Trauma System Background

What is a trauma center? What type of injuries require treatment at a trauma care?

A trauma center is a specially equipped unit within an emergency room designed to handle severe injuries from gunshots, car accidents, stab wounds and other serious medical emergencies. They were originally pioneered at Cook County Hospital in Chicago in the 1960s as a response to the huge volumes of critically injured patients that were dumped at the hospital. Their specialized form of care dramatically improved mortality.

Currently, staffing a trauma center requires having a range of specialized surgeons, anesthesiologists, and nurses on call in the hospital to deal with a wide range of emergencies immediately. Trauma injuries can be broken down into two types: penetrative and blunt. Penetrative injuries generally have higher mortality rates and include gunshot wounds and stab wounds. Blunt trauma injuries include the type of injuries that often result from car crashes or serious falls. Trauma centers in Chicago see a much larger percentage of penetrative injuries than trauma centers in the rest of the country, partially due to the high rates of gun violence centered in areas of the city including the South Side.

What is a trauma network?

To connect hospitals and rudimentary EMS services, doctors and legislators in the 1970s led by Dr. David Boyd developed a network-based system to connect hospitals with varying degrees of resources in order to treat serious emergency injuries. These hospitals would be categorized into Level I, Level II, and Level III trauma centers. Level I Centers were considered regional leaders and centers of surgical excellence. With this prestige in mind, hospitals eagerly joined the trauma system across the state. But some hospitals in Southern Illinois were reluctant to designate. However, Dr. Boyd leveraged community power and media resources to pressure hospitals into joining the system. Statistics and finances did not create the trauma network; community will and medical professionals did.

Chicago was not originally part of the statewide Illinois trauma network, but was integrated into the network in the 1980s. Around this time, legislators began seeking new funding sources for the system. The idea behind the trauma network was to get an injured patient to the highest level trauma center as fast possible. Dozens of studies point to the success of trauma networks in lowering mortality rates and containing costs. Some literature has tried to identify an optimal number of patients needed to run a trauma center successfully.

What does the current trauma network in the Chicago area look like?

The city of Chicago is blessed with some of the best access to trauma care in the country. If you are injured on the North side or the West side of the city, you can generally make it to a trauma center within 20 minutes, the city standard. Most hospitals are clustered around the Loop, with the exception of Loyola’s trauma center, which is located further north. On the South Side, patients are generally taken to Northwestern Memorial Hospital, Stroger Hospital, or Christ Advocate Hospital in Oak Lawn. These three hospitals see most of the injuries resulting from gun violence in the city.

Hospital closures across the South Side of the city and into the South Suburbs have resulted in disparate geographical distribution of trauma centers. In 2009, the once massive but recently struggling Michael Reese Hospital closed its doors. In 2008, St. James closed down its trauma center in Olympia Fields in the face of financial difficulties. This left all of south Chicagoland with one trauma center: Christ Advocate, located in Oak Lawn. Trauma centers have been disappearing nationwide as more lucrative forms of health care take precedence. A recent study (Hsia 2011) shows that the poor and the uninsured are hit the hardest by the closure of trauma centers nationwide.

Many argue that those asking for a trauma center are misunderstanding the state of the trauma system, and wrongly feel that they have less access to trauma care. Numbers compiled by WBEZ and in informal analyses assure that travel time is indeed worse in these areas of the city, an assertion that is affirmed in the UCMC’s own FAQ on the issue. Most academic literature on the subject concludes that travel time is a good indicator for access, for at the very least travel time data is the most attainable (unlike other harder to measure factors that could indicate access such as road networks or patient perceptions.)

As for its medical significance, travel time has been proven to have an effect on health-outcome for certain injury types. A recent study published in the Journal of Emergencies, Shock, and Trauma (Swaroop et al. 2013) demonstrates a positive relationship between travel time and mortality for patients with penetrating injuries in the chest cavity experiencing blood loss. These are the patients who would benefit from immediate surgical attention, and for these patients, every additional 15 minutes of travel time dramatically increases the odds of a patient dying. Swaroop et al used data from urban areas in Illinois, so it is clearly generalizable to the cases in Chicago. Furthermore, a very recent study by Crandall et al. uses Chicago to show that distance to trauma centers, on the order of 5 miles in an urban area, is correlated with mortality. This study controlled for other variables, such as injury severity, to provide a raw look at how the Southside is hit by gaps in the system.

That said, other studies which include a broader mix of patients and much more diverse geographic base have not been able to identify a robust relationship between travel time and health outcomes. The amount of variation in national studies may limit their applicability to the unique conditions of Chicago. All studies aiming to identify the impact of travel time on health outcomes should be read with particular attention to injury severity. Patients who are more severely injured are more likely to be rushed to treatment. Thus we would expect those at greater risk of death to have shorter travel time. The confounding relationship between injury severity, travel time, and health outcome is notably difficult to navigate. The most high profile study on the effect of travel time (Newgard et al. 2010) acknowledged the difficulty and importance of disentangling travel time from injury severity. This study is cited in the UCMC’s fact sheet. The authors proposed using distance as an instrument for travel time but were unable to carry out that analysis. Despite that, they reported their less controlled results. The authors’ conclusions are further jeopardized by an inconsistent measure of injury severity across observations.

While the academic debate on the importance of travel time on health outcome is still in its nascence, on the Southeast side of Chicago, the disparity in access is easily demonstrable, and the best Chicago data available indicates that for some patients, travel time is the difference between life and death. Just as the UCMC can swing literature to favor their refusal to support a trauma center, so can advocates swing it in their favor. To truly debate the issue of trauma care, perhaps it is necessary to look beyond solely statistical implications and instead at the importance of solidarity, urban participation, spatial equality, and racial justice.

Why does trauma care matter?

The Center for Disease Control lists traumatic injury as the leading cause of death for people under the age of 44. Furthermore, black men face higher rates of death from traumatic injury than any other population subset. A study looking at the cost effectiveness of treating trauma show that the years of life gained by treating trauma injuries outnumber the years of life lost to cancer, heart disease, and kidney problems combined. The problem is not that trauma care is useless- it is that those to whom it is most useful are those that our society devalues the most.

In the city of Chicago last year, there were over 500 homicides. There were thousands of other shootings that did not result in deaths that permanently injured young men and women. These shootings tear at the fabric of our city, and they disproportionately affect men and women of color, who are usually young and usually economically oppressed. In Chicago nearly 50% of the victims of traumatic injuries are under 25 years old. When members of these communities raise their voices about this problem, we have not been listening. When we defer to statistics or postpone action, we are engaging in the process that perpetuates healthcare inequalities and the other economic and social inequalities that have plagued the city for decades.

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