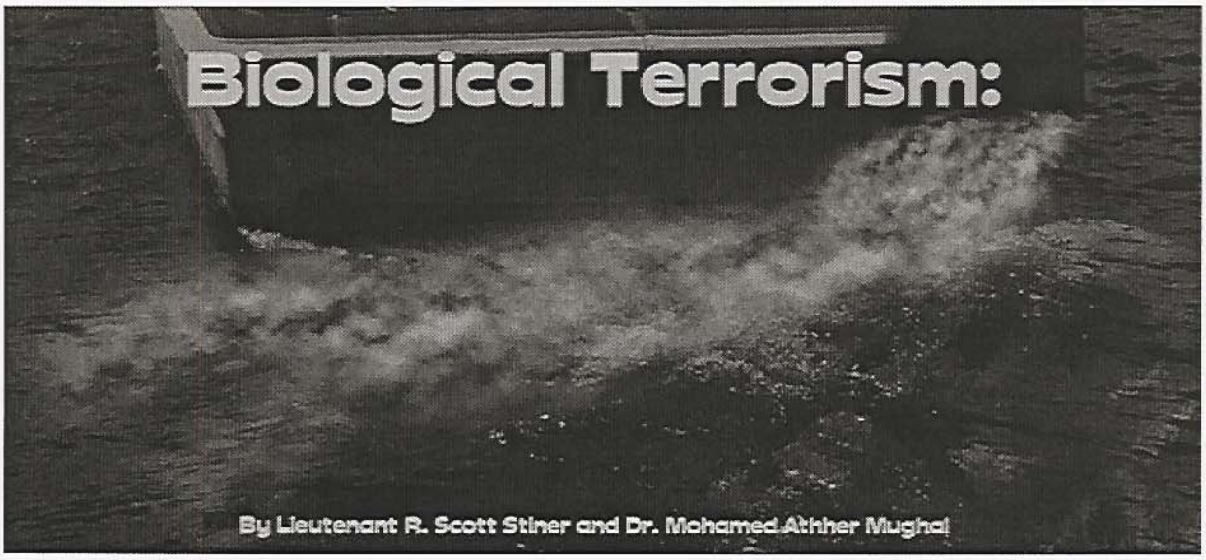

On the evening of February 9, 2001, a crowd of 10,000 gathered in Coachman Park along the intercoastal waterway of Clearwater, FL, for a sunset concert. The concert was sponsored by a political group conducting a fundraiser to cover its expenses for a march on Washington, DC, later that year.

During the course of the evening, a nondescript boat motored north up the intercoastal waterway while releasing a fine spray of what would later be identified as Venezuelan Equine Encephalitis (VEE) virus. The virus floated over the crowd without anyone's knowledge. In the days that followed, thousands of people became violently ill and one hundred died.

Pinellas County emergency responders faced this hypothetical scenario during a weeklong exercise in February 2001. A joint effort between the U.S. Army Soldier and Biological Chemical Command (SBCCOM) and Pinellas County, the exercise was designed to test the "Biological Weapon (BW) Response Template," an integrated and full-spectrum response strategy for biological terrorism.

Lieutenant R. Scott Stiner of the Pinellas County Sheriff's Office had served as a law enforcement expert during the technical conceptualization of the original template.

Looking to tap Stiner's expertise, team leaders at SBCCOM asked if he would be willing to take a lead role in exercising and testing the response concepts embedded within the template. Lieutenant Stiner agreed to help and subsequently sought support from David Bilodeau, Director of Emergency Management for Pinellas County. Director Bilodeau was enthusiastic about the opportunity to be one of the first counties in the country to gain experience in this type of exercise.

For more than a year, SBCCOM technical experts in biological weapons met with a county planning committee to design the exercise. During the course of these meetings, new contacts and friendships developed among law enforcement, firefighters, emergency medical services (EMS) and—joining them at the table for the first time—public health officials. Little did any of these participants know that these new relationships would be instrumental in dealing with real-world anthrax cases later that same year.

Investigating Acts of Biological Terrorism—the Role of Epidemiology

By definition, terrorism is a criminal act that warrants a full spectrum of criminal investigation activities, including evidence collection, victim interviews, identification and isolation of the crime scene, and apprehension and prosecution of suspects. However, the characteristics of biological terrorism present unique challenges to the law enforcement community. In the event of a bioterrorism incident, for example, while the law enforcement community performs its traditional criminal investigation, the medical and public health community will conduct its own epidemiological investigation to identify and control the disease outbreak.

Epidemiology involves the study of the incidence and distribution of diseases in large populations, and the conditions influencing their spread and severity. Epidemiologists collect information through victim interviews and case tracking. This information can help public health practitioners identify the population at risk, the geographic source and the disease agent strain. All this information is key to the criminal investigation as well.

While the epidemiological and criminal investigations may occur contemporaneously, information is not necessarily shared between the public health and the law enforcement communities. In the case of biological terrorism, the criminal and the epidemiological investigations could—and likely should—complement one another. For instance, once epidemiologists identify the source of the outbreak, or the time and place of the agent's release, criminal investigators could visit the site to collect evidence and other data pertinent to law enforcement concerns. Because neither community is accustomed to working with the other, it is possible that information that could benefit one or both investigations will not be exchanged.

Tackling the Problem

In an effort to close this gap, SBCCOM partnered with the National Domestic Preparedness Office (NDPO) to sponsor an analytical workshop in January 2000. The goal was to identify ways to establish information-sharing relationships between the law enforcement and the public health communities to ensure a timely and appropriate exchange of information during bioterrorism investigations. Working through a structured, intensive three-day workshop, a panel of law enforcement and public health professionals identified when it is important for these two communities to share information, what information is needed for each investigation, and how each community could improve its information exchange with the other.

"When Should We Share?"

One of the most difficult decisions in any incident would be determining what events or information should trigger the exchange of information between the law enforcement and public health communities. For example, the law enforcement community should consider sharing information with epidemiologists:

- when intelligence indicates that disease agents were intentionally used to harm someone
- when there is an indication that criminal or terrorist elements are involved with a serious illness or death
- upon seizure of bioprocessing equipment from any individual, group or organization
- upon seizure of any potential dissemination devices from any individual, group or organization
- upon identification or seizure of literature pertaining to the development or dissemination of biological agents
- when any assessments indicate a credible biological threat in an area.

The epidemiological community, too, has a number of triggers that would compel them to share information with law enforcement. These include:

- unusually large numbers of patients with similar symptoms or disease
- large numbers of unexplained symptoms, diseases or deaths
- a single case of an uncommon disease
- disease with an unusual geographic or seasonal distribution
- disease transmitted through aerosol, food or water (suggestive of sabotage)
- death or illness among animals that may be unexplained or attributed to a classical agent of biological warfare.

What Information Is Needed

The workshop panel recommended that each community—law enforcement and public health—use a prepared list of general questions that they could ask victims or patients to aid the other's investigation. Although this approach does not eliminate the need for law enforcement and public health personnel to conduct their own interviews and investigations, it reduces the need to interview the same people twice to obtain similar information.

Table 1 contains personal and family health information that can help epidemiologists get an initial impression about an outbreak's extent. Questions about a victim's activities can help identify the potential point of origin for the infectious agent. This information also provides clues regarding the potential secondary spread of the disease if the agent is communicable. Dissemination devices, affected animals, or unusual tastes and odors could help distinguish between a naturally occurring outbreak and an intentional release.

Who Needs This Information and When

The best information is useless unless the right people get and use it on time. For this to happen in a timely manner, it is essential to establish key communication points between the law enforcement and public health communities. The law enforcement community needs to initiate its criminal investigation as soon as possible to preclude the loss of critical evidence or disturbance of the crime scene. The epidemiology community wants to positively identify the agent so that appropriate medical treatment can be administered and measures taken to protect the remainder of the community from

exposure.

The challenge for the workshop panel was to find common modes of information exchange between two communities that traditionally have worked separately from each other. This challenge is compounded by the fact that even within law enforcement and public health communities, each jurisdiction is different in terms of its specific roles and responsibilities. Indeed, some departments and positions may not even exist in some localities. Acknowledging these differences, the workshop panel developed a set of recommendations that provide general guidance that any jurisdiction can use to establish a structure for improved communication exchange that is consistent with existing emergency-response protocols.

Strategies to Improve Information Exchange and Collaboration

As part of its own homeland defense initiatives, each jurisdiction can establish an information-exchange group consisting of all the potential players in a response to a biological incident. These players could include public health officials, the law enforcement community, local private and public hospitals, EMS groups, firefighters, HAZMAT teams, emergency management officials, representatives of agencies in adjoining communities that may be called to respond, and state and federal agencies that may have a role.

This forum allows each response group to identify who can provide what information to whom, specifically, and when they should provide it. Much more than providing for a sterile, mechanical exchange of information, this group helps foster personal ties between response officials, facilitating less formal modes for sharing information. Several of the exercise's practicing response experts indicated that they would be more likely to provide information to their counterparts early and often in the process if they had worked, talked or met with them on a regular basis.

To further improve the exchange of information, criminal investigators could consider including an epidemiologist on their staff on a part-time basis. This liaison could help identify information arising from a criminal investigation that would be of significance to the public health community. At the same time, the epidemiologist would become better acquainted with criminal investigation needs and procedures.

The local emergency response community, including firefighters, emergency management officials, hazardous-materials crews and other emergency responders, should be trained to have at least an awareness of biological incidents. This awareness would heighten the community's overall ability to recognize factors that should trigger the exchange of information early in an incident.

The local community could also develop internal agreements that identify the protocol for the exchange and release of information. These agreements should identify what information will be shared, how it will be used and how it will be restricted to limit accidental release to unauthorized personnel.

Finally, the local jurisdiction should ensure that public health practitioners are educated on "chain-of-custody" procedures for clinical or medical samples that are to be used as evidence in the investigation and prosecution of a biological crime.

The Anthrax Attacks: Applying the Findings

As the United States grieved the horror of September 11, a new form of terror gripped the nation in early October 2001: anthrax. With the first death occurring only 200 miles

from Pinellas County, the region's citizens became afraid to open any piece of mail that looked remotely suspicious. Emergency switchboards lit up with more than 300 911 calls in the first 30 days.

Given the magnitude of the attacks on New York City and the Pentagon, emergency responders in Pinellas County could not be sure that this new threat was not real and that it did not represent a large-scale secondary attack on the country. As deputies began to respond, they became concerned about safety and how to best handle these types of calls.

But thanks to the contacts that were made during the February 2001 exercise, and per the findings of the SBCCOM/NDPO workshop, a meeting between fire, HAZMAT, law enforcement, EMS and public health was pulled together in a matter of a few hours. Working as a team, participants quickly developed a multi-agency, cross-functional protocol for how the county would respond to this crisis.

During the weeks that followed the September 11 attack, first-responders in Pinellas County handled more than 630 calls regarding suspicious mail. The protocol described in the accompanying sidebar was used on each call. Readers are encouraged to review the protocol and adapt portions relevant to their specific circumstances and jurisdictions.

America is forever changed by the horrific events of September 11 and by the anthrax panic that followed. We can no longer take for granted that American soil is safe from terrorism. As our leaders and citizens work to balance liberty and vigilance, members of law enforcement must now learn to prevent, investigate and prosecute a new form of terrorism.

Questions that Law Enforcement Can Ask to Help Epidemiologists	Questions That Epidemiologists Can Ask to Help Law Enforcement
Personal/Family Health Information • What do you think made you ill? • When (date/time of onset) did you start feeling sick? • Do you know of anyone else who has become ill or died - e.g. family, coworkers, etc.? • Have you had any medical treatment in the last month? What is the name of the healthcare provider? Where were you treated? **Activities Information** • Where do you live and work/go to school? • Did you attend a public event - i.e. sporting event, social function, visit a restaurant, etc.? • Have you or your family members traveled more than 50 miles in the last 30 days? • Have you or your family members had any contact with individuals who had been in another country in the last 30 days? **Agent Dissemination Information**	**Personal Information** • What is the victim's name, age, date of birth, sex, address, social security number, driver's license number, occupation/employer? • What is the victim's religious affiliation? • What is the victim's level of education? • What is the victim's ethnicity/nationality? **Travel Information** • Have you traveled outside of the United States in the last 30 days? • Have you traveled away from home in the last 30 days? • What is your normal mode of transportation and route to and from work every day? • What kinds of activities have you been engaged in for the last 30 days? **Incident Information** • Has the victim heard any unusual statements - i.e. threatening statements or conversation about biological agents?

• Did you see an unusual device or anyone spraying something? • Have you detected any unusual odors or tastes? • Have you noticed any sick or dead animals? • Have you seen any laboratory equipment or other suspicious activities?	• What is the victim's account or explanation of how he/she might have gotten sick? • What is the time/date of exposure? Is the time/date suspected, presumed or confirmed? • What are the potential modes of exposure - e.g. ingested, inhaled, skin contact? • Where is the exact location of the incident? Is this suspected, presumed or confirmed? • Was this a single- or multiple-release incident? Is this suspected, presumed or confirmed? • What physical evidence did you see at the site of exposure? • Did anyone else witness or speak about a suspicious incident? What are their names?

Dr. Mohamed Mughal has more than 17 years experience researching and analyzing chemical and biological warfare and terrorism and has published extensively on those topics.

Lieutenant R. Scott Stiner is assigned as the disaster-preparedness coordinator for the Pinellas County Sheriff's Office in Florida. He is currently under contract with the Soldiers Biological Chemical Command, U.S. Army, working on national plans to react to and mitigate the consequences of a terrorist attack involving weapons of mass destruction.