

between Health Canada and the Public Health Agency of Canada, says Dr. Daniel Kollek, executive director of the Dundas, Ontario-based Centre for Excellence in Emergency Preparedness. The resulting lack of focus in this area translates to a lack of uniformity in hospital preparedness, in quality assessment of existing disaster plans and in training.

“There is no uniformity of training for disaster preparedness. It’s not as if it was an issue of having millions of dollars of new equipment. It’s just

could be decontaminated in the event of a radiation disaster.

The report states that the “key finding” of the study was that Canadian emergency departments “and by inference Canadian hospitals — are unprepared for a CBRN event, this despite their chiefs identifying the ED as being at risk.”

A later survey of emergency medical services providers indicated a similar lack of preparedness (*CJEM* 2009;11:337–42). One in three participants had received no training, theoretic-

providers themselves, as well as that of patients, hospital staff and the health care system.

Though US hospitals are, in general, better prepared than those in Canada to handle a radiation disaster, there are still states in which training is lacking. “It’s very spotty in the US. Some states are well-trained and some aren’t trained at all,” says Dr. Albert Wiley, director of the Radiation Emergency Assistance Center/Training Site (REAC/TS), funded by the US Department of Energy and located in Oak Ridge, Tennessee. “To reach a large number of people in emergency departments would be helpful, but it’s hard for them to get time off from their jobs. Web-based training could help, and we are making some attempts at that now.”

It would also be helpful if preparedness for radiation emergencies was added to medical school curricula, says Steve Sugarman, health physics project manager for REAC/TS. Then perhaps more medical professionals would realize that, despite the hysteria that often surrounds radiation emergencies, these events are not that difficult to manage and pose little threat to care providers.

“The key message to give to care providers is that this is manageable,” says Sugarman. “With a healthy dose of common sense, they can do this with minimal risk to themselves.” — Roger Collier, *CMAJ*

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“How can this void be left year after year?” — Dr. Carl Jarvis, director of disaster planning at the Queen Elizabeth II Health Sciences Centre in Halifax, Nova Scotia.

teaching hospitals how to have a plan,” says Kollek. “I would like to see a common set of training tools deployed across the country.”

In a 2003 survey of emergency department chiefs, Kollek found that many hospitals rarely test or update their disaster plans (*CJEM* 2003;5:18–26). Half of respondents had not reviewed their disaster plans in the previous year. Tests of disaster plans, when they did occur, were usually conducted only on paper, with just 6.7% running a live exercise in the year prior. Furthermore, only 30% of emergency departments had areas where patients

cal or practical, on how to work in a contaminated area. Less than a third of the 1028 respondents had been trained to provide medical care while wearing personal protective equipment and only 31% had received training on how to detect radiation.

The paper concludes, on the basis of the survey, that many Canadian emergency medical services providers “have not been trained to identify and work in contaminated environments. When untrained providers are called to respond to a contaminated scene, their lack of knowledge, training and practice threatens the safety” of the

Demystifying radiation disaster preparedness

A hospital can prepare for a radiation disaster with relative ease. It doesn’t take an immense effort or scads of cash for fancy machines, just common sense and a good plan.

Yet, according to disaster preparedness experts, few Canadian hospitals have made this modest effort (www.cmaj.ca/cgi/doi/10.1503/cmaj.109-3890).

“There is nothing mysterious about radiation illness,” says Dr. Albert

Wiley, director of the Radiation Emergency Assistance Center/Training Site (REAC/TS), funded by the US Department of Energy and located in Oak Ridge, Tennessee.

“You diagnose and treat the organ system. The medicines we use are the same medicines we always use, and we use the same diagnostic tools. Yes, there may be a few exotic tests and drugs, but mostly they’re what we normally use. The biggest confounder with

emergency department staff is that they don’t know how to keep their priorities in the presence of radiation.”

Many emergency department staff feel unprepared to handle anything involving radiation, says Wiley. But it only takes a few days to ease the worries of people who receive training from REAC/TS (which include many Canadian doctors and nurses because of a lack of ongoing training in Canada).

It is important to demystify radiation, says Wiley. “We take the mystery out of radiation and teach them to practise the same good medicine they would for any other type of event.”

Medical staff who receive training sometimes expect radiation experts to pull out exotic devices or medicines. But many emergency departments already have all the materials they need. For instance, the materials needed to decontaminate a patient consist of little more than water, soap and shampoo. The steps needed to decontaminate a patient are also quite basic, though sometimes medical professionals are unaware of them.

“In emergency rooms, patients might be cut out of their clothes but left lying on top of them,” says Steve Sugarman, health physics project manager for REAC/TS. “If you get rid of the clothes, you get rid of 90% of the contamination.”

One common concern among medical providers is that they will suffer harm themselves from treating patients contaminated by radiation. But with some rudimentary knowledge, including knowing the difference between radiation exposure and contamination (radioactive materials still on body), and basic precautions, such as wearing personal protective equipment if necessary, medical staff can treat radiated patients without worry of personal harm. Even if they become contaminated, medical staff can be decontaminated in the same manner as patients: by discarding their clothing and showering.

“We haven’t seen it documented that a caregiver has received a medically significant dose of radiation from treating a patient,” Sugarman says, adding that “radiation is very easy to detect. If you can see it, you can control it and protect yourself from it.”

In the event of a large-scale radiation emergency, hospitals will need a plan to handle the surge of patients without contaminating staff and facilities. That plan should consist of a few basic steps, says Dr. Carl Jarvis, an emergency physician and director of disaster planning at the Queen Elizabeth II Health Sciences Centre in Halifax, Nova Scotia.



Reuters/Pichi Chuang

Medical personnel take part in a nuclear radiation decontamination drill.

First, a hospital must control access to its emergency department, limiting it to one or two entry points so that contaminated patients aren’t admitted in an uncontrolled manner. Before entering the hospital, the people involved in a radiation incident should be screened using a Geiger counter to determine who is contaminated. Those found to be contaminated must then be decontaminated. Ideally, this would take place outside, such as in showers located in the ambulance bay.

If patients are stable, they should be decontaminated before being admitted to receive medical care. If unstable and requiring immediate, life-saving care, a patient should be brought into an emergency department in a controlled fashion and isolated from other patients. Once stabilized, the patient should immediately be decontaminated.

“If you don’t have basic knowledge you might not bring that patient into the emergency department, or the other suboptimal response would be to bring the casualty in and allow staff to be contaminated,” says Jarvis. “With some basic knowledge and training, you can handle these patients safely in a way that doesn’t cause delay.”

One particularly scary scenario that a plan could do little to address would be

if a large number of people were exposed to radiation from an unknown source rather than an acute event. “Say there was an open source of radiation on a subway car. A lot of people might get sick, but you can’t see the radiation or taste it or see the effects of it,” says Dr. Nelson Chao, professor of medicine and immunology at Duke University in Durham, North Carolina, and a founding member of the Radiation Injury Treatment Network. “A lot of people would end up being radiated before anyone figured out what was happening.”

Knowing what to do in a disaster scenario, however, is no mystery. There are plenty of educational materials available to hospitals to prepare them for radiation emergencies and other types of disasters, says Dr. Daniel Kollek, executive director of the Dundas, Ontario-based Centre for Excellence in Emergency Preparedness, which has developed information in this area. The problem is lack of support from government to spread that information.

“We don’t have the ability to disseminate this information,” says Kollek. “We are doing this from our desks in our free time.” — Roger Collier, *CMAJ*

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