Hidden Costs in Health Care: The Economic Impact of Violence and Abuse

Prepared By: Theresa Dolezal, MA
Partners for Violence Prevention
340 Walnut Street
St. Paul, MN 55102
www.partnersforviolenceprevention.org

David McCollum, MD
Michael Callahan, MS
The Academy on Violence & Abuse
14850 Scenic Heights Road, Suite 135A
Eden Prairie, MN 55344
www.avahealth.org

Publication of this document made possible through the support of the T. Boone Pickens Foundation
MISSION

The mission of the Academy on Violence and Abuse (AVA) is to advance health education and research on the prevention, recognition, treatment, and health effects of violence and abuse.

VISION

By expanding health education and research, AVA will integrate knowledge about violence and abuse into the training of health professionals, promote the health of all people, protect the most vulnerable, and advance health policy that promotes safe families, workplaces, and communities.

AVA LEADERSHIP

Board Chair:
F. David Schneider, MD, MSPH

President:
David McCollum, MD

President-Elect:
Robert Block, MD

Secretary:
Bruce Ettinger, MD, MPH

Treasurer:
Marie Christensen, MD, FACS

Executive Director:
Michael Callahan

Board of Directors:
David Corwin, MD
Peter Cruholm, MD, MSCE
Taaneem Ismailj, MD, MPH
Janice Humphreys, RN, NP, PhD, FAAN
Lisa James, MA
Brooks Kesgin, MD
Susan Kelley, PhD
Richard Krugman, MD
Charles Mouton, MD, MS, FAAFP
Philip Scribano, DO, MSCE
Amy Sinley, MD, MPH
Bea Yorker, JD, RN, MS, FAAN

Former Board Members:
Elaine Alpert, MD, MPH
Jacqueline C. Campbell, PhD, RN
Jacqueline Hauser, MBA
Debbie Lee
Connie Mitchell, MD, MPH
Zita Surprenant, MD
Ellen Talaferrro, MD
Therese Zink, MD, MPH

To contact or become a member of the Academy on Violence and Abuse:
Mailing address: 14850 Scenic Heights Road, Suite 135A
Eden Prairie, MN 55344
Email: info@avahealth.org
Website: www.avahealth.org

Please cite this document as an organization report or monograph in book style:
Dolezal, T. McCollum D., Callahan, M., Eden Prairie, MN. Academy on Violence and Abuse; 2009.
Every year millions of Americans are exposed to violence and abuse as victims, witnesses, and perpetrators. Violence and abuse occur in all age groups, at all socioeconomic levels, and throughout all of society’s structure.

It is obvious that these experiences impose a direct economic burden on the healthcare system. What has been less obvious is the even greater cost due to the long-term health consequences of such experiences. These long-term negative health consequences are increasingly being recognized as major health concerns and the true cost to the health care system may reach hundreds of billions of dollars a year.

It is imperative that stakeholders — insurance companies and purchasers of health care (including state and federal agencies) — are made aware of the connection between many chronic health conditions and the antecedent experiences of abuse. Common conditions such as heart disease, diabetes, back pain, stroke, mental illness and asthma are all shown to occur more frequently or more severely in those who have been exposed to violence in their lives. But this is only the beginning. All body systems are included and the list of associated adverse health effects keeps growing.

Figure 1 illustrates the conditions and health risk behaviors that are known or suspected to have a correlation with lifetime exposure to abuse. Given the breadth of the associations illustrated here, it starts to become clear that demand for health care services is likely to be significantly increased in the population of those who have experienced abuse.

If the purchasers of health care and the insurers of health care understand the significant contributions that violence and abuse make to the utilization and cost of health care services, then, logically, there should be a demand for a change in the way health care is delivered. Health care providers would need to be trained to appropriately and adequately identify and respond to their patients’ experiences of violence and abuse.

Up to now, the health care system has failed to adequately recognize the consequences of abuse, to respond and treat patients in a manner that is compassionate and healing, and to incorporate appropriate prevention strategies.

This paper reviews a sampling of the literature that supports the contention that violence and abuse lead to a significant increase in health care utilization and costs.

As used here, the term “violence and abuse” encompasses a continuum of experiences in which multiple variations of harm, neglect, abuse, and interpersonal violence occur between people. Violence and abuse is preferred over such traditional terms as “domestic violence” and “intimate partner violence” because these terms have often been used in limited contexts or have addressed only physical, sexual, or psychological harm by a current or former partner or spouse. The use of these terms sometimes limits our thinking about these issues and makes it more difficult to understand the complex dynamics that must be considered in order to provide patient-centered care. Moreover, the traditional categories do not reflect the fact that the various forms of violence and abuse act together as part of a common etiology underlying many different health conditions.
**Figure 1:** Known and Suspected Consequences of Lifetime Experiences of Violence and Abuse

**COLEVA**

David McCollum, January 2009

[Diagram showing various consequences of violence and abuse, including mental health, physical health, and social issues.]
People experience multiple forms of violence, as victims, witnesses, and perpetrators at different times in their lives. Regardless of when or how these incidents occur, what these experiences have in common is their effect on the long-term health status of those who are exposed to them. Fortunately, evidence also suggests that these health consequences can be effectively addressed using organized systems of care management, such as the chronic disease management model.  

Reliable estimates of the overall prevalence of violence and abuse are not readily available. Most studies have focused on one or another aspect of abuse or violence in traditional (compartamentalized) terms. The project that comes closest to providing the basis for an overall estimate is the National Violence Against Women Survey conducted by the U.S. Justice Department and the Centers for Disease Control between November 1995 and May 1996.

On the basis of findings from the National Violence Against Women Survey, published in 1998, researchers estimated that 1.5 million women and 834,732 men reported physical assault or rape by intimate partners in the United States. The survey results indicate that more than one-third of American women reported experiences with physical and/or sexual violence by a husband, partner, or intimate friend at some point in their lives. 

Finklehor et al. provide an excellent overview of what is known about the prevalence of exposure to various forms of child maltreatment. They cite studies that document the frequency of victimization and the association of such experiences with adverse physical, psychological and social outcomes. But they also describe how the fragmentation of these studies into the traditional categories of maltreatment leads to a number of methodological problems and underestimation of overall prevalence.

Given the evidence linking exposure to violence with health status, this prevalence has obvious implications for the health care delivery system. For example, an estimated 24 to 54 percent of all women seen in the Emergency Department have a lifetime history of violence and abuse. Another recent study by researchers at the University of Chicago found that 31 percent of patients admitted to the emergency department self-reported experiences of abuse in their current relationship using an electronic screening tool.

Violence and abuse have serious long-term medical consequences that last long after the initial trauma as shown by the work of Felitti and Anda. They have published over fifty articles showing the relationship between adverse childhood experiences (ACEs) and longer term chronic illness, high-risk health behaviors, reduced life span and more. A summary of their work recently published by the Centers for Disease Control suggests that roughly 28.3% of adults acknowledge having experienced physical abuse as a child. Approximately 21% have experienced sexual abuse and about 11% report having experienced some form of emotional abuse.

Koss and Heslet reported as long ago as 1992 that those who had experienced abuse accessed the health care system 2 to 2.5 times as often as those not exposed to abuse. They suggested that medical care could be improved if physicians were to identify the underlying cause of the patient’s symptoms, referring to violence victimization. Nearly two decades later, health care providers still too often fail to adequately address violence and abuse in practice, resulting in significantly higher health care costs.
As mentioned above, a growing body of evidence demonstrates that exposure to violence and abuse increases the risk of negative health outcomes. These outcomes manifest themselves in more physical health problems, higher use of medical and mental health care services, higher levels of depression, more frequent suicide attempts, and increased abuse of alcohol and other substances. Other research has found associations between exposure to violence and abuse and increased surgical procedures, mental health services, and visits to general practitioners, emergency departments, and hospitals.

Violence and abuse are closely associated with conditions seen in the health care setting on a daily basis. Unfortunately, the possibility that exposure to violence and abuse is a predisposing factor in these conditions is not widely acknowledged or acted upon in practice. As a result, the health care system spends many billions of dollars each year treating the consequences of this exposure — too often without addressing the underlying causes.

Patients use clinics and hospitals for health complaints that are often “proxies” for underlying problems related to exposure to violence and abuse. For example, studies of women in the primary care setting indicate that many patients who had experienced childhood violence now suffer multiple symptoms which, while not seen as the reason for the visit and often not recorded in the chart, result in increased primary care visits throughout their lives.

A study of primary care utilization by adult women found significantly higher frequencies for 22 out of 29 physical symptoms in patients who also reported a history of childhood sexual abuse (according to a self-reported survey). Eleven of the 22 symptoms were reported by more than 25 percent of women who had experienced childhood sexual abuse. Table 2 illustrates the range of complaints found to be associated with a history of sexual abuse.

Similarly, Rivara et al. found that significant differences in health care costs and utilization between children whose mothers had experienced violence and abuse and those whose mothers had not. This study provides further evidence that the effect of exposure is long-lasting. It found that even after the abuse stopped, the children of mothers who experienced violence and abuse continued to experience higher utilization and costs. Moreover, this study found that children living in households with chronic stress such as violence and abuse had a lifelong increased risk of acute disorders.
Table 2. Physical Symptom Frequencies According to Childhood Sexual Abuse Status (self-report data)

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>CSA (a) (n=87)</th>
<th></th>
<th>No CSA (b) (n=293)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>x2</td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>11</td>
<td>12.6</td>
<td>23</td>
<td>7.9</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Trouble getting breath</td>
<td>23</td>
<td>26.7</td>
<td>19</td>
<td>6.5</td>
<td>27.4</td>
<td></td>
</tr>
<tr>
<td>Backaches</td>
<td>48</td>
<td>55.2</td>
<td>112</td>
<td>38.2</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>Soreness of muscles</td>
<td>39</td>
<td>45.3</td>
<td>74</td>
<td>25.3</td>
<td>12.69</td>
<td></td>
</tr>
<tr>
<td>Feeling weak</td>
<td>27</td>
<td>31</td>
<td>22</td>
<td>7.6</td>
<td>32.71</td>
<td></td>
</tr>
<tr>
<td>Heavy feeling in arms or legs</td>
<td>13</td>
<td>15.5</td>
<td>21</td>
<td>7.2</td>
<td>5.44</td>
<td></td>
</tr>
<tr>
<td>Feeling faint or dizzy</td>
<td>21</td>
<td>24.4</td>
<td>29</td>
<td>9.9</td>
<td>12.15</td>
<td></td>
</tr>
<tr>
<td>Hot/cold spells</td>
<td>29</td>
<td>33.7</td>
<td>38</td>
<td>13</td>
<td>19.53</td>
<td></td>
</tr>
<tr>
<td>Migraine headaches</td>
<td>24</td>
<td>27.6</td>
<td>57</td>
<td>19.5</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Other headaches</td>
<td>43</td>
<td>50.6</td>
<td>118</td>
<td>40.3</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Pain in heart/chest</td>
<td>20</td>
<td>23.3</td>
<td>18</td>
<td>6.2</td>
<td>21.46</td>
<td></td>
</tr>
<tr>
<td>Skipped heart beats</td>
<td>13</td>
<td>14.9</td>
<td>19</td>
<td>6.5</td>
<td>6.17</td>
<td></td>
</tr>
<tr>
<td>Low blood sugar</td>
<td>14</td>
<td>16.1</td>
<td>20</td>
<td>6.8</td>
<td>7.07</td>
<td></td>
</tr>
<tr>
<td>Nausea/stomach upset</td>
<td>32</td>
<td>36.8</td>
<td>71</td>
<td>24.2</td>
<td>5.35</td>
<td></td>
</tr>
<tr>
<td>Stomach pain</td>
<td>28</td>
<td>32.6</td>
<td>38</td>
<td>13.1</td>
<td>17.48</td>
<td></td>
</tr>
<tr>
<td>Ulcers</td>
<td>7</td>
<td>8.2</td>
<td>15</td>
<td>5.1</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Loose bowels</td>
<td>23</td>
<td>26.4</td>
<td>60</td>
<td>20.5</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Hard, painful stools</td>
<td>23</td>
<td>26.4</td>
<td>42</td>
<td>14.3</td>
<td>6.93**</td>
<td></td>
</tr>
<tr>
<td>Breast problems</td>
<td>6</td>
<td>7</td>
<td>18</td>
<td>6.2</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Problems with periods</td>
<td>28</td>
<td>32.2</td>
<td>58</td>
<td>19.9</td>
<td>5.80*</td>
<td></td>
</tr>
<tr>
<td>Yeast in vagina</td>
<td>16</td>
<td>18.6</td>
<td>22</td>
<td>7.5</td>
<td>9.07**</td>
<td></td>
</tr>
<tr>
<td>Diseases from sex</td>
<td>8</td>
<td>9.2</td>
<td>4</td>
<td>1.4</td>
<td>13.45***</td>
<td></td>
</tr>
<tr>
<td>Pain in lower belly</td>
<td>17</td>
<td>19.8</td>
<td>22</td>
<td>7.5</td>
<td>10.82**</td>
<td></td>
</tr>
<tr>
<td>Bladder problems</td>
<td>20</td>
<td>23</td>
<td>17</td>
<td>5.8</td>
<td>22.42***</td>
<td></td>
</tr>
<tr>
<td>Not liking sex</td>
<td>23</td>
<td>26.4</td>
<td>33</td>
<td>11.3</td>
<td>12.29***</td>
<td></td>
</tr>
<tr>
<td>Eating too little</td>
<td>13</td>
<td>15.1</td>
<td>16</td>
<td>5.5</td>
<td>8.77**</td>
<td></td>
</tr>
<tr>
<td>Too thin from starving</td>
<td>2</td>
<td>2.3</td>
<td>4</td>
<td>1.4</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Eating too much</td>
<td>47</td>
<td>54</td>
<td>86</td>
<td>29.4</td>
<td>17.95***</td>
<td></td>
</tr>
<tr>
<td>Making yourself vomit</td>
<td>5</td>
<td>5.8</td>
<td>4</td>
<td>1.4</td>
<td>5.68*</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; ** p < .01; *** p < .001. CSA, child sexual abuse; ns, not statistically significant.

SOURCE: Hulme. 21
The lifelong physical and mental health consequences of childhood trauma have been highlighted in the Adverse Childhood Experiences (ACE) Study, the largest study done to date, which examined the health and behavioral effects of negative childhood experiences. The original ACE study was conducted by the Centers for Disease Control and Prevention in cooperation with researchers at the Kaiser Permanente Department of Preventative Medicine in San Diego. This study categorized and scored a large set of survey responses in order to investigate the effects of negative childhood experiences on adult health status. These and other similar studies illustrate that exposure to these experiences is strongly predictive of future poor health status.

Exposure to adverse childhood experiences has been found to be associated with an array of dysfunctional outcomes in later life including addiction, sexually transmitted disease, obesity, fractures, and medical conditions including diabetes, heart disease, and chronic obstructive pulmonary disease. A recent article by the ACEs Study Group found a connection between early experience with violence and abuse and increased use of prescribed psychotropic medication throughout adulthood.

**Table 3.** Comparison of the top five most expensive health conditions with top five major chronic conditions (associated with exposure to violence and abuse). Stanton

<table>
<thead>
<tr>
<th>Top Five Most Costly Health Conditions</th>
<th>Top Five Most Prevalent Chronic Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Mental Disorders</td>
<td>Mood Disorders</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>Heart Disease</td>
</tr>
<tr>
<td>Cancer</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Pulmonary Disorders</td>
<td>Asthma</td>
</tr>
</tbody>
</table>
Important new evidence suggests that exposure to violence and abuse predispose people to ongoing physical health problems, in part by inducing a state of chronic pain that makes them more sensitive to subsequent stresses. Researchers have postulated that the resulting chronic pain is due to disruption of the hypothalamic-pituitary-adrenal (HPA) axis with both endocrine and neurological consequences that contribute maintenance of chronic pain.

This research suggests that prolonged exposure to stress hormones released by the body in response to violence or abuse affect the regulation of the nervous system, as well as the immune, endocrine, and other organ systems. Other recent research is beginning to identify the specific biochemical changes that take place along the HPA axis in response to psychosocial stress.

The 1999 Wisner study, which was conducted in cooperation with a large Minnesota health insurance plan, found approximately $1,776 more was spent annually on female enrollees with a history of violence and/or abuse compared to a random sample of female enrollees. The study found that women who had experienced violence within their lifetime had more hospitalizations, more frequent clinic use, mental health utilization, and out-of-plan referrals. Jones et al. compared abused and non-abused middle class women enrolled in a multisite metropolitan health maintenance organization (HMO) and found that average annual costs were $570 higher for women who reported a history of abuse.

In another study (Rivara), women with a history of violence and abuse had up to 20% higher total health care costs (approximately $439 annually) and the elevation in costs continued long after the violence ended. Similarly, a retrospective study by Bonomi et al. found evidence among a randomly selected sample of women that health care costs were 36% higher for women who reported experiences with childhood physical and sexual abuse.
Although the study has not yet been done that identifies the full cost of violence and abuse to the health care system, based on prior studies (Koss, Felitti, CDC, and others), we can make a reasonable approximation of those costs.

As mentioned earlier, Koss and Heslet showed that those who have experienced abuse access health care 2 to 2.5 times more frequently than those without that history. 7 Felitti, Anda and others have given us confidence that at least 20-40% of the population has experienced consequential abuse at some time in their lives. 23, 24, 25

Using estimated 2008 health care costs of about $2 trillion 33 and a U.S. population of 300 million, 34 Tables 4 and 5 below show that the predicted incremental cost to the health care system ranges between $333 billion and $750 billion annually, or nearly 17% to 37.5% of the total health care dollar.

### Table 4: Assuming Twice the Average Rate of Utilization

<table>
<thead>
<tr>
<th>Percent of Population Exposed</th>
<th>2X Annual Per Capita Cost-No Abuse</th>
<th>2X Annual Per Capita Cost-Abuse</th>
<th>2X Annual Health Expenditures in Billions - Abuse History</th>
<th>Incremental Cost of Abuse in Billions</th>
<th>Percent of Health Care Dollar Spent Due to Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>$5,555.56</td>
<td>$11,111.11</td>
<td>$667</td>
<td>$333</td>
<td>16.7%</td>
</tr>
<tr>
<td>30%</td>
<td>$5,128.21</td>
<td>$10,256.41</td>
<td>$923</td>
<td>$462</td>
<td>23.0%</td>
</tr>
<tr>
<td>40%</td>
<td>$4,761.90</td>
<td>$9,523.81</td>
<td>$1,143</td>
<td>$571</td>
<td>28.6%</td>
</tr>
</tbody>
</table>

### Table 5: Assuming Two and One Half Times the Average Rate of Utilization

<table>
<thead>
<tr>
<th>Percent of Population Exposed</th>
<th>2.5X Annual Per Capita Cost-No Abuse</th>
<th>2.5X Annual Per Capita Cost-Abuse</th>
<th>2.5X Annual Health Expenditures in Billions - Abuse History</th>
<th>Incremental Cost of Abuse in Billions</th>
<th>Percent of Health Care Dollar Spent Due to Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>$5,128.21</td>
<td>$12,820.51</td>
<td>$769</td>
<td>$461</td>
<td>23.0%</td>
</tr>
<tr>
<td>30%</td>
<td>$4,597.70</td>
<td>$11,494.25</td>
<td>$1,034</td>
<td>$620</td>
<td>31.0%</td>
</tr>
<tr>
<td>40%</td>
<td>$4,166.67</td>
<td>$10,416.67</td>
<td>$1,250</td>
<td>$750</td>
<td>37.5%</td>
</tr>
</tbody>
</table>
CONCLUSION

The various studies cited in this paper provide convincing evidence that exposure to violence and abuse is a strong predictor of higher health care utilization and cost. The health effects of this exposure include both acute and chronic conditions. These studies also suggest that some of this comes as a result of a greater likelihood to engage in high-risk health behaviors, such as smoking, alcohol and drug use, and poor eating and exercise habits.

For the most part, health care provider organizations and individual practitioners have been slow to address violence and abuse as health issues. Most providers are not adequately trained to elicit abuse histories from their patients and are, for a variety of reasons, reluctant to do so. As a result, the contribution of violence and abuse to the patient’s health status often remains unrecognized and untreated. Addressing this deficiency represents an untapped potential for significant cost savings.

The evidence presented here makes it clear that the prevention, identification and treatment of violence and abuse must be established priorities in health care delivery systems. Recognition of the serious health issues that are strongly associated with abuse would be an important step forward. Recognition must then be followed by increased research to support the adoption of evidence-based preventive measures, identification techniques and science-based treatment of the effects of violence and abuse.

The research that has been done so far clearly shows the contribution of violence and abuse to health care costs. Policy makers should be made cognizant of this information. As our health care system struggles to reduce costs, incorporating this knowledge will play a crucial role if it can be translated into better identification, management, and prevention of abuse and the health-related aftermath.

Several encouraging trends are emerging. The movement toward “the medical home” offers an opportunity. Incorporating recognition, management and treatment of violence and abuse is a natural fit with this concept of integrated care. Informed payers may wish to provide incentives to encourage this type of coordination.

But progress in this area is ultimately dependent on the selection and training of health professionals who have the history-taking skills necessary to elicit a history of exposure to abuse and a willingness to openly discuss these issues.

RECOMMENDATIONS:
Next steps should include:
• Fund further large-scale studies on cost
• Identify evidence-based practices that better address violence and abuse exposure
• Establish guidelines for treatment and management of patients
• Identify appropriate prevention components for health care providers

The Academy on Violence and Abuse invites other health education institutions, health providers, researchers, representatives from the health care industry and health administration, as well as government agencies, to join us in taking these next steps.
REFERENCES


