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Public Still in the Dark When it Comes to Dirty Bomb Threat

By Stew Magnuson

When convicted terrorist Jose Padilla showed up at the Chicago airport in May 2002 allegedly with plans to carry out a dirty bomb attack, few people had ever heard of such a weapon.

The federal government since then has taken steps to prevent the use of a radiological dispersal device, or RDD — the technical term of a dirty bomb — but there are still widespread misunderstandings of what these weapons do.

The goal of the device is to create fear — and as long as this lack of knowledge persists — it will remain an effective weapon of “terror,” experts have said. As soon as media hear that there has been a dirty bomb attack, the public “will probably just jump in their cars and try to get out of there. That’s probably the worst thing they can do,” Detlof von Winterfeldt, director of the Center of Risk and Economic Analysis of Terrorism Events (CREATE), told National Defense.

A dirty bomb is a conventional explosive that is packed with radioactive materials commonly found in medical and mining equipment and food irradiators. The explosion would disperse the toxic isotopes in a smoke plume and contaminate the immediate vicinity. Experts agree that the deaths caused by such an attack would be minimal.

Padilla’s alleged dirty bomb plot never arose in his terrorism trial last summer, and none have ever been detonated so far. But as a weapon designed to induce both fear — as well as economic damage caused by contamination — the threat is real, experts have maintained.

Six years after Padilla arrived, the United States faces vulnerabilities when it comes to dirty bombs. Radiation detectors at ports are not fully functional. Materials used to build the bombs aren’t secure. And there are no plans in place to mitigate the hysteria they would induce.

Hearing the word “radiation” will send the public into a panic, said Vayl Oxford, director of the Domestic Nuclear Detection Office. He acknowledged that the federal government has come up short in public information campaigns to educate the public on what to do in the event of such an attack.

“We agree that in many cases this is more of a panic weapon than anything else,” Oxford said at the Gov Sec conference.

CREATE has done two studies looking at dirty bomb scenarios at the ports of Los Angeles and Long Beach. Such an attack, if carried out correctly and the weather conditions are unfavorable, may send a plume of contaminated smoke over populated areas.

While the actual bomb blast may claim some lives, most deaths, if any, would come from latent cancers that would appear in victims at later times. Breathing in air from a plume may expose victims to radiation that could eventually develop into lung cancer. A worst-case scenario, Winterfeldt said, has about 100 latent cancer deaths. More likely the number of victims would be in the “tens” rather than the “hundreds.”

While these deaths would be tragic, it would not be on the scale of a nuclear device set off in the middle of a major city, which may cause more than 100,000 deaths instantly and possibly twice as many injuries, according to several widely published models.

Nevertheless, the panic may prompt some to flee into the cloud they are trying to escape. The best thing to do is “shelter in place,” Winterfeldt said. Close the windows, turn off the air conditioning and wait it out, is the best advice. Still, he believes most people will jump in their cars to take their kids out of school and do other “knee-jerk” reactions.

Oxford said he has discussed the scenario with the New York City police, who have similar concerns. After so many died in the World Trade Center on 9/11 because they did not leave their offices in time, it will be hard to tell residents and workers to remain in place.

“Any kind of weapon that goes off, people are getting the hell out of there and they’re likely to go right through the hot zone,” he said.

The Energy Policy Act of 2005 directed the Nuclear Regulatory Commission to oversee a dirty bomb public awareness campaign. The DNDO is leading the group that is crafting the message, Oxford said. He expected the interagency group to wrap up its work by the end of the summer.

This will come three years after the law was passed, and six years after the Padilla case made officials aware that dirty bombs were on al-Qaida's menu.

"We're not sure public awareness will work, but we at least need to tell people early and often through local officials" about the effects of dirty bombs, he said.

Carey Pelto, chairman of the Colorado tactical emergency medical support task force, agreed that there would be relatively few deaths resulting in the detonation of a dirty bomb, "but the mass hysteria is going to be huge."

Such a panic would overwhelm hospitals, said Pelto, who is a medical doctor and an expert in disaster response.

The subway gas attack in Tokyo in 1995 serves as an example. Four out of five of those who turned up in hospitals in the aftermath of the attack were not exposed to sarin, but they filled emergency rooms past their limits, complaining of imagined symptoms.

"I suspect that a dirty bomb attack would be very similar," he said. "If they are coughing, and say they were downwind of explosives, you have to assume they are having true physical effects," he said. Leaders must learn to communicate effectively through the local media to mitigate the effects of the hysteria, he said.

The problem is that U.S. hospitals are currently ill prepared for a dirty bomb, or any other attack that can cause mass casualties, he added. They are chronically understaffed. And with "just-in-time" delivery of crucial supplies, they no longer stock large amounts of critical medicines. But most of all, many hospitals are for-profit businesses that have no financial incentive to prepare for mass casualties, he said.

There is some good news, according to Winterfeldt. Larger cities and ports in the past few years have improved their ability to detect such radiological bombs.

"It's kind of a difficult job for the terrorists, so we don't think it's all that likely

and that they would succeed if they tried,” he said.

The economic impact could nevertheless be profound, the CREATE studies found.

Combined, the Los Angeles-Long Beach ports are the third busiest in the world. A 15-day shutdown would result in \$130 million in damages and that number climbs up to \$100 billion if a one-year shutdown is needed to clean up the site.

“The economic consequences of evacuations, property value impacts, and business losses due to stigmatization in the plume area are in the billions but not the tens or hundreds of billions,” the report said. “People and the economy are likely to respond in a resilient way.”

Much of this depends on the variables. Cesium-137 — a radioactive isotope found in many devices used by hospitals — bonds to concrete more easily. That could mean a more costly and lengthy clean up if it were used in a dirty bomb incident.

Efforts to secure domestic supplies of radioactive materials and prevent them from illegally entering the United States is the purview of several U.S. agencies. The DNDO, an interagency group under the auspices of the Department of Homeland Security, has spearheaded efforts to set up nuclear and radiological detectors at domestic and overseas ports. The Nuclear Regulatory Commission is charged with securing domestic sources.

DNDO’s radiation portal program is still a work in progress. There have been several technological setbacks during the past six years after the first portals showed high false-alarm rates. DHS Secretary Michael Chertoff will have to certify that the next-generation radiation detectors are fully functional before they are deployed. That decision is expected this fall.

A Congressional Research Service report on the threat pointed out that dirty bomb components are easier to detect than biological, chemical and even weapons-grade nuclear materials such as highly enriched uranium or plutonium-239. The bad news is that there are many ways to smuggle radiological material into the United States besides ports. And there is an ample domestic supply as well, CRS said.

Government Accountability Office investigators made headlines last summer when they were able to obtain licenses from the Nuclear Regulatory Commission to purchase radioactive material that could be used to make a dirty bomb.

They made slight alterations to the licenses, which allowed a bogus company to purchase from suppliers an unrestricted quantity of machines containing sealed radioactive material. They did all this without leaving their office in Washington, D.C.

The NRC since then has tightened up its licensing requirements.

Powdered cesium, now the most common form found in medical equipment, is a more effective way to disperse the radioactive material in a plume, Oxford said.

Having manufacturers of equipment convert this powdered form into something more solid, like a ceramic, is a “low hanging fruit” that would make a dirty bomb less effective, he said. If the solid cesium is blown up in chunks, it would not travel with the smoke plume.

A report from the National Research Council, a part of the National Academy of Sciences, recommended that the U.S. government institute policies that curb the use of cesium chloride, which is also found in medical and other research equipment and can be used to make dirty bombs.

Containing the sources for such material overseas is more difficult. In Goiania, Brazil, scavengers working inside an abandoned hospital hauled out a device made for radiation therapy and pried it apart. Inside was cesium chloride container, which emitted a blue glow. Finding it fascinating, they sold it to a scrap-yard owner, who later brought it home for his child to play with. The contamination resulted in four deaths, according to an International Atomic Agency report detailing the incident. And while this happened in 1987, CRS noted as of 2002, there were more than 1,000 orphan or surplus radioactive sources in the former Soviet Union.

In the United States, the Environmental Protection Agency’s Orphan Sources Initiative will establish a system to retrieve radioactive sources from non-nuclear facilities such as scrap yards, the CRS report said.