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Drills and exercises: the way to disaster preparedness

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Accepted for publication
Oct. 19, 2010

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DOI: 10.1503/cjs.036910

Catastrophes, natural or man-made, are very rare events in the life of hospitals in the developed world. None of the hospitals that coped with well known recent events such as Hurricane Katrina or the Madrid bombings had actually experienced or prepared for such an occurrence. A mass casualty incident (MCI), sometimes called “MASCAL,” is a situation in which a hospital receiving multiple casualties does not have the resources to deal with the patients simultaneously. Bottlenecks may occur at any point from the trauma bays to the point of discharge. There are 2 phases in which hospitals fail to cope. In the first, treatment of some patients is delayed while the hospital continues to function. In the second, hospital-wide systems collapse. Up to now, we have been fortunate that good luck and extreme hard work by those on duty have mitigated what would otherwise be a secondary extension of the catastrophe. For the United States, the 9/11 terrorist attack in New York was the wake-up call even though catastrophic events such as the Oklahoma City bombing or the Columbine shooting had occurred before it. What, though, will it take to shake the rest of us out of our complacency?

In this issue of the journal, Gomez and colleagues¹ report on a review of disaster preparedness at trauma centres across Canada. It is a high-level survey that allowed centres to interpret their own preparations in 6 critical domains. Less than half felt they were ready. The situation may be even worse. Whereas 70% felt their communication plans were adequate, most involved the use of land lines or cellphones. Experience with even relatively small incidents such as the Dawson College shootings in Montréal suggests that hospital land line connections and local cellphone networks collapse quickly from third-party pressure. No hospital has a call-back system for critical staff who are not on call. It is also unlikely that hospitals have prepared for a contingency when many victims with blast injuries are deaf. The survey focused on hospitals with accredited trauma programs, but MCIs are just as likely to occur close to community hospitals with even fewer resources.

The Division of Injury Response at the Centers for Disease Control and Prevention (CDC) in Atlanta approaches catastrophes in the same way that other divisions approach disease. Study of past events has revealed predictable patterns. First-responders will likely be civilians giving “buddy care.” Prehospital services will bring casualties to the nearest hospital regardless of its suitability. Phone communications will be jammed. Traditional care will overwhelm laboratories, the blood bank and operating room resources. Surge capacity will be required immediately, requiring the cessation of all nonimmediate life-saving care and transfer of patients. It is possible that most hospitals in Canada will begin to fail if 5 or more critically injured patients arrive simultaneously. The Royal London Hospital (United Kingdom) received 194 casualties from the terrorist attack on July 7, 2005. Resuscitation room capacity was reached within 15 minutes, 17 patients needed surgery immediately and 264 units of blood were used.² The CDC and other expert groups are defining methods to meet each of these challenges. In addition, tools are being developed to assess a hospital’s preparedness and its response should an event occur.

Although we are fortunate that disasters are rare in Canada, lack of familiarity makes it more difficult for us to cope. There are, however, a large group of health care workers who are experts in dealing with MCIs. The Canadian Forces Medical Service has trained in rotation 7 complete hospital groups to run the Role-3 facility at Kandahar Airfield. Hospital personnel of every trade from administrators to surgeons used drills and exercises to practise treating large numbers of casualties using limited resources. On deployment, they quickly found out how valuable that training was, as they dealt with frequent MCIs. Surgical leadership was key to successful management of these situations. The Canadian Forces have used this form of training since their first medical exercise a century ago in London, Ontario.³ That exercise helped prepare for catastrophe care in the First World War on a scale that is unimaginable today. Gomez and colleagues¹ report that less than half of our trauma centres have undertaken exercises and even fewer involve surgeons in those exercises.

Although hospitals may not have prepared, emergency services had rehearsed scenarios similar to the 9/11 and the London terrorist attacks. Community emergency responders (police, fire department, paramedics) in Canada routinely train using drills and exercises. Unfortunately most of these exercises stop at the hospital door. In preparation for the 2010 G8 summit, the Royal Victoria Hospital in Barrie, Ontario, ran an exercise to deal with a chemical, biological, radiological or nuclear (CBRN) attack.⁴ The exercise, which demonstrated that community hospitals are also expected to participate in disaster preparedness, was designed to improve integration of the hospital into community responder systems. As usual, surgeons were not involved. Gomez and colleagues¹ have pointed out that the

requirement of regular drills and exercises for accreditation as a level-1 trauma centre is rarely observed. When tools to assess hospital disaster preparedness and response are generally accepted, they will undoubtedly be incorporated into hospital accreditation programs. Drills and exercises will be part of that expectation. Veterans of the Kandahar Airfield hospital, most of whom have now returned to every part of Canada, will be a valuable resource in meeting that requirement. Their experience in Afghanistan would suggest that hospital preparedness cannot succeed without a leadership role for surgeons.

A surgeon-led mass casualty exercise, featuring scenario role play with personnel from all hospital sectors, is being developed by the Trauma Association of Canada and the Canadian Association of General Surgeons for the 2011 Canadian Surgery Forum.

Competing interests: None declared.

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