, and knowledgeable advice from respected individuals such as the police, the government, and medical professionals.⁷ This is inherently problematic during and immediately after disasters as there may be no direct connections to these agencies or officials. In most mass casualty and disaster events, these officials will be heavily taxed by the response to the event and will

likely be unable to handle the mass inquires and calls for personalized information and guidance.⁸

In light of this dilemma and in response to the 2002 *National Strategy for Homeland Security*, there exists great potential to increase collaboration and coordination and utilize the well-developed infrastructure present in the poison control system.⁹ This system currently has the potential to provide for immediate, and consistent personalized public information during and after a disaster or emergency incident. The poison control network is well established. In its fifty-five years of service it has become well known and trusted among the American public as a source of reliable information.

Mitigating Unnecessary Medical Surges

Public information is crucial during disasters and mass incidents. Efficient person-to-person information mitigates worry and potentially keeps people from rushing to an emergency room for answers.¹⁰ Fear and anxiety are mediated by information; therefore it is essential that we strive to find a mechanism to provide the public with a reliable system for receiving accurate and consistent information during a disaster or emergency incident.¹¹

A recent study highlighted the crucial role of adequate public health information during disasters and mass incidents.¹² It found that the American public will indeed seek out protective information and guidance during a disaster or mass incident.¹³ If social distancing measures are implemented (requesting that individuals remain at home unless absolutely necessary) people will want a means to reach trusted health professionals from their homes. Without adequate and sometimes personalized information, people who are concerned that they may be ill or exposed to the infectious agent may go to an emergency department or physician's office for reliable answers. Situations such as an infectious disease outbreak, especially with high-profile diseases like Avian or Pandemic Influenza, have great potential to overwhelm our medical system and create major obstacles to efficiently treating those in need of care.¹⁴ Additionally, those who have not been exposed, but are worried about being ill may actually be exposed to the infectious agent if unnecessarily visiting physicians and emergency departments.

Active Surveillance Capabilities

Poison control centers have the potential, if linked with public health and trained to handle public health related issues, to efficiently receive and respond to requests for public health information and guidance. They also have the systems and capabilities to perform active surveillance and reporting and can be utilized to screen and refer callers to appropriate facilities for medical screening and/or treatment.¹⁵

In response to the 2006 radiological dispersal incident, an event of public health significance, Britain utilized their nurse-led, telephone system, the National Health System Direct (NHS Direct), to quell the fears of thousands of citizens who were unaware of the health risks of radiological exposure, unfamiliar with Polonium-210, or unsure of how or if they could have been exposed to

Polonium-210.¹⁶ They also used this same telephone nurse system to screen potentially exposed individuals and refer those persons to appropriate centers for urine collection and analysis. NHS Direct was able to perform active surveillance during the incident.

During the response to the intentional radiological dispersal incident, the Health Protection Agency, Britain's equivalent of the United States' Centers for Disease Control and Prevention, provided essential information both through the NHS Direct Internet site and the twenty-four-hour, nurse-staffed telephone help line. Within days of informing the public that Litvinenko died of an intentional radiological poisoning, NHS Direct received over 2,000 phone requests for information about exposure, side effects, and other concerns. In the next month, the number rose to a total of almost 4,000 calls about the incident.¹⁷ Imagine if these 4,000 callers had rushed to the nearest emergency department with their worries. The health system would not have been able to triage all of these thousands of people along with other unrelated emergency cases. The surge would have severely taxed the health care system and the laboratory network. The provision of personalized, adequate health information provided immeasurable benefits to the response efforts.

NHS Direct also utilized a systematic approach to screen individuals for potential exposure based on the known information about the event and were subsequently able to refer this smaller group of nearly 800 people on for medical monitoring.¹⁸ The U.S. can utilize the poison control system in a manner similar to what was done in the Britain Litvinenko intentional dispersal event. Currently they are assisting in the response to the H1N1 outbreak. According to the National Poison Data System, between May 20th and August 13th, 2009, the U.S. poison control system fielded 392 calls from the public about H1N1.¹⁹ This is evidence that the U.S. public utilizes poison control centers as a resource for information about diverse health topics, not only poisonings.

Existent Continuity of Operations Plans

In addition to potentially reducing healthcare surge-capacity dilemmas and to providing active surveillance, poison control centers often have continuity of operations plans to ensure continuation of services in emergency or disaster situations. In order to receive federal funding, poison centers must meet the American Association of Poison Control Centers' certification standards that include having mutual aid agreements for both local and national poison center partnerships for when call assistance is needed.

For the most part, poison control centers have the autonomy to plan and train for emergencies and disasters as they deem appropriate. While exact statistics are unknown, many of the sixty poison centers are able to generate their own electricity to run computer systems and receive telephone calls should their region experience damaged infrastructure during a natural disaster or terrorist event. Additionally, some centers have plans for their nurses to telecommute if the disaster or event requires (and allows) it and, through a universal online information platform, they have the ability to receive immediate information

updates simultaneously across the sixty centers.²⁰ While not all poison centers are currently able to access this platform online in real time, this resource is in development. In the meantime, email can be used to get consistent urgent response messages across all centers simultaneously.

Handling Anxious and Fearful Callers

Not only do poison control centers have the infrastructure and systems to receive calls and provide consistent, accurate information, they are also trained and experienced in communicating with anxious, worried callers. With appropriate situational information, poison control specialists can also field calls from worried and emotional callers during disasters and mass incidents. Certainly, these specialists can benefit from improved psychological first aid skills, but the foundation for this response exists.

In the 2003 SARS outbreak in Toronto, Canada's Telehealth system (another national, nurse-led telephone system) provided crucial support during an event that required strict social distancing measures and caused extreme and hyper-vigilant fear among citizens. Prior to the outbreak, Telehealth fielded approximately 2,000 calls per day. During the event, nurses handled over 20,000 calls per day.²¹ America's existing poison control system has the infrastructure and the trained personnel to provide a similar response to calls for personalized, accurate and consistent risk communication during a disaster or emergency incident. While one regional center alone may not be able to handle all of the calls of a regional disaster such as the Toronto SARS outbreak, unanswered calls will roll to partner centers for additional support. It is also possible to forward calls to other centers as needed. In 2007, US poison control centers fielded over 4 million calls, averaging almost 12,000 calls per day as routine service.²² Some poison control centers are working to identify additional nurses to commit to training and assist as needed in an outbreak or other emergency or disaster-related event. In some cases, contingency plans include the assistance of retired nurses located through partnerships with state public health agencies. This is an example of one way poison centers and public health can plan and work together to increase preparedness and resiliency during a prolonged emergency or disaster.

As a federalist nation founded on individual state autonomy, it is difficult to provide consistent messaging to the public in multiple states and regions when disasters and emergency incidents happen. The poison control system, as previously discussed, has the existing infrastructure to provide consistent messages to the poison control centers in all fifty states. With a universal access number, callers can easily reach their regional poison control center from anywhere in the U.S. If, for any reason, the regional phone lines are unavailable, the call will automatically roll to partner poison control centers. If there is a disaster affecting phone service in the region, poison centers will forward their calls to their national partners until the region regains service. They also have a language line for speaking with non-English speakers and telecommunication devices for the hearing or speech impaired.

An Example of a Successful Linkage

The Georgia Poison Center has been collaborating with the state Department of Public Health for over a decade. They receive public health's after-hours calls, provide guidance, and triage calls requiring direct connections to on-call public health officials. Georgia's Department of Public Health contributes funding to the Georgia Poison Center to cover the cost of providing this service and for triaging all rabies calls.²³ In addition to calls rolled from the Department of Public Health phone lines, the Georgia Poison Center has assisted callers during the 2004 fire that resulted in chemical releases around the city of Atlanta, and the closing of an area hospital and freeway. They field calls about unknown substances, such as during the white powder Anthrax incidents of 2001, and they handle food outbreak concerns and reports. Already, other poison control centers, as in Georgia, are working with public health to improve their response and recovery from incidents and outbreaks. It is essential to foster these and other relationships between poison centers, public health, and emergency response. In states where partnerships exist, the linkages necessary for improved all-hazards risk communication, response, and recovery will be developed with greater ease.

Utilizing Existing Systems as Cost-Savings

According to 1992 national data, the poison control system reduced annual medical spending by \$355 million through cost avoidance by managing caller concerns and reducing the need for callers to attend emergency departments.²⁴ Similar cost savings may be possible for disaster and mass incident response and general assistance to public health departments. One possible challenge to developing these partnerships is that the increase in cost to the poison control centers must be supplemented with appropriate funding from federal or state governments or new partner organizations.

Poison control centers continue to struggle to remain financially viable. They currently receive federal funding through the Poison Control Center Enhancement and Awareness Act but the appropriated amount can change depending on the federal budget. For most centers this federal funding does not provide enough support to cover their entire annual budget. Poison centers receive state funding as well, which means that year-to-year state budget cuts have the potential to have a negative impact on the future of some poison control centers. As a result of these funding inconsistencies, some poison control centers have utilized innovative mechanisms to ensure financial support. For example, in one state, all medical centers receiving assistance from poison centers provide supplemental funding to the state poison control system. Another state receives supplemental funding from tax structures such as long distance phone taxes. Useful partnerships between public health, emergency management, and homeland security have the potential to supplement the budgets of poison control systems while simultaneously providing benefits to the partner agencies and, perhaps most importantly, to the U.S. public in the form of improved homeland preparedness, response, and security.

CONCLUSION

As we “strive to create a fully integrated national emergency response system that is adaptable to any terrorist attack, no matter how unlikely or catastrophic, as well as all manner of natural disasters,”²⁵ it is natural that public health and emergency management partner with poison control centers and utilize the strong foundation present in the poison control infrastructure. Americans will expect forthcoming risk communication and it is necessary that we think through how we will field the many thousands of telephone calls, public inquires, and requests for guidance that may result for any number of hazards. Personalized information may be necessary to keep our other response and medical systems functioning efficiently; however, we need to ensure adequate and consistent messages. The poison control system can already do this, but we will need to overcome the potential barriers of obtaining buy-in for establishing partnerships among these agencies and increase funding for the already over-taxed poison control system so they expand their current training to include all-hazards preparedness and develop successful linkages with appropriate agencies.

In response to the call for improved all hazards response, coordination and collaboration, it is vital that the department of homeland security, emergency management, public health, and the poison control system come to the table to begin these important discussions. Only then can we begin to address questions such as what is needed to promote consistent messaging, how many more people do we need to provide sufficient support for the call system in a national disaster or outbreak, and what are the weaknesses in our current telephone answering system and infrastructure? Until we have an evidence base that explains the opportunities that exist and the gaps we must fill to improve disaster and emergency response we are no further along toward improved security.

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NOTES

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¹¹ WHO, *Outbreak Communication Guidelines*.

¹² Wray and others, "Communicating with the Public;" G.M. Bogdan and others, *Health Emergency Assistance Line and Triage Hub (HEALTH) Model*

¹³ *Ibid.*

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- ¹⁶ In November 2006, Alexander Litvinenko, a former Russian federal security service agent living in England and publicly accusing the then Russian President, Vladimir Putin, of fraudulent conduct, fell ill with stomach troubles. Over the course of the following twenty-two days, Litvinenko exhibited signs of acute radiation sickness and eventually died. The day he died, Britain’s Atomic Weapons Establishment determined that he was poisoned with Polonium-210. (Spector, 2007) There were a number of locations where the poisoning could have taken place, which were then investigated by the British Health Protection Agency. M. Spector, “Kremlin, Inc.,” *The New Yorker*, January 27, 2007, 50-63; J.W. Stather, “Invited Editorial: The Polonium-210 Poisoning in London,” *Journal of Radiological Protection* 27 (2007): 1-3.
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