“Critical care: Shock trauma confuses date on killing rate”
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The Washington Times
May 11, 2003
(in-depth strory)

The chances of surviving a shooting or other lethal attack in the District and other major U.S. cities have dramatically improved in recent years with advances in medicine and technology.

The District's top trauma doctors agree on that point. But their opinions vary on a new study about how much shock-trauma systems have indeed reduced the country's killing rate and about whether city streets are as dangerous as ever.

The statistical study on trauma care, violence and homicide - led by Anthony R. Harris, a sociology professor at the University of Massachusetts - concludes that the country's declining homicide rate has hidden the fact that criminals continue to beat, shoot and stab their victims in alarming numbers.

The researchers say the U.S. homicide rate would in fact be five times higher without advances in communications, shock-trauma centers and paramedic training.

“Progression in medical care is suppressing our homicide rate so the level of violence in society is increasingly difficult to measure,” Mr. Harris said.

Mr. Harris' team of doctors and statisticians thinks the homicide rate should no longer be considered the “gold standard” for measuring the level of violence in society.

The “Murder & Medicine 1960-1999: The Lethality of Criminal Assaults” study concludes the annual U.S. homicide rate over the past five years should be 45,000 to 70,000, instead of 15,000 to 20,000.

Meanwhile, the number of violent crimes has increased by nearly 400 percent since 1960, according to the FBI's Uniform Crime Report.

The District reported a 135 percent increase over the same period.

If the doctors in the District's four Level 1 Shock Trauma centers agree on one point it is that the steadily declining homicide rate is indeed only a glimpse of the bigger picture.

They say advances in trauma services, paramedic training and communication are saving more lives, to be sure. But the homicide rate cannot measure the number of victims who were saved but remain paralyzed, disfigured or living in wheelchairs and unable to work.

In an interview with The Washington Times, Mr. Harris said every step in trauma care is important, but the single biggest advancement over the past 40 years is the 911 system.

“Before the late '60s and early '70s, the 911 system just didn't exist,” he said. “People didn't know who to call. Now we take the system for granted, like it's a background event.”

Accident victims in this city, which has nearly 1 million residents and visitors on most days, are taken to one of the four Level 1 trauma centers - Children's National Medical Center, George Washington University Hospital, Howard University Hospital or the Washington Hospital Center.

Together they handled more than 5,900 trauma victims last year, according to hospital officials.

Roughly 2,800 of them went to the Washington Hospital Center, where they were met by a pre-assembled team that included a trauma surgeon, a chief resident, an anesthesiologist, a respiratory technician, an X-ray technician, a blood-bank technician, a radiologist, nurses, a chaplain and security guards.

“Trauma is a team sport,” said Dr. Dennis Wang, the hospital's director of trauma services.

But having such a well paid and highly skilled team ready and waiting around the clock is so expensive that only a few hospitals can have one.

None of the hospitals would release the annual cost of running a shock-trauma center, saying they could not extract the price from the overall emergency-room operation. Still, Dr. Wang and the others say the four centers adequately serve the city, despite not having one in Southeast.

Operating too many centers also creates problems, they say, because the trauma teams don't get the high-volume, high-intensity work they need to excel.

Another reason is the District is just 69 square miles, so ambulances can usually reach victims and deliver them to trauma bays within the “golden hour” - the critical first 60 minutes after an injury.

All emergency responders - from 911 operators to police officers to emergency doctors and nurses - know the chances of survival are much higher if treatment begins within that first hour. And the response system is designed to minimize the minutes - even seconds - needed to find, stabilize and transport a trauma victim.

Police operators at the city's Public Safety Communications Center take the 911 calls, then forward the medical-related ones to fire and Emergency Medical Services operators. An Advanced Life Support ambulance with two paramedics is dispatched to the trauma cases.

District officials recently reported that paramedics arrived on the scene of critical calls within eight minutes of being dispatched about 55 percent of the time and can reach one of the trauma centers from anywhere in the city within 12 to 25 minutes depending on traffic and time of day.

Sometimes the closest trauma center is swamped and allowed to close temporarily, which can also cost precious time.

Though roughly 30 years old, the “golden hour” theory is still relevant - so much so that Dr. Joseph Wright, at Children's National Medical Center, has compiled a minute-by-minute slide show about the 13-year-old Washington sniper victim who on Oct. 7, 2002, was shot in the chest at 8:08 a.m. outside a Bowie middle school and eventually taken to Children's.

Iran Brown's trip began when his aunt, a nurse, eschewed a 911 operator's suggestion to wait for an ambulance and instead took the child to the nearby Bowie Health Clinic, where a doctor inserted tubes into his airway and chest. The doctor also gave the boy 2 pints of blood before the helicopter arrived for the seven-minute flight to the trauma center at Children's.

The entire process took 61 minutes. In the months since, the boy has recovered but faces years of subsequent surgeries and therapy.

“That was a golden hour with a lot of stuff going on,” Dr. Wright said.

The golden hour concept was developed by the late Dr. R. Adams Cowley, a former Army surgeon who used his knowledge of triage surgery and the rapid transport of victims to pioneer trauma medicine in the 1950s.

He opened a prototype center at the University of Maryland that by 1968 was the model for others around the country.

To think every patient dies after 60 minutes would be naive, but doctors still believe Dr. Cowley was correct in surmising that shock is the “uncoupling" of body functions until death and that a patient has a better chance of surviving the sooner the endgame is stopped.

“Whether it's six minutes or 60 minutes or six hours ... the clock is ticking,” Dr. Thomas Scalea, physician in chief of the University of Maryland Shock Trauma Center told the Discovery Channel. “You still have a finite period of time to interrupt the uncoupling process. If you do that the patient lives.”

Many of Dr. Cowley's other pioneering theories and techniques - including immediately inserting a tube into a victim's stomach to learn whether he or she has internal bleeding - have been rendered obsolete by technology and progress.

Today, trauma centers can avoid such invasive strategies with computerized tomography scan machines that quickly produce images of the skull or chest cavity and with portable ultrasound devices that can pinpoint damaged organs.

Yet for all the advancements, trauma doctors say the trend is to do less.

First they try to control blood loss because when adult patients lose about 20 percent of their 10 to 12 pints, their blood pressure plummets and organs begin to shut down.

“We stop the bleeding and fix the holes,” Dr. Wang said. “Then we get out and repair the injuries two or three days later when the body gets more energy.”

The same is true for ambulance crews.

Though they can now administer medicine and insert breathing tubes, most doctors agree a crew's best strategy is basically to open the body's airways, then get the victim to an operating table as soon as possible - a technique known as “scoop and run.”

Tim Campbell, a D.C. paramedic and 17-year EMS veteran, said paramedic courses became more focused on trauma knowledge and skills in the 1990s.

“Prior to that, you would stabilize all the patients' injuries at the scene,” he said.

Mr. Campbell said the priority now is to open a patient's airway, give oxygen, control bleeding and stabilize head, neck or back injuries.

“Ideally, you don't want to be on the scene with a trauma patient more than five to 10 minutes,” he said.

Other treatments, including intravenous therapy, are performed in the ambulance en route to the trauma center.

Though the scoop-and-run technique is well known in the field, it did not re-appear in the lexicon until 2001 when young Jessie Arbogast was mauled by a 6-foot bull shark in Pensacola, Fla.

Helicopter paramedics who arrived 30 minutes after the attack immediately took the 8-year-old to a nearby hospital, despite a severed arm and a massive thigh wound that reportedly stopped bleeding because the boy had no more blood.

Doctors reattached the arm and closed the thigh wound, but the boy had lost so much blood that the uncoupling process was a painstaking ordeal, and the boy stayed in a coma for about a year.

Today, he is in a wheelchair, but he can read and speak in short sentences. Doctors believe he will improve further.

Though comparing the cases of Iran and Jesse might seem unfair - considering the types of injuries, proximity to hospitals and the outcomes - doctors say such comparisons prove there are just too many variables to conclusively say trauma care has reduced the number of homicides in the United States.

Dr. Robert French, of George Washington University Hospital's emergency medicine department, said the answer is found in Mr. Harris' study: More lives have been saved because of improvements in the entire system that comprises 911, police, EMS and hospitals with trauma centers.

Dr. Wang said that question could be answered more conclusively if there were a more central database for cases, but others are less sure.

For example, how can a piercing bullet wound be compared to the .223-caliber slug that nicked Iran Brown's ribs before fragmenting in his chest cavity, damaging his liver, lung, pancreas, spleen and stomach lining?

The one undisputed fact is the U.S. Centers for Disease Control and Prevention

finding that trauma is the leading cause of death among men younger than 44 and women no older than 25.

Metropolitan Police Chief Charles H. Ramsey said many homicides in D.C. are the result of turf wars or failed drug deals. But more often, he said, the bloodshed is the result of arguments or disagreements that escalate to violence.

At Howard University Hospital, doctors and administrators said having a trauma center is a social responsibility that includes teaching parents about alcohol awareness and domestic violence. They say educating patients about drug dealing and street violence - which they call “mechanisms” - could reduce the number of trauma cases.

“We know our mission and what we are here for,” said Dr. Thomas Gaiter, the hospital's medical director.

As a result, the hospital has an injury-prevention program that begins with bedside consultations and continues as patients return to the community.

Some cases involve home visits or help from community organizations, but hospital officials say much of the program focuses on helping patients make “conscious decisions toward a healthier lifestyle and safer environment.”

Still, helping those patients can be difficult because some leave before being discharged and do not keep their out-patient appointments.

Critics of Mr. Harris' study, saying the U.S. homicide rate has followed the rise and fall of the crack cocaine epidemic. Or in other words, the 18- to 32-year-olds who were selling drugs on the streets are either in jail or dead.

Beyond the varying opinions about trauma care and its effect on homicide rates, the doctors and other experts also disagree about what will happen next.

A Washington Hospital Center doctor said as the Hispanic community grows the trauma team sees more stabbings and alcohol-related violence.

Chief Ramsey thinks the homicide rate could increase as criminals use more lethal weapons and shoot to kill, instead of firing once and running.

“Many of the victims now have multiple gunshot wounds and wounds to the head or other parts of the body, which are more likely to cause death,” he said. “The criminals also use high-caliber, high-powered weapons. So the survivability of most of these people is not all that good.”

Chief Ramsey also said the District´s escalating homicide rate, which began in 2002 and reversed a six-year downward trend, was partially due to the recession and rising unemployment.

He and Mr. Harris think another factor is that many of the violent criminals of the late 1980s and 1990s are now out of jail and on the streets.

“Modern technology probably saves quite a few people,” Chief Ramsey said. “If we can get them to a trauma center the odds of them surviving are not that bad. Anything

you can do to intervene quickly will certainly be helpful. But most of the folks that we get are already gone by the time we get there.”