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EDITOR'S NOTE

The Application of Preventive Medicine to the Control of Violence

Stuart P. Weisberg and Eric P. Wilkinson

SIR WILLIAM OSLER, IN HIS FINAL PUBLISHED LECTURE, *THE EVOLUTION OF MODERN MEDICINE*, discussed with great optimism the emergence of preventive medicine. He marveled at the successful public health campaigns against malaria and yellow fever that decreased morbidity and mortality by “up to an order of magnitude”.¹ Since early in the last century, scientific data have correlated clinical illness with social behaviors and public health advocates have pursued safety legislation. Most recently, public health measures have legally obligated drivers to fasten their seatbelts and severely restricted smoking. Physicians have now begun to look more closely at another social factor leading to significant clinical morbidity: violence.

Recent research has changed our perception of violence. In 1985, William Foege, then Executive Director, The Task Force for Child Survival and Development, noted that violence was largely viewed as a law enforcement or welfare problem until the early 1980s.² A recent literature review tallied the most common types of violence discussed in the public health context. Youth and gang violence, gun violence, and domestic violence topped the list. A third of the reviewed articles justified the role of public health in preventing violence by arguing that violence is a pervasive threat.³ This argument invokes one of preventive medicine’s main tenets: to prevent population exposures that can inflict injury and death.

The articles in this issue explore the myriad ways in which violence results in injury and death. Salmaan Keshavjee and Mercedes Becerra link the current tuberculosis epidemic in Tajikistan to the country’s civil war and separation from Russia. Sheri Fink describes the conflicts of interest faced by humanitarian aid physicians trying to mitigate the violence in the war in Kosovo. Howard Spivak, Katherine Christoffel, and Martha Witwer discuss the tragic consequences of youth violence in the United States from clinical and epidemiological perspectives. Brian Phelps addresses physicians’ failure to properly screen patients for domestic violence. The authors clearly envision violence as the disease, but how can such a disease be cured?

Preventive medicine transformed the role of the physician from individual healer to caretaker for the public’s health. Osler calumniated society’s failure to enact preventive health measures against the unsanitary conditions conducive to typhus.¹ But a mere bacterium causes typhus, while complex and deeply entrenched societal and governmental attitudes, such as fear of and hostility toward ethnic groups and the right of citizens to bear arms, contribute to violence and its terrible sequelae. Such causative agents have proved far harder to dismantle than a simple package of protoplasm. Osler listed the tools of preventive medicine in his 1913 lecture—“education, organization, cooperation.”¹ Perhaps information in the following articles will help hone them against violence.

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Helping Medical Students Help Survivors of Domestic Violence

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SURVIVORS OF DOMESTIC VIOLENCE GENERALLY PERCEIVE THEIR health to be poor. They visit physicians twice as often as patients without a history of abuse, often presenting with complaints, such as chronic pain and irritable bowel syndrome, unrelated to trauma.¹ In a recent study of women seeking emergency care, the prevalence of ongoing domestic violence was found to be 12%. Sadly, only 2.6% of these patients were screened for domestic violence.²

Growing awareness of the scope of domestic violence has spawned efforts to expand relevant curricula in medical schools, but progress has been uneven. While the number of medical schools requiring education on intimate partner violence increased by 18% over the last 7 years,³ instruction still primarily occurs during the preclinical years and is often forgotten on the wards.⁴

Why have physicians been so slow to incorporate education on domestic violence into the clinical years? In addition to concerns about crowded medical curricula, some medical school faculty feel that adding domestic violence awareness is useless if there are “nothing but impotent solutions” to the problem.⁵ To be effective, an intimate partner violence curriculum should be concise and should highlight the effectiveness of intervention.

The University of Massachusetts School of Medicine recently designed a third-year “inter-clerkship” that seems to satisfy these criteria. Over 3 days and between other required clerkships, students listen to the stories of domestic violence survivors, role play how they might identify and give appropriate assistance to those at risk, and discuss and reflect on their own experiences with family violence. This approach seems to produce sustainable improvements in the attitudes and skills necessary for violence screening and intervention,⁶ but other schools have been slow to follow suit.

Additionally, there may be resistance to involving medical students in the care of survivors. During my obstetrics and gynecology rotation, I was counseled to limit my interactions with a sexual assault survivor who had suffered a vaginal laceration. The reasoning was that the resident needed to see all of the student’s patients, and the effect of including a student would be to double the amount of intrusion on the patient. While a patient’s request to limit the number of providers should be respected, such a wish should not be assumed. In some cases, excluding a medical student might limit the amount of sensitive care provided a patient who needs it most.

The role of medical students in caring for survivors of violence should be expanded for 3 reasons. First, third-year medical students are routinely expected to elicit complete and detailed histories. Questions about current or past ex-

posure to violence can be incorporated in a medical student’s interview along with questions about smoking, diet, and exercise. Second, unlike busier residents who may feel pressured to take more focused histories, medical students can take time to discuss with sensitivity whatever issues may arise. Early and thorough discussion of a traumatic event may reduce the severity of posttraumatic stress disorder.⁷

Finally, the time pressure in clinic settings often pushes experienced clinicians into maintaining control of the clinical interview. Such interactions can reinforce an abused patient’s expectations of unbalanced power dynamics.⁴ Medical students, at the bottom of hospital power structures, may be well suited to provide victims a sense of equality, safety, and empowerment that are crucial to the healing process.

The prevalence of ongoing or past family violence among medical students, about 38%, mirrors that of the general population.⁸ An important but often overlooked obstacle to providing effective care to those violated is the disruptive and painful emotional response that eliciting a painful history can evoke, particularly in students who were or are themselves violated. Such students will need the support of understanding instructors and advisors if we are to expect them to give support to patients with similar life histories.

An effective response to victims of partner violence requires thought and action outside of traditional biomedical models. Eliciting a history of domestic violence is much more than collecting information and identifying cases—it can be, in itself, a potent intervention.⁴ Similarly, educating medical students about domestic violence requires not a traditional didactic model, but one in which students interact with survivors of domestic violence and discuss their feelings and responses to such interactions. Such an integrative model can help us shape the tools to effectively care for survivors of domestic violence.

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Physician Groups and the War in Kosovo: Ethics, Neutrality, and Interventionism

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THROUGHOUT THE 1990s, THE INTERNATIONAL COMMITTEE of the Red Cross, Doctors Without Borders, other medical aid groups, and United Nations agencies were present in Kosovo, a Serbian-ruled province in Yugoslavia with an Albanian majority. The aid groups supported Kosovo's "official" and "unofficial" health care systems, the unofficial being a network of primary health clinics staffed by ethnic Albanian physicians and nurses, many of whom had been fired from jobs at public hospitals and clinics after Kosovo's status as an autonomous province was revoked in 1989.¹

Following the revocation of autonomy, Kosovo's citizens voted overwhelmingly to form an independent republic. Serbian authorities did not recognize the referendum and engaged in a well-documented campaign of human rights violations against Kosovo's ethnic Albanian majority population.² In the late 1990s, an armed group of ethnic Albanians known as the Kosovo Liberation Army emerged and began armed confrontations with Serbian forces. The Serbian response was a widespread assault on Albanian villages, resulting in displacement of the Albanian population.³ Checkpoints prevented free movement of Albanian patients and physicians, and a campaign of detentions, torture, and killings was launched against Albanian physicians, who were seen as potential aids to an armed Albanian independence movement.⁴ In response, international medical groups began sending teams of physicians and nurses along with medications and supplies to reach large groups of displaced persons.

At this point, many difficult ethical issues arose for international medical organizations. International health care workers were frequently threatened by Serbian soldiers and accused of supporting the Albanian war effort.⁴ One physician reported that as a result, her organization began a policy of not treating soldiers (anonymous physician, oral communication, Pristina, Kosovo, December 1998).

Refusing to treat soldiers who have no other medical options is a breach of the fundamental medical tenet that "a physician shall give emergency care as a humanitarian duty unless he is assured that others are willing and able to give such care."⁵ However, whether to risk compromising an aid effort by treating soldiers is a complex question for aid organizations, particularly when even providing medical care to beleaguered civilians may be viewed as a war action. To decrease the risk of compromise, some aid groups in Kosovo insisted that soldiers wear civilian clothing when seeking medical care, a stipulation with which soldiers reportedly complied.

At times, international physicians develop sympathy for the violated and anger toward the perpetrators of the human rights violations they witness. If they remain in the region as physicians, however, they must carry out their duties according to standard medical ethics, especially when victims of human rights violations subsequently become perpetrators.

During the time I was in Kosovo, in 1998 and 1999, I interviewed international physicians who had treated hundreds of displaced persons, discovered massacred Albanian civilians, and been harassed by Serbian soldiers. Some viewed the majority of Kosovo's Serbian population as complicit in these atrocities. When Albanians returned to the province in June 1999 and engaged in revenge attacks against Serbian civilians, international physicians were in a unique position to condemn the attacks, support the few remaining Serbian physicians, protect vulnerable Serb patients, and remind local Albanian physicians of their responsibility to treat all patients regardless of ethnicity. Unfortunately, not all overcame their own biases to do so.

Promotion of human rights has become an intimate concern of many physician groups, and conflicts may emerge between loyalty to human rights and loyalty to medical principles. Physicians for Human Rights (PHR) was founded in the 1980s by health care professionals who use their expertise to research and publicize human rights violations. After diplomatic efforts failed to end massacres and human rights violations against Kosovar Albanian civilians, PHR publicly released a letter to President Clinton calling for military intervention in the form of an international ground force.⁶ The statement of support for military action by a group of doctors, whose highest duty is generally considered to be the preservation of human life, surprised many.

Although the PHR statement was not founded on a medical principle, it was arguably founded on the higher moral duty to oppose attacks on civilians based on their religion or ethnicity. The idea of a medical group supporting armed intervention for such a purpose should not be rejected on principle. Military intervention must not be the first nor the only choice, but it needs to remain a choice for those who would act to prevent crimes against humanity.

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Disintegrating Health Services and Resurgent Tuberculosis in Post-Soviet Tajikistan: An Example of Structural Violence

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WHILE VIOLENCE AND THE MORTALITIES OF WAR HAVE BEEN among the 20th century's greatest plagues, a more quiet structural violence has also left its mark. Structural violence may be defined as increased morbidity and mortality resulting from forms of social organization that frequently lead to groups of individuals being marginalized along social axes, often those of economic, racial, and gender inequality.¹ Its effects can be seen during wars, in postwar situations, and even during times of peace; in some cases, such violence is marked by the absence of protective state institutions.^{2,3} Health crises associated with massive social transformations—such as the resurgence of tuberculosis in the former Soviet Union—provide an opportunity to elucidate this form of violence and its effects.

During the collapse of the Soviet Union in 1991, Tajikistan (population 6.1 million), one of the poorest Soviet Central Asian republics, was embroiled in a bloody civil war.⁴ In Tajikistan's easternmost province of Badakhshan (population 240 000), the cessation of subsidies and essential supplies from Moscow, exacerbated by the civil war, led to a dire humanitarian crisis. Only through the intervention of international humanitarian agencies such as the Aga Khan Foundation, Médecins Sans Frontières, and the International Federation of the Red Cross were mass starvation and death averted.⁵ Tajikistan's economy was also in crisis: between 1991 and 1995 gross domestic product declined 45%, and in 1996 more than 85% of the population was living below the poverty line.⁶ Per capita state expenditure on health care had dropped from US \$300 in 1991 to less than US \$1 in 1998, in a country where 5 kg of beef cost US \$10 and a bar of soap US \$1.^{7,8}

With the collapse of the Soviet state also came transition from a subsidized health care system to modified fee-for-service, in which the sick often have to purchase health care on the open market. This has coincided with a downturn in vital health statistics. Maternal mortality in Tajikistan increased from 41.8 per 100 000 live births in 1990 to 65.5 in 1997.⁶ In Badakhshan, acute childhood malnutrition increased from an estimated 3.0% in 1994 to 5.8% in 1996, while chronic childhood malnutrition increased from 40.3% to 44.8% over the same period; the region also saw an increase in the incidence of treatable infectious diseases, including tuberculosis (TB).⁶

During the Soviet period, patients with TB received paid leave from work and free TB treatment. In the crisis after 1991, however, the local 40-bed tuberculosis hospital in Badakhshan's capital, Khorog (population 20 000), was faced with a shortage of TB medicines. Drugs supplied by international organizations sustained the hospital for a short period, but soon the hospital was no longer able to provide patients with an effective

tive treatment regimen of first-line antituberculous drugs such as isoniazid, rifampin, ethambutol, and pyrazinamide.⁵ In 1996, in addition to a shortage of chest radiograph material, laboratory supplies, tuberculin skin tests, and a breakdown in the local surveillance system, the hospital was faced with a sixfold increase in the number of TB patients compared with a similar interval during the Soviet period (Khorog Tuberculosis Hospital, unpublished data, 1996). This is consistent with national trends showing a dramatic increase in reported TB incidence, from 30 per 100 000 in 1995 to more than 250 per 100 000 in 1997.⁸ Whereas during the Soviet period patients were treated with at least 3 anti-TB drugs for at least 6 months as per international recommendations,¹⁰ health personnel now often have to rely on only 2 drugs, isoniazid and rifampin. Given the high likelihood in the region of already existing resistance to one of these agents, local physicians expect, and international TB experts agree, that this situation will result in the generation and transmission of multidrug-resistant TB.^{11,12} In the absence of appropriate therapy, these forms of TB have the potential to overtake drug-susceptible TB.¹²

Effective, known therapies will stop the spread of this epidemic, yet in the face of increasingly privatized health care these services are now beyond the reach of those who need them most: the urban and rural poor. The result will hardly be surprising: increased suffering due to TB and other diseases and a quiet increase in more difficult-to-treat drug-resistant TB that will be heaped on an already overburdened population.

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Youth Violence Prevention: The Physician's Role

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VIOLENCE AND VIOLENT INJURY HAVE BECOME MAJOR HEALTH issues for children and teenagers in the United States, which has the highest rate of youth homicides and suicides among the 26 wealthiest nations.^{1,2} Whether as victims, witnesses, or perpetrators of violence, the consequences for children and youth who experience violence are serious.³ The recent shootings in Columbine and other high schools have once again clearly demonstrated that the causes and effects of violence cross all geographic and socioeconomic boundaries. Efforts to decrease morbidity and mortality from violence have focused on 2 main areas: control of firearms and social intervention.

The Role of Guns

The most lethal form of violence is gun violence. Since the mid-1980s, 10 to 15 Americans under the age of 19 have died every day from gunshot wounds.⁴ Firearm injuries represent the third leading cause of death among Americans aged 10 to 14 and the second leading cause of death among those aged 15 to 24.⁴ For every firearm death, there are an estimated 4 non-fatal firearm injuries, many resulting in severe disabilities.⁵

Many factors (eg, poverty, family dysfunction, and substance abuse) affect the frequency of youth violence,⁶ but guns increase the lethality of violent incidents. The dramatic increase in the US homicide rate from 1985 to 1993 was due to a steady increase in firearm homicides, especially handgun homicides.⁷ From 1987 to 1993, the firearm homicide rate doubled for those aged 15 to 24, while the nonfirearm homicide rate decreased.^{8,9} Firearm suicides also steadily increased during this period among 15- to 24-year-olds.⁸ Firearms are used in roughly 70% of all homicides and in 60% of all suicides. Among youth aged 15 to 19, the proportions are even higher (80% and 68%, respectively).^{7,10}

Many other countries have rates of violence similar to those of the United States, but most have lower rates of fatal violence because firearms are less used.¹¹ International comparisons reveal that gun death rates increase along with gun ownership. Data from 14 countries, as well as Australia, Canada, and the United States, show that gun ownership is significantly associated both with the rate and proportion of homicides and suicides committed with a gun.¹² Further, residents of countries with low rates of gun ownership did not more frequently use a means other than a gun to commit homicide and suicide.¹²

The higher firearm homicide rates in the United States are largely due to handguns.¹³ Over time, gun death rates in the

United States have paralleled handgun production.¹⁴ Available information indicates that guns in the home increase the risk of homicide almost threefold and the risk of suicide almost fivefold.^{15,16} These risks are statistically significant and most of the risk is related to handguns. Thus, handguns pose a particular danger, though they are not the most common or the most powerful guns.¹⁷

What Can Physicians Do to Prevent Gun Violence?

Physicians have been crucial to success in reducing the toll of other scourges, such as polio, cigarette smoking, and motor vehicle injuries. Those who seek to reduce gun death and injury have many opportunities. Effective firearm injury prevention cannot be designed, implemented, or evaluated without good data. The United States has complete state and national counts of firearm deaths but only estimates for nonfatal firearm injuries and very little information about the role of the gun in each injury (type of weapon, whom it belongs to, how it got to the scene) or the circumstances of the injury.

Physicians and hospitals can help remedy this situation by compiling regular reports on the number and type of gun injuries they treat and including as much detail as possible on clinical course and cost.¹⁸ Individual hospitals can collaborate with one another and with health departments, coroners, police, crime labs, and others to establish an area-wide firearm injury data system. Several such efforts are under development.¹⁹

Beyond seeking to control the most lethal weapons used in violence, clinicians have focused interventions on the root causes of violent behavior, and some professional groups have identified ways they can contribute to violence prevention.²⁰ These interventions encompass many activities already within the purview of health professionals, including screening, patient education, treatment, and advocacy. Physicians particularly well situated to participate in violence prevention are those providing primary care, emergency care, and mental health services.

Violence Prevention in the Clinic

Violence at the clinical level should be treated as a recurrent chronic disease with definable risk factors. Hospital readmission rates for patients suffering subsequent assault-related injuries have been noted as high as 44%.²¹⁻²³ Rates of patients suffering prior assault-related injury and then becoming homicide victims have been reported as high as 20%.²¹⁻²³ Violent injury and death occur far more commonly as a result

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of arguments between family members and acquaintances than from criminal activity involving strangers.²⁴ Recurring violent injury may therefore be due to the persistence of violence risk factors associated with the patient's social context.

Given the high recidivism rates of violent injury, the currently accepted methods for treating such injuries should be reconsidered. When patients present with suicide attempts, evaluation for future risk and follow-up treatment are considered standard practice. However, individuals treated for violent injuries generally receive no further evaluation, although recently some emergency rooms have implemented assessment protocols and counseling services for such patients. Data showing that the risk of recurrent injury and violent death is high suggest the need to always evaluate these patients for future risk. Information required to assess this risk includes intent of revenge, the circumstances of the injury, weapon ownership and carrying behavior, and the underlying mental health condition.

Specific risk factors predisposing children to increased involvement with violence may be readily recognized in clinical practice. A major risk factor that can be detected through screening is family violence. Children who experience or witness violence early in their lives are at particularly high risk of involvement in subsequent violence.²⁵ These data suggest that implementing family violence screening in all health care settings should be seriously considered. Currently, family violence screening occurs in emergency departments, obstetrical practices, and pediatric offices. Effective screening requires personnel properly trained in screening methods, enhanced knowledge of community resources available to respond when violence is identified, and clinicians educated to understand and be comfortable with issues of hidden violence.

Another avenue for intervention includes improved patient education. Parents would benefit from a better understanding of the factors that may put their children at risk for developing violent behavior, including extensive exposure to television violence, and repeated corporal punishment.²⁵ Clinicians can assist parents in identifying healthy alternatives to violent punishment by promoting the use of "time outs" instead of spanking. Discussing strategies to limit television viewing and monitoring what is watched will also help reduce the degree of exposure to violent role modeling. Foremost is the need to encourage nurturing interactions between parents and children. Acknowledging and praising sociable behaviors is a healthy way of reinforcing their habituation.

Comment

Major medical groups—including the American Medical Association and many specialty societies—now urge their members to assess patients' risk for violence and counsel patients on safety practices related to guns, just as they do on practices related to substance use and sex.^{26,27} As public health approaches to reducing gun injuries have grown, gun injury rates have fallen.²⁸ From 1993 to 1997, the firearm homicide rate for 15- to 24-year-olds fell, 29% from 19.9 to 14.1 per 100 000 persons;⁸ reasons for the falling rates are not yet clear.

A recent survey of physicians indicated that 84% of internists and 72% of surgeons believe that physicians should be involved in firearm injury prevention, yet fewer than 20% said they actually are so involved.²⁹ Physicians and health care professionals should be aware of the importance of their roles as clinicians and advocates and use their considerable credibility to promote practices and policies based on accurate data that will contribute to violence prevention.

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