Alarming Surge in Nonsurvivable Urban Trauma and the Case for Violence Prevention

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Hypothesis: A growing proportion of urban trauma mortality is characterized by devastating and likely nonsurvivable injuries.

Design: Consecutive samples from prospectively collected registry data.

Setting: University level I trauma center.

Patients: All trauma patients from January 1, 2000, to March 31, 2005.

Main Outcome Measures: Data for trauma patients, including locale of death and mechanism of injury, comparing early (years 2000 through 2003) and late (2004 and 2005) periods.

Results: A total of 11,051 trauma visits were registered during the study period with 366 deaths for an overall mortality of 3.3%. Penetrating injury occurred in 26.7% of patients; however, 71.9% of trauma mortalities (263 patients) died with penetrating injuries. Of the patients who died, 48.3% demonstrated severe penetrating injuries (Abbreviated Injury Score ≥4) to the head while 32.7% presented with severe penetrating chest injuries. There was a significant increase in the mortality rate over time (3.0% [early] vs 4.3% [late], \( P < .01 \)). In parallel, emergency department mortality (patients dead on arrival and those not surviving to hospital admission) increased from 1.7% to 3.1% (\( P < .005 \)), yet postadmission mortality remained constant (1.3% [early] vs 1.2% [late], \( P = .77 \)). When emergency department mortality and the subsequent hospital mortality of patients with gunshot wounds to the head were combined, this represented 82.6% of all trauma mortalities in the late period. This was increased from 69.7% during the early period (\( P < .01 \)).

Conclusions: While in-hospital mortality has remained the same, the proportion of nonsurvivable traumatic injuries has increased. In a mature trauma system, this provides a compelling argument for violence prevention strategies to reduce urban trauma mortality.

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TRAUMA MORTALITY HAS CLASSICALLY BEEN CHARACTERIZED AS DEMONSTRATING A TRIMODAL DISTRIBUTION TIMED IN RELATION TO INJURY OCCURRENCE.¹ The first and largest peak represents immediate death (the result of overwhelming massive injury), the second peak occurs shortly after admission to the hospital despite best medical efforts, while the third (delayed) peak results primarily from sequelae and septic complications of the original insult. Although the trimodal distribution has recently been questioned with respect to its suitability for urban trauma systems with regard to the later deaths (second and third peaks),² the earliest deaths are consistently demonstrated.

Mortality is a primary outcome measure in many if not most clinical studies and is maintained as a yardstick for performance of procedures and institutions alike. Additionally, the main surgical peer review forum remains the mortality and morbidity conference. We have recently recognized a sharp increase in the number of trauma deaths discussed at our own mortality and morbidity conference. This has occurred over a recent span of 15 months at our institution in spite of our trauma center receiving verification from the American College of Surgeons and showing sustained improvement in all indicators of trauma care. These deaths appear to be primarily the result of interpersonal violence and are characterized by severe, devastating, and likely nonsurvivable injuries. We hypothesized that a growing proportion of urban trauma mortality is characterized by such injuries. Hence, we set out to use our trauma center’s registry to determine case fatality rates of different injury mechanisms and identify any particular type or cause of injury that is increasing over time. We also intended to determine the locale of death of trauma victims within our system to better understand the dynamics of these fatalities.
center was used to identify patients for this study. Consecutive adult trauma patients (aged ≥15 years) with registered trauma visits during January 2000 through March 2005 were included for study and their records retrospectively reviewed. Patient demographics, clinical presentations, injury types, and final dispositions were extracted from the trauma registry for each patient/case admission. For analytical purposes, injury types were defined. Penetrating trauma was defined as wounds resulting from stabbing or gunshot wounds (GSWs). Blunt trauma was defined as any nonpenetrating major injury mechanism.

Case fatality rates for trauma patients according to type and mechanism of injury and by location of hospital death were calculated. Because of the previously noted recent increase in trauma deaths, and to identify changes in injury patterns and outcomes over time, patients were further separated into 2 groups: an early group (years 2000 through 2003) and a late group (2004 through March 2005). Fatality rates were compared between these 2 periods using χ2 with significance set at P<.05 over time. Federal Bureau of Investigation data for the study period were also obtained to compare our fatality rates with homicide and assault statistics for the catchment area.

RESULTS

A total of 11 051 adult trauma victims presented to the emergency department (ED) during the study period. Of these patients, 11 025 (99.8%) had complete records in the trauma registry and were included in our analysis. Mean patient age was 34 years and 68.0% of victims were men. Penetrating trauma was seen in 2949 patients (26.7%) while 7989 cases (72.2%) were the result of blunt traumatic injury. Victims of penetrating trauma were on average 10 years younger than those suffering blunt injury (mean ± SD age, 27 ± 5 vs 37 ± 8 years) and had a significantly higher male predominance (88% male for penetrating vs 61% for blunt trauma). Three hundred sixty-six trauma patients died at the hospital for an overall fatality rate of 3.3%. A total of 12 patients (3.3% of all mortalities, 0.1% of all patients) died as a result of self-inflicted injuries. Penetrating trauma accounted for 263 (71.9%) of these deaths. The median survival time of GSW victims who died in the ED was 6 minutes (mean, 11 minutes). The median time for a GSW victim to reach the operating room after arrival in the ED was 19.2 minutes (n = 302).

For all patients, there was a significant increase in fatality rate over the 2 periods studied (early, 3.0%; vs late, 4.3%; P<.01. Table 1). In parallel, ED fatality (patients dead on arrival to the ED and those not surviving to hospital admission) increased from 1.7% to 3.1% (P<.005). However, postadmission mortality did not change over time (early, 1.3%; vs late, 1.2%; P<.77). This entire effect was driven by the increase in GSW mortality between the early and late periods (Table 1 and Figure). Fully 9.3% of penetrating trauma patients and 18.3% of all GSW patients during the latter 15 months of the study died prior to admission from the ED. There was no change in survival for patients surviving to admission between the early and late periods (Figure).

Of the patients who died, 48.3% demonstrated severe penetrating injuries (Abbreviated Injury Score ≥4) to the head, 32.7% presented with penetrating chest injuries, and 9% presented with a combination of both injury types. When ED mortality and the subsequent hospital mortality of patients with GSWs to the head were combined, this represented 82.6% of all trauma mortalities in the late period. This was increased from 69.7% during the early period (P<.01).

Table 1. Fatality Rates of Trauma Patients Included in the Trauma Registry by Early vs Late Groups and by Locale of Death

<table>
<thead>
<tr>
<th>Locale of Fatality</th>
<th>Early Group, 2000-2003 (n = 8343)</th>
<th>Late Group, 2004 Through March 2005 (n = 2682)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ED mortality*</td>
<td>Postadmission mortality</td>
</tr>
<tr>
<td>Blunt trauma patients (n = 7989), %</td>
<td>0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>Postadmission mortality</td>
<td>1.1</td>
<td>0.7</td>
</tr>
<tr>
<td>Penetrating trauma patients (n = 2949), %</td>
<td>5.1†</td>
<td>9.3†</td>
</tr>
<tr>
<td>Postadmission mortality</td>
<td>2.7</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Abbreviation: ED, emergency department
*Emergency department fatality values represent patients who died in the ED irrespective of the state in which they were brought to the ED.†Rates statistically different at P<.005 level.

COMMENT

Previous study has shown that enhancing resources and concentrating a focus on trauma in our institution resulted in significant benefits to patient outcome, these primarily noted in patients suffering blunt injury and severe head trauma. Additional analysis has found that a majority of patients who present to our institution as the victims of lethal GSWs are declared dead shortly after arrival to the ED, suggesting that violence prevention via community outreach is key. The findings of our present study have amplified this message with alarming clarity. Despite improvement in institutional performance, mortality has risen as a result of presenting pathology (ie, GSWs).

Gunshot wounds accounted for 1 of 8 of injured patients yet were the cause of almost 50% of deaths. Even more striking was the fact that fully 18% of GSWs were in extremis on arrival, gunshot victims nearly doubled their ED fatality rates over the periods studied, and these observations explain the overall increase in mortality between the 2 periods. Deaths from other mechanisms, including blunt trauma, did not increase over time, nor did the postadmission fatality rate for any of the non-GSW mechanisms. This is corroborated by the fact that more than 80% of overall fatalities were patients who either died in the ED or who were shot in the head and died shortly afterwards.

It is important to note that there has not been a change in the triage or practice protocols of the first responders in our catchment area. That is, the emergency medical service providers have not altered their practice to transport patients who are deceased in the field for pronouncement in the hospital setting. Rather, these patients continue to exhibit signs of life in the field and the mortality...
reflects the severity of injury. It is possible that the first
providers have become more efficient on arrival to the
scene, yet the nature of the injury still renders the result
nonsalvageable.

We feel this represents a true change in violence in-
tensity. Recent statistics compiled from the Federal Bu-
reau of Investigation demonstrate an upswing in homi-
cide but a decrease in aggravated assault crime within
the city of Baltimore (Table 2)\textsuperscript{5}. When the ratios of homi-
cide to aggravated assault are compared between the years
2000-2002 (inclusive) and 2003-2004, there was a sig-
nificant increase from 0.03 to 0.04 ($P < 0.01$, 2-sample
test of proportions). That represents an increase in ap-
proximately 1 homicide per 100 incidents of aggravated
assault. This suggests that the lethality of some assaults
have increased.

Similar evidence of urban violence escalation has been
reported. McGonigal and colleagues\textsuperscript{6} reported a 123% in-
crease in firearm homicide in Philadelphia between 1985
and 1990. This effect was seen in a population that shared
a similar demographic to our study. They also noted an
increase in the use of semiautomatic handguns as op-
posed to revolvers, suggesting a shift toward the use of
more lethal weaponry. Similarly, Nance et al\textsuperscript{7} from the
same institutions reported a nearly 3-fold increase in gun-
shot injuries that were the result of violent circumstances
from 27% to 69% between the early and late parts of the decades spanning 1986 and 1995. These trends are
not likely specific to single urban institutions but reflect
general trends in urban trauma patterns.

Our data also imply the futility of hospital-centered
violence prevention programs. Perhaps this is due to our
inability to truly capture the violent events. On one hand,
the “near miss” does not come to the attention of the pro-
gram (because it is not captured in the trauma registry)
while on the other hand, a disturbing proportion of the
highest-risk patients are dead on arrival, eliminating them
from participation. Clearly such a method of identifica-
tion underestimates the true prevalence of violent events
and is inadequate.

It has been suggested that, given the scope of the
problem, interpersonal violence prevention needs to be
addressed as a true health care crisis.\textsuperscript{8,9} Proposed strate-
gies are multifaceted, ranging from identifying at-risk
youth, implementing violence prevention programs, ini-
tiating violence prevention interventions within at-risk
communities, pursuing aggressive firearm policies to
limit access, and addressing the depressed socioeconomic
status that is associated with violence. Although a
number of risk factors for perpetuation of violent behav-
or are clear (witnessing violence, a history of poor
parental guidance, depressed socioeconomic status),\textsuperscript{10}
data demonstrating large-scale success from violence
intervention and prevention programs are lacking. The
California Wellness Foundation’s Violence Prevention
Initiative, a $70 million, 10-year initiative spanning the

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure.png}
\caption{Fatality rates for stabbings and gunshot wounds (GSWs) in the emergency department (A) and postadmission (B). Asterisk indicates where GSW rates are significantly different ($P<.01$).}
\end{figure}

\begin{table}
\centering
\caption{Emergency Department Fatality Rates for GSW Victims Compared With Homicide and Aggravated Assault Statistics for the Catchment Area}
\begin{tabular}{lccc}
\hline
\hline
ED fatality rate (No. of GSW patients who died in ED/total No. of GSW patients presenting to ED) & 9.6 (25/260) & 8.7 (23/262) & 9.9 (24/241) & 9.7 (21/215) & 16.9 (50/296) \\
Homicides in catchment area, No.* & 261 & 256 & 253 & 270 & 276 \\
Aggravated assaults in catchment area, No.* & 8763 & 8500 & 8644 & 6370 & 7154 \\
\hline
\end{tabular}
\end{table}

Abbreviations: ED, emergency department; GSW, gunshot wound.

*Catchment area population remained relatively constant. Statistics are from the Federal Bureau of Investigation.
years 1993 to 2003, led to 110 communities having passed more than 300 local ordinances in addition to the passage of 24 statewide laws to improve gun safety and limit availability. This is in addition to a concerted effort to fund improvements of youth violence prevention programs. The true impact on interpersonal violence prevention is not yet clear.

With regards to efforts at our own institution, we have recently published the results of our experience with a violence prevention outreach program. This was performed in conjunction with the Baltimore City Police Athletic League and was geared toward youths aged 7 to 17 years who were identified as being at risk by virtue of their neighborhoods of residence. The program was designed to show true-life graphic images reflecting the impact of firearm violence and determine the effect on attitude toward interpersonal conflicts and aggression. The study employed a tool validated by the Centers for Disease Control and Prevention that was designed to quantify this. Forty-eight of 97 participants completed the study with a mean follow-up time of 26 days. There was a significant reduction in both beliefs supporting aggression and likelihood to commit violent acts. Although this represents an improvement, it is still only a moderate effect on a small scale and needs to be accepted as such.

In summary, this study demonstrates that a growing number of patients are the victims of fatal GSWs and are either dead on arrival or die within minutes of reaching the ED. In-hospital mortality has remained the same, but the proportion of nonsurvivable traumatic gunshot injuries has increased. In a mature trauma system, this provides a compelling argument for social violence prevention strategies to reduce urban trauma mortality. The only way to save these patients is to reach out to them in the community before they are victims of violence. The overriding conclusion must be that further incremental improvement in the outcome of urban traumatic injury will likely only come through violence prevention strategies in the prehospital setting.

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REFERENCES

DISCUSSION
Andre R. Campbell, MD, San Francisco, Calif: Dr Efron et al just presented an interesting observational study of trauma patients at a university level I trauma center, Johns Hopkins Hospital, that utilized consecutive samples from a prospectively collected registry database. The authors collected data from trauma patients, including mechanisms of injury, clinical presentation, and disposition from their trauma registry. The interest in the subject by the authors was piqued because of a large increase in deaths and the nature of the circumstances that presented at their surgical morbidity and mortality meetings. This occurred despite the practice of state-of-the-art techniques in trauma care at Johns Hopkins Hospital; mortality among the patients increased. For purposes of the study, they divided the last 5 years into early and late periods. They hypothesized that there was a growing proportion of urban trauma mortalities characterized by severe, devastating, and likely nonsurvivable injuries.

The methods that they used: they surveyed a prospectively collected database of all trauma patients during the period. All of the patients were identified and had their charts reviewed retrospectively. They determined the mortality rate for the different mechanisms. They then divided the group as they discussed. 

\[ \chi^2 \] analysis was done looking at the data, and they also followed up on the FBI statistics looking at homicide rates during those 2 periods. They examined a total of 11,051 adult trauma victims who presented to the emergency department (ED) during that time; 26.7% of the patients had a penetrating mechanism of injury, and 72.2% had blunt mechanisms of injury. Three hundred sixty-six trauma patients died in the hospital for an overall fatality rate of 3.3%. Penetrating trauma accounted for 71.9% of these deaths. The median survival time of gunshot wound victims who died in the ED was 6 minutes. The median time for survival for a gunshot wound victim who reached the operating room was 19 minutes. There was a significant increase in the fatality rate over the 2 periods. In the early period it was 3%, and in the late period it was 4.3%. The ED fatality rates increased from 1.7% to 3.1% with a highly significant \[ P \] value. Forty-eight and three tenths percent of these patients had severe penetrating injuries to the head with an elevated Abbreviated Injury Score to the head of greater than 4.

Gunshot wounds accounted for 1 out of 8 injuries, but they were the cause for almost 50% of the deaths. They concluded, since there is a high chance of dying from fatal injuries by the time that patient gets to the emergency department in the hospital, they make the case that violence prevention strategies done in the prehospital settings may reduce urban trauma fatality rates. They go further to state that the mature trauma system was able to handle all types of trauma once they arrived with
great efficiency, but many of the patients died before they even got a chance to demonstrate this proficiency.

The in-hospital fatality rate did not change during the period that was studied. They found 80% of the overall fatalities were patients who died in the ED or were fatal head injuries that died soon after admission. They also noted that the EMS trauma triage criteria did not change during the study period. A change in these triage criteria would have major impact on the study’s validity. The patients transported had signs of life in the field. They also noted that the intensity of violence has increased based on national data from the FBI. To summarize what they said, they present data about the epidemiology of violence that they faced at Johns Hopkins University. They made a number of interesting observations about patients and suggested the prevention efforts should be strengthened in order to try to get to the root of the problems since mature trauma systems are efficient at saving lives.

I have the following questions for Dr Efron and his colleagues. You propose that reaching out to the community may make a difference since once they are injured, they have a high fatality rate at a level I trauma center with state-of-the-art care. What metric do you propose to quantify this impact of the intervention? Will trauma centers be looking in the future at fatality rates or FBI statistics to assess the efficacy of their interventions, and at what age do you think that intervention should be initiated?

As your group noted, there is an increase in the level of firepower used in these crimes. Many of our victims here in San Francisco have been shot by high-powered weapons, and they are shot multiple times. Three nights ago here in San Francisco, a patient of mine was shot 15 times, and she now is paralyzed just like her brother. Both a brother and a sister in the same family have catastrophic events from this level of violence.

These types of injuries increase the level of difficulty in caring for these patients. This trend has been noted by many trauma centers around the country. Do you think your patients are now better marksmen and more efficient at administering their lethal blows to their patients? Transport times seem really short for your study. Can you comment on the reliability of this data? There is a large discrepancy in the number of patients in this study between the 2 groups. The early group had 8343 patients, and the late group had 2682 patients. What is the impact of having this large difference in the number of patients in each study period?

Do you have data on morbidity during the study period? Do the survivors of their injuries have a long way to go to recover from their injuries?

A. Brent Eastman, MD, Rancho Santa Fe, Calif: First of all, I applaud the authors for providing us some evidence in the very difficult task of promoting prevention. I have 2 questions. (1) You have pointed out that the transport times are short and the triage criteria haven’t changed. My question is, when you look at this, do you think that you need to re-evaluate your triage criteria? Are you in fact transporting patients who could have been pronounced dead in the field and thereby avoided the unnecessary utilization of resources involved in transport to the trauma center? (2) However, the corollary to that question is what was your organ donation rate from this cohort of patients? Finally, I think that this is a good time to advocate for prevention because of the national publicity surrounding the recent hunting accident involving our vice president and a “preventable” shotgun injury to a fellow hunter.

Steven N. Parks, MD, Fresno, Calif: I rise to say that you have to pick your time periods, and the time periods you picked are ones where you are having violence increase. In our city, the murder rate went down when there was a huge crunch put on by law enforcement, probably 5 or 6 years ago. We are seeing it come back up again now. We have worked for 20 years on trying to find ways to intervene to use prevention activities. We have worked with the local gangs. We have worked with other people who are working with the local gangs. It seems like the only thing that worked in Fresno was when they conducted big sweeps. They took guns out of the streets, they took them away from the bad guys, they had a multiagency task force (that would be sheriff, police, highway patrol) get together and really crack down. That made a big impact. The whole murder rate went down. The “business” that we saw went down; everything helped. It is just that you can’t sustain that effort for a long period of time. I guess I ask, what can we really do to have adequate prevention in this area because we are seeing it start to come back up again in our city? The weapons just get more powerful, and the perpetrators just get more vicious than they were in the past. So the question is, how do we do prevention?

Kimberly Vanderveen, MD, Sacramento, Calif: This is a very interesting paper. As Dr Campbell pointed out, it seems like there is an improved marksmanship in that second time period. As you look at prevention strategies, what role do you think video gaming plays in this violence prevention strategy?

Frederic W. Grannis, Jr, MD, Duarte, Calif: On HBO’s “The Wire” last year, a Baltimore police captain tries to solve this problem of urban violence by decriminalizing drug sales. I ask you what percentage of these gunshot deaths in your city was related to the drug problem and whether decriminalizing drugs is a realistic solution to the problem.

James J. Peck, MD, Portland, Ore: My question has to do with the percentage of gunshot wounds to the head that were suicides. In Southern California trauma centers, a significant percentage of head gunshot wounds are suicide related, thus the need for suicide prevention strategies.

William P. Schecter, MD, San Francisco: I would like to put a human face on this problem. A week ago, I took care of a 14-year-old child who was shot while walking home from the store. He lost his left kidney, had his right kidney shot in half, he had a hole in his liver that now has 8 of those Vicryl meshes stuck into it to stop the bleeding, and he has had his colon blown apart. He is now in the ICU with his intestines outside of his abdomen. I will never forget talking to his mother. As tears filled her eyes and a look of disbelief crossed her face, she informed me that her other son had been shot in the head 3 months before. This is an unbelievable problem, and nothing short of a complete change in the entire fabric of our society will solve it. The body politic is just going to have to step up to the plate and decide that this is unacceptable.

Edward E. Cornwell III, MD, Baltimore, Md: Dr Efron has presented what has been a continuing story from our trauma center that we have shared before this association over the last 3 years. Three years ago at Monterey, we presented a paper discussing the association of a decreased mortality across the board of all trauma patients with the implementation of numerous structural changes that included 24-hour in-house faculty, core curriculum participation in emergency medicine and for the trauma service, involvement of both services both in multidisciplinary performance improvement and quality assurance undertakings.

Yet the improved outcome was driven totally by the experience with blunt trauma and blunt head-injured patients, with no improvement in the experience of gunshot wound patients. The trend that Dr Efron described here continues as we look at the entire calendar year 2005. It would appear that all of our efforts in terms of trying to improve our performance and improve our outcomes are really directed at just the tip of the iceberg. For example, in 2005 we had 88 total trauma deaths. Sixty-one of those patients (69%) were essentially dead on arrival or in extremis in the emergency department. Of the 27 remaining patients, getting out of the ED alive, 14 of them (half
of those patients) died from gunshot wounds with lethal brain injuries, leaving only a small tip of the iceberg (13 patients, 15%) of patients who are even theoretically salvageable or theoretically benefit from our performance improvement endeavors. Our argument is that we are starting to approach the glass ceiling in terms of incremental improvement with our trauma outcomes. I appreciate Dr Campbell’s critique and questions, and I will try to address them and those of the other discussants in order.

Dr Campbell also asked about quantifying the impact of our intervention. That is a difficult question, but it is the important question. We published in the Journal of the American College of Surgeons several months ago on our experience with our violence prevention outreach program work that we do in conjunction with the Police Athletic League toward kids ages 7 to 17 who are not yet perpetrators or victims of violent injuries, but by virtue of the neighborhood that they live in are considered at risk. These are kids that are doing positive things, who are participating in the Police Athletic League. Nonetheless, we had an intervention program that consisted of showing them graphic slides that provide a contrast to what we see in video games that was mentioned by one of the discussants that shows the true impact of gun violence. With a mean follow-up of 28 days, the first 90 kids coming through our program showed a trend toward improvement in their attitudes toward conflict and aggression and a statistically significant improvement in terms of their attitudes about violence overall when using a CDC-validated tool designed to quantify attitudes toward conflict and aggression. That’s a modest gain and we have to be careful not to try to overstate that. This is a generational problem. This is a problem that cannot be responsibly discussed without dealing with some difficult topics that we as Americans have a tough time discussing: violence, criminal justice, a decaying educational system (particularly in Baltimore with a black male dropout rate of 76% for Baltimore City public high schools), drugs, access to guns, and, oh, yes, race. There is not much gain for politicians to be involved in serious discussions around this as it’s fertile ground for demagoguery. But we as surgeons are used to discussing difficult issues. We are used to disagreeing with our peers in a scientific fashion, so while it is difficult to quantify this multifactorial problem, we think that those of us who are in our various departments of surgery that are active in the community have an opportunity to shed some credibility in this area.

Dr Campbell also asked about the firepower and, while the actual firepower didn’t change, it is clear that the lethality of an assault has changed. These are clearly more brazen injuries that we are seeing. Over 80% of these deaths are gunshot wounds to the head or chest, and 9% of these deaths were gunshot wounds to the head and chest. Just give a little second to let that number take hold. What we are saying in a paper of 366 deaths is that in 35 instances in the space of a few years, we had a teenager or someone in their early 20s shot by another teenager or someone in their early 20s in the head and in the chest. Even for those of you who are huntsmen or have military experience, that just seems particularly brazen. The Baltimore City and the FBI statistics would suggest that the lethality of an assault in Baltimore over the last 7-year period has gone up so that for every 100 assaults now, it results in 4 deaths instead of 3 deaths. That is significant when we are talking about on the order of 7000 assaults a year. That is on the order of 70 increased deaths.

Dr Eastman also asked a question regarding our triage criteria and organ transports. Among the dead on arrivals, we had no organ donors. The logistics of the non-heart-beating donor in that circumstance where patients are declared dead an average of 6 minutes after arrival precludes, at least at this point, organ donation. But we have had a progressively improved experience because of our commitment to organ donation, for the gunshot wounds to the head getting out of the emergency department alive, going into the ICU, and being declared dead up in the ICU.

Dr Campbell asked about our numbers. In fact, the 8300 patients was over a 48-month time period. The 2600 patients were over a 15-month time period. So it is essentially similar: between 170 and 180 patients a month throughout both time periods. It is statistically valid in terms of the increasing lethality and the increasing percentage of patients that were DOA. In an overlapping study that we looked at, there did not appear to be any difference in morbidity. Ninety-nine percent of patients getting out of the ED were surviving throughout this time period. Our problems are increases in the percentage of patients that were dead on arrival.

I appreciate the other discussants. Dr Eastman, we are now up to about 20% of those getting into the ED that are organ donors and a greater percentage of those that are deemed to be appropriate donors and haven’t been ruled out by substance abuse and other things.

Dr Parks commented on the violence. The actual gunshot wound numbers of assaults went down; the lethality went up. Therefore, the percentage of patients that were dead on arrival went up. It is a tough question regarding this and also the question that Dr Vanderveen asked about how to truly do good violence prevention. Because of an experience we had with MTV executives and some of these particularly violent video games, we have committed ourselves now to be involved in the community with business leaders and political leaders to create a video designed to draw a distinction between what we call the “hype” and the “reality,” the hype being this glamorization that we see throughout our American culture, this glamorization of a culture of violence which we see as the current public health problem.

Dr Grannis talked about the drug-related numbers. That is tough to get your arms around in Baltimore. Baltimore is still a heroin town. When heroin enters a neighborhood, the decay of the social fabric is such that kids start to arm themselves as runners, as intermediaries, in the drug trade and arm themselves going to school. Other kids now see it necessary to arm themselves go into the army. We have committed ourselves now to be involved in the community with business leaders and political leaders to create a video designed to draw a distinction between what we call the “hype” and the “reality,” the hype being this glamorization that we see throughout our American culture, this glamorization of a culture of violence which we see as the current public health problem.

Dr Peck, suicides appear to be a very low contributor to this problem. It’s again the brazen nature of these multiple gunshot wounds, and the story Dr Schecter shared unfortunately is one that we see across too many urban trauma centers. We believe the summation of all of this suggests that while there are violence prevention programs that are hospital-based and they are effective in other cities, the nature of what we are seeing in Baltimore suggests that in-hospital violence prevention for us makes about as much sense as swimming lessons from the bottom of the pool. It’s just too late.


Correction

Error in Byline. In the paper by Efron et al titled “Alarming Surge in Nonsurvivable Urban Trauma and the Case for Violence Prevention,” published in the August issue of the ARCHIVES (2006;141:800-805), the first name of the fourth coauthor was misspelled in the byline on page 800. It should have read as follows: Elliott R. Haut, MD.