



August 6, 2009

# Back to Basics

**Ten Steps to Save 85,000 Lives and \$35 Billion a Year  
in Health Care Delivery**

---

[www.citizen.org](http://www.citizen.org)

## **Acknowledgments**

This report was authored by Zachary Gima, Peter Gosselar, Alan Levine, Taylor Lincoln and Dr. Annette Ramirez, with research assistance from Kiren Gopal. Lincoln and David Arkush were the primary editors. Dr. Sidney Wolfe, Dr. Peter Lurie and Dr. Kevin Bowman provided significant guidance for the project.

## **About Public Citizen**

Public Citizen is a non-profit organization based in Washington, D.C. We represent consumer interests through lobbying, litigation, research and public education. Founded in 1971, Public Citizen fights for consumer rights in the marketplace, safe and affordable health care, campaign finance reform, fair trade, clean and safe energy sources, and corporate and government accountability. Public Citizen has five divisions and is active in every public forum: Congress, the courts, governmental agencies and the media..



P: 202-546-4996

F: 202-547-7392

<http://www.citizen.org>

### **Note on Methodology**

The data in the first section report were culled mostly from published academic studies. Estimates of the numbers of fatalities that could be prevented or dollars that could be saved by various reforms were extrapolated from available data. Doing so required making judgment calls. We chose more conservative options when multiple choices were presented. The report omits savings estimates for some reforms because we were unable to find a basis in the literature to generate them.

<b>INTRODUCTION</b>	<b>1</b>
<b>PART I: REFORMS</b>	<b>2</b>
I. Use a checklist to reduce avoidable deaths and injuries resulting from surgical procedures	2
II. Use best practices to prevent ventilator-associated pneumonia	4
III. Use best practices to prevent pressure ulcers	5
IV. Implement safeguards and quality control measures to reduce medication errors	7
V. Use best practices to prevent patient falls in health care facilities	10
VI. Use a checklist to prevent catheter infections	11
VII. Increase nurse staffing	12
VIII. Permit standing orders to increase flu and pneumococcal vaccinations in the elderly	14
IX. Use beta-blockers after heart attacks	16
X. Increase use of advanced care planning	17
<b>PART II: IMPLEMENTATION</b>	<b>21</b>
I. The federal government should use its leverage to ensure that well accepted safety practices are universally implemented	21
II. Congress should require HHS to accredit providers to receive Medicare reimbursements	23
III. Congress should take steps to increase number of nurses	26
IV. Congress should require mandatory reporting of adverse events	28
V. Congress Should Strengthen Law Requiring Reporting of Doctor Discipline and Mandate Adequate Peer Review of Physicians	30

# Introduction

Excessive use of medical services – often high-tech tests and procedures – has been blamed by many for the nation’s galloping health care costs.

But there is a flip side to the allegation that the health care system rewards overuse of expensive procedures: It also fails to encourage some very simple, important measures. The failure of health care professionals to do such things as wash their hands consistently, follow best practices to prevent pressure ulcers, and communicate effectively causes an enormous number of tragic and expensive errors.

This report examines the potential effects of implementing 10 reforms that could prevent more than 85,000 deaths and save more than \$35 billion in treatment costs annually. Because we were unable estimate the number of lives saved for two of the proposed reforms (a checklist to avoid surgical errors and best practices to prevent patient falls), the total number of avoidable deaths is likely higher.

Additional improvements might save thousands more lives. For example, one study found that improving nurse-to-patient ratios from an average of about 5.5:1 to 4:1 could save an astounding 72,000 lives a year. The authors estimate that doing so would cost up to \$7.3 billion annually – or about three-tenths of 1 percent of the nation’s health care bill.

The health care delivery industry is enormous, decentralized and will not be easily changed. But the federal government has both the authority and an obligation to ensure that no time is lost in putting well-accepted patient safety measures into practice.

## PART I: REFORMS

### I. Use a checklist to reduce avoidable deaths and injuries resulting from surgical procedures<sup>1</sup>

**Potential annual premature deaths avoided: (no estimate)**

**Potential annual financial savings: \$20 billion<sup>2</sup>**

An estimated 1.5 million serious complications and 200,000 deaths result from surgical procedures in the United States every year.<sup>3</sup> The average cost of such complications is \$12,000.<sup>4</sup> Errors can be reduced dramatically by taking two minutes to run through a 19-point checklist that includes items such as having team members verbally confirm that they are in agreement about the procedure to be performed. The list was patterned after a similar aviation industry initiative that significantly reduced the number of crashes.<sup>5</sup>

Dr. Atul Gawande *et al.* formulated the checklist and studied the effects of its use. They reported results in a January 2009 article in *The New England Journal of Medicine*. In eight sites worldwide, the authors found that their checklist reduced the incidence of death from 1.5 percent to 0.8 percent per operation – a reduction of nearly 50 percent – and reduced the incidence of complications from 11 percent to 7 percent per operation. Although the sharpest reduction in deaths and complications came in hospitals with the fewest resources (not hospitals in the United States), the authors estimated that adoption of the checklist throughout the United States would save between \$15 billion and \$25 billion a year.<sup>6</sup> They did not estimate the number of lives that could be saved in the United States.

The checklist calls for a series of sign-in procedures, including verbal confirmation among team members that the patient has verified his or her identity and that the surgical procedure to be

---

<sup>1</sup> Alex B. Haynes, Atul A. Gawande, *et al.*, “Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population,” *The New England Journal of Medicine* 360 (2009): 491-499.

<sup>2</sup> The financial savings are not mentioned in *The New England Journal of Medicine*, but two newspapers offered estimates, citing the papers’ authors: *USA Today* estimated \$20 billion annually, while the *Washington Post* reported \$15 billion to \$25 billion. We have used the midpoint of these estimates. Liz Szabo, “Checklist reduces surgery deaths,” *USA Today*, January 15, 2009 and Ceci Connolly, “Checklist for Surgery Reduces Errors,” *Washington Post*, January 14, 2009. Cost estimate includes social costs, which typically involve such factors as lost wages, patients’ transportation and lodging costs, and litigation. Dr. Marcus Semel, Research Fellow, Harvard School of Public Health, Conversation with Taylor Lincoln, research director of Public Citizen’s Congress Watch division, August 5, 2009.

<sup>3</sup> Liz Szabo, “Checklist Reduces Surgery Deaths,” *USA Today*, January 15, 2009.

<sup>4</sup> Ceci Connolly, “Checklist for Surgery Reduces Errors,” *Washington Post*, January 14, 2009.

<sup>5</sup> Liz Szabo, “Checklist Reduces Surgery Deaths,” *USA Today*, January 15, 2009.

<sup>6</sup> Ceci Connolly, “Checklist for Surgery Reduces Errors,” *Washington Post*, January 14, 2009.

performed is correct. Before skin incision, team members must confirm the procedure to be performed to one another and discuss any potential complications. At the conclusion of the operation, team members must orally confirm that they have a proper count of surgical instruments and other foreign objects, proper labeling of specimens taken, and mutual understanding of potential complications resulting from the operation, including ensuring that a plan exists to administer the necessary antibiotics.<sup>7</sup>

Errors resulting from the failure of basic safety precautions such as these are strikingly common. The Joint Commission, a private organization that accredits hospitals and other health care organizations, learned of 116 instances of wrong-site surgeries in 2008 and 71 instances in which foreign materials were unintentionally left in the bodies of surgical patients.<sup>8</sup> Health and Human Services' Centers for Medicare and Medicaid Services (CMS) calls these "never events," meaning that they should not happen at all.<sup>9</sup> Notably, the Joint Commission estimates that its voluntary reporting system captures only one-tenth of one percent of the severe errors – such as wrong-site surgeries – suggesting that their occurrence is far more common than the Joint Commission's statistics indicate.<sup>10</sup>

---

<sup>7</sup> Alex B. Haynes, Atul A. Gawande, *et al.*, "Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population," *The New England Journal of Medicine* 360 (2009): 492.

<sup>8</sup> The Joint Commission, "Sentinel Event Trends Reported by Year," March 31, 2009, [http://www.jointcommission.org/NR/rdonlyres/67297896-4E16-4BB7-BF0F-5DA4A87B02F2/0/se\\_stats\\_trends\\_year.pdf](http://www.jointcommission.org/NR/rdonlyres/67297896-4E16-4BB7-BF0F-5DA4A87B02F2/0/se_stats_trends_year.pdf).

<sup>9</sup> Centers for Medicare & Medicaid Services, "Eliminating Serious, Preventable, and Costly Medical Errors - Never Events," press release, May 18, 2006, <http://www.cms.hhs.gov/apps/media/press/release.asp?Counter=1863>.

<sup>10</sup> Office of Inspector General, "Adverse Events in Hospitals: Overview of Key Issues," Department of Health and Human Services, December 2008, 25.

## II. Use best practices to prevent ventilator-associated pneumonia

**Potential annual premature deaths avoided: 32,000**

**Potential annual financial savings: \$900 million**

Ventilator-associated pneumonia (VAP) is defined as the development of pneumonia in patients who are mechanically ventilated for more than 48 hours. Each case of VAP costs the health care system an additional \$5,800<sup>11</sup> and VAP accounts for 36,000 deaths per year.<sup>12</sup> The mortality rate of VAP is 20 percent,<sup>13</sup> indicating that there are over 180,000 cases of VAP annually. These estimates suggest that the annual national cost of VAP is more than \$1 billion.

The Institute for Healthcare Improvement (IHI) recommends a “bundle” of interventions to decrease the cases of VAP. The bundle includes elevating the head of the patient’s bed to 30 to 45 degrees, implementing randomized, daily interruptions of sedations (sedation “vacations”), daily assessments for readiness to extubate (remove the patient from the ventilator), and applying deep venous thrombosis and peptic ulcer disease prophylaxis.<sup>14</sup>

Placing patients’ beds at the proper angle,<sup>15</sup> providing periodic interruptions of sedation,<sup>16</sup> and preventing venous thromboembolism<sup>17</sup> have each been shown to be effective in limiting the spread of VAP. Together, they can reduce VAP by 88 percent.<sup>18</sup> Comprehensive implementation requires using daily goal sheets for each patient, educating and reinforcing the staff’s knowledge of evidence-based information about VAP, and auditing daily goal sheet utilization on a weekly basis.<sup>19</sup> If implemented nationwide, the IHI-recommended bundle could save nearly 32,000 lives and \$900 million in health care costs annually.<sup>20</sup>

---

<sup>11</sup> Barry Evans, “Best Practice Protocols: VAP Prevention,” *Nursing Management* 36 (2005): 10-16.

<sup>12</sup> R. Monina Klevens, *et al.*, “Estimating Health Care-Associated Infections and Deaths in U.S. Hospitals, 2002,” *Public Health Reports* 122 (2007): 160-166.

<sup>13</sup> Ofelia C. Tablan, *et al.*, “Guidelines for Preventing Health-Care-Associated Pneumonia, 2003,” *Morbidity and Mortality Weekly Report* 53 (2004): 1-13.

<sup>14</sup> The 5 Million Lives Campaign, “Getting Started Kit: Prevent Ventilator-Associated Pneumonia,” Institute for Healthcare Improvement, <http://www.ihl.org/IHI/Programs/Campaign/VAP.htm>.

<sup>15</sup> Mitra B. Drakulovic, *et al.*, “Supine Body Position as a Risk Factor for Nosocomial Pneumonia in Mechanically Ventilated Patients: A Randomised Trial,” *The Lancet* 354 (1999): 1851-1858.

<sup>16</sup> John P. Kress, *et al.*, “Daily Interruption of Sedative Infusions in Critically Ill Patients Undergoing Mechanical Ventilation,” *The New England Journal of Medicine* 342 (2000): 1471-1477.

<sup>17</sup> William H. Geerts, *et al.*, “Prevention of Venous Thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy,” *Chest* 126(2004): 338S-400S.

<sup>18</sup> Barry Evans, “Best Practice Protocols: VAP prevention,” *Nursing Management* 36 (2005): 10-16.

<sup>19</sup> *Ibid.*

<sup>20</sup> These figures are reached by taking 88 percent of both the annual mortality rate and the annual national cost of ventilator-associated pneumonia.



### III. Use best practices to prevent pressure ulcers

**Potential annual premature deaths avoided: 14,071**<sup>21</sup>

**Potential annual financial savings: \$5.5 billion**<sup>22</sup>

Pressure ulcers (better known as “bed sores”) are a high-incidence, largely preventable condition that afflicts a growing number of Americans. Risk factors include poor nutrition, continued exposure to moisture (especially from urine or feces), confinement to a bed or wheelchair, and medical conditions such as spinal cord injury, hip fracture, and dementia.<sup>23</sup>

Pressure ulcers are estimated to occur in 10 to 17 percent of hospitalized patients and 20 to 40 percent of all nursing home patients.<sup>24</sup> By one estimate, 42,213 patients died from pressure ulcers attributable to patient safety incidents in hospitals alone in the United States from 2005 to 2007.<sup>25</sup> An estimate that 60,000 patients die each from pressure ulcers has been widely circulated in health publications, but we were unable to determine the scientific basis for that estimate.<sup>26</sup>

Besides causing pain and suffering, pressure ulcers can delay recovery from other conditions, greatly increase the likelihood of infection and lengthen hospital stays. Pressure ulcers also are very expensive to treat. The cost of managing a single full-thickness ulcer (*i.e.*, one that goes all the way to the bone) is estimated at \$70,000; U.S. expenditures for treating pressure ulcers are estimated at \$11 billion per year.<sup>27</sup>

---

<sup>21</sup> HealthGrades, *Patient Safety in American Hospitals Study 2009*,

<http://www.healthgrades.com/media/dms/pdf/PatientSafetyInAmericanHospitalsStudy2009.pdf>.

<sup>22</sup> This calculation accounts for 50 percent of the estimated \$11 billion annual cost attributed to treating skin ulcers. Based on CMS’s assessment that best practices could prevent most pressure ulcers, combined with the extraordinary cost of treating them, we conservatively estimated that implementing best practices would cost no more than half the amount that would be saved by prevention methods.

<sup>23</sup> John L. Zeller, *et al.*, “JAMA Patient Page: Pressure Ulcers,” *Journal of the American Medical Association* 298 (2006): 1020.

<sup>24</sup> David P. Lenker and Elizabeth Jacqueline Mills, eds, *Professional Guide to Diseases, 8<sup>th</sup> Edition* (Boston: Lippincott, Williams and Wilkins, 2005).

<sup>25</sup> HealthGrades, *Patient Safety in American Hospitals Study 2009*,

<http://www.healthgrades.com/media/dms/pdf/PatientSafetyInAmericanHospitalsStudy2009.pdf>.

<sup>26</sup> See, *e.g.*, Kathy D. Duncan, “Preventing Pressure Ulcers: The Goal Is Zero” *The Joint Commission Journal on Quality and Patient Safety* 33 (2007): 605.

<sup>27</sup> Madhuri Reddy, *et al.*, “Preventing Pressure Ulcers: A Systematic Review,” *Journal of the American Medical Association* 296 (2006): 974-984; “How to Prevent Bedsores from Becoming Deadly,” *Medical News Today*, October 31, 2006, <http://www.medicalnewstoday.com/articles/55423.php>.

In 2008, CMS listed severe pressure ulcers among the adverse incidents occurring within hospitals that should not occur at all. CMS has adopted a policy of not reimbursing hospitals for repercussions of the occurrences, which are often referred to as “never events.”<sup>28</sup>

Prevention involves identifying at-risk patients and following a comprehensive treatment strategy.<sup>29</sup> This includes conducting daily skin inspections, ensuring that patients are dry, monitoring nutrition and hydration, using pressure-relieving surfaces, repositioning patients at regular intervals, and avoiding over-sedation.<sup>30</sup>

Several pilot projects have been effective in reducing the incidence of pressure ulcers. A Medicare project involving 35 nursing homes in different states was able to achieve a reduction of 69 percent in the onset of new serious bed sores by implementing “best practices” to address risk factors and treat pressure points promptly.<sup>31</sup> Over a five-year period, the Memphis Veterans Affairs Medical Center lowered its pressure ulcer rate by 65 percent and saved more than \$3.4 million.<sup>32</sup> The “Save our Skin” program at the St. Francis Medical Center in Peoria, Ill. reduced the incidence of bed sores from 9.4 percent in 2001 to 1.5 percent in 2006, achieving an estimated savings of \$3 million per year.<sup>33</sup>

Expenses include increased staff time and costs for supplies and equipment, such as improved mattresses and higher quality linens. Although the costs of implementing these strategies have not been estimated, we believe the extraordinary cost of treating bed sores almost certainly ensures that savings would far exceed the cost of implementing best practices.<sup>34</sup>

---

<sup>28</sup> Centers for Medicare & Medicaid Services, “Eliminating Serious, Preventable, and Costly Medical Errors - Never Events,” press release, May 18, 2006, <http://www.cms.hhs.gov/apps/media/press/release.asp?Counter=1863>.

<sup>29</sup> Kathy D. Duncan, “Preventing Pressure Ulcers: The Goal Is Zero” *The Joint Commission Journal on Quality and Patient Safety* 33 (October 2007): 605.

<sup>30</sup> For more detailed guidelines, see National Guideline Clearinghouse, “Risk Assessment and Prevention of Pressure Ulcers,” <http://www.guideline.gov/summary/summary.aspx?ss=15&doc-id+7006&nbr=4215>.

<sup>31</sup> “Medicare Project Proves Pressure Ulcers Can Be Stopped in Nursing Homes,” *Senior Journal*, October 24, 2007, <http://seniorjournal.com/NEWS/Medicare/2007/7-10-24-MedicareProject.htm>.

<sup>32</sup> Suzy Scott-Williams, “Raise the Voice: Perioperative Pressure Ulcer Prevention Program,” American Academy of Nursing, [http://www.aannet.org/files/public/PPUPP\\_template.pdf](http://www.aannet.org/files/public/PPUPP_template.pdf).

<sup>33</sup> AHRQ Health Care Innovations Exchange, “Comprehensive, Hospital-Based Program Significantly Reduces Pressure Ulcer Incidence and Associated Costs,” Agency for Healthcare Research and Quality, <http://www.innovations.ahrq.gov/content.aspx?id=1851>.

<sup>34</sup> A 1995 study of a 125-bed nursing home found that a comprehensive pressure ulcer prevention program resulted in net savings of \$230,000 over an 8-month long period. Courtney H. Lyder, *et al.*, “Efficacy of a Comprehensive Pressure Ulcer Prevention Program in an Extended Care Facility,” *Advanced Wound Care* 8 (1995): 49-55.

## IV. Implement safeguards and quality control measures to reduce medication errors

**Potential annual premature deaths avoided: 4,620<sup>35</sup>**

**Potential annual financial savings: \$2.3 billion<sup>36</sup>**

The Institute of Medicine (IOM) estimated in 2007 that 1.5 million preventable medication errors occur annually in the United States.<sup>37</sup> More specifically, the IOM says that 380,000 to 450,000 adverse drug events occur each year in U.S. hospitals<sup>38</sup> and 800,000 preventable adverse drug events occur in long-term care facilities.<sup>39</sup> As many as 7,000 deaths a year are caused by medication errors,<sup>40</sup> which include situations in which the wrong drug or dosage is prescribed, dispensed or administered.<sup>41</sup> Each adverse drug event in a hospital is estimated to add an average of \$8,750 (in 2006 dollars) to the cost of a hospital stay.<sup>42</sup> The IOM says that \$3.5 billion is a conservative estimate of the national annual cost of preventable adverse drug events.<sup>43</sup>

*Solution: Implement computerized order entry of prescriptions*

Computerized physician order-entry systems allow doctors to order medications, tests, and referrals electronically, reducing opportunities for these vital instructions to be misread or

---

<sup>35</sup> Estimate based on finding that universal implementation of computerized order entry of prescriptions would reduce errors by two-thirds combined with studies finding that prescription errors are responsible for 7,000 deaths per year. Estimate assumes that adverse events avoided as a result of implementing bar code medication administration and enforcing prohibition of confusing abbreviations would largely overlap the benefits from implementing computerized order entry. Thus, the potential benefits of those measures were not included in the estimate. Although an estimate of additional savings is not included here, these other programs would yield additional benefits.

<sup>36</sup> Estimate includes only the anticipated savings resulting from implementation of computerized order entry of prescriptions. Estimates assumes that savings from implementing bar code medication administration and enforcing prohibition of confusing abbreviations would largely overlap savings from computerized order entry. Although an estimate of additional savings is not included here, these other programs would yield additional benefits. Savings estimates assume that order-entry systems will pay for themselves within five years; therefore, implementation costs are not accounted for in the estimate.

<sup>37</sup> Institute of Medicine, *Informing the Future: Critical Issues in Health, Fourth Edition* (Washington, D.C.: National Academies Press, 2007).

<sup>38</sup> Institute of Medicine, *Informing the Future: Critical Issues in Health, Fourth Edition* (Washington, D.C.: National Academies Press, 2007).

<sup>39</sup> *Ibid*

<sup>40</sup> Institute of Medicine, *Preventing Medication Errors* (Washington, D.C.: National Academies Press, 2007).

<sup>41</sup> *Ibid*.

<sup>42</sup> Healthy People 2010, "Progress Review: Medical Product Safety," U.S. Department of Health & Human Services, October 19, 2007, <http://www.healthypeople.gov/Data/2010prog/focus17/default.htm>.

<sup>43</sup> Institute of Medicine, *Preventing Medication Errors* (Washington, D.C.: National Academies Press, 2007).

misinterpreted. Studies have repeatedly found that such systems reduce medication errors dramatically.<sup>44</sup> A recent review of 12 studies on the efficacy of computerized physician order-entry systems found that “the use of computerized orders was associated with a 66 percent reduction in total prescribing errors in adults.”<sup>45</sup> This translates to a potential national savings of \$2.3 billion. Physician order-entry systems costing between \$1 million and \$2 million per will pay for themselves in three-to-five years, according to the IOM.<sup>46</sup>

*Solution: Reducing medication errors by implementing bar code error-prevention system*

Bar code medication administration (BCMA) allows for electronic verification “that the right drug is being administered to the right patient at the right dose by the right route and at the right time.”<sup>47</sup> A bar code reader and accompanying software can verify that “the correct medication was ordered, administered on time, and measured in the correct dosage, while at the same time documenting the actual administration of the medication.”<sup>48</sup> BCMA has been shown to be a cost-effective way to significantly decrease medication errors, reducing preventable adverse drug events by 63 percent.<sup>49</sup> This reduction nationwide would result in \$2.2 billion in annual savings.

Implementation costs of BCMA systems are estimated at \$1.3 million per hospital, with upkeep costs of \$300,000 per year. Analysis of a 770 bed hospital’s implementation of a BCMA system has shown net savings over a 5-year period of \$3.5 million and “the break-even point for the investment was within 1 year after the system became fully operational.”<sup>50</sup>

---

<sup>44</sup> R. Scott Evans *et al.*, “A Computer-Assisted Management Program for Antibiotics and Other Antiinfective Agents,” *The New England Journal of Medicine* 338 (1998): 232-238; and David W. Bates *et al.*, “Effect of Computerized Physician Order Entry and a Team Intervention on Prevention of Serious Medication Errors,” *Journal of the American Medical Association* 280 (1998): 1311–1316; David W. Bates, *et al.*, “The Impact of Computerized Physician Order Entry on Medication Error Prevention,” *Journal of the American Medical Informatics Association* 6 (1999): 313–21.

<sup>45</sup> Tatyana A. Shamliyan, *et al.*, “Just what the doctor ordered: Review of the Evidence of the Impact of a Computerized Physician Order System on Medication Errors,” *Health Services Research* 43 (2008): 32-53.

<sup>46</sup> Institute of Medicine, Committee on Quality of Health Care in America, *To Err is Human: Building a Safer Health System* (Washington, DC: National Academy Press, 2000): 191.

<sup>47</sup> American Hospital Association, Health Research & Educational Trust, and the Institute for Safe Medication Practices, “Pathways for Medication Safety: Assessing Bedside Bar-Coding Readiness,” 2002, <http://www.ismp.org/selfassessments/PathwaySection3.pdf>.

<sup>48</sup> Wideman MV *et al.*, “Barcode Medication Administration: Lessons Learned from an Intensive Care Unit Implementation,” in *Advances in Patient Safety: From Research to Implementation* (Rockville, Md.: Agency for Healthcare Research and Quality) 437-451.

<sup>49</sup> Eric G. Poon, *et al.*, “Medication Dispensing Errors and Potential Adverse Drug Events Before and After Implementing Bar Code Technology in the Pharmacy,” *Archives of Internal Medicine* 145 (2006): 426–434.

<sup>50</sup> Michele B. Kaufman, “Bar Coding Helps Improve Patient Safety,” *Formulary*, January 1, 2008, *citing* Saverio M. Maviglia, “Cost-benefit Analysis of a Hospital Pharmacy Bar Code Solution,” *Archives of Internal Medicine*, 167 (2007): 788–794.

*Solution: Reduce Use of Certain Medication Abbreviations*

The use of medication abbreviations is a serious patient safety issue. Many acronyms are ambiguous, unfamiliar, or similar to one another, and therefore susceptible to misinterpretation and medical errors. In 2004, the Joint Commission mandated a “do not use list”<sup>51</sup> for all medication-related documentation. Several institutions have attempted to achieve better compliance with educational campaigns to decrease the use of certain abbreviations, but direct requirements have yielded better results. Fort Sanders Regional Medical Center in Tennessee was able to reduce the use of unacceptable abbreviations from 30 percent to 6 percent in four months after requiring that all medication orders containing unacceptable abbreviations be rejected.<sup>52</sup>

---

<sup>51</sup> Joint Commission on the Accreditation of Healthcare Organizations, “Facts about the Official ‘Do Not Use’ List,” June 9, 2009, [http://www.jointcommission.org/PatientSafety/DoNotUseList/facts\\_dnu.htm](http://www.jointcommission.org/PatientSafety/DoNotUseList/facts_dnu.htm).

<sup>52</sup> Kate Traynor, “Enforcement Outdoes Education at Eliminating Unsafe Abbreviations,” *American Journal of Health-System Pharmacy*, July 1, 2004, <http://www.ashp.org/import/News/HealthSystemPharmacyNews/newsarticle.aspx?id=1595>.

## V. Use best practices to prevent patient falls in health care facilities

**Potential annual premature deaths avoided: (no estimate)**

**Potential annual financial savings: \$1.5 billion**

Conservative estimates place the number of falls in hospitals and other health care facilities at 567,000 per year.<sup>53</sup> Each fall, on average, results in \$4,000 in additional medical costs.<sup>54</sup> These data suggest that medical costs from patient falls in U.S. hospitals at about \$2.3 billion.

Emerging data indicate that multifaceted approaches, such as the Hospital Elder Life Program (HELP), can significantly reduce patient falls in hospitals. The HELP program focuses on preventing delirium in elderly patients by providing individualized care. Core interventions include making adaptations for losses of vision and hearing, monitoring mental status daily, reducing the use of immobilizing medical devices, providing physical therapy, minimizing the use of psychoactive medications, scheduling toileting, and lowering bed heights.<sup>55</sup>

A review of hospitals that implemented HELP found that 95 percent reduced patient falls<sup>56</sup> and the average decrease in fall rate was between 67 percent and 74 percent.<sup>57</sup> Assuming at least a 67 percent reduction from implementation nationwide, the health care system could save at least \$1.5 billion annually if the system were universally adopted.<sup>58</sup>

---

<sup>53</sup> Laurence Z Rubenstein, *et al.*, "Falls and Instability in the Elderly," *Journal of the American Geriatric Society* 36 (1988): 266-278. This study found there to be between 0.6 and 2.9 falls annually per hospital bed. According to the American Hospital Association, there are 945,199 hospital beds nationwide. American Hospital Association, "Fast Facts on US Hospitals," April 13, 2009, <http://www.aha.org/aha/resource-center/Statistics-and-Studies/fast-facts.html>.

<sup>54</sup> Sharon K. Inouye, *et al.*, "Medicare Nonpayment, Hospital Falls, and Unintended Consequences," *The New England Journal of Medicine* 360 (2009): 2390-2393.

<sup>55</sup> *Ibid.*; The Hospital Elder Life Program, "About the Core Interventions," <http://hospitalelderlifeprogram.org/public/interventions.php?pageid=01.03.04>.

<sup>56</sup> Elizabeth H Bradley, *et al.*, "Patterns of diffusion of evidence-based clinical programmes: a case study of the Hospital Elder Life Program," *Quality and Safety in Health Care* 15 (2006): 334-338.

<sup>57</sup> Sharon K. Inouye, *et al.*, "Medicare Nonpayment, Hospital Falls, and Unintended Consequences," *The New England Journal of Medicine* 360 (2009): 2390-2393.

<sup>58</sup> This estimate ignores the outlier results from the study (*i.e.*, the 5 percent of hospitals that saw no improvement in patient falls). To compensate, the estimate uses the low figure from the range of improvements rates in the other hospitals studied.

## VI. Use a checklist to prevent catheter infections<sup>59</sup>

**Potential annual premature deaths avoided: 15,680**

**Potential annual financial savings: \$1.3 billion**

“Central venous catheters” (tubes inserted into large veins in the neck, chest, or groin that deliver medication or fluids) cause an estimated 80,000 bloodstream infections and contribute to up to 28,000 deaths among patients in intensive care units (ICUs) in the United States every year. The average additional cost to care for a patient with one of these infections is \$45,000, leading to total costs of approximately \$2.3 billion annually.

Dr. Peter Pronovost described in *The New England Journal of Medicine* a five-point checklist that reduced bloodstream infections in patients with catheters up to 66 percent in 103 Michigan ICUs that participated in the program and reported data. Before the checklist went into practice, the median number of catheter infections per 1,000 catheter days among ICUs studied was 2.7 and the average was 7.7. In the ensuing three months, the number of infections dropped to zero at the majority of hospitals. The average number of infections per thousand catheter days dropped from 2.7 at the beginning to 2.3 during the first 90 days, and to 1.4 during the first 18 months.

The checklist is simple. Its components are hand washing, using full-barrier precautions during the insertion of the catheters, cleaning the patient’s skin with the antibiotic chlorhexidine, not using the femoral artery if possible, and removing unnecessary catheters. The Michigan Hospital Association estimates that more than 1,729 lives and \$246 million were saved over three years in just 120<sup>60</sup> of the over 6,000<sup>61</sup> intensive care units nationwide. The total federal funding for the project was \$1 million (from the Agency for Healthcare Research and Quality), which was shared by the Michigan hospitals and Johns Hopkins University.

In 2008, the House Committee on Oversight and Government Reform found that only 14 state hospital associations reported adopting or planning to adopt the checklist. Pronovost estimated that 15,680 lives and \$1.3 billion could be saved each year if the rest of the country adopted the checklist.<sup>62</sup>

---

<sup>59</sup> Peter Pronovost, *et al.*, “An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU,” *The New England Journal of Medicine* 355 (2006): 2725-2732.

<sup>60</sup> Michigan Health and Hospital Association, “Letter to Chairman Waxman,” May 30, 2008, <http://oversight.house.gov/documents/20080919141926.pdf>.

<sup>61</sup> Number of ICUs from E. Wesley Ely, *et al.*, “Delirium as a Predictor of Mortality in Mechanically Ventilated Patients in the Intensive Care Unit,” *Journal of the American Medical Association* 291 (2004): 1753.

<sup>62</sup> Staff Report, “Survey of State Hospital Associations: Practices To Prevent Hospital-Associated Bloodstream Infections,” United States House Of Representatives Committee On Oversight and Government Reform, September 2008, <http://oversight.house.gov/Documents/20080919140811.pdf>.



## VII. Increase nurse staffing

**Potential annual premature deaths avoided: 5,000**

**Potential annual financial savings: \$242 million**

Several studies have found strong links between nurse staffing levels and patient safety. The Agency for Healthcare Research and Quality (AHRQ), the lead federal agency on patient safety issues, found that nurse staffing levels affected the frequency of several adverse events, including mortality.<sup>63</sup> In 2002, the Joint Commission found that 24 percent of “sentinel events” (the group’s term for unexpected events occurring in health care institutions resulting in serious physical or psychological injury<sup>64</sup>) were related to inadequate nurse staffing levels.<sup>65</sup>

The dangers of inadequate nurse staffing levels are acknowledged by both nurses and physicians. A national survey of nurses in 2001 reported that 75 percent of nurses thought that increasing patient loads adversely affected the quality of care, and 29 percent of Massachusetts nurses knew of a patient who died as a direct result of nurse understaffing.<sup>66</sup> More than 50 percent of doctors identified the understaffing of nurses to be a very important cause of medical errors.<sup>67</sup>

Several programs have improved patient safety or saved money (or both) by improving nurse staffing. For example, Needleman *et al.* found in 2006 that raising the proportion of registered nurses relative to licensed practical/vocational nurses (who have much less training than registered nurses) to the level used by hospitals in the 75th percentile could annually prevent 5,000 deaths, 1.5 million days of hospital care, and save \$242 million.<sup>68</sup> These are just short term savings. Needleman estimated that the long-term savings could be “much higher”<sup>69</sup> as hospitals decrease their fixed costs devoted to treating complications.

Another study, published in *Medical Care* in 2005, reaches even more sweeping conclusions. Although their findings are slightly outside the scope of this project because they would not

---

<sup>63</sup> Mark W. Stanton, *Hospital Nurse Staffing and Quality of Care* (Rockville, Md.: Agency for Healthcare Research and Quality, 2004).

<sup>64</sup> Joint Commission on Accreditation of Healthcare Organizations, “Sentinel Event,” <http://www.jointcommission.org/SentinelEvents/>.

<sup>65</sup> Joint Commission on Accreditation of Healthcare Organizations. *Health Care at the Crossroads: Strategies for Addressing the Evolving Nursing Crisis*, (Oak Brook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations, 2002): 43.

<sup>66</sup> Michael Rothberg, *et al.*, “Improving Nurse-to-Patient Staffing Ratios as a Cost-Effective Safety Intervention,” *Medical Care* 32 (2005): 785.

<sup>67</sup> *Ibid.*, 790.

<sup>68</sup> Jack Needleman, *et al.*, “Nurse Staffing in Hospitals: Is There a Business Case for Quality?” *Health Affairs* 25 (2006): 208.

<sup>69</sup> *Ibid.*, 209.



generate cost savings, the authors found that hospitals' mortality rate increased by 7 percent for each additional patient per nurse.<sup>70</sup> Assuming that patient-to-nurse ratios nationwide resemble those in Pennsylvania (where the median is between 5:1 and 6:1<sup>71</sup>), the authors concluded that reducing that ratio nationwide to 4:1 would save 72,000 thousand lives annually at a cost between \$4.2 billion to \$7.3 billion.<sup>72</sup> The outer range of that cost would amount to only one-third of 1 percent of the nation's health care bill.

---

<sup>70</sup> Michael Rothberg, *et al.*, "Improving Nurse-to-Patient Staffing Ratios as a Cost-Effective Safety Intervention," *Medical Care* 32 (2005): 787.

<sup>71</sup> Linda H. Aiken, "Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction," *Journal of the American Medical Association* 288 (2002): 1990.

<sup>72</sup> Michael Rothberg, *et al.*, "Improving Nurse-to-Patient Staffing Ratios as a Cost-Effective Safety Intervention," *Medical Care* 32 (2005): 790.

## VIII. Permit standing orders to increase flu and pneumococcal vaccinations in the elderly

**Potential annual premature deaths avoided: 9,520<sup>73</sup>**

**Potential annual financial savings: \$545 million**

The Centers for Disease Control (CDC) recommends that all adults over 65 get annual influenza vaccinations and one pneumococcal vaccination.<sup>74</sup> Influenza causes an average of 110,000 hospitalizations and 20,000 deaths annually in the United States.<sup>75</sup> Between 10,000 and 14,000 people die annually from pneumococcal disease.<sup>76</sup> Despite this, 36 percent of people over 65 years old do not receive annual flu shots, leaving 13.7 million elderly Americans unnecessarily vulnerable to the flu. Forty-seven percent do not receive pneumococcal vaccinations,<sup>77</sup> leaving 17.9 million unimmunized. Studies have found direct medical care cost savings of \$73 per individual receiving an influenza vaccination<sup>78</sup> and \$8 per pneumococcal vaccination.<sup>79</sup>

Standing-orders programs allow nurses, pharmacists, and other non-physician medical practitioners to prescribe and administer vaccinations without a physician exam and have been shown to be highly effective in improving vaccination coverage, increasing (for both influenza and pneumococcal disease) an average of 28 percent.<sup>80</sup> These programs can easily be implemented at “outpatient facilities, long-term-care facilities, managed-care organizations, assisted living facilities, correctional facilities, pharmacies, adult workplaces, and home health-care agencies to vaccinate patient, client, resident, and employee populations.”<sup>81</sup>

---

<sup>73</sup> Includes estimate of 5,600 lives saved from increased use of flu shots and 3,920 from increased use of pneumococcal vaccinations. Calculation derived by adopting consensus findings that implementing standing orders program would increase immunizations by 28 percent.

<sup>74</sup> Centers for Disease Control and Prevention, “Recommended Adult Immunization Schedule – United States, 2009,” *Morbidity and Mortality Weekly Report* 57 (2009): Q-1-Q-4.

<sup>75</sup> Institute of Medicine Committee on Identifying Priority Areas for Quality Improvement, *Priority Areas for National Action: Transforming Health Care Quality* (Washington, D.C.: The National Academies Press, 2003).

<sup>76</sup> *Ibid.*

<sup>77</sup> Sheila Leatherman *et al.*, *Quality of Health Care in the United States: A Chartbook* (New York, N.Y.: The Commonwealth Fund, 2002).

<sup>78</sup> Kristin L. Nichol, *et al.*, “Benefits of Influenza Vaccination for Low-, Intermediate-, and High-Risk Senior Citizens,” *Archives of Internal Medicine* 158 (1998): 1769-1776.

<sup>79</sup> Jane E. Sisk, *et al.*, “Cost-effectiveness of Vaccination against Pneumococcal Bacteremia Among Elderly People,” *Journal of the American Medical Association* 278 (1997): 1333-1339.

<sup>80</sup> Abigail Shefer, *et al.*, “Improving Immunization Coverage Rates: An Evidence Based Review of the Literature,” *Epidemiological Reviews* 21 (1999): 96-142.

<sup>81</sup> Advisory Committee on Immunization Practices, “Use of Standing Orders Programs to Increase Adult Vaccination Rates,” *Morbidity and Mortality Weekly Report* 49 (2000): 15-26, <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4901a2.htm>.

Increasing coverage by 28 percent would result in more than 6.8 million additional influenza immunizations and an associated savings of nearly \$500 million. Increasing the rate of pneumococcal vaccinations by the same amount would result in 5.7 million additional vaccinated people accounting for a savings of \$45 million. Thus, implementing standing orders to provide influenza and vaccinations to the elderly could save the nation \$545 million annually.

## IX. Use beta-blockers after heart attacks

**Potential annual premature deaths avoided: 3,600**

**Potential annual financial savings: \$900,000**

Beta-blockers are drugs that cause the heart to beat more slowly, lower blood pressure and reduce the risk of further heart failure. They have been shown to help prevent recurrence of heart attacks. Beta-blockers are inexpensive and in most cases their benefits are accepted as outweighing the risks. Beta blockers are usually prescribed to surviving victims of heart attacks, but in 1998 it was reported that only 50 percent of eligible patients and 68 percent of ideal patients were prescribed beta-blockers after a heart attack, despite evidence that they can drastically reduce the reoccurrence of a heart attack.<sup>82</sup> While there are indications that the rate of prescription has increased since,<sup>83</sup> beta-blockers are still chronically underutilized.

In 2000, Phillips *et al.* found that beta-blocker treatment, if begun within a few days or weeks of a heart attack and continued for several years, would reduce 1-year mortality by about 22 percent.<sup>84</sup> The authors estimated that if beta-blockers were prescribed to all first heart attack survivors, it would save \$900,000 and prevent 3,100 heart attacks and 3,600 deaths from coronary heart disease annually.<sup>85</sup> All told, increasing beta-blocker usage would save seven times more years of life than annual mammography screening for women between the ages 50 and 69.<sup>86</sup>

---

<sup>82</sup> Thomas A Marciniak, *et al.*, "Improving the Quality of Care for Medicare Patients with Myocardial Infarction," *Journal of the American Medical Association* 279 (1998): 1351-1357.

<sup>83</sup> Alan S. Go, *et al.*, "Comparative Effectiveness of Different  $\beta$ -Adrenergic Antagonists on Mortality among Adults with Heart Failure in Clinical Practice," *Archives of Internal Medicine* 168 (2008): 2415-2421.

<sup>84</sup> Kathryn A. Phillips, *et al.*, "Health and Economic Benefits of Increased  $\beta$ -Blocker Use Following Myocardial Infarction," *Journal of the American Medical Association* 284 (2000): 2750.

<sup>85</sup> *Ibid.*, 2751. Phillips reported the data for a 20-year span (72,000 fewer deaths, 62,000 fewer heart attacks, and \$18 million in savings).

<sup>86</sup> Kathryn A. Phillips, *et al.*, "Health and Economic Benefits of Increased  $\beta$ -Blocker Use Following Myocardial Infarction," *Journal of the American Medical Association* 284 (2000): 2752.

## X. Increase use of advanced care planning

### Potential annual financial savings: \$3.2 billion<sup>87</sup>

President Obama recently caused a stir when he pondered whether society should pay for expensive operations for people who are terminally ill. “That’s where I think you just get into some very difficult moral issues,” he said. “But that’s also a huge driver of cost, right?”<sup>88</sup>

In fact, significant savings relating to end-of-life care can be realized without even broaching the moral issues to which Obama referred. These savings can be achieved just by improving a federal law that seeks to enable people to express informed choices on the level and type of medical treatment they would like to receive at the very end of their lives.

Assisting adults to make informed, shared decisions about future medical choices through an effective process of advance care planning can result in knowing whether chronically ill individuals would like to receive cardio-pulmonary resuscitation (CPR) if they go into cardiac arrest or if they wish to be taken to the intensive care unit of a hospital in certain circumstances. These decisions might be documented in advance directives or in other forms.<sup>89</sup>

When given the chance to express their wishes, many people say they do not want extraordinary efforts made to save their lives if they have little or no chance to recover. For example, a 1998 study of deceased patients in La Crosse, Wis., found that more than 80 percent of individuals with advance care documents asked for limits on the circumstances in which they wanted to have CPR performed upon them.<sup>90</sup> A recent study demonstrated that patients who had end-of-life discussions with their physicians received better end-of-life care, less aggressive medical care near death, and their family caregivers had better bereavement adjustment than patients and family caregivers who did not have such discussions.<sup>91</sup>

In addition to honoring patients’ wishes, this patient-centered approach stands to save the health care system significant amounts of money. Medicare costs to care for chronically ill

---

<sup>87</sup> Estimates vary on the amount that advance planning programs can save. This estimate was generated by taking the low end of JAMA’s finding, cited below, that hospice and advance directive programs save 10 to 17 percent of costs for the final six months of a patient’s life. Actual savings could be far greater. A four-year study of patients in six nursing homes in Canada found that implementation of advance care programs yielded a 33 percent savings.

<sup>88</sup> David Leonhardt, “After the Great Recession,” *The New York Times*, April 28, 2009.

<sup>89</sup> See, e.g., Physician Orders for Life Sustainint Treatment Paradigm, <http://www.polst.org>.

<sup>90</sup> Bernard J. Hammes *et al.*, “Death and End-of-Life Planning in One Midwestern Community,” *Archives of Internal Medicine* 158 (1998): 383-390. (Note: Eighty percent figure includes only those with advance care documents who spoke to CPR in their document.)

<sup>91</sup> Alexi A. Wright, *et al.*, “Associations between End-of-Life Discussions, Patient Mental Health, Medical Care Near Death, and Caregiver Bereavement Adjustments,” *Journal of the American Medical Association*, 300 (2008): 1665-1673.

patients in the last six months of their lives averaged \$31.6 billion a year from 2001 to 2005.<sup>92</sup> The total cost (*i.e.*, including Medicaid, private insurance and out-of-pocket costs) to treat people in their final six months of life is estimated at about 10 percent of the nation's health care bill.<sup>93</sup> In 2009, this would amount to about \$250 billion.<sup>94</sup>

Advance directive programs have been shown to reduce costs and the amount of care sought. For example:

- An 18-month study published in January 2006 of patients in 17 aged-care facilities and two palliative care services in Australia found that 90 percent of patients participating in an advance directive program “requested that they receive no life prolonging measures and requested that they primarily receive symptom and pain management.”<sup>95</sup>
- A 2000 study of 527 participating residents in six Ontario, Canada, nursing homes found that three nursing homes that affirmatively offered patients the chance to create advance directives experienced 0.27 hospitalizations per resident compared to an average of 0.48 hospitalizations per resident in three nursing homes that did not make special efforts to inform patients about advance directive options. Costs in the nursing homes that offered advance directives programs were \$3,490 per resident; costs in the other nursing homes were \$5,239.<sup>96</sup>

A literature review published in the *Journal of the American Medical Association* in 1995 reported that studies concluded that the combination of hospice care and advance directives saved between 10 percent and 17 percent of health care costs in the last six months of life.<sup>97</sup>

The federal Patient Self-Determination Act (1990) requires many health providers to inform patients at the time of admission that they have the right to refuse treatment and to sign advance care planning documents. But the law has failed to achieve a significant increase in the use of advance planning documents largely because of the pro-forma manner in which patients are informed of their options and a lack of diligence by care facilities in ensuring that patients'

---

<sup>92</sup> Dartmouth Atlas of Health Care, “Total Medicare Reimbursements per Enrollee during the Last Six Months of Life (2001 - 2005),” <http://www.dartmouthatlas.org/index.shtm>.

<sup>93</sup> D. William Molloy, *et al.*, “Systematic Implementation of an Advance Directive Program in Nursing Homes: A Randomized Controlled Trial,” *Journal of the American Medical Association*, March 15, 2000, executive summary.

<sup>94</sup> Centers for Medicare & Medicaid Services Office of the Actuary, “National Health Expenditure Projections 2008-2018,” July 7 2009, <http://www.cms.hhs.gov/NationalHealthExpendData/downloads/proj2008.pdf>.

<sup>95</sup> Respecting Patient Choices Program, “Final Evaluation of the Community Implementation of the Respecting Patient Choices Program,” Austin Health, January 2006: 5.

<sup>96</sup> D. William Molloy, *et al.*, “Systematic Implementation of an Advance Directive Program in Nursing Homes: A Randomized Controlled Trial,” *Journal of the American Medical Association* 283 (2000): 1437-1444.

<sup>97</sup> Ezekiel J. Emanuel, “Cost Savings at the End of Life: What Do the Data Show,” *Journal of the American Medical Association* 275 (1996): 1907-1914.

requests are honored. Several studies assessed by AHRQ have found that fewer than 50 percent of critically ill patients have created advance directives.<sup>98</sup>

In addition, merely keeping patients' advance directive documents accessible to their doctors has proved surprisingly uncommon. Studies have shown that between 65 percent and 76 percent of physicians whose patients had an advance directive were not aware that it existed.<sup>99</sup> Another study found that advance directive documents were only mentioned in the medical records of 35 percent of patients who had such documents<sup>100</sup>

Bernard J. Hammes, an end-of-life policy expert at the Gundersen Lutheran Medical Foundation in La Crosse, Wis., spearheaded a program that led to 85 percent of patients in La Crosse having advance care documents by the late 1990s and more than 95 percent today, making LaCrosse the national leader in this area.<sup>101</sup>

In consulting with other hospitals, Hammes has come across examples in which hospitals routinely choose to send patients' advance care documents to off-site storage to help reduce the size of their medical files. Such a policy ensures that the documents will not be available to physicians if the patient suffers a critical event.<sup>102</sup>

Hammes sympathizes with hospitals that do not implement advance directive programs that exceed the federal mandate. Such programs carry significant costs to train personnel and counsel patients. Also, hospitals that successfully implement these programs can expect to

---

<sup>98</sup> Barbara L. Kass-Bartelmes, "Advance Care Planning: Preferences for Care at the End of Life," Agency for Healthcare Research and Quality, March 2003, <http://www.ahrq.gov/research/endliferia/endria.htm>, citing Joan Teno, et al., "Do Advance Directives Provide Instructions that Direct Care?" *Journal of the American Geriatric Society* 45 (1997): 508-12; Joan Teno, et al., "Advance Directives for Seriously Ill Hospitalized Patients: Effectiveness with the Patient Self-Determination Act and the SUPPORT Intervention," *Journal of the American Geriatric Society* 45 (1997): 519-20; Elizabeth H. Bradley, "Public Information and Private Search: Evaluating The Patient Self-Determination Act," *Journal of Health Politics, Policy and Law* 24 (1999): 239-73; Jaya Virmani, "Relationship of Advance Directives to Physician-Patient Communication," *Archives of Internal Medicine* 154 (1994): 909-13.

<sup>99</sup> Barbara L. Kass-Bartelmes, "Advance Care Planning: Preferences for Care at the End of Life," Agency for Healthcare Research and Quality, March 2003, <http://www.ahrq.gov/research/endliferia/endria.htm>, citing Jaya Virmani, "Relationship of advance directives to physician-patient communication," *Archives of Internal Medicine* 154 (1994): 909-13; Joan Teno, et al., "Advance Directives for Seriously Ill Hospitalized Patients: Effectiveness with the Patient Self-Determination Act and the SUPPORT Intervention," *Journal of the American Geriatric Society* 45 (1997): 519-20.

<sup>100</sup> Joan Teno, et al., "Advance Directives for Seriously Ill Hospitalized Patients: Effectiveness with the Patient Self-Determination Act and the SUPPORT Intervention," *Journal of the American Geriatric Society* 45 (1997): 519-20.

<sup>101</sup> Bernard J. Hammes, interview with Taylor Lincoln, research director of Public Citizen's Congress Watch division, July 17, 2009.

<sup>102</sup> *Ibid.*

reduce their revenue because many patients will ask not to receive certain life-prolonging measures.<sup>103</sup>

Hammes' recommendation is for Medicare to increase reimbursements to primary care physicians, geriatricians, hospitals, long-term care facilities and hospice care providers in health care regions in which a large share (perhaps 80 percent) of patients have advance care documents available to the treating providers at the time of death.<sup>104</sup> Such documents should meet certain criteria, such as addressing whether patients want to receive CPR if they go into cardiac arrest or to be taken to the ICU unit of a hospital in certain circumstances. The reimbursements should be sufficient to cover care facilities' costs to administer advanced care programs.

Regardless of what strategy it chooses, Congress should ensure that the objectives of the Patient Self-Determination Act are finally met.

---

<sup>103</sup> *Ibid.*

<sup>104</sup> *Ibid.*



## PART II: IMPLEMENTATION

### I. The federal government should use its leverage to ensure that well accepted safety practices are universally implemented

The federal government should use its leverage as the funder of Medicare, Medicaid and other health programs to ensure that health care providers take specific steps to dramatically reduce patient safety incidents. Most of the reforms discussed in this report could be implemented by the Department of Health and Human Services (HHS), which could alter Medicare's Conditions of Participation and make other modifications to the Medicare program. Legislation would be a faster and more reliable way to enact these reforms.

Medicare has taken similar steps already. For example, Medicare's Premier Hospital Quality Incentive Demonstration – a pilot program encompassing 250<sup>105</sup> of the nation's roughly 5,700<sup>106</sup> hospitals – provides incentives to hospitals to carry out some practices discussed in this report, such as administering beta blockers to heart attack victims and ensuring that patients receive flu and pneumococcal vaccines.<sup>107</sup> Similarly, Medicare's Physician Group Practice demonstration project provides incentives to follow specific treatment protocols in certain cases.<sup>108</sup>

Medicare also has ceased paying to treat hospital-acquired conditions it deems inexcusable – often called “never events” – including several mentioned in this report. For example, Medicare no longer pays for treatment of severe pressure ulcers, injuries from some patient falls, catheter-associated urinary tract infections, effects of medication errors, and many adverse events relating to operations.<sup>109</sup> Although Medicare's adoption of this policy was an excellent step, it was not sufficient to ensure universal adoption of accepted patient-safety practices. The threat of penalties might not result in some physicians following best practices consistently or

---

<sup>105</sup> Premier Hospital Quality Incentive Demonstration, “Fact Sheet,” Centers for Medicaid and Medicare Services, June 2008, <http://www.cms.hhs.gov/HospitalQualityInits/Downloads/HospitalPremierFactSheet200806.pdf>.

<sup>106</sup> AHA Hospital Statistics, “Fast Facts on US Hospitals,” American Hospital Association, April 13, 2009, <http://www.aha.org/aha/resource-center/Statistics-and-Studies/fast-facts.html>.

<sup>107</sup> AHA Hospital Statistics, “Fast Facts on US Hospitals,” American Hospital Association, April 13, 2009, <http://www.aha.org/aha/resource-center/Statistics-and-Studies/fast-facts.html>.

<sup>108</sup> Medicare Physician Group Practice Demonstration, “Physicians Groups Continue to Improve Quality and Generate Savings Under Medicare Physician Pay for Performance Demonstration,” Centers for Medicaid and Medicare Services, August 2008, [http://www.cms.hhs.gov/DemoProjectsEvalRpts/downloads/PGP\\_Fact\\_Sheet.pdf](http://www.cms.hhs.gov/DemoProjectsEvalRpts/downloads/PGP_Fact_Sheet.pdf).

<sup>109</sup> Centers for Medicaid and Medicare Services, “CMS Improves Patient Safety for Medicare and Medicaid by Addressing Never Events,” press release, August 4, 2008, <http://www.cms.hhs.gov/apps/media/press/factsheet.asp?Counter=3224>.

hospitals might avoid the sting of the program by taking advantage of holes in the reporting system. For example, the Department of Health and Human Services inspector general reported in December 2008, “The exclusion of the diagnosis code for urinary tract infections could result in Medicare paying for associated care without recognizing that a hospital-acquired infection occurred.”<sup>110</sup> Also, some patient-safety shortcomings might not be feasible to completely eliminate and, therefore, could not be addressed via “never event” sanctions.

Congress should take bold steps to ensure that accepted patient-safety practices are consistently employed throughout the health care system. It may do so by:

- Passing legislation instructing the secretary of HHS to require hospitals to implement best practices to maintain their certification to receive reimbursements for treating Medicare patients;
- Passing legislation instructing the secretary of HHS to impose significant penalties on the reimbursement rates received by care providers that are unable to demonstrate their adherence to best practices;
- Passing legislation instructing the secretary of HHS to enact as national policies successful pilot programs that provide incentives for hospitals and group practices to fulfill prescribed measures and meet outcomes objectives. The programs also should include penalties and incentives sufficient to ensure near universal adoption.

To the extent that following best practices will increase care givers’ costs, such as those needed to pay for additional staff to tend to bedridden patients, Medicare reimbursement rates should be increased accordingly. This will save money in the long run, as this report illustrates.

---

<sup>110</sup> Office of Inspector General, Department of Health and Human Services, “Adverse Events in Hospitals: Overview of Key Issues,” December 2008, 14.

## II. Congress should require HHS to accredit providers to receive Medicare reimbursements

Given that the federal government pays more than \$750 billion annually in health care costs,<sup>111</sup> it has a responsibility to taxpayers and patients to certify that the providers receiving this money are meeting federal standards. Congress should insist that HHS – not private organizations – issue the accreditations necessary to receive federal reimbursements for health care services. Congress also should ensure that the government hires the experts to investigate hospitals, not permit the hospitals to hire their own examiners.

This can be accomplished by having the federal government conduct compliance inspections for Medicare-accredited hospitals. This change would bring the health care provider system more in line with the Federal Drug Administration's system for approving drugs. More than of 80 percent hospitals obtain their eligibility to receive Medicare reimbursements by winning accreditation from the Joint Commission.<sup>112</sup> The Joint Commission has long been ineffective and overly close to the hospitals it certifies:

- Despite the widely acknowledged, longstanding epidemic of avoidable errors in the nation's hospitals, less than 1 percent of hospitals that the Joint Commission examines receive so much as a preliminary denial of their applications for re-accreditation.<sup>113</sup> Even those hospitals that receive preliminary denials are permitted to continue receiving Medicare reimbursements while the Joint Commission works with them to bring them back into compliance. Few, if any, hospitals actually lose privileges.<sup>114</sup> The overwhelming rate with which hospitals are approved coupled with the longstanding epidemic of serious errors plainly suggests a disconnect between the Joint Commission's standards and those of health safety experts.
- The Joint Commission failed to identify deficiencies in Medicare requirements in 123 of 157 hospitals in which state regulatory agencies identified deficiencies, the Government Accountability Office (GAO) found in 2004.<sup>115</sup>

---

<sup>111</sup> National Health Expenditure Accounts, "National Health Expenditures by Type of Service and Source of Funds, CY 1960-2007," Centers for Medicare & Medicaid Services, June 2009,

[http://www.cms.hhs.gov/NationalHealthExpendData/02\\_NationalHealthAccountsHistorical.asp#TopOfPage](http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage)

<sup>112</sup> Government Accountability Office, "Letter to Sen. Charles Grassley (R-Iowa) and Rep. Pete Stark (D-Calif.)," in "Hospital Accreditation: Joint Commission on Accreditation of Healthcare Organizations' Relationship with Its Affiliate," December 2006, page 1-2.

<sup>113</sup> Yvonne Wingett, "Accreditation of Health System at Risk after Inspection," *Arizona Republic*, Jan. 25, 2008.

<sup>114</sup> Mark Pelletier, executive director for accreditation of the Joint Commission, interview with Taylor Lincoln, research director of Public Citizen's Congress Watch division, August 5, 2009.

<sup>115</sup> Government Accountability Office, "CMS Needs Additional Authority to Adequately Oversee Patient Safety in Hospitals," July 2004, <http://www.gao.gov/new.items/d04850.pdf>.

- The Joint Commission is closely tied to a consulting firm it established that charges hospitals for assistance in winning the Joint Commission’s seal of approval.<sup>116</sup> Conflict-of-interest risks remained even after the two groups established a “firewall” to address concerns, the GAO concluded in 2006. “It will take ongoing monitoring and a concerted effort on the part of the leadership of both organizations to ensure that these [firewall] policies and procedures are appropriately implemented by both their board and staff members,” the GAO wrote.<sup>117</sup>
- After initially discussing – or perhaps, intending – to require mandatory reporting of adverse events, the Joint Commission experienced pressure from a group connected to the American Hospital Association and instead implemented a voluntary reporting system in the mid-1990s.<sup>118</sup>
- By its own estimate, the Joint Commission’s reporting system for adverse errors captures only one-tenth of 1 percent of the serious avoidable mistakes.<sup>119</sup> That the Joint Commission would tolerate such lax reporting indicates that it is ill-suited to tackle the epidemic of errors in hospitals.

In July 2008, Congress revoked the Joint Commission’s automatic authority to deem hospitals eligible to provide Medicare-funded services. This required the group to apply for approval to continue accrediting hospitals.<sup>120</sup> Two months later, CMS approved DNV Healthcare Inc., a subsidiary of a Norwegian company, to compete with the Joint Commission for hospital accreditation business.<sup>121</sup>

While these steps were no doubt well intentioned, there is a strong chance that they will only worsen the situation, for now accrediting bodies must compete to please hospitals, who can choose their own purported watchdog. The accrediting bodies should be competing for the government’s approval, not for the favor of the hospitals they oversee.

---

<sup>116</sup> Gilbert M. Gaul, “Accreditors Blamed for Overlooking Problems: Conflict of Interest Cited Between Health Facilities, Group That Assesses Conditions,” *Washington Post*, July 25, 2005.

<sup>117</sup> Government Accountability Office, “Joint Commission on Accreditation of Healthcare Organizations’ Relationship with Its Affiliate,” December 2006, <http://www.gao.gov/new.items/d0779.pdf>.

<sup>118</sup> E-mail from a former American Medical Association official to Alan Levine of Public Citizen’s Health Research Group, August 3, 2009.

<sup>119</sup> Office of Inspector General, Department of Health and Human Services, “Adverse Events in Hospitals: Overview of Key Issues,” December 2008, 25, <http://oig.hhs.gov/oei/reports/oei-06-07-00470.pdf>.

<sup>120</sup> Congressional Research Service, Bill Digest, July 30, 2008.

<sup>121</sup> DNV Healthcare Inc, “Medicare Approved DNV to Accredit U.S. Hospitals,” press release, September 25, 2008, <http://www.dnv.com/industry/healthcare/news/medicareapprovesdnvtoaccreditushospitals.asp>.

To advance patient safety and ensure that the taxpayers' \$750 billion annual investment is well spent, Congress should require CMS to make final decisions on accreditation. CMS should use outside firms such as the Joint Commission and DNV only as consultants to gather information and make recommendations. Congress also should ensure that CMS has authority to levy a range of meaningful sanctions aside from revoking accreditation against hospitals showing subpar performance.

### III. Congress should take steps to increase number of nurses

Congress should take dramatic steps to increase the ratio of nurses to patients. As this report discusses, experts have repeatedly determined that having more nurses increases patient safety.

AHRQ, the federal government's lead agency in charge of patient safety, reports that "hospitals with inadequate nurse staffing have higher rates of adverse events such as hospital acquired infection, shock, and failure to rescue. Systematic reviews of the published literature show that better nurse staffing is associated with less hospital mortality and failure to rescue, and shorter lengths of stay."<sup>122</sup>

There is a shortage of 126,000 nurses in the United States, according to the American Hospital Association.<sup>123</sup> This is largely caused by a shortage in the number of faculty members available to train new nurses.<sup>124</sup>

Several states have passed legislation to reduce nursing shortages. Also, the 2009 stimulus bill devoted \$100 million to the problem.<sup>125</sup> Federal legislation has been proposed to provide education loan repayment incentives for nursing school teachers.

Neither the federal government nor the Joint Commission provides specific standards on nurse-to-patient ratios. Instead, federal regulations call for hospitals certified to participate in Medicare to "have adequate numbers of licensed registered nurses, licensed practical (vocational) nurses, and other personnel to provide nursing care to all patients as needed" but the regulations do not define "adequate."<sup>126</sup>

Congress should take several steps to address the shortage and strengthen standards:

- Congress should pass legislation that provides sufficient incentives to ensure the availability of enough nursing school teachers. To the extent that incentives are needed to encourage students to pursue nursing careers, Congress should resolve that need as well.

---

<sup>122</sup> Evidence Report/Technology Assessment, "Nurse Staffing and Quality of Patient Care," Agency for Healthcare Research and Quality, March 2007, <http://www.ahrq.gov/downloads/pub/evidence/pdf/nursestaff/nursestaff.pdf>.

<sup>123</sup> American Hospital Association, "The Hospital Workforce Shortage: Immediate and Future," *Trendwatch*, June 2001, <http://www.aha.org/aha/trendwatch/2001/twjune2001.pdf>.

<sup>124</sup> Will Dunham, "U.S. healthcare system pinched by nursing shortage," *Reuters*, March 8, 2009, <http://www.reuters.com/article/domesticNews/idUSTRE5270VC20090308>.

<sup>125</sup> *Ibid.*

<sup>126</sup> U.S. Code of Federal Regulation, Title 42, Section 482.23(b), [http://edocket.access.gpo.gov/cfr\\_2007/octqtr/pdf/42cfr482.23.pdf](http://edocket.access.gpo.gov/cfr_2007/octqtr/pdf/42cfr482.23.pdf).

- At least for the short term, Congress should expand the number of temporary visas for nurses from abroad. China, India, and the Philippines, for example, have surpluses of nurses.<sup>127</sup>
- Congress should set minimum nurse-to-patient ratios. Legislation is now proposed in Congress that sets standards such as requiring at least one direct care nurse for every patient in operating room units, for every two patients in critical care units, and for every three patients in emergency rooms. Such legislation should not preempt state laws that have more stringent standards.
- To the extent that such legislation would present a financial burden on hospitals, Congress should provide for extra short-term funding. Research on the effects of improved nurse-to-patient ratios suggests that such changes will eventually pay for themselves. For example, reduced complications from adverse errors will reduce patient stays, which will reduce the number of nurses hospitals must retain to meet acceptable nurse-patient ratios.

---

<sup>127</sup> See, e.g., H.R. 1001, 111<sup>th</sup> Congress, “The Nursing Relief Act of 2009,” Section 2(1)(4), <http://www.thomas.gov/cgi-bin/query/z?c111:H.R.1001.IH;>

## IV. Congress should require mandatory reporting of adverse events

Congress should require mandatory reporting of adverse events and should designate a federal entity to collect and analyze the reports. Data should be published in the greatest detail possible without compromising patients' privacy.

This step would partially fulfill a recommendation put forth by the Institute of Medicine in its 1999 report, *To Err Is Human*, which found that 44,000 to 98,000 Americans die in hospitals every year because of avoidable errors. The IOM called for a mandatory reporting regime to be established in every state<sup>128</sup> but no such requirement has been instituted. As of January 2008, half the states did not have any type of adverse reporting system.<sup>129</sup> The existing systems were so varied in their requirements that they "are not useful in understanding national issues and trends," the inspector general of HHS reported.<sup>130</sup>

National data on adverse events in hospitals has largely been limited to information gleaned by the Joint Commission, which relies on voluntary reporting. In the mid-1990s, the leadership of the Joint Commission either proposed or discussed requiring mandatory disclosure of sentinel events, the organization's term for an "unexpected occurrence involving death or serious physical or psychological injury."

Public Citizen has received differing accounts of how seriously the commission considered mandatory reporting. A former American Medical Association official told Public Citizen in an e-mail that the Joint Commission had expressed an intention to implement mandatory reporting. The former official recounted that he subsequently attended a meeting at which a board member of the American Society for Healthcare Risk Management (ASHRM) – a group affiliated with the American Hospital Association – cited litigation concerns in objecting strenuously to mandatory reporting to Hal Bressler, the Joint Commission's general counsel.<sup>131</sup>

Bressler, who remains general counsel of the Joint Commission, told Public Citizen that mandatory reporting had been "discussed" at the Joint Commission but not proposed. He said there was "concern and controversy" over the reporting regime under discussion but that

---

<sup>128</sup> Institute of Medicine, *To Err Is Human: Building A Safer Health System* (Washington, D.C.: National Academies Press, 1999), 3.

<sup>129</sup> Office of Inspector General, Department of Health and Human Services, "Adverse Events in Hospitals: Overview of Key Issues," December 2008, i, <http://oig.hhs.gov/oei/reports/oei-06-07-00470.pdf>.

<sup>130</sup> *Ibid.*, 20.

<sup>131</sup> E-mail from a former American Medical Association official to Alan Levine of Public Citizen's Health Research Group, August 3, 2009.



mandatory reporting was never seriously considered.<sup>132</sup> The reporting policy that was eventually instituted was voluntary.

In 2001, the Joint Commission announced that hospitals would be required to disclose errors to patients or risk losing their accreditation.<sup>133</sup> Hospitals have either flouted that threat or have fulfilled it without informing the Joint Commission about almost all of the errors that occur. Joint Commission officials estimated in 2008 that only about one-tenth of 1 percent – one of every thousand – of sentinel events are reported to them.<sup>134</sup>

In addition to deeming reporting of adverse events mandatory, Congress should instruct CMS to prescribe penalties sufficient to deter noncompliance. Care providers should be required to instruct all of their employees to report possible errors. Congress should pass whistleblower protections for health care workers similar to those enacted for consumer product manufacturing workers to prevent employees from being intimidated into silence.

---

<sup>132</sup> Hal Bressler, general counsel of the Joint Commission, interview with Taylor Lincoln, research director of Public Citizen's Congress Watch division, August 5, 2009. Note: Public Citizen inquired to Dr. Dennis O'Leary, who was president of the Joint Commission at the time and now serves as the organization's president emeritus, but did not receive a response.

<sup>133</sup> Robert Davis, "Hospital Mistakes Must be Disclosed," *USA Today*, June 28, 2001.

<sup>134</sup> Office of Inspector General, Department of Health and Human Services, "Adverse Events in Hospitals: Overview of Key Issues," December 2008, 25, <http://oig.hhs.gov/oei/reports/oei-06-07-00470.pdf>.

## V. Congress Should Strengthen Law Requiring Reporting of Doctor Discipline and Mandate Adequate Peer Review of Physicians

Barely 50 percent of hospitals have reported a single instance of a physician receiving a disciplinary action that involved a suspension of privileges for more than 30 days since a requirement to disclose such actions was created in 1986, Public Citizen reported in a recently published study.<sup>135</sup> Overall reporting of disciplinary actions has fallen far short of expectations. The health care industry predicted that the law would prompt 10,000 reports a year. Instead, the number of reports has averaged only 650.<sup>136</sup>

The dismal reporting jeopardizes patient safety because such disclosures notify state medical boards and other regulators of potentially dangerous doctors. The dearth of reports most likely owes to hospitals

- Evading the reporting requirement by issuing penalties below the reporting threshold (*e.g.*, by suspending physicians for 30 days, when a 31 day suspension would require reporting); or
- Ignoring the reporting requirement altogether; or
- Simply failing to discipline bad doctors (many hospitals have ineffective or compromised peer review processes).

Hospitals have little incentive to comply with the law. In response to a Public Citizen inquiry, an executive for the Joint Commission blamed the underreporting on weak or nonexistent penalties. “The hospital industry is well aware of this history of no penalty and well understand[s] that [there] is no significant punishment associated with not following this requirement,” Dr. Robert W. Wise, vice president of the Joint Commission’s Division of Standards and Survey Methods, wrote in an e-mail to Public Citizen.<sup>137</sup>

Congress should institute serious penalties for failures to report and also should require hospitals to have adequate peer review processes as a condition of receiving Medicare reimbursements. Congress also should lower the reporting threshold for disciplinary action and prohibit disciplinary policies or actions that appear intended to evade reporting requirement.

---

<sup>135</sup> Alan Levine and Dr. Sidney Wolfe, “Hospitals Drop the Ball on Physician Oversight,” Public Citizen, May 27, 2009, <http://www.citizen.org/documents/1873.pdf>.

<sup>136</sup> *Ibid.*

<sup>137</sup> Dr. Robert A. Wise, vice president of the division of standards and survey methods for the Joint Commission, e-mail to Alan Levine of Public Citizen’s Health Research Group, July 27, 2008.