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The poor man's nuclear bomb

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If terrorists used biological weapons at the Sochi Olympics, hospitals and emergency wards around the world could not cope. The 1918 flu pandemic killed millions of people in a year — no infection, war or famine has killed so many in as short a time — but the risks of biological weapons are higher. Hospitals worldwide could be overwhelmed if there were a biological attack on athletes and spectators attending the Olympics who then head home on public transportation networks.

At least 12 states either possess or are pursuing offensive biological and chemical capabilities, including several hostile to Western democracies: Iran, Iraq, North Korea and Syria.

We have learned, in hindsight, about Syria's chemical weapons, but it would have been cheaper for President Bashar al-Assad to develop biological weapons. Estimates vary from $2 billion to $10 billion for a nuclear program, to tens of millions for a chemical program, to less than $10 million for a biological program.

These huge cost differentials have been known for decades. When Assad's father Hafez became Syria's president in 1971, the UN estimated the cost of causing one civilian casualty per square kilometre was about $2,000 with conventional weapons, $800 with nuclear weapons, $600 with chemical weapons and $1 with biological weapons.

Unlike their more expensive counterparts, biological weapons are difficult to detect and easy to disseminate. The 2008 International Commission on Weapons of Mass Destruction concluded terrorists are more likely to use a biological weapon than a nuclear weapon.

The U.S. Office of Technology Assessment estimates an attack with less than 100 kilograms of aerosolized anthrax spores could cause three million casualties, rivaling the lethality of a nuclear weapon. But unlike a nuclear attack, a biological attack could go unnoticed for days. The attacker could repeat attacks to exhaust resources, such as hospitals and border patrols. Because biological weapons are hundreds to thousands of times more potent than the most lethal chemical warfare agents, a little goes a long way.

While biological weapons are inexpensive to produce, they are costly and time-consuming to counter. Transforming a pathogen can take three years, but developing a bio-defence vaccine typically takes eight to 10 years and costs hundreds of millions of dollars.

Biological agents are available in all sorts of civilian industries, such as wine and beer making, pharmaceutical research and development, and food and agriculture sectors. They also attract less suspicion than trying to somehow assemble a nuclear bomb in your basement. Since many biological agents are dual purpose, pharmaceutical companies may produce large quantities of them — like botox, which can be used as botulinum toxin. Adding to the threat is the number of trained microbiologists who overwhelmingly outnumber nuclear physicists.

North American security experts tend to agree, behind the scenes, that biological warfare is the gravest security challenge we face. In 2001, I participated in a three-day workshop in San Diego that focused on biological warfare. A prominent member of the U.S. Council of Foreign Relations explained that the U.S. government's decision to refrain from talking publicly about the dangers of biological warfare was due to the widespread panic this would cause. A famous scientist warned that technology was developing such that terrorists could render an entire roomful of unsuspecting adults infertile without them knowing it. At NATO headquarters in 2006 and 2011, I heard about drones the size of hummingbirds that could carry biological toxins across borders.

Since 2001, NATO allies have spent billions preparing against a possible biological weapons attack. The U.S. dedicated more than $62 billion to bio-defence between 2001 and 2011.

Some argue the threat of biological terrorism is exaggerated to justify spending bio-defence and keep people in a state of fear. Certainly the 2001 anthrax attacks led to merely five deaths, while malaria, tuberculosis and HIV/AIDS together kill over five million people every year.

Yet I worry that infected individuals could become biological vectors unknowingly spreading a laboratory-created disease. An infected individual — or a suicide terrorist — could walk through an airport and the deadly weapon would cross countless borders quickly. The influx of patients to emergency rooms would compromise the health of emergency responders. Highly-

communicable pathogens could incite an epidemic in which rotating health-care workers are themselves infected, compromising efforts to control the outbreak and shifting attention away from the attackers.

The 2001 anthrax attacks led some to demand gas masks and antibiotic prescriptions, creating a serious shortage in ciprofloxacin. The attackers were never discovered, although the FBI conducted 10,000 interviews and 80 searches, and collected 5,730 samples and 6,000 items.

The sarin gas attack on the Tokyo subway station was also confined to a small area, yet sent approximately 5,000 individuals to emergency rooms, although only 1,000 of them showed symptoms.

Decontamination costs following these attacks were estimated in the hundreds of millions of dollars and some facilities did not reopen for more than two years. About $20 million was spent on the Hart Senate Office Building after the anthrax attack, with most of that in a single office.

Effectively combatting the threat from biological weapons requires the international community to strengthen the 1972 Biological Weapons Convention, which 170 states-parties have signed. As of this month, Iran, Iraq, Libya and North Korea ratified the convention. Syria has signed but not ratified. Israel remains a prominent non-signatory. We need to exert more pressure on Syria and Israel to submit their arsenals to inspection.

We could also build more hospital rooms and expanded emergency wards to prepare against the eventuality of terrorists resorting to using the “poor man’s nuclear bomb”. And we need to work closely with tour NATO allies on new methods of rapid bio-defence.

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