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## Students as First Responders: Training Tomorrow's citizens

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### Abstract

*Both in “disaster medicine” focused upon bioterrorism and natural events (accidents, earthquakes, etc.) much attention has been given to the importance of “first responders.” These are assumed to be trained professionals—doctors, nurses, or paramedics—dispatched to the scene to assess and then provide care prior to hospital transport. But in many cases, if not most, the true “first responder” is a citizen with or without first aid training. In both mundane cases—a cardiac event, choking, drowning, or a fall—they may with little training provide life-saving or prolonging assistance. In true mass casualty events, their role may be more critical. And yet, our colleges, high schools, and universities provide little training or guidance for the potential “citizen responder.” That, this article urges, can and should be changed.*

**Keywords:** Citizen responders, Disaster medicine, First responders

The first wave of “essential workers” at the scene of an emergency, accident, or disaster are rarely, doctors, nurses, or paramedics. They are citizens who may be required to provide critical assistance. And yet, few students or teachers know what to do when a person collapses, has a seizure, or is injured in a fall. Most are unprepared to render even minimal assistance in the case of an automobile accident or at a natural disaster: Earthquake or fire, for example.

At a 2016 meeting on “Disaster Medicine and Public Health Preparedness” in Washington, DC, professionals scoffed at the idea of including an educated citizenry in their disaster plans. While bystanders might be able to comfort the injured, perhaps, officials said they otherwise should stay out of the way until real help arrives.<sup>1</sup>

And yet, programs to train citizens to assist in emergencies have been highly successful. National programs, like one in Norway, and those instituted by cities like Seattle, WA, have reported survival rates for emergency cardiac events rise in tandem with the presence of bystanders capable of performing basic cardio-pulmonary resuscitation (CPR)<sup>2</sup>. In 2017, the Michigan state legislature passed a bill requiring all Michigan high school students receive training. The result has been an estimated 400 lives saved a year<sup>3</sup>.

The Heimlich technique freeing the blocked airways of choking victims is another simple example. Easily performed by the average person, details of the procedure have been as widely

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<sup>1</sup>Disaster Medicine and Public Health Preparedness, Second Annual Conference. Washington, DC. July 27, 2016

<sup>2</sup>Skura E. Pros and cons of first aid training? *Canadian Medical Association Journal* 2010 (Sept. 8); 182 (12): ES49-50. DOI:10.1503/cmaj.109-3293 DOI:10.1503/cmaj.109-3293

<sup>3</sup>Skura E. Pros and cons of first aid training? *Canadian Medical Association Journal* 2010 (Sept. 8); 182 (12): ES49-50. DOI:10.1503/cmaj.109-3293 DOI:10.1503/cmaj.109-3293

published as have stories of the lives saved as a result<sup>4</sup>. The manoeuvre also has gained broad acceptance in cases of near drowning to help clear a victim's airways of water<sup>5</sup>. As an adjunct to CPR, it helps.

These are just two examples of how average citizens can render critical assistance prior to the arrival of trained responders. Twice, in recent years I have been at universities whose professors asked (after the fact) what to do when a student or visitor suffered a grand mal seizure. They and their students helplessly had stood by waiting for official first aid workers while one of their own lay unconscious, seizing on the floor. Bicycling in Ohio I stopped to help an elderly rider who had dislocated her shoulder. I used a bandana to fashion a sling to immobilize the arm and a sanitizer to clean her skin abrasions. Elsewhere, as a rider, I recognized and treated heat exhaustion in cyclists before the condition could advance to a more dangerous and potentially life threatening heat stroke.

The list goes on ... it does not take a great deal of training to know what to do when someone falls and cannot get up; when someone with allergies goes into anaphylaxis. What do you do when someone has been in an auto accident, or has an open wound? IF a fracture is compound, with a bone protruding from the skin; how do you stem the blood flow, immobilize the limb and, of course treat the person for shock?

## Mass Casualty-Mass Shooting events

Mass casualty events ranging from earthquakes to mass shooter events are a different category of care. All involve a range of potential injuries—minor to life-threatening—in a volume that will overwhelm professional first responders at the scene and, later, local health care facilities.<sup>6</sup>

In these situations, “everyone can and should be an initial responder,” concluded a report for the American Academy of Surgeons. ... Everyone should be taught haemorrhage control. Professional first responders should also be taught airway management.”<sup>7</sup> Some have suggested general programs to train Citizen Response Teams (CRT) as a critical feature of general citizen disaster preparedness.<sup>8</sup> In Israel, a Crisis Management Center trained a countrywide volunteer network to respond to a variety of traumatic events with basic first aid techniques.<sup>9</sup>

## Training

Building community disaster preparedness (CPD) has been successfully carried out in pilot studies.<sup>10</sup> These are rare, however. At present, however, universities and colleges do not require enrolment and few offer such programs even as electives. Students or teachers may take introductory courses independently through national organizations like the American Red Cross<sup>11</sup>, or in Canada, St. Johns

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<sup>4</sup> Heimlich H.J. The Heimlich Manoeuvre: prevention of death from choking on foreign bodies. *J Occup Med* 1977; 19(3):208-10. PMID: 839294.

<sup>5</sup> [Heimlich H.J.](#), [E.A Patrick](#), E.A. Using the Heimlich manoeuvre to save near-drowning victims. *Postgrad Med* 1988 (Aug); 84(2): 62-71 71-3. doi: 10.1080/00325481.1988.11700363

<sup>6</sup> Eli Yafe E., Walker B.B., Amram O., Schuurman N. et al. Volunteer First Responders for Optimizing Management of Mass Casualty Incidents. *Disaster Medicine and Public Health Preparedness*. 2019 Apr; 13(2):287-294. doi: 10.1017/dmp.2018.56

<sup>7</sup> Lenworth J.M. Joint Committee to Create a National Policy to Enhance Survivability from Mass Casualty Shooting Events: Hartford Consensus. *Journal of the American College of Surgeons*, 2013; 218 (3): 476-476 E1. Doi:<https://doi.org/10.1016.j.jamcollsurg.2013.11.04>.

<sup>8</sup> Flint CG, Stevenson J. [Building community disaster preparedness with volunteers: Community Emergency Response Teams in Illinois](#). *Natural Hazards Review* 2010; 11 (13) DOI: [10.1061/\(ASCE\)NH.1527-6996.0000014](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000014)

<sup>9</sup> [Pardess E.](#) Training and Mobilizing Volunteers for Emergency Response and Long-Term Support. *Journal of Aggression, Maltreatment & Trauma* 5005; 1(12). [https://doi.org/10.1300/J146v10n01\\_19](https://doi.org/10.1300/J146v10n01_19).

<sup>10</sup> [Flint, C. G., Stevenson J.](#) [Building community disaster preparedness with volunteers: Community Emergency Response Teams in Illinois](#). *Natural Hazards Review* 2010 (aug.); 11 (3): 118-124. doi: [10.1061/\(ASCE\)NH.1527-6996.0000014](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000014).

<sup>11</sup> <https://www.firstaidguidetraining.ca/professional-responder/>

Ambulance<sup>12</sup>. But there is no general drive in our high schools or advanced institutions for a prepared citizenry.

While emergency care can be complex, basic remediation is easily taught. In one pilot study, laypersons were given a card describing the correct way to tie a tourniquet to stem blood flow from an arterial wound. Participants' ability to perform this critical procedure improved almost 100 percent as a result<sup>13</sup>. In another study, 315 first-year medical students successfully completed a multi-casualty scenario on the basics of field disaster triage in situations where casualty volume would far outweigh the number of available emergency medical services (EMS) providers.<sup>14</sup> A program like this could be used for all general undergraduate science majors.

### A one-or two credit course

It would not be difficult to design a one- or two credit course—high school and then university level—covering the basics of three different categories of first aid citizen preparedness. The first would involve techniques like CPR and the Heimlich manoeuvre. Use of an epi-pen (epinephrine) in the case of anaphylaxis is simply demonstrated and easily administered. Anyone can be trained to take another's pulse at neck or wrist. Assisting a person in a seizure is not difficult. Nor are steps identifying the first stages of a heart attack or stroke.

A second order of training would cover accidents involving bleeding or a possibly fractured limb. Stemming the bleeding through pressure on the wound and immobilizing the limb with a makeshift splint are the first critical care steps. Automobile accidents are a tricky affair ... does one move a patient from the car or leave the person in place until someone can extract them safely? If the situation is perilous—if a fire is immanent, for example--then neck and spine first need to be immobilized to prevent further injury. Doing this safely can be done carefully if necessary.

A third scenario is a true "mass casualty." Almost all those affected will be in shock. Many will have superficial injuries while others will require immediate attention. Without prior instruction such a scene is paralyzing. A CPD program would let the minimally trained citizen assess individual injuries, choose the cases in which he or she can help and then direct professionals, when they arrive, to those most in need of skilled intervention.

A citizen preparedness program could be easily developed in partnership with organizations like The American Red Cross, or Canada's St. Johns Ambulance Service. Different locales might have specific requirements. Some areas are more prone to earthquakes than others. Elsewhere, floods and the potential of drowning might be a primary focus. In areas where drug abuse is epidemic, teaching the application of nasal naloxone would be a lifesaver. For those in far northern climates, basic instruction in primary management of severe frost bite or hypothermia would be crucial.

There are few worse feelings than a sense of helplessness at the scene of an injury or accident. For participants, the knowledge gained would provide confidence to act appropriately in emergency situations. There is both pride and pleasure in knowing one can make a life-saving or life-enhancing difference. Dr. Heimlich, for example, had never used his technique until a fellow resident at his assisted living facility in Cincinnati, Ohio, started choking and then gasping during dinner. The 96-year old physician grabbed her from behind, fists at the sternum, and helped her expel the blockage.<sup>15</sup> "I knew about all the lives my manoeuvre has saved over the years and I have demonstrated it so

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<sup>12</sup> <https://www.sja.ca/English/courses-and-training/Pages/default.aspx>

<sup>13</sup> Goolsby C., Branting A., Mack E. Just-in-Time to Save Lives: A Pilot Study of Layperson Tourniquet Application. *Acad Emerg Med* 2015; 22 (9): 1113-. doi: 10.1111/acem.12742.

<sup>14</sup> Sapp R.F., Brice J.H., J Brent Myers J.B., Hinchey P. Triage performance of first-year medical students using a multiple-casualty scenario, paper exercise. *Prehospital and Disaster Medicine* 2010; 25 (3): 239-45. doi: 10.1017/s1049023x00008104.

<sup>15</sup> Farrington D. Dr. Heimlich Uses His Manoeuvrer At Retirement Home, Saves 87-Year-Old Woman. *NPR.org*. 2016. <https://www.npr.org/sections/thetwo-way/2016/05/27/479760854/dr-heimlich-uses-his-maneuver-for-the-first-time-saves-87-year-old-woman>.

many times but here, for the first time, was someone sitting right next to me who was about to die,” He told reporters from *The Guardian*.<sup>16</sup> That she lived was for him a source of immense satisfaction.

Individual emergencies and natural disasters are inevitable. In all, timely intervention can make the difference between life and death, permanent injury and the potential for rehabilitation. None of this seeks to replace the need for professional first responders. There is no substitute for their years of training and experience. But when the needs are immediate and professional help is minutes or hours away then the only, immediate respondent is likely to be a civilian.

In ethics and political science we teach an ideal of citizenry in which we are all essential to each other. This type of training would enforce that ideal, making educated, mutual care an act of citizenship. And that would benefit us all.

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<sup>16</sup>Dr Henry Heimlich uses Heimlich manoeuvre to save a life at 96. *The Guardian* 2016 (May 27). <https://www.theguardian.com/us-news/2016/may/27/dr-heimlich-performs-heimlich-manoevre-for-first-time-aged-96>.