Hospital-based violence intervention programs save lives and money

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Injury prevention activities are a defining characteristic of the modern trauma center.[1] Violent injury—with a 5-year reinjury rate as high as 45%—represents a priority area for preventive intervention.[2,3] Advances in trauma care increase the likelihood that a patient will survive violent injury but do nothing to reduce the chances that they will be reinjured after leaving the hospital. The recurrent nature of violent injury strains trauma systems financially, and the absence of preventive intervention is inconsistent with trauma centers' commitment to providing optimal care. Hospital-based violence intervention programs (HVIPs) offer a strategy to address these issues.

HVIPs combine brief in-hospital intervention with intensive community-based case management and provide targeted services to high-risk populations to reduce risk factors for reinjury and retaliation while cultivating protective factors. Rigorous evaluations of HVIPs have demonstrated promising results in preventing violent reinjury, violent crime, and substance misuse.[4–8] Violent injury, as a focus of HVIPs, is generally defined as any injury intentionally inflicted by another person by any mechanism, excluding family, intimate partner, and sexual violence. The latter are excluded because they generally involve different dynamics and intervention strategies.

THE BURDEN OF VIOLENT INJURY

Health care systems are strained by violent injury in the United States. In 2011, an estimated 1.69 million incidents of nonsexual assault were treated in hospitals.[9] Trauma centers reported 85,366 assault injuries, 4,539 of them fatal, to the National Trauma Data Bank—equivalent to 11% of all injuries reported.[10] The average cost of medical care provided to a decedent of violent injury is approximately $5,000; estimates for nonfatal violent injuries are $24,350 for those requiring hospitalization and $1,000 for those who do not (these numbers are in 2000 U.S. dollars).[11] A large proportion of these patients are underinsured or uninsured. Providers are often undercompensated for care delivered to violently injured patients; trauma centers recoup an estimated 30% of charges.[12,13]

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VIOLENT INJURY IS A RECURRENT PROBLEM

Estimates of hospital recidivism for violent injury vary according to study design. Up to 45% of patients treated for violent injury are reinjured within 5 years.[1,14,15] One survey of violently injured patients at 5-year follow-up found that 20% had died.[2] Being the victim of violence also significantly increases the likelihood of being a perpetrator of violence.[16] Hospitals typically discharge violently injured patients without a viable strategy to stay safe or manage community pressure to retaliate.

VIOLENT INJURY IS A POTENTIALLY TRAUMATIC EXPERIENCE

In addition to the physical consequences of violent injury, many patients experience psychological sequelae that persist after their physical wounds have healed. A study of men hospitalized for violent injury found that 27% and 18% had possible posttraumatic stress disorder (PTSD) at 3-month and 1-year follow-up, respectively.[17] Fifty-two percent of patients treated at an urban trauma center for gunshot wounds screened positively for possible PTSD.[18] A cross-sectional study of patients participating in Healing Hurt People, a Philadelphia-based HVIP found that 75% met the diagnostic criteria for PTSD at 6-week follow-up.[19] Despite the psychological trauma of violent injury, many patients do not seek mental health services.[17] The effects of traumatic stress may lead violently injured patients to obtain weapons or to use illicit substances to restore feelings of safety, paradoxically increasing risk for reinjury.[20]

THE THEORY AND PRACTICE OF HVIPS

"Teachable moments" are instances when individuals are particularly responsive to interventions, which promotes positive behavior change. Several studies have demonstrated the effectiveness of interventions at these moments and suggest that the construct is applicable to violence prevention.[21,22] HVIPs harness the power of the teachable moment through culturally competent intervention specialists/case managers who understand the street dynamics that underlie violence and provide crisis intervention, linkages to community-based services, and offer long-term case management. Through the provision of these services, HVIPs supplement patients' desire to stay safe with concrete resources to achieve this goal.

HVIPs embrace a trauma-informed approach, which recognizes that the psychological, not just physical, wounds of violent injury need to be addressed for patients to recover. In

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addition to providing clients with education about the symptoms of PTSD and connecting them to mental health services, HVIP practice is informed by an understanding that many violently injured individuals have extensive histories of trauma and carry the consequences of those events.

EVIDENCE OF HVIP EFFECTIVENESS AND COST SAVINGS

While more evidence is needed before HVIPs can be considered an evidence-based practice, research suggests that they are effective across a range of outcomes, translating into substantial cost savings. HVIPs have been the subject of five randomized controlled evaluations. A Baltimore HVIP serving youth found significant reductions in misdemeanor offenses, feelings of aggression, and improved self-efficacy.[4] An evaluation of an HVIP at R. Adams Cowley Shock Trauma Center found that the intervention group was half as likely to be convicted of any crime and four times less likely to be convicted of a violent crime, translating into approximately $1.25 million in incarceration cost savings.[5] The same evaluation found the intervention group to have a lower hospital recidivism rate (5% vs. 26%), saving an estimated $598,000 in health care costs. An evaluation of a Chicago-based HVIP found that subjects in the intervention group were significantly less likely to report reinjury.[6] An evaluation of a Richmond, Virginia, HVIP found that the intervention group had higher rates of service use and lower rates of substance use.[7]

In a retrospective cohort study, Caught in the Crossfire at Oakland's Highland Hospital was found to significantly reduce involvement with the criminal justice system.[8] The Wraparound Project at San Francisco General Hospital found that the 6-year violent reinjury rate among HVIP clients was 4.5%, compared with 16% for a historical control group of violently injured patients.[23] At Wishard Hospital in Indianapolis, the 1-year reinjury rate for 34 HVIP clients was 0% compared with 8.7% for a historical control group.[24]

FUTURE DIRECTIONS

The American Association for the Surgery of Trauma's recent position statement on firearms reaffirms the trauma community's commitment to violence prevention.[25] HVIPs can complement policy advocacy efforts through direct services to prevent violent reinjury and violent retaliation. There exists support for HVIPs at the federal level and opportunities for trauma centers to establish and enhance HVIPs through research and training.

The White House's plan to prevent firearm violence and executive orders issued by President Obama signal a renewed commitment to firearm injury prevention at the federal level.[26] The Centers for Disease Control and Prevention, for example, has recently announced funding opportunities for firearm injury prevention research for the first time in more than two decades. Studies that evaluate the effectiveness of HVIPs in preventing firearm-related injury and retaliation would fall squarely within the scope of this research initiative.

US Department of Justice (DOJ) has explicitly expressed support for HVIPs. In December 2012, the Defending Childhood Task Force, a DOJ initiative, issued its final report. Among the report's recommendations is that hospital-based counseling/prevention programs be established and made available to all violently injured patients.[27] DOJ is also funding training, technical assistance, and capacity building activities for HVIPs through the National Network of Hospital-based Violence Intervention Programs (NNHVIP).[28]

Through NNHVIP, HVIPs are currently working to collect standardized, multicenter data. With these data, the American College of Surgeon's Committee on Trauma should include HVIPs as a recommended practice in the next edition of *Resources for Optimal Care of the Injured Patient* in addition to a blueprint for evidence-based HVIPs. The codification of this recommendation would increase awareness about the HVIP model, spur further effectiveness research, and help guarantee that patients' injury-related psychosocial needs are addressed, risk of reinjury is reduced, and necessary follow-up medical care is obtained, thus ensuring that optimal trauma care is in fact provided. The HVIP blueprint would also serve as a resource for injury prevention coordinators who may not be familiar with the unique dynamics of violent injury.

AUTHORSHIP

All authors were responsible for conceptualizing manuscript. J.P. was responsible for drafting the initial manuscript and editing subsequent revisions. All authors are members of the Policy Workgroup of the National Network of Hospital-based Violence Intervention Programs.

DISCLOSURE

The authors declare no conflicts of interest.

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