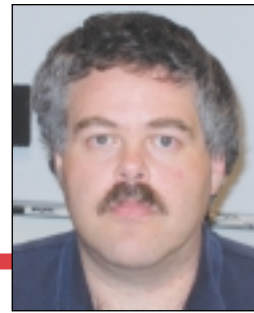# Ask The Expert

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> Michael Hopmeier certainly looks at the Big Picture. As "chief of innovative and unconventional concepts" at Unconventional Concepts, Inc., a consulting firm based in Mary Esther, FL, that has worked with organizations such as the Defense Advanced Research Projects Agency, National Disaster Medical System, FBI and the Israeli Defense Forces, Hopmeier brings a refreshingly objective and candid judgment to the deadly serious business of planning for disasters. In a wide-ranging conversation across the preparedness landscape, *GSN's* Jacob Goodwin peppered Hopmeier with a series of disparate questions along a single under-lying theme: How can America best prepare itself for a major emergency?

Q To begin, what is your view in general about the way the government goes about its domestic disaster preparedness?

A Everybody has a different perception of what the problem is, yet there is no agreed upon set of scenarios or realistic threats that we're dealing with. There's the current documentation that has come out of DHS, the 15 standardized scenarios. The problem is the majority of them are unrealistic. The few of them that actually are realistic, the natural disaster scenarios, which are the principal problems that we deal with in this country – hurricanes, tornadoes, floods, large fires – are small and are poorly thought out.

Secondly, even given the scenarios that exist, there is a lack of under-

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standing on the part of the federal government that first responders in state and local communities have *real* jobs. Those real jobs do not include constantly exercising and training for a very low-probability event. First responders have to deal regularly with motor vehicle accidents, heart attacks, floods, industrial accidents. To the extent that they can benefit or leverage off homeland security resources to benefit them in performing these missions, it's beneficial.

I look at September 11th in New York City. At the same time the Twin Towers were coming down, there were still motor vehicle accidents. There were still people having heart attacks, still people having babies, still surgeries going on.

Q Is it different in the military?

A When the military have a mission to apply, they immediately go after that mission. We have the 'single major regional conflict,' and the 'dual major regional conflict,' however many simultaneous military operations, that is their *only* job. When we have troops in Iraq, they don't have three other jobs to do at the same time. Their job is to prosecute the mission in Iraq. That is the primary job of the military. It's there as a deterrent. You deter, you prepare and are ready.

That doesn't exist anywhere else; especially not in state and local communities. They're almost two opposite ends of the spectrum. Until recently, the majority of our military's resources and efforts were spent training and preparing for things that never occurred because we could prevent them from occurring through deterrence. Very little of what they did was actually operational or real. It's exactly the opposite when we look at fire, police, emergency medical or emergency management. Every day they're dealing with disasters. They're dealing with hurricanes, they're dealing with real incidents and their ability to train and prepare is extremely limited.

Q If most preparedness personnel are out there doing other jobs day in and day out, how does one re-tool their thinking to get them ready for a disaster?

A The government needs to take a look at and better understand what are the current jobs and missions of the first responders and the emergency response community. Then, fit these other duties and responsibilities in under that context, and do so in a rational and systemic manner. To give you an example, right after September 11th, I was in Tel Aviv, trying to get back to the U.S. I flew in a few days later, when the airports opened up. I recall very clearly flying back into the United States and seeing the National Guardsmen lined up throughout the airport, all heavily armed with a standard array of combat equipment – automatic weapons, fragmentation grenades and body armor. They were doing exactly as they were ordered to do – *stand there.* But nobody had ever thought through what was the point of having them there. What possible scenario could it benefit to have them present? They certainly calmed the public, they certainly provided a presence, but if you actually thought through the problem, any type of terrorist incident that would occur, how would National Guardsmen be able to address it effectively? What would I do with National Guardsmen with automatic weapons and frag grenades in the middle of a crowd of American citizens?

Q Perhaps the theory was that it was intended simply to soothe the psychology of the public.

A Absolutely. That was certainly one of the key issues. Unfortunately, I think it also soothed the conscience of many people in government at the time, who had been given the impression that that was an effective response.

Q Let's talk about the Bio Shield program. I'm under the impression that the larger pharmaceutical companies are not finding the opportunities available through that federal program to be very interesting. Why is that?

A I think there's a pretty general consensus that "Bio Shield 1" did not go far enough, that the incentives were not sufficient, nor were they well enough thought out, to really interest the large pharmaceutical firms. The answer is very simple: it's economics.

When you develop a drug, the standard numbers are that it takes roughly 10 years and about a billion dollars to develop a new drug or a new vaccine. Pharmaceutical companies, rightly so, expect to get that money back, and much more, when they market a drug.

Frankly, when you look at the economics, there's really no incentive for a large pharmaceutical firm to cure a disease. The real money, the real value, is in providing treatment for chronic illnesses; drugs that have to be taken throughout a person's entire lifetime. That's really where the strong economic incentive is. When I look at the requirements for dealing with a bio-terrorism incident or a newly emerging infectious disease, the economic model is very, very different and falls far short of what can be gained from a chronic disease drug, such as Lipitor, or other pain medications that are taken by somebody throughout their entire life.

Q So why do these same economics make sense for a smaller pharmaceutical company, say VaxGen, which won a contract from the Department of Health and Human Services, to produce anthrax vaccines?

A They're totally different economic models. When you look at a small company, like VaxGen, or any of the other smaller pharmaceutical firms, their economic model is very different. Their model tends to be not large-scale long-term production, but to develop a technology or a technique with the hope that one of the larger companies will reach out and buy it or license it from them. Very few of these firms actually expect to go on and produce at the retail level mass-manufactured drugs.

The expectation is that it will be picked up by a large pharmaceutical firm.

When I look at the economics of a large firm, there is a finite level of resource available. There are only so many researchers, so many laboratories, so many facilities available to do research. They have to make the economic decision: Do they devote some percentage of that existing resource and infrastructure against a relatively low-pay-off drug – such as a treatment for anthrax or botulism or smallpox – or devote it towards something which may be a higher risk, but is also a much higher pay off and, most importantly, an economic model that they understand better?

Q Is the federal government properly organized to deal with man-made terrorist disasters?

A Organizationally, the government has never been well set up or well prepared to deal with any type of internal disaster, man-made or natural or accidental. With the exception of

FEMA, the Federal Emergency Management Agency, which is now the emergency preparedness and response directorate within DHS, no other government agency was really set up in a response role. HHS is probably one of the best examples and potentially one of the most misunderstood. The Department of Health and Human Services and its various offices and agencies – like the CDC, the Food and Drug Administration, the NIH and such – are there to address long term and chronic problems, but with very few exceptions, they don't have a response capability, per se.

There's the Uniform Public Health Service which is somewhat of a response capability, but it's extremely small. The government has traditionally been in the role of doing infrastructure, basic research and developing capability; with the state and local communities having the response mission. We're now in a new area, where the federal government is getting more involved in that response capability, and they're finding that many of the existing institutions simply don't adapt very well to that.

Looking specifically at Health and Human Services, when a disaster of any kind occurs and personnel have to be deployed, those personnel also have real jobs. They're researching in laboratories, they're providing health care on Indian reservations, they're writing reports and doing studies. When they deploy for a hurricane or a disease outbreak, with very few exceptions, the jobs that they were doing are left undone. As a result, if you look at the overall culture that exists within HHS, it is detrimental to somebody's career to constantly be volunteering and going to perform a response role.

The Department of Homeland Security is a very new department. It is still trying to get its feet on the ground and frankly it lacks many of the organic assets. For example, its direct medical capabilities are very, very limited. So, while it may have the mission for response, it constantly has to look to other organizations, such as HHS or the Department of Defense, to provide those medical assets.

Q What would you suggest?

A We need to take a step back and reassess the role of the federal government in the preparedness arena. How that preparedness leads to response, and where the responsibilities are. Our government fundamentally is not structured to do immediate response, with the exception of the Department of Defense. If we are going to accept the fact that at a fed-

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eral level, response is part of the mission, then we need to develop a system specifically designed for that, not pull together a bunch of random different offices, agencies and organizations and, by giving them all the same name and the same business card, suddenly try to make them a coherent whole.

Q How effectively has the government been in developing countermeasures to various pathogens?

A I think the government is generally missing a fundamental issue, which is that an emerging infectious disease is an emerging infectious disease. If it is emerging because of terrorism, that may change the initial conditions, but it doesn't fundamentally change its impact on the population. We're spending way too much effort focusing on *man-made* threats and not nearly enough looking at natural and emerging diseases. If we're prepared to deal with a new natural or emerging disease, we're going to be prepared to deal with a bio-terrorist incident.

Q I imagine it's more likely that a terrorist would use anthrax or botulism or tularemia or smallpox, than, say, an Ebola virus. The government's efforts are designed to develop vaccines and other countermeasures for the specific potential bio-terrorist weapons they assume a terrorist might actually use. Isn't that different than getting ready, in general, for the outbreak of a natural disease?

A Yes and no. I coined a phrase a few years ago when referring to the traditional approach to bio-terrorism. The idea that somebody would identify an agent, isolate it, purify it, improve it, mass produce it, package it and then deploy it, I called the "bugs and tin crowd," the people who believe that that is the only way to actually engage in an attack.

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terrorize people. Whether I have a highly efficient agent like anthrax, such as was used in the letters, or a very inefficient agent, like some people claimed West Nile Virus might have been, it doesn't matter. The question is the perception of the public.

Frankly, if it were me, I wouldn't waste the time trying to purify and distribute an agent over a huge area. As we saw again in the anthrax letters, very limited number of fatalities, very limited number of illnesses, yet it had a huge impact on our population. In fact, it would be much easier simply to find any infectious disease and spend the effort to take sufficient credit for it terrorizing the population. It doesn't matter whether it's monkey pox, Legionnaires Disease, smallpox, what we're getting ready to do to ourselves today with polio, a severe tuberculosis outbreak, or any of a wide array of diseases. It's a question of how the public perceives it; not how it actually impacts the population.

Q Why do fatality counts and wounded counts at the scene of a disaster matter so much? And why are the numbers so often wrong?

A If you take a look at many of the classic terrorist attacks that we're familiar with, the vast majority of them were explosive or what we refer to as kinetic energy in nature – mechanical energy, bombs or shrapnel blasts. To be able to prepare the med-

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ical system to deal with casualties, you want to know how many to expect and how to distribute them. So, the earlier you can assess after a terrorist incident the number and the type of casualties you're dealing with, the earlier that you can be able to prepare the system to be able to deal with them.

Often, those numbers are way off by orders of magnitude for a number of reasons. If you look at large scale natural disasters, it's simply because of confusion and damaged infrastructure. At smaller, more compact disasters – such as a bombing, motor vehicle accident or airplane accident – we have proven over the years that no matter how much effort or how well-trained people are, eyewitness accounts of occurrences are very poor indicators of reality. We know that from the police, we know that from accident investigations, and yet that is almost the sole source of information that we have.

Today, it's becoming even more difficult because with everybody having access to Blackberries and cell phones and such, everybody is reporting their own little view of a particular problem to different sources, that information is then disseminated very rapidly on the Internet through the media, so you have a vast array of conflicting data about almost any disaster or any incident that occurs. That makes it extraordinarily difficult to determine what is real in a rapid and time effective manner, versus waiting long enough after an incident to determine what really happened.

Q If you balance the desire for quick information with the reality that quick information is likely to be inaccurate, what should one do about it?

A I can tell you some things that have been done. In Israel, a great deal of effort has been spent trying to create models, predictions of the number and types of casualties based on the size of the explosive used in a bombing. So the focus there is not so much having people count the number of bodies or the injuries, but focusing purely on the determining the explosive size and then extrapolating from that to what is usually a fairly good prediction of the number and type of injuries.

The question really becomes what specific information is needed and by whom? If you can answer that, then you can start developing a system to provide that data. Right now, we're focusing on creating a system to move information and ignoring the issue of what type of information is needed and by whom. ∎