A TALE OF TWO EMERGENCY VISITS

To the editor: A 70-year-old man develops aphasia and unilateral weakness. He is transported by ambulance to a nearby academic tertiary care hospital. A "stroke code" is initiated, and within 45 minutes of the onset of symptoms, tissue plasminogen activator is running. Imaging reveals compete obstruction of his right middle cerebral artery, but a repeat scan 24 hours later shows minimal residual ischemic changes. Over the next 48 hours, his symptoms resolve completely. He has no functional deficits.

A 70-year-old woman has an osteoporotic compression fracture of L1. She develops weakness and paresthesias in her left leg. The emergency physician at the academic tertiary care hospital near her home identifies multiple neurologic deficits in her lower extremities. Concerned about acute cord compression related to her fracture, a magnetic resonance imaging (MRI) scan of her lumbar and sacral spine is ordered. By the time she has her MRI 5 hours later, her symptoms have progressed to the point where she is unable to weight bear and has urinary urgency. Her MRI results are available 8 hours post-triage and rule out acute cord compression but reveal a hyperintense signal at T11. A neurology consultation is requested. She must be transferred to the other site of the tertiary care hospital (it is now late in the afternoon, and there is no inpatient neurology service at the first hospital).

A communication error leads to a 4-hour wait in the ambulance bay of the transferring hospital. The receiving hospital emergency department (ED) is overcrowded, and she waits in the receiving ambulance bay for 5 hours before getting a bed. She has not been able to urinate for 8 hours despite persistent urgency. An ED nurse scans her bladder and confirms acute urinary retention. A catheter is ordered, with no physician assessment. She is never evaluated by an emergency physician because she is considered "direct" to the neurology service.

It is 4 am when she is examined by a first-year resident on a neurology rotation. She is now completely paralyzed below the midthoracic level. An hour later, she is assessed by a third-year neurology resident. After telephone consultation with the staff neurologist, a complete spinal MRI with gadolinium is ordered. Twenty-four hours later, further imaging and lumbar puncture are resulted, and the diagnosis is transverse myelitis. Plasma exchange and high-dose steroids are initiated, 60 hours from the onset of symptoms. Four months later, she remains an inpatient at the rehabilitation centre in the city where she lives. After 2 months of intensive rehabilitation, her prognosis remains guarded.

At its best, emergency care provides rapid assessment and treatment of acute illness, leading to improved outcomes for patients. The use of emergency medical services (EMS) prenotification and ED "stroke code" have revolutionized the treatment of ischemic stroke and led to improved functional outcomes for patients.[1,2]

At its worst, emergency care is a complex interaction of communication errors, poor coordination of care, lapses in patient safety, incomplete assessments by undersupervised trainees, and inhumane care of patients when they are at their most vulnerable. Delays at every step further compound the issues. So-called "bed-blocking" with admitted patients in the ED leads to prolonged ambulance offload times for new patients who have yet to be assessed. Potentially serious patient safety issues result when at-risk patients remain the responsibility of EMS crews while waiting for their bed.[3] Patients awaiting specialty consultation are a particularly concerning (and underrecognized) group. They will not be assessed by a physician until the consulting service arrives. In the evening and overnight, consulting services are manned by trainees with variable levels of training, proficiency, and oversight. Currently, there is little evidence outlining patient safety issues in crowded EDs and what interventions might be initiated to mitigate them.[4]

The improvements that led to the outcome for the man described above must surely inspire us to look for solutions to the complex challenges facing emergency medicine that are highlighted by the second case. We must do so for the sake of the patients and families who seek our expertise and care.

After all, these could be your parents. I know, because they are mine.

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RE: CARDIOPULMONARY RESUSCITATION AND AUTOMATIC EXTERNAL DEFIBRILLATOR TRAINING IN SCHOOLS: "IS ANYONE LEARNING HOW TO SAVE A LIFE?"

To the editor: Thank you Hart and colleagues for your perspective on the challenges associated with placing automated external defibrillators (AEDs) in secondary schools.[1] We would like to echo those difficulties and provide some additional insights.

In 2009, we secured funding with the Heart and Stroke Foundation of Ontario and Toronto Emergency Medical Services (EMS) to place AEDs in Toronto secondary schools. To qualify for funding, schools needed to have more than 200 students at or above the grade 9 level and not already have an AED on site. Purchasing of the AEDs, placing them in the schools, registering them with local EMS services, and on-site training for staff were all provided at no cost to the schools. Yet despite all of this, there was still resistance from individual schools and the school boards. In the end, after over a year of deliberation, all schools involved accepted the AEDs.

As part of this initiative, semi-structured interviews were conducted with the teachers, principals, and administrators of these schools to better clarify barriers to AED implementation. Similar to your study, cost was the most commonly cited barrier.

Other identified barriers included lack of administrator awareness of how AEDs save lives, staff apprehension about using it without training, and concern over theft and maintenance.

The implementation of AEDs within secondary schools must overcome a number of barriers beyond cost. Some of these may be addressed by provincial legislation mandating AED placement and removing liability risk. Other barriers can be overcome by increasing staff knowledge on the benefits of AEDs, ease of use without training, and minimal maintenance requirements. Targeted intercessions are urgently required such that no child or adult attending a school is denied access to an AED while waiting for EMS to arrive.

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1. Hart D, Flores-Medrano O, Brooks S, et al. Cardiopulmonary resuscitation and automated external defibrillator training in schools: "Is anyone learning how to save a life?" *CJEM* 2013;15:270-8.