

Reducing the health risks posed by “hot” patients

As the United States moves to reduce the dangers of releasing radioactively “hot” patients from hospitals following treatment for thyroid cancer, Canadian officials say existing regulatory oversight in Canada adequately limits the health risks associated with exposure to such patients closer to home.

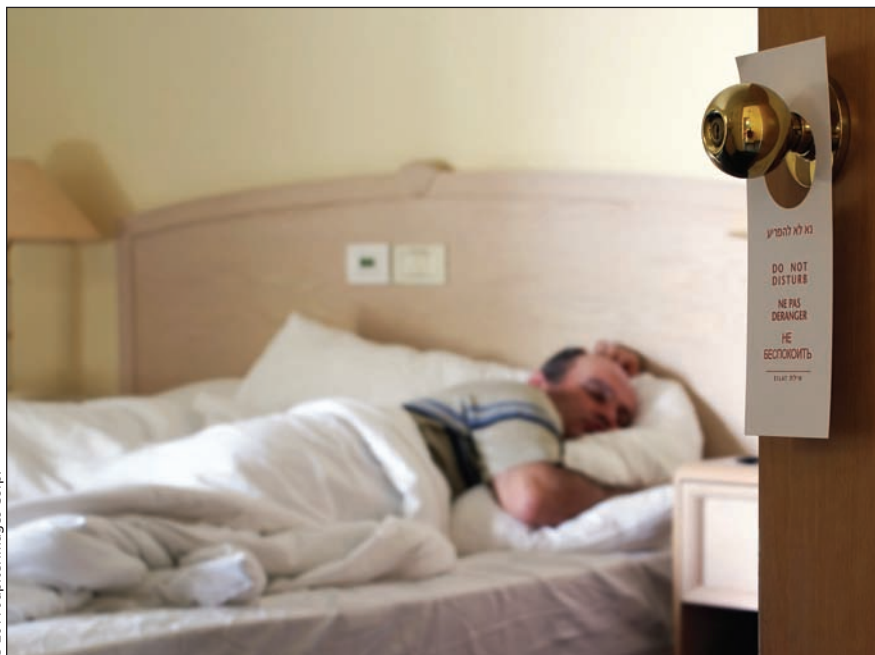
A recent US congressional investigation revealed that members of the public have been exposed to radiation from patients discharged from hospitals following radioactive iodine therapy for thyroid cancer and other disorders, US energy and environment subcommittee chairman Edward Markey told Nuclear Regulatory Commission chairman Greg Jaczko in a letter reporting the results of their study (http://markey.house.gov/docs/letter_to_nrc_10-20-2010.pdf).

The patients, whose bodies emit dangerous levels of radiation for days following treatment, were found by the investigation to have contaminated hotels, buses, taxis and other public spaces, and to have endangered children and pregnant women. Children and fetuses are considered to be at the greatest risk of developing cancer from exposure to the radiation.

But discontinuing treatment on an outpatient basis would be premature, according to Canadian experts, who say national oversight and clear protocols for both patients and health care providers can mitigate any dangers posed to public health.

“The uniformity of restrictions and regulatory oversight in Canada has created an environment in which we’ve been very cautious and have been able to collaborate across jurisdictions to develop these outpatient programs,” says Dr. Karen Gulenchyn, chief of the department of nuclear medicine at Hamilton Health Sciences and St. Joseph’s Healthcare Hamilton in Ontario. “As a result, we have a pretty coordinated and robust safety program across the country.”

In order to obtain a license to



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A recent Congressional investigation in the United States revealed that patients who were discharged from hospital following radioactive iodine therapy were often recovering in hotels and contaminating the rooms because their bodies were emitting dangerous levels of radiation.

administer outpatient radioactive iodine therapy in Canada, medical facilities must submit their protocols for protecting patients, staff, the public and the environment to the Canadian Nuclear Safety Commission (CNSC). Among other requirements, the facilities must provide annual safety compliance reports and notify the CNSC of any unintended radiation exposures or spills.

“The CNSC would never license an activity or a facility unless it was safe,” states the commission’s media relations representative Marc Drolet, in an email. “The release of patients is based on scientific and field data obtained over a 35 year period of practice which demonstrate that health risks for members of the public and medical staff are very low.”

Canadian patients treated with high doses of radiation are required to remain in hospital until their radiation levels have decreased to the point they no longer represent a risk to other people.

During that time, interactions with medical staff and relatives are restricted and all items that come into contact with bodily fluids, such as bedding and towels, are treated as contaminated.

Those patients treated with lower doses of radiation, or whose radiation levels have dropped, are discharged with the restriction that they avoid contact with children and pregnant women, the use of public transportation and visits to public places, such as cinemas and hotels.

“The restrictions are really exhaustive,” says Gulenchyn. “The patient must live within an hour’s transport of us by private vehicle — we don’t allow them to leave on public transportation — and they have to be staying in their home or the home of a caregiver. They have to have access to a private bedroom and bathroom that no one else is allowed to use. They’re told exactly how to clean their home, and exactly how much distance to keep from their caregiver and for how long.”

Patients must also undergo a pre-treatment assessment with a nuclear medicine physician to determine if they and their caregiver fully understand and agree to the restrictions. A radiation safety officer reviews the assessment results before treatment is administered, and while rejections are rare, they do happen, Gulenchyn says.

“One patient I refused to treat on an outpatient basis simply because I was convinced they couldn’t understand the implications of what I was speaking about. ... The patient was admitted for inpatient treatment instead.”

Such checks and balances make the public health threat posed by outpatient radioactive iodine therapy “exceedingly low,” she adds. “We studied the radiation exposure of the caregivers of the first 20 or so patients we treated. The caregivers wore exposure meters for the week following the patients’ treatments and in no cases did their exposure levels exceed the allowable limit for members of the general public, let alone the allowable limit for caregivers, which is higher.”

In comparison, the US Nuclear Regulatory Commission relaxed restrictions on radioactive iodine therapy in

1997 to allow any patient — even those receiving high doses of radiation or those living with children or pregnant women — to qualify for outpatient therapy based on a physician assessment. Under current US regulations, physicians can send patients to hotels for recovery and are not required to warn them of the dangers of exposing vulnerable populations to radiation.

According to the congressional investigation, most radioactive iodine treatments are now performed on an outpatient basis, and insurance providers deny inpatient treatment to some who request it.

Almost 27% of those outpatients did not discuss procedures with their physicians to ensure they didn’t expose children and pregnant women to dangerous radiation. Some 52 outpatients who received 67 radioactive iodine treatments since 1997 were revealed to have recovered in a hotel, motel or inn. In about 75% of those cases, that occurred with a physician’s knowledge.

The investigation called on the Nuclear Regulatory Commission to revise regulations to make hospitalization mandatory for patients treated with high doses of radiation or who can’t find

suitable outpatient facilities in which to recover. It also called on regulators to take action against medical licensees who fail to provide information and guidance to patients on the health risk they pose to the public, and to mandate the reporting of incidents that may result in unintended radiation exposures.

“The NRC has turned a blind eye to the relevant radiation exposure standards used in much of the rest of the world, a deaf ear to reports of problems with its own less stringent regulations, and has consistently opposed attempts to strengthen its own standards,” said Markey in a news release (http://markey.house.gov/index.php?option=com_content&task=view&id=3866&Itemid=141).

The actual health risks posed by the US exposures are “probably very small” and likely “overstated,” says Gulenchyn. “But there’s a reason why we’re trying to keep the exposure to people down as low as it’s reasonably achievable. Canada has demonstrated it’s possible to keep it very low, provided people follow guidelines and procedures.” — Lauren Vogel, *CMAJ*

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