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Exclusive: Homeland Security – Is this 2008 or 2001? Seven Years and Still Playing Catch Up!

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"The chilling reality is that nuclear materials and technologies are more accessible now than at any other time in history." Former Director - Central Intelligence, John Deutch.

Former Director Deutch made this observation several years ago; and the threat remains - perhaps even more so today. And the nagging question remains - are we prepared?

Let's check the calendar - it's October 2008; 7 years after 9/11 and several years after experts from across the country have raised awareness about and concern for radiological threats. Seven years is a long time to miss the memo! It is another example of homeland security not focusing, not listening.

New Program

The government has just introduced a new program to make it "more difficult" for terrorists to steal radioactive material from US hospitals and medical research labs. According to Homeland Security and Department of Energy approximately 1300 machines that house cesium chloride will be fitted with new security measures by the end of next year. Vayl Oxford, head of Domestic Nuclear Detection office at Homeland Security stated "this will take a potential threat off the table." If he is right, it has only taken seven years post-9/11 to announce and initiate this.

I'm so glad domestic threats are a high priority.

Never mind that preparedness professionals have been raising concerns about radioactive materials for years and have alerted the government about security gaps in the rails, health care facilities, ports, food chain and other critical infrastructure that still remain vulnerable! And, mind you, this "lock up the radiation" program won't take effect until sometime in 2009. So we can all still glow in the dark if the wrong folks get their hands on the stuff. And it is likely they will.

But heck, for $20 you can buy off the Internet uranium doped marbles. Get a black light and you can dazzle your friends with the funky illumination! Though relatively benign unless broken, these products illustrate the unregulated cyber world undoubtedly can provide more than low grade radiation parlor tricks. And what the new government program may overlook besides the industrial radioactive sources, cesium isn't the only radioactive material available. Americium is found in smoke detectors and in quantity can also be used in a dirty bomb. Not too many years ago an enterprising young man managed to get his hands on hundreds of smoke detectors - used ones thrown away and through discount stores - and amassed a not insignificant amount of Americium; so much that it required a professional radiation clean up costing over $100,000! Other radioactive materials the government designates as potential threats include Cobalt 60, Strontium 90, Radium 226 and Uranium 239 and Uranium 239. Some of these can be found in health care or research facilities.

Radiation Terrorism 101 - What is a "dirty bomb?"

The weapon of choice for terrorists worldwide remains the explosive; over 80% of terrorist events are bombings. A "dirty bomb" places radioactive materials such as cesium with conventional explosives so that upon detonation these materials disperse in a wide area. Terrorist groups, including Aum Shumrikyo (the Japanese cult that used nerve agent in the Tokyo subway...they're still around), al Qaeda and Chechen extremists, have expressed interest in obtaining or have tested and attempted to deploy various forms of radiological dispersal weapons.

Although the actual radiation risk to a population from a "dirty bomb" is very limited, the contamination potential as well as panic that the mere mention of radioactivity generates would be enough to make this an effective weapon for terrorists. The old terrorists adage "kill ten, scare a million" holds true - whether the anthrax deaths of 2002 (less than 10) which resulted in radical changes in how we perceive white powder and the mail, or the decline in commercial jet travel

immediately after 9/11 - terror tactics are effective psychologically as well as economically, physically and politically. And few things engender greater fear than radiation. If that weren't the case, more of our food would be irradiated (and likely cut down on forborne illness), and a greater proportion of our energy would come from nuclear power.

Cesium - what's the big deal? Ask one of the 100,000 villagers of Goiania!

Consider the radiation accident of 1987 in Goiania, Brazil, in which a medical radiotherapy source containing cesium 137 (Cs137) was found by two people scavenging for items that might have resale value, after it had been removed from an abandoned clinic. The shielding was removed and the Cs source was taken home. The men ruptured the container, exposing themselves directly to the Cs. Cesium can appear in several forms; the type found in the medical device can be seen in the photo illustrating this article*. Three hours later they developed nausea and vomiting, which persisted for days. Within days, more individuals were exposed. When local authorities became involved, the nature of the threat was not fully appreciated, and some military police as well as firefighters responsible for securing the area were unprotected and exposed. Apparently, there was no immediate suspicion as to the nature of the problem, so first responders who approached the Cs source and the victims were not properly protected. As some individuals became ill, nuclear threat responders were later notified. Ultimately, more than 100,000 individuals were screened for radiation-related illness, 28 had localized lesions caused by the beta and gamma radiation of cesium, hundreds became ill, and numerous victims were hospitalized. A few of the contaminated individuals died.

There are forms of cesium that can explode upon contact with water. It is a potentially highly toxic chemical as well as radioactive material. And it is probably used in your area. Over the last few years several cesium containing devices have been lost or stolen nationwide, mostly in the Southeastern United States.

Lack of focus in preparedness

One would think as soon as a threat is identified it would be secured, right? Way back in 2002 "dirty bombs" "suitcase nukes" and radiation threats were considered important vulnerabilities. While the argument was made from a wide array of experts for a well thought out approach to this problem balancing resources across the domains of interdiction, prevention, response and mitigation - the usual and all

too familiar challenges appeared: interagency rivalries, funding struggles, silo mentality, old world expertise versus new idea experts and the list goes on. The result? A scattershot, albeit well-meaning, approach to radiation preparedness on the domestic front. Included in the strategy were discussions over how to screen cargo containers for radioactive materials (the debate continues with little progress after seven years) and placing detectors in metroplexes likely to be targets. How to do this, given the state of technology and scope of the problem resulted initially in providing law enforcement agents with electronic personal dosimeters (EPD) in the thought that the officers would be like roving Geiger counters (or roving canaries - think coal mines). The idea is that if you disperse the cops, you cover a wide area and when your EPD goes off, there must be a suitcase nuke. In reality, while these devices are excellent for what they were designed for (folks in the radiation arena who need to monitor exposure), that application clearly wasn't intended to include detection of radiological assault. And as these can be triggered without a radiological threat, eventually the police - tired of the frequent alarm going off on their belt - "lost" them, tossed them or forgot to turn them on. Another example of preparedness funds "well spent" (not).

Finally, several major bridges and tunnels have been equipped with detectors. The one question that begs to be asked is, why wasn't the notion of locking down and securing the "low hanging fruit" - threats that are readily stolen or converted for weapons one of the first acts in preparedness post 9/11? One would think easy access radioactive materials would have been secured and universities received greater training, security and guidelines how to protect these commodities, with penalties if these measures weren't followed.

The Department of Homeland Security (DHS) was created to simplify the chain of command, concentrate expertise on critical threats, integrate the resources of the various security agencies to optimize the coordination of efforts by the wide array of preparedness performance cultures and exhibit near real time leadership, setting the stage to recruit, train and deploy the best and brightest in domestic security and preparedness. DHS was supposed to apply best practices to security threats. Well that's what was supposed to happen. The persistent disconnect across agencies and from the federal to the local level remains a significant problem that detracts from the focus and undermines the efforts of DHS. Moreover DHS has, if you'll excuse the pun, been plagued with staff and management turnover, mission creep, and inadequate grasp of mission among some of its directorates.

Preparedness voids unaddressed

Preparedness suggests the ability protect against and respond to a wide array of threats.

This new program notwithstanding, especially since it isn't fully implemented until late 2009, we must face an important and worrisome reality - radiation response is the least emphasized in medical schools and among first responder agencies. While our first responder agencies have improved their capabilities against certain terrorist threats, radiation and emerging pathogens remain persistent vulnerabilities.

To characterize the challenge facing first responders, the Journal of Emergency Medicine (JEMS), a professional journal for emergency medical professionals. paramedics and first responders, posed the question "do you feel prepared to handle victims of a dirty (radioactive material) bomb?" on their Internet site. Of the 246 respondents 82% responded "No." Hospital-based professionals are similarly ill-prepared as a recent study presented at the North American Congress of Clinical Toxicology demonstrated. Yet for several years, even prior to 9/11 global experts have been expressing concern about first responder and clinician training in identifying and appropriately managing the early stages of radiation. Moreover they have been calling for increased, sustainable funding to enhance ongoing preparedness efforts for radiation threats. Given current economic realities it is unlikely that resurgence in WMD training will occur any time soon.

What can we do now?

If you want to find radioactive materials without going through the bother of dumpster diving for old smoke detectors and buying a bunch more at close outs, try the highway or local university. A high profile university in the Midwest has a large sign at their loading dock facing a major thoroughfare - "deliveries of radioactive materials should go directly to the second floor, room XYZ." And for color they put the radiation warning target (3 feet by 3 feet) next to the sign, just in case you miss the writing! Of note, when exploring that section of the university, Room XYZ was unmanned, unlocked and without security guards or cameras. Upon entering the room, easy to follow signs lead you to the storage locker of their radioactive materials. Not wearing suitable attire, having forgotten to pack a moon suit in my carryon luggage, I left them at their word and decided to explore no more (though tempted to leave a note "Osama was here, thanks for the glow-in-the-dark materials"). This is not a unique phenomenon. Hospitals, research facilities and industrial sites are not universally secured. Remember the bad guys only need to be lucky once; we need to be lucky all the time!

It is important to recognize that this new program won't recover the radioactive devices already stolen, lost or "missing" across the United States, nor will it secure all types of industrial radioactive material even when implemented. Moreover the technology to "secure" these products is both expensive (up to $3,000/machine) and can be bypassed.

If you work at a facility utilizing such materials, make sure you are part of the solution, not the problem. Assist in enhancing security measures now; don't wait for DHS or the government. Entities using or housing such materials need to be more vigilant regardless of GPS or other security measures. Seven years post-9/11 it is ludicrous and irresponsible to allow easy access to radioactive materials - even ones historically considered medical, safe and low risk.

The public's welfare largely rests upon first responders and hospitals being prepared for radiological emergencies. We must continue to push for greater training, planning and practice and the resources to conduct these for first responder or in the preparedness arena. While we've been fortunate in terms of radiation accidents in the U.S.; Three Mile Island being the most notable, never the less, there have been industrial radiation accidents that have resulted in significant injury. Worldwide radioactive materials remain inconsistently secure; so even with the new program from DHS/DOE, our security also rests on the ability to guard the borders and cargo entry points - glaring vulnerabilities and a significant challenge for the next administration. As informed, concerned citizens we can raise the level of debate, continue to keep these issues in the forefront by holding our elected officials accountable in terms of supplying leadership, resources and performance benchmarks for our preparedness efforts.

Conclusion

It is a daunting task to protect a large, open society from the wide array of potential threats and to secure the myriad entry points available to our adversaries. Our preparedness agencies face an important assignment and duty to perform. The challenge of securing the nation and unnamed targets, undisclosed weapons and a timeline known only to the enemy is significant. It will require the concerted and collaborative effort of all stakeholders, including the public. Our preparedness agencies, including DHS should continue to receive our support; but with privilege comes responsibility. Seven years post-9/11 and only now do we embark upon a program to secure "easy access" radioactive materials? Not an inspiring

performance. For a nation of the best and brightest, we can do better. We must do better.

*Image courtesy of Oak Ridge National Laboratory

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