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*These notes are provided so that people listening to the audio book version of Killer Cure
can see the references which are an integral part of the book.*

Chapter One: It's Not the Health Care System You Think It Is

1. This calculation combines the mutually exclusive numbers of deaths reported from medical errors (200K/year), hospital-acquired infections (99K/year), adverse drug events (125K/year), and hospitalization-caused pulmonary embolisms (200K/year). "Pulmonary embolism" is the technical term for a blood clot that travels to the lungs. These four causes total 624K deaths/year. Divided by 52 weeks, the result is 12,000 deaths/week. Sources for numbers for each of the four causes of death follow:

Paul Davies, "Fatal Medical Errors Said To Be More Widespread," *Wall Street Journal*, 27 July 2004. "A new study coming out today estimates that the number of patients who died from medical errors is more than double the findings in a 1999 report that sparked widespread concern. The numbers in the new study are being challenged, but the findings promise to fuel the debate over hospital safety. The study by Health Grades Inc., a health-care consulting firm in Colorado that rates hospitals, estimated that medical errors in U.S. hospitals contributed to almost 600,000 patient deaths over the past three years, double the number of deaths from a study published in 2000 by the Institute of Medicine."

Laura Landro, "Report Card to Rank Hospitals on Safety," *Wall Street Journal*, 22 April 2004. "The incidence of medical errors is higher than some patients might think. The Institute of Medicine reported in 2000 that medical errors cause as many as 98,000 deaths annually, but some safety experts now say the report actually understates the problem. Charles Denham, a physician and founder of the nonprofit Texas Medical Institute of Technology, which designed the new survey [for reporting hospital safety], says a more realistic number may be as high as 200,000 deaths per year. . . . He says, 'the risk to patients is so great that we just don't have time to wait.'"

"Estimates of Healthcare-Associated Infections," Centers for Disease Control and Prevention, <http://www.cdc.gov/ncidod/dhqp/hai.html>, 15 June 2009. "In American hospitals alone, healthcare-associated infections account for an estimated 1.7 million infections and 99,000 associated deaths each year."

Jeff Donn, "Experts Warn on Expense of U.S. Drugs," *Associated Press*, 17 April 2005. "Well over 125,000 Americans die from drug reactions and mistakes each year, according to Associated Press projections from landmark medical studies of the 1990s. That could make pharmaceuticals the fourth-leading national cause of death after heart disease, cancer and stroke."

Saul Weingart, Ross McL. Wilson, Robert W. Gibberd, and Bernadette Harrison, "Epidemiology of Medical Error," *BMJ*, 18 March 2000. Adverse drug events among people not in hospitals "accounted for 116 million extra visits to the doctor per year, 76 million additional prescriptions, 17 million emergency department visits, 8 million admissions to [the] hospital, 3 million admissions to long term care facilities, and 199,000 additional deaths."

Laura Landro, "In the Hospital, Facing a Scourge of Killer Clots," *Wall Street Journal*, 01 April 2009. "Life-threatening blood clots are a growing problem in hospitals. . . . Deep-vein thrombosis, or DVT . . . followed by pulmonary embolism — a sequence of occurrences known as a venous thromboembolism event, or VTE — kills nearly 200,000 U.S. patients a year." This condition is viewed as almost entirely preventable.

2. Christopher Lee, "Studies: Hospitals Could Do More to Avoid Infections — Poor Hygiene, Operating Room Traffic, Antibiotic Use Are Cited," *Washington Post*, 21 November 2006. "Infections acquired in hospitals, which take a heavy toll on patients, arise mainly from poor hygiene in hospital procedures, not from how sick patients were when they were admitted, according to three new studies." (Other researchers make similar points about medical errors and adverse drug events.)

3. The math for this calculation is derived from the calculation explained later in the chapter that 26% of deaths are directly caused by health care.

4. "Rank Order — Life Expectancy at Birth," *CIA World Factbook*, 19 March 2009,

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<https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html>.

5. “Rank Order — Infant Mortality Rate,” *CIA World Factbook*, 19 March 2009, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2091rank.html>. This analysis reports the country with the highest infant mortality rate as number one, so to derive rankings of the lowest infant mortality rate, one needs to start counting from the bottom of the list. I call this statistic “infant survival rates.”

6. Nicholas D. Kristof, “Health Care? Ask Cuba,” *New York Times*, 12 January 2005.

7. World Health Organization, “World Health Organization Assesses the World’s Health Systems,” 21 June 2000. An overview of the study can be found at http://www.who.int/whr/2000/media_centre/press_release/en/index.html. In the appendix, p. 13 provides the ranking showing the U.S. 37th overall: http://www.who.int/whr/2000/en/whr_annex_en.pdf. Some analysts object to the study’s approach to ranking. Even if this study is discounted, dozens of others point in the same direction.

8. Paul Davies, “Fatal Medical Errors Said To Be More Widespread,” *Wall Street Journal*, 27 July 2004.

See also Laura Landro, “Report Card to Rank Hospitals on Safety,” *Wall Street Journal*, 22 April 2004.

The story hasn’t changed much since then. See “National Healthcare Quality Report 2008,” U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, March 2009. It reports, “Distressingly, measures of patient safety . . . indicate not only a lack of improvement but also, in fact, a decline of almost 1 percent” in each of the most recent six years. This report can be found at www.ahrq.gov/qual/qdr08.htm.

9. “Fourth Annual HealthGrades Patient Safety in American Hospitals Study: April 2007,” Health Grades, Inc.

10. This is a subset of a list adapted from Linda T. Kohn, Janet M. Corrigan, and Molla S. Donaldson, eds., Institute of Medicine, *To Err is Human: Building a Safer Health System*, Washington: National Academies, 2000.

11. Kevin Sack, “Swabs in Hand, Hospital Cuts Deadly Infections,” *New York Times*, 27 July 2007.

See also “CDC Urges Hospitals to Tackle Drug-Resistant Infections,” *Dow Jones Newswires*, 19 October 2006.

12. Wikipedia, “Ignaz Semmelweis,” 10 June 2007, http://en.wikipedia.org/wiki/Ignaz_Semmelweis.

13. Christopher Lee, “Studies: Hospitals Could Do More to Avoid Infections — Poor Hygiene, Operating Room Traffic, Antibiotic Use Are Cited,” *Washington Post*, 21 November 2006.

14. Robert Langreth, “Clean Hands,” *Forbes.com*, 19 June 2006. “‘Hand-washing can be the most powerful weapon on earth,’ says New York University infection expert Philip M. Tierno, yet studies show doctors often forget to do it. . . . Strict infection-control measures and prudent antibiotic use have let hospitals in the Netherlands avoid the resistant staph strains that plague most U.S. hospitals. . . . Resistant staph infections dropped 90% at the University of Pittsburgh Medical Center after it began testing incoming ICU patients for exposure to resistant staph strains and isolating carriers. . . . ‘It saves money — and lives. There is no reason why this shouldn’t be implemented in a universal way,’ says Carlene Muto, head of infection control at the medical center.”

See also Kevin Sack, “Swabs in Hand, Hospital Cuts Deadly Infections,” *New York Times*, 27 July 2007.

15. Betsy McCaughey, “Coming Clean,” *New York Times*, 06 June 2005.

16. *Ibid.*

17. Howard Gleckman with John Carey, “Medicine’s Industrial Revolution,” *Business Week*, 29 May 2006. “For 150 years we have known that doctors with unwashed hands pass infections from patient to patient. The Centers for Disease Control & Prevention figures that 80% of hospital-acquired infections are transmitted this way, costing billions of dollars annually to treat and killing thousands of people.”

18. Liz Szabo, “Patient, Protect Thyself,” *USA Today*, 04 February 2007. “Only about 35% of hospital employees consistently wash their hands each time they prepare to touch a patient — a basic step to preventing infection, O’Leary says.” This quotation refers to Dennis O’Leary, who at the time headed the Joint Commission on Accreditation of Healthcare Organizations, which accredits hospitals.

19. Robert Langreth, “Fixing Hospitals,” *Forbes*, 20 June 2005. A University of Geneva study

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(reported in *Annals of Internal Medicine*) noted, “61% of doctors wash their hands before examining a patient if they know someone is watching . . . 44% wash their hands if they think no one is watching.”

20. Ahmedin Jemal, Rebecca Siegel, Elizabeth Ward, Yongping Hao, Jiaquan Xu, Taylor Murray, and Michael J. Thun, “Cancer Statistics, 2008,” *CA — A Cancer Journal for Clinicians*, 20 February 2008. Total estimated deaths from breast cancer are 40,930.

21. Melonie P. Heron, Donna L. Hoyert, Jiaquan Xu, Chester Scott, and Betzaida Tejada-Vera, “Deaths: Preliminary Data for 2006,” *National Vital Statistics Reports*, 11 June 2008. It noted that 44,572 people died as a result of motor vehicle accidents.

22. Laura Landro, “In the Hospital, Facing a Scourge of Killer Clots,” *Wall Street Journal*, 01 April 2009. See also the website www.PreventDVT.org. Unless otherwise noted, the information in this section comes from these two sources.

23. *Ibid.*

24. Gina Maiocco, “DVT Prevention for the Obese Patient: Evidence-Based Nursing Interventions,” *Bariatric Nursing and Surgical Patient Care*, 06 December 2008.

25. Jeff Donn, “Experts Warn on Expense of U.S. Drugs,” *Associated Press*, 17 April 2005.

See also Saul Weingart, et al., “Epidemiology of Medical Error,” *BMJ*, 18 March 2000.

26. Committee on Identifying and Preventing Medication Errors, Philip Aspden, Julie Wolcott, J. Lyle Bootman, Linda R. Cronenwett, eds., Institute of Medicine, *Preventing Medication Errors*, Washington: National Academies, 2006. A summary appears at <http://www.iom.edu/Object.File/Master/35/943/medication%20errors%20new.pdf>.

27. Thomas A. Sharon, *Protect Yourself in the Hospital: Insider Tips for Avoiding Hospital Mistakes for Yourself or Someone You Love*, Chicago: McGraw-Hill, 2003.

28. Gail Van Kanegan and Michael Boyette, *How to Survive Your Hospital Stay: The Complete Guide to Getting the Care You Need — and Avoiding Problems You Don't*, New York: Fireside, 2006.

29. Barbara Starfield, “Is US Health Really the Best in the World?” *JAMA*, 26 July 2000. The author explains her methodology for calculating deaths caused by health care, and concludes, “In any case, 225,000 deaths per year constitutes the third leading cause of death in the United States, after deaths from heart disease and cancer. Even if these figures are overestimated, there is a wide margin between these numbers of deaths and the next leading cause of death (cerebrovascular disease).”

See also “Deaths/Mortality” as reported by the federal government at: <http://www.cdc.gov/nchs/fastats/deaths.htm>. The top three causes of death and numbers of people who died of each in 2006 were:

- Heart disease 631,636
- Cancer 559,888
- Stroke (cerebrovascular diseases) 137,119

See also Timothy J. Mullaney, “Business, Heal Health Care,” *Business Week*, 14 August 2006. “It’s no secret how messy the U.S. health-care industry is. Americans spend 16% of gross domestic product on health care, but quality is poor. Medical mistakes are the nation’s third-leading killer.”

30. The figure of 624,000 deaths from health care gone awry discussed earlier in the chapter exceeds the 560K deaths from cancer, noted above, making health care the second leading cause of death in the United States. This figure is also nearly as great as the 632K deaths noted above for heart disease. As a result, health care is close to tying for first place as the leading cause of death in America.

31. Linda T. Kohn, Janet M. Corrigan, and Molla S. Donaldson, eds., Institute of Medicine, *To Err is Human: Building a Safer Health System*, Washington: National Academies, 2000.

32. Don Berwick’s Institute for Healthcare Improvement (<http://www.ihl.org/ihl/about>) is seen by many to be leading the charge. See his book *Escape Fire* (Jossey-Bass, 2003) for his extraordinarily moving speeches at his annual convention — which today draws 6,000 health care professionals in person and thousands more via video link — focused on reducing the harm health care does to patients. An exceptionally humble and quietly spiritual man, Dr. Berwick breaks into tears talking about the tragedies caused by health care missteps.

See also Newt Gingrich with Dana Pavey and Anne Woodbury, *Saving Lives & Saving Money: Transforming Health and Healthcare*, Washington, D.C.: The Alexis de Tocqueville Institution, 2003. This

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book highlights the fact that high quality care is often far less expensive than poor quality care.

33. Lucian Leape and Karen Davis, "To Err Is Human; To Fail to Improve Is Unconscionable," *Commonwealth Fund*, 16 August 2005.

34. Kevin Sack, "Government Reports Criticize Health Care System," *New York Times*, 07 May 2009.

35. For this reason, these endnotes sometimes reference earlier research, which at times is more comprehensive in scope than are later updates. The later analysis often reports essentially the same conclusions.

36. Laura Landro, "Hospitals Put the Squeeze on Infection-Prevention Efforts," *Wall Street Journal*, 09 June 2009.

37. Ashish K. Jha and Arnold M. Epstein, "Hospital Governance and the Quality of Care," *Health Affairs*, online 06 November 2009.

38. "List of United States Cities by Population," Wikipedia, 21 June 2009, http://en.wikipedia.org/wiki/List_of_United_States_cities_by_population. Boston's population is listed as 608,352 as of 2007.

39. "Births, Marriages, Divorces and Deaths: Provisional Data for 2007," *CDC National Vital Statistics Reports*, 14 July 2008.

40. "September 11, 2001 Attacks," Wikipedia, 13 Dec 2009, http://en.wikipedia.org/wiki/September_11_attacks. Reportedly, 2,995 people died.

41. Icasualties.org, downloaded from <http://icasualties.org/Iraq/index.aspx> on 20 March 2009. U.S. military deaths to date were 4,260.

42. Elizabeth A. McGlynn, Steven M. Asch, John Adams, Joan Keesey, Jennifer Hicks, Alison DeCristofaro, and Eve A. Kerr, "The Quality of Health Care Delivered to Adults in the United States," *New England Journal of Medicine*, 26 June 2003.

43. Saul Weingart, Ross McL. Wilson, Robert W. Gibberd, and Bernadette Harrison, "Epidemiology of Medical Error," *BMJ*, 18 March 2000. This study also notes that outpatient adverse drug events result in 116 million extra visits to the doctor and 76 million additional prescriptions.

44. Jerald Winakur, "What Are We Going To Do With Dad?" *Health Affairs*, July/August 2005.

45. *Ibid.*

46. Donald M. Berwick, "Mont Sainte-Victoire," plenary speech at the Institute for Healthcare Improvement's 18th Annual National Forum on Quality Improvement in Health Care, 12 December 2006, references the "NCC-MERP" Framework. Source: Index of the National Coordinating Council for Medication Error Reporting and Prevention, <http://www.nccmerp.org/pdf/indexColor2001-06-12>. It appears that this framework was initially developed to categorize adverse drug events and other medication-related issues. Berwick appears to apply this classification more broadly to medical errors.

47. *Ibid.*

48. *Ibid.* Note that Berwick reports that 3% of the injuries fall into Category G, and 1% fall into Category I. By this estimate, 4% of the 15 million people harmed, or 600,000 people a year, are either permanently injured or killed as a result of the care they receive in U.S. hospitals.

49. *Ibid.*

50. Found at http://www.onl.gov/sci/techresources/Human_Genome/medicine/medicine.shtml, 18 June 2007.

51. Heather S. Oliff, "Astonishing Advances in Tissue Regeneration," *Life Extension*, March 2006, http://www.lef.org/magazine/mag2006/mar2006_report_regen_02.htm.

52. *American Heritage Dictionary of the English Language, Fourth Edition*, Boston: Houghton Mifflin, 2000.

53. *The Free Dictionary.com*, <http://medical-dictionary.thefreedictionary.com/nosocomial>.

Chapter Two: Actions Speak Louder than Words

54. Ceci Connolly, "U.S. 'Not Getting What We Pay For,'" *Washington Post*, 30 November 2008. "As much as half of the \$2.3 trillion spent today [on health care in the U.S.] does nothing to improve health."

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Brent James, Vice President for Medical Research and Executive Director of the Institute for Healthcare Delivery Research, Intermountain Healthcare, in an address at the 4th Annual World Health Care Congress, 23 April 2007, on "Transformative IT": "32% of care provided is inappropriate. Over 50% of spending is waste."

Peter Lee, President and CEO, Pacific Business Group on Health, in an address at the 4th Annual World Health Care Congress, 23 April 2007 on "Transparency and Public Reporting on the Quality and Cost of Care": "We've seen data that suggests that 50% of care is wasted."

Julie Appleby, "Consumer Unease with U.S. Health Care Grows," *USA Today*, 16 October 2006. "Overuse and waste can include unnecessary treatments, tests repeated because original results were misplaced or reliance on ineffective treatments. 'Several credible estimates have come up with around 30% of health care is unnecessary,' says Richard Deyo, professor of medicine at the University of Washington in Seattle."

Gilbert M. Gaul, "Bad Hospitals Net More Money," *Washington Post*, 24 July 2005. "Researchers at Dartmouth Medical School, who have been studying Medicare's performance for three decades, estimate that as much as \$1 of every \$3 is wasted on unnecessary or inappropriate care. Other analysts put the figure as high as 40 percent."

55. Donald M. Berwick, "Less Is More . . . And Better," *Newsweek*, 16 October 2006. "What best predicts the rate [of certain surgical procedures] is the number of specialists per capita. The more doctors, the more doctor visits. The more hospital beds, the more days spent in the hospital . . . For many procedures, the variation is stunning. Compared with the lowest-use areas, people in the highest-use areas get 10 times as many prostate operations, six times as many back surgeries, seven times as many coronary angioplasties."

John Carey, "Smarter Patients, Cheaper Care," *Business Week*, 22 June 2009. "'There is good reason to believe 30% to 40% of what we are spending goes for unnecessary services and inefficient care,' says Dr. Elliott S. Fisher, director of the Center for Health Policy Research at Dartmouth Medical School."

56. Stephanie Saul, "Need a Knee Replaced? Check Your Zip Code," *New York Times*, 11 June 2007.

57. Reed Abelson, "Heart Procedure is Off the Charts in an Ohio City," *New York Times*, 18 August 2006.

58. Ibid.

59. Donald M. Berwick, "Less Is More . . . And Better," *Newsweek*, 16 October 2006.

60. On a related note, see "Practice Patterns, Not Patient Needs, Drive Medical Decisions and Cost," *Robert Wood Johnson Foundation Content Alerts*, 27 May 2009.

61. "Supply-Sensitive Care," The Dartmouth Atlas Project Topic Brief, downloaded 20 June 2007, http://www.dartmouthatlas.org/topics/supply_sensitive.pdf. "Patients . . . in high-spending areas had 82 percent more physician visits, 26 percent more imaging exams, 90 percent more diagnostic tests and 46 percent more minor surgery. Compared to low-intensity regions, patients with hip fractures, colon cancer and heart attacks . . . in high-intensity regions had higher mortality rates and worse 'scorecards' on measures of quality." It should be noted that most of these studies concern Medicare patients. Said another way, they are all insured and have very similar coverage.

62. Barry Meier, "New Effort Reopens a Medical Minefield," *New York Times*, 7 May 2009.

63. Institute of Medicine, "Fact Sheet 5. Uninsurance Facts and Figures," downloaded 22 June 2007, <http://www.iom.edu/CMS/17645.aspx>.

64. "Supply-Sensitive Care," The Dartmouth Atlas Project Topic Brief, downloaded 20 June 2007, http://www.dartmouthatlas.org/topics/supply_sensitive.pdf.

See also http://www.dartmouthatlas.org/press/2006_atlas_press_release.shtm. This press release reports on a Dartmouth study of 4.7 million Medicare patients which reports that, in many cases, more services and higher spending were associated with worse health outcomes compared to similar patients who received fewer services: "Hospitals that treat patients more intensively and spent more Medicare dollars did not get better results. Similarly, the regions with the best quality and outcomes used fewer resources relative to their high-cost counterparts."

See also John Carey, "When More Medicine Is Less," *Business Week*, 29 May 2006. "Getting more medical care, and paying more for it, can actually make your health worse."

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See also Shannon Brownlee, "Putting Consumers in the Driver's Seat?" AHIP Coverage, 31 May 2005. "In fact, according to a recent study published in the *Annals of Internal Medicine*, mortality in high-cost regions appears to be about two to five percent higher than in the lowest cost regions of the country. The most likely explanation for this is that elderly people who live in high-cost regions spend more time in hospitals than citizens in low-cost regions, and hospitals are risky places, where patients are exposed to the possibility of medical errors, drug interactions, and life-threatening infections."

65. Brian E. Kouri, R. Gregory Parsons, and Hillel R. Alpert, "Physician Self-Referral for Diagnostic Imaging: Review of the Empiric Literature," *American Journal of Roentgenology*, October 2002. "Nonradiologists performing their own imaging are at least 1.7 - 7.7 times as likely to order imaging as non-selfreferring physicians in the same specialty who see patients with the same problems."

66. Sandeep Jauhar, "Many Doctors, Many Tests, No Rhyme or Reason," *New York Times*, 11 March 2008.

67. Gina Kolata, "10 Million Women Who Lack A Cervix Still Get Pap Tests," *New York Times*, 23 June 2004. "As many as 10 million women who have had hysterectomies and who no longer have a cervix are still getting Pap tests, a new study finds. . . . No professional organization recommends Pap tests for most women without a cervix. . . . 'These women are being screened for cancer in an organ that they don't have.'" The original research to which the article refers is Brenda E. Sirovich and H. Gilbert Welch, "Cervical Cancer Screening Among Women Without a Cervix," *JAMA*, June 2004. This article renders the number "almost" ten million, and this is the number I have noted in the text.

68. Ibid.

69. Ibid. The *New York Times* article notes the problem of false positives: "When a woman does not have a cervix, a doctor scrapes cells from her vagina instead, sending them off to be examined. And that, cancer experts say, is problematic. Vaginal cancer is exceedingly rare, and tests of vaginal cells are much more likely to result in false positives than they are to find vaginal cancers. A result is unnecessary vaginal biopsies that can result in their own false positives. As a result, women can end up having vaginal tissue removed to treat a cancer that is not even present."

70. "Alternative Diagnosis," www.wrongdiagnosis.com, downloaded 05 Mar 2009. "Misdiagnosis can and does occur and is reasonably common with error rates ranging from 1.4% in cancer biopsies to a high 20-40% misdiagnosis rate in emergency or ICU care. Surveys of patients also indicate the chance of experiencing a misdiagnosis to range from 8% to 40%."

71. Anahad O'Connor, "Deaths Go Unexamined and the Living Pay the Price," *New York Times*, 02 March 2004.

72. Lucian L. Leape, "Error in Medicine," *JAMA*, 21 December 1994.

73. David Leonhardt, "Why Doctors So Often Get It Wrong," *New York Times*, 22 February 2006.

74. Atul Gawande, *Complications: A Surgeon's Notes on an Imperfect Science*, New York: Henry Holt, 2002.

75. David E. Newman-Toker and Peter J. Pronovost, "Diagnostic Errors — The Next Frontier for Patient Safety," *JAMA*, 11 March 2009.

76. "Diagnostic Error: Is Overconfidence the Problem?" *American Journal of Medicine* Supplement, May 2008.

77. Gary Kantor, "Guest Software Review: Isabel Diagnosis Software," *HIStalk*, 31 January 2006.

78. Ibid. See also the website for Isabel Healthcare at www.isabelhealthcare.com/home/default.

79. David Leonhardt, "Why Doctors So Often Get It Wrong," *New York Times*, 22 February 2006.

Chapter Three: "Enough about me. Let's talk about you. What do *you* think of me?"

80. Others draw the same conclusion. See for example, Steven Pearlstein, "Fixing Health Care Starts With the Doctors," *Washington Post*, 12 July 2009: "At the end of the day . . . it is physicians who have the greatest impact on the cost and quality of health care we get. It is the docs who drive the decisions on what tests are ordered up, what surgeries performed and what drugs prescribed. And it is around the

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doctors and their practices that the medical system is organized.”

81. Elizabeth A. McGlynn, Steven M. Asch, John Adams, Joan Keeseey, Jennifer Hicks, Alison DeCristofaro, and Eve A. Kerr, “The Quality of Health Care Delivered to Adults in the United States,” *New England Journal of Medicine*, 26 June 2003. All statistics in this paragraph are drawn from this article.

82. All quotations from Elizabeth A. McGlynn, et al., “The Quality of Health Care Delivered to Adults in the United States,” *New England Journal of Medicine*, 26 June 2003.

83. Ibid.

84. “Most Americans Don’t Get Preventive Healthcare,” *Reuters Health*, 22 May 2006.

85. Ellen Nolte and C. Martin McKee, “Measuring the Health of Nations,” *Health Affairs*, January/February 2008.

86. Ann M. Simmons, “Giving Parents a Dose of Confidence,” *Los Angeles Times*, 20 May 2004.

87. Josee Rose, “Dose of Health ‘Literacy’ Helps Parents Avoid Trips to the ER,” *Wall Street Journal*, 27 April 2004.

88. Ibid.

89. “Health, United States, 2008,” U.S. Department of Health and Human Services, National Center for Health Statistics, 2009. Available at <http://www.cdc.gov/nchs/hus.htm>.

90. “Ten Great Public Health Achievements — United States, 1900-1999,” *Morbidity and Mortality Weekly Report*, Centers for Disease Control, 02 April 1999. “During the 20th century, the health and life expectancy of persons residing in the United States improved dramatically. Since 1900, the average lifespan of persons in the United States has lengthened by greater than 30 years; 25 years of this gain are attributable to advances in public health.”

See also James W. Henderson, *Health Economics and Policy*, Cincinnati: South-Western, 1999, p. 142. “Research on the relationship between health status and medical care frequently has found that the marginal contribution of medical care to health status is rather small.”

See also Sherman Folland, Allen Goodman, and Miron Stano, *The Economics of Health and Health Care*, third edition, Upper Saddle River: Prentice Hall, 2001, p. 118. “The historical declines in population mortality rates were not due to medical interventions because effective medical interventions became available to populations largely after the mortality had declined. Instead, public health, improved environment, and improved nutrition probably played substantial roles.”

91. *American Heritage Dictionary of the English Language, Fourth Edition*, New York: Houghton Mifflin, 2000. Public health is “The science and practice of protecting and improving the health of a community, as by preventive medicine, health education, control of communicable diseases, application of sanitary measures, and monitoring of environmental hazards.”

92. “Health, United States, 2008,” U.S. Department of Health and Human Services, National Center for Health Statistics, November 2008. Table 26.

93. Mitchell L. Cohen, “Changing Patterns of Infectious Disease,” *Nature*, 17 August 2000. “For most of the twentieth century, the predominant feeling about the treatment, control and prevention of infectious diseases was optimism. In 1931, Henry Sigerist wrote¹, ‘Most of the infectious diseases . . . have now yielded up their secrets . . . Many illnesses . . . had been completely exterminated; others had [been brought] largely under control.’ Between 1940 and 1960, the development and successes of antibiotics and immunizations added to this optimism, and in 1969, Surgeon General William H. Stewart² told the United States Congress that it was time to ‘close the book on infectious diseases.’” [Footnotes within the footnote can be found in the citation itself.]

94. “Health, United States, 2008,” U.S. Department of Health and Human Services, National Center for Health Statistics, November 2008. Table 26.

95. “Chronic Disease Overview,” Centers for Disease Control and Prevention at <http://www.cdc.gov/nccdphp/overview.htm>, downloaded 17 August 2009.

See also “Improving the Health and Quality of Life of All People,” Centers for Disease Control and Prevention, <http://www.cdc.gov/nccdphp/publications/brochure/brochure.htm>, 15 November 2005 (link no longer functional). “Many of the actual causes of death in the United States are directly related to behavior choices such as tobacco use, poor nutrition, and physical inactivity.”

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See also Robert Langreth, "Just Say No," *Forbes.com*, 19 November 2004. "Epidemiological studies have found that bad living—smoking, drinking too much alcohol, feasting on cheeseburgers—is responsible for 80% of one's risk of heart disease and almost all of the risk of diabetes."

96. "Improving the Health and Quality of Life of All People," Centers for Disease Control and Prevention, <http://www.cdc.gov/nccdphp/publications/brochure/brochure.htm>, 15 November 2005 (link no longer functional). "Medical care for people with chronic diseases accounts for more than 75% of the \$1.4 trillion that the United States spends each year on health care. . . . With the percentage of Americans over the age of 65 expected to double over the next 30 years, we cannot afford the escalating costs of health care. Many think that if we get better technology and more clinical care, we will solve these problems; however, past experience suggests we must balance our prevention and treatment efforts. If we are serious about improving the health and quality of life of all Americans and keeping our health care spending under control, we must commit to a national health agenda that supports prevention for every American. . . . Despite the proven benefits of physical activity and a healthy diet, more than 50% of American adults do not get the recommended amount of physical activity to provide health benefits, and only about 25% of U.S. adults eat the recommended five or more servings of fruits and vegetables each day."

See also Kathleen Fackelmann, "Stress Can Ravage The Body, Unless The Mind Says No," *USA Today*, 22 March 2005. "Up to 90% of the doctor visits in the USA may be triggered by a stress-related illness, says the Centers for Disease Control and Prevention. . . . A positive outlook on life and the support of friends might help buffer a damaging stress response."

See also Robert Langreth, "Just Say No," *Forbes.com*, 19 November 2004.

97. "U.S. Residents' Doctor Visits Increased Between 1994, 2004, CDC Study Finds," *Kaiser Daily Health Policy Report*, 26 June 2006. "Findings show that 1.1 billion doctor visits took place in 2004." Assuming a population of 300 million people, these figures mean that people visit the doctor on average 3.67 times each year.

98. S. Jay Olshansky, Douglas J. Passaro, Ronald C. Hershov, Jennifer Layden, Bruce A. Carnes, Jacob Brody, Leonard Hayflick, Robert N. Butler, David B. Allison, and David S. Ludwig, "A Potential Decline in Life Expectancy in the United States in the 21st Century," *New England Journal of Medicine*, 17 March 2005. In summary, the authors suggest that trends in levels of obesity presage a higher incidence of diabetes and concomitant reduced life expectancy.

See also "Obesity Threatens to Cut U.S. Life Expectancy, New Analysis Suggests," National Institutes of Health, 17 March 2005. "Over the next few decades, life expectancy for the average American could decline by as much as 5 years unless aggressive efforts are made to slow rising rates of obesity, according to a team of scientists supported in part by the National Institute on Aging (NIA), a component of the National Institutes of Health (NIH) of the Department of Health and Human Services (DHHS). The U.S. could be facing its first sustained drop in life expectancy in the modern era, the researchers say."

See also the 2008 video at www.healthiestnation.org, which notes, "For the first time our children will have shorter life expectancies than ours."

99. N. R. Kleinfield, "Diabetes and Its Awful Toll Quietly Emerge as a Crisis," *New York Times*, 09 January 2006.

100. Ibid.

101. Elizabeth Svoboda, "To Prevent Amputations, Doctors Call for Aggressive Care," *New York Times*, 07 November 2006.

102. Ibid.

103. Barnaby J. Feder, "New Priority: Saving Feet Of Diabetics," *New York Times*, 30 August 2005. One health organization is "sending them home with a new \$150 device that makes it easy to check the skin temperature on the bottom of their feet every day, along with instructions to phone immediately if either foot is warmer than 90 degrees or if one foot is 4 degrees warmer than the other. Either reading is an early warning sign that an ulcer is developing."

104. Elizabeth Svoboda, "To Prevent Amputations, Doctors Call for Aggressive Care," *New York Times*, 07 November 2006.

105. Barnaby J. Feder, "New Priority: Saving Feet Of Diabetics," *New York Times*, 30 August 2005.

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106. Gina Kolata, "Study Says Chatty Doctors Forget Patients," *New York Times*, 26 June 2007. The article goes on to say, "Four out of five times when a doctor interjected personal information, the doctor never returned to the topic under discussion before the interruption."
107. Ibid.
108. William Grimes, "Eating My Spinach: Four Days on the Uncle Sam Diet," *New York Times*, 23 January 2005.
109. Ibid.
110. Lauran Neergaard, "Moving Nation from Sick Care Toward Wellness Care," *Daily Courier*, 03 March 2009. "The doctor says, 'Lose weight, exercise, see you in a year.' We know that doesn't work." The speaker is the doctor in charge of integrative medicine at Duke University Medical Center.
111. Shari Roan, "Weight Loss: Why It's Hard," *Los Angeles Times*, 02 June 2008.
112. David Leonhardt, "Fat Tax," *New York Times*, 16 August 2009.
113. *American Heritage Dictionary of the English Language, Fourth Edition*, New York: Houghton Mifflin, 2000.
114. David Shore, remarks at the 2nd Annual Consumer-Centric Healthcare Congress, November 2006.
115. *American Heritage Dictionary of the English Language, Fourth Edition*, New York: Houghton Mifflin, 2000.

Chapter Four: The Patient as Footnote

116. Chuck Fager, Director, Quaker House, e-mail to the author, 12 June 2008.
See also Alfred McCoy, *A Question of Torture*, New York: Henry Holt, 2006. Prisoners held for interrogation may be subjected to either sensory deprivation or sensory overload. The effect is similar.
The fact that the characteristics listed are also representative of a hospital ICU was confirmed in dozens of conversations with hospital administrators, nurses, and doctors.
See also "Study: Lack of Sleep Hurts ICU Patients," *FierceHealthcare*, 18 December 2007, which summarizes a study that concluded in part, "Patient sleep is frequently disrupted by excessive light and noise, a lack of cues as to time of day . . ."
117. Ibid. Terrorist suspects may be drugged when in transit from one location to another, but are not typically drugged while being held for interrogation.
118. MedicineNet.com, downloaded 18 June 2008.
119. Ibid.
120. Ibid.
121. This is what the doctor treating a relative said to me, and this general response is confirmed by the following description in an article by Laura Landro, "Hospitals Combat an Insidious Complication," *Wall Street Journal*, 17 October 2007: "When someone is in the hospital, it is common to get confused and delirious, but the tradition in medicine has been to say, 'Don't worry if Grandma or Grandpa is confused, it's no big deal' . . . But it is a major public-health problem that has to be addressed."
122. Laura Landro, "Hospitals Combat an Insidious Complication," *Wall Street Journal*, 17 October 2007.
123. Gina Kolata, "A Tactic to Cut I.C.U. Trauma: Get Patients Up," *New York Times*, 12 January 2009. "Researchers say they are alarmed by what they are finding as they track patients for months or years after an I.C.U. stay. Patients, even young ones, can be weak for years. Some have difficulty thinking and concentrating or have post-traumatic stress disorder and terrible memories of nightmares they had while heavily sedated."
124. Laura Landro, "Hospitals Combat an Insidious Complication," *Wall Street Journal*, 17 October 2007. This conclusion is based on anecdotal evidence at the moment. However, the anecdotal evidence is strong. "Preliminary evidence shows that each day spent in a delirious state [another description for ICU Psychosis] increases the risk of long-term cognitive impairment by 35%. While many factors can

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contribute to such impairment, several studies have shown links between delirium, declining mental function and eventual dementia, says Dr. Ely. Patients can end up 'in their own little hell,' he says, where they have trouble thinking straight or doing simple tasks like balancing a checkbook. The causes of so-called acquired long-term cognitive impairment after ICU stays are being investigated in two large studies funded by Veterans Affairs and the National Institutes of Health." The article tells of a busy mid-career professional whose IQ dropped from 145 before an ICU stay to 110 afterwards — a drop of nearly 25%. This 40-something woman was forced to retire from her job because she could no longer do it, "and an MRI scan showed atrophy in her brain similar to what might appear in an 80-year-old woman with dementia, the progressive and permanent loss of memory and cognition." Now imagine what life is like post-ICU for someone who started out with an average IQ.

125. Ibid.

126. Siri Carpenter, "Is Your Parent Over-Medicated?" *Prevention*, December 2008.

127. Ibid.

128. W. David McCoy, "Abundance of 'Cures' Brings Ills," *New York Times*, 11 June 2002. I include this story to show that this situation has been a problem for many years.

129. Jane E. Brody, "The 'Poisonous Cocktail' of Multiple Drugs," *New York Times*, 18 September 2007.

130. "Fast Facts," American Hospital Association, 07 November 2008, found at www.aha.org/aha/content/2008/pdf/fast_facts_2008.pdf.

131. "ACHE Poll Finds Emphasis on Renovation, Infection Control," *Modern Healthcare*, 24 July 2007. This article provides a related point: in this case, 67% of hospital CEOs who responded to a survey said they were offering single-patient rooms, and the reason was to help control infections.

132. Laura Landro, "Hospitals Build a Better 'Healing Environment,'" *Wall Street Journal*, 21 March 2007.

See also "Hospital Room Design Can Have Effect on Patient Care, Outcomes, Studies Show," *Kaiser Daily Health Policy Report*, 19 May 2009.

See also Terri Cullen, "Putting 'Care' Back in Health Care," *Wall Street Journal*, 22 February 2007. The article is subtitled, "A Good Hospital Experience Makes Terri Wonder: Why Are Most Health-Care Providers So Aggravating?" The author discusses how poor much of the health care system is at treating patients as if it cares about them.

133. Andrea Hassol, James M. Walker, David Kidder, Kim Rokita, David Young, Steven Pierdon, Deborah Deitz, Sarah Kuck, and Eduardo Ortiz, "Patient Experiences and Attitudes about Access to a Patient Electronic Health Care Record and Linked Web Messaging," *Journal of the American Medical Informatics Association*, November/December 2004.

134. Robert G. Brooks and Nir Menachemi, "Physicians' Use of Email With Patients: Factors Influencing Electronic Communication and Adherence to Best Practices," *Journal of Medical Internet Research*, January - March 2006. "Among the physician-respondents, 2593 (63%) indicated the use of email from their office for communication with groups other than patients. Most commonly, they reported the use of email to communicate with friends or family members (74.2%), other doctors (63.8%), and for business-related communications (50.1%)."

See also "Internet Usage Statistics for North America," found at <http://www.internetworldstats.com/am/us.htm>, downloaded 06 March 2009.

135. "Many Physicians Do Not Use E-Mail to Communicate with Patients," *Kaiser Daily Health Policy Report*, 24 April 2008.

136. Andrea Hassol, James M. Walker, David Kidder, Kim Rokita, David Young, Steven Pierdon, Deborah Deitz, Sarah Kuck, and Eduardo Ortiz, "Patient Experiences and Attitudes about Access to a Patient Electronic Health Care Record and Linked Web Messaging," *Journal of the American Medical Informatics Association*, November/December 2004.

137. Ibid.

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Chapter Five: The Mushroom Treatment

138. Surescripts website, <http://www.surescripts.com/Surescripts/e-prescribing-facts.aspx#market>, 27 February 2009 (link no longer functional). The following data was reported:

- 4,416,285,490 — Total Prescriptions Written
- 883,257,098 — Unfilled
- 3,533,028,392 — Total Dispensed
- The U.S. spent \$270 billion on prescription drugs in 2007.

139. Ibid. 4,416,285,490 prescriptions written divided by 300 million people = 14.72/person.

140. "Taking Medicine Is an Important Part of Staying Healthy," *Aetna Member Essentials*, May 2009. This view is representative of the industry.

On a related note, there are entire businesses dedicated to helping pharmaceutical companies drive compliance. The website of one of these, Consumer Health Information Corporation, headlines its "Patient Compliance Strategies" section with the following comment: "The real measure of your product's success is how well you have convinced the patient to take your product correctly over the long term." In context, "correctly" appears to mean "takes all doses prescribed." Note that there is no reference to the idea that success might be measured in terms of improving patients' health.

141. Sundeep Khosla, "Increasing Options for the Treatment of Osteoporosis," *New England Journal of Medicine*, 12 August 2009.

142. Sandra G. Boodman, "Are Doctors To Blame?" *Washington Post*, 27 May 2008.

143. "Problems with Medical Decision-Making," Foundation for Informed Medical Decision Making, http://www.informedmedicaldecisions.org/problems_with_medical_decision_making.html, downloaded 17 October 2009.

144. Derjung M. Tarn, John Heritage, Debora A. Paterniti, Ron D. Hays, Richard L. Kravitz, and Neil S. Wenger, "Physician Communication When Prescribing New Medications," *Archives of Internal Medicine*, 25 September 2006.

145. This result is calculated by multiplying the six percentages listed. For those of you who are not statistics wizards, think of it this way: assume doctors tell 50 people out of 100 one fact. Then assume that you stand the same 100 people up in a row and the doctors tell a randomly chosen 50 of them a second fact. There's no reason to believe that the 50 people who heard the second fact are the same 50 people who heard the first fact. So it's logical to believe that the number of people who heard both facts is a lot less than 50. Mathematicians have figured out that it's likely to be 25 people who heard both facts. Another 25 heard neither fact, another 25 heard only the first fact, and another 25 heard only the second fact. When six facts are involved, it's clear that the number of people who hear all six facts is going to be very low unless the percent who hear each fact is very high — say, 95% or so. Even then, fewer than 75% of the people would have heard all six.

146. Duff Wilson, "Harvard Medical School in Ethics Quandary," *New York Times*, 04 March 2009.

147. Ibid.

One visible part of the medical school's response was a variation of "shoot the messenger" which one might term "muzzle the messenger." Shortly after the above *New York Times* article appeared, the school created a policy prohibiting any contact between students and the press that didn't go through the dean and the school's Public Affairs department, which deals with the press. After the entirely predictable outcry that this policy provoked, the school authorities appear to be recanting — in any event they promise to "revise" it. See Duff Wilson, "Harvard Backs Off Media Policy," *New York Times*, 02 September 2009.

148. Gardiner Harris, "Prosecutors Plan Crackdown on Doctors Who Accept Kickbacks," *New York Times*, 04 March 2009.

149. Ibid.

150. Gary Ahlquist, Charles Beever, Rick Edmunds, and David G. Knott, "Consumer and Physician Readiness for a Retail Healthcare Market: Changing the Basis of Competition," Booz Allen Hamilton Consumerism Survey Report, 2007.

151. Anne Harding, "Docs Often Write Off Patient Side Effect Concerns," *Reuters Health*, 28 August 2007.

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152. Ibid.

153. Dr. Wall is an alias.

154. Susan Edgman-Levitan, "NQF 2008 Implementation Conference on Care Coordination: Communications," The John D. Stoeckle Center for Primary Care Innovation, March 2008.

Early underlying research: Clarence H. Braddock, III, Stephan D. Fihn, Wendy Levinson, Albert R. Jonsen, and Robert A. Pearlman, "How Doctors and Patients Discuss Routine Clinical Decisions," *Journal of General Internal Medicine*, June 1997. This research suggests that patients can be considered informed decision-makers if six characteristics are present in their conversation with the doctor: discussion of the decision to be made, discussion of alternatives, discussion of benefits and risks, discussion of uncertainties, assessing patients' understanding, and asking patients to express a preference. The study concludes that discussions about clinical decisions, on average, include only 1.23 of these. "Discussion of risks and benefits was less frequent (9%). The least frequently included element was discussion of the patient's degree of understanding (2%)." It does not appear that this picture has changed radically since this study was done.

155. This estimate is a synthesis of discussions with a variety of health care industry researchers. The most common views were that on average 40-50% of the time, any given individual is not helped by a given treatment.

156. "Lyrica Significantly Reduced Pain and Helped Patients Manage the Symptoms of Fibromyalgia, Data Show," Pfizer press release, 01 May 2007. "Significantly more patients treated with Lyrica reduced their pain by 50 percent or more compared with placebo. Of those patients taking 600mg of Lyrica a day, 30 percent said their pain was cut in half or better; 27 percent of those taking 450mg a day and 24 percent of those taking 300mg also reported this level of pain relief. Of those taking placebo, 15 percent reported pain reduction of 50 percent or greater."

157. Lee Bowman, "New Diabetes Treatment Helped Prevent the Disease in Studies," *Topeka Capital-Journal*, 18 September 2006.

158. John Carey, "Do Cholesterol Drugs Do Any Good?" *Business Week*, 17 January 2008.

159. "Artificial Lumbar Disc Replacement," Blue Cross Blue Shield Technology Evaluation Center, 2007, <http://www.bcbs.com/betterknowledge/tec/press/artificial-lumbar-disc.html>, downloaded 24 June 2007.

160. Harry N. Herkowitz, "Total Disc Replacement with the CHARITE Artificial Disc Was as Effective as Lumbar Interbody Fusion," *Journal of Bone & Joint Surgery*, 01 May 2006. "Clinical success was defined as a \geq 25% improvement in ODI [Oswestry Disability Index] score at 24 months [after surgery], no device failure, no major complications, and no neurological deterioration. . . . Clinical success was 64% in the Charite group."

161. John Carey, with Amy Barrett, "Is Heart Surgery Worth It?" *Business Week*, 18 July 2005.

162. John Carey, "Do Cholesterol Drugs Do Any Good?" *Business Week*, 17 January 2008. "The dramatic 36% figure has an asterisk. Read the smaller type. It says: 'That means in a large clinical study, 3% of patients taking a sugar pill or placebo had a heart attack compared to 2% of patients taking Lipitor.' Now do some simple math. The numbers in that sentence mean that for every 100 people in the trial, which lasted 3 1/3 years, three people on placebos and two people on Lipitor had heart attacks. The difference credited to the drug? One fewer heart attack per 100 people. So to spare one person a heart attack, 100 people had to take Lipitor for more than three years. The other 99 got no measurable benefit."

Researchers use a statistic called Number Needed to Treat (NNT) to clarify how many people have to take a drug for one person to benefit. In the previous example, the NNT is 100 — one hundred people had to take the drug for one person to benefit.

"For many other drugs, the NNTs are large. Take Avandia, GlaxoSmithKline's drug for preventing the deadly progression of diabetes. The blockbuster, with \$2.6 billion in U.S. sales in 2006, made headlines in 2007 when an analysis of clinical trial data showed it increased the risk of heart attacks. The largely untold story: There's little evidence the drug actually helps patients. Yes, Avandia is very good at lowering blood sugar, just as statins lower cholesterol levels. But that doesn't translate into preventing the dire consequences of diabetes, including heart disease, strokes, and kidney failure. Clinical trials 'failed to find a significant reduction in cardiovascular events even with excellent glucose control,' wrote Dr. Clifford

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J. Rosen, chair of the Food & Drug Administration committee that evaluated Avandia, in a recent commentary in *The New England Journal of Medicine*. 'Avandia is almost the poster child for everything wrong with our system,' says UCLA's Hoffman. 'Its NNT is close to infinite.'

On a related note, see Tara Parker-Pope, "A Call for Caution in the Rush to Statins," *New York Times*, 18 November 2008. She summarizes a study: "Only 1.8% of the subjects who took a placebo had a major cardiovascular problem during the study period. Among statin users, 0.9 percent did. In other words, the absolute risk of a serious cardiovascular problem (as opposed to the relative risk) was reduced by less than one percentage point."

NNT is explained further on a website, www.nntonline.net, run by Dr. Chris Cates. Dr. Cates has created a computer program to help doctors understand how to translate research results into more meaningful information to help them better practice medicine.

163. John Carey, "Do Cholesterol Drugs Do Any Good?" *Business Week*, 17 January 2008.

164. Leila Abboud, "Largest Ever Studies On Drugs for Depression, Schizophrenia Could Transform Treatment," *Wall Street Journal*, 27 July 2005.

165. "Prescription Drugs That Cause Weight Gain," *Johns Hopkins Health Alerts*, 23 January 2007, www.johnshopkinshealthalerts.com.

166. Charlene Laino, "Is Your Medicine Cabinet Making You Fat?" WebMD Weight Loss Clinic, 06 July 2007, downloaded from www.medicinenet.com.

167. Mary Duenwald, "Is Your Medicine Cabinet Making You Fat?" *New York Times*, 16 August 2005. Although two articles referenced in this section have the same headline, they are unrelated.

168. Kathleen Zelman, "Lose Weight, Gain Tons of Benefits," *webmd.com*, 23 June 2006.

See also "Improving Your Health," U.S. Department of Health and Human Services, July 2006. "Losing 5 to 10 percent of your body weight can help improve your health."

169. Mary Duenwald, "Is Your Medicine Cabinet Making You Fat?" *New York Times*, 16 August 2005.

170. Ibid.

171. "Kaiser Health Tracking Poll," Kaiser Family Foundation, February 2009. When asked, "Do you currently take any prescription medicine on a daily basis, or not?" 49% said yes, 50% said no, and 1% declined to answer or did not know.

172. Orly Avitzur, "Be Wary of Narcotics to Treat Back Pain," *Consumer Reports*, May 2009.

173. Ibid.

174. Rahul K. Parikh, "Showing the Patient the Door, Permanently," *New York Times*, 10 June 2008.

175. Sean R. Tunis, "Reflections of Science, Judgment, and Value in Evidence-Based Decision-Making: A Conversation with David Eddy," *Health Affairs*, 19 June 2007.

176. John Carey, "Medical Guesswork," *Business Week*, 29 May 2006.

177. Ibid.

178. "Supply-Sensitive Care," A Dartmouth Atlas Project Topic Brief, *The Dartmouth Atlas of Health Care*, 15 January 2007. "There is unwarranted variation in the practice of medicine and the use of medical resources in the United States. There is underuse of effective care, misuse of preference-sensitive care, and overuse of supply-sensitive care."

"Effective care" tends to refer to low-tech prevention or maintenance protocols, such as blood sugar screening or having heart attack patients take aspirin to prevent a second heart attack. "Preference-sensitive care" refers to situations in which several viable treatment choices are available, and the decision should be the patient's, but often the doctor essentially makes a choice that is inconsistent with the patient's values and priorities. Health care policy experts term this discrepancy "misuse" of care. "Supply-sensitive care" refers to care for which the determining factor in the equation is not how sick the patient is nor how well they are likely to do after surgery, but how many specialists there are per 1000 patients in the geographic area.

179. Ibid.

180. Ibid.

See also John Carey, "Smarter Patients, Cheaper Care?" *Business Week*, 22 June 2009. The article is subtitled, "Better-informed medical decisions could cut billions in health-care costs as patients opt for cheaper treatments."

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See also Laura Landro, "Weighty Choices, in Patients' Hands," *Wall Street Journal*, 04 August 2009: "Studies show that when patients understand their choices and share in the decision-making process with their doctors, they tend to choose less-invasive and less-expensive treatments than they would have otherwise received."

181. Gina Kolata, "Medicare Says It Will Pay, but Patients Say 'No Thanks,'" *New York Times*, 03 March 2006.

182. "National Emphysema Treatment Trial (NETT): Evaluation of Lung Volume Reduction Surgery for Emphysema," Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, <http://www.nhlbi.nih.gov/health/prof/lung/nett/lvrswb.htm#results>, 20 May 2003.

183. Gina Kolata, "Medicare Says It Will Pay, but Patients Say 'No Thanks,'" *New York Times*, 03 March 2006.

184. Ibid.

185. Annette M. O'Connor, Hilary A. Llewellyn-Thomas, and Ann Barry Flood, "Modifying Unwarranted Variations in Health Care: Shared Decision Making Using Patient Decision Aids," *Health Affairs*, 07 October 2004.

Chapter Six: "Keep Away"

186. "Keep Away" is a children's game in which a ball is thrown among players in a circle but deliberately kept from the one child in the center of the circle. See http://en.wikipedia.org/wiki/Keep_Away.

187. "The Public Needs to Understand the Uncertainty of Medicines Regulation," *Scrip*, 23 January 2006. These comments were made by Harry Cayton, U.K. Department of Health Director for Patients and the Public. While he is referring to the U.K., the situation is very similar in the U.S.

188. Steve Dunn, "Cancer Basics," <http://cancerguide.org/basic.html>, March 2009. "In general, stage I cancers are small localized cancers that are usually curable, while stage IV usually represents inoperable or metastatic cancer."

See also "Stages of Endometrial Cancer," <http://www.nlm.nih.gov/medlineplus/ency/article/000910.htm>, 02 May 2008.

189. Dr. Green is an alias.

Chapter Seven: Children's Table at Thanksgiving

190. "Patient Knowledge Lacking at Hospital Discharge," *Reuters Health*, 16 August 2005.

191. Maggie Van Ostrand, "Thanksgiving and the Little Table," *TexasEscapes.com* downloaded 04 March 2009.

192. Andrea Hassol, James M. Walker, David Kidder, Kim Rokita, David Young, Steven Pierdon, Deborah Deitz, Sarah Kuck, and Eduardo Ortiz, "Patient Experiences and Attitudes about Access to a Patient Electronic Health Care Record and Linked Web Messaging," *Journal of the American Medical Informatics Association*, November/December 2004.

Five years later, the story remains the same. See Liz Kowalczyk, "Patients to Get a Look at Physicians' Notes," *Boston Globe*, 19 June 2009, which reports: "Many doctors say they are uncomfortable with the idea of sharing their notes. Of course, patients have a legal right to obtain their paper records, which usually include notes, but they often have to wait months to get copies and must pay a fee. Online access would be easy and immediate."

193. M. L. Baker, "EHRs Enter Patient-Doctor Relationships," *eWeek*, 2 April 2006.

194. Working Group on Policies for Electronic Information Sharing Between Doctors and Patients, "Connecting Americans to Their Healthcare — Final Report," Markle Foundation, July 2004, p. 82.

195. Paul C. Tang and David Lansky, "The Missing Link: Bridging the Patient-Provider Health Information

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Gap,” *Health Affairs*, September/October 2005.

196. Ibid. “A California law . . . requires additional physician and patient consent for patients to access their information electronically. This state law also says that certain results (for example, abnormal Pap smears) may not be released electronically for any reason, regardless of a patient’s request.”

197. Information about your legal rights to your medical records and how to get them can be found at <http://ihcrp.georgetown.edu/privacy/records.html>.

198. Andrea Hassol, James M. Walker, David Kidder, Kim Rokita, David Young, Steven Pierdon, Deborah Deitz, Sarah Kuck, and Eduardo Ortiz, “Patient Experiences and Attitudes about Access to a Patient Electronic Health Care Record and Linked Web Messaging,” *Journal of the American Medical Informatics Association*, November/December 2004. “Like paper-based records, EHRs can have problems with accuracy and completeness. In our study, approximately 65% of patients rated their personal health information as complete and approximately 75% of them rated their medical history as accurate.”

199. Ibid.

200. “Alternative Diagnosis,” www.wrongdiagnosis.com, downloaded 05 Mar 2009. “Misdiagnosis can and does occur and is reasonably common with error rates ranging from 1.4% in cancer biopsies to a high 20-40% misdiagnosis rate in emergency or ICU care. Surveys of patients also indicate the chance of experiencing a misdiagnosis to range from 8% to 40%.”

See also Atul Gawande, *Complications: A Surgeon’s Notes on an Imperfect Science*, New York: Henry Holt, 2002. p. 196 of the paperback edition: “How often do autopsies turn up a major misdiagnosis in the cause of death? . . . According to three studies . . . the figure is about 40 percent . . . in about a third of the misdiagnoses the patients would have been expected to live if proper treatment had been administered.” He goes on to point out that there has been no improvement in diagnostic accuracy, as far as autopsies show, since at least 1938.

201. Paul C. Tang and David Lansky, “The Missing Link: Bridging the Patient-Provider Health Information Gap,” *Health Affairs*, 13 September 2005.

202. Sharon Sung, “Direct Reporting of Laboratory Test Results to Patients by Mail to Enhance Patient Safety,” *Journal of General Internal Medicine*, October 2006.

203. This is a rough calculation, derived from the following data:

- In 2006, about 213,000 women were newly diagnosed with breast cancer. U.S. Preventive Services Task Force, www.cancer.org/downloads/stt/CAFF06EsCsMc.pdf, 30 October 2006.
- About 66% of women over the age of 40 report getting mammograms at least once in the last two years. Rita Rubin, “More Women over 40 Skip Regular Mammograms,” *USA Today*, 13 May 2007.
- There are about 67 million women over the age of 40. http://www.census.gov/population/www/socdemo/men_women_2004.html. I derived this number by adding up the number of women aged 45 and older and adding half the number of women aged 35-44. While the result is not going to be precisely correct, the difference is not significant for this calculation.

Assume that the 66% of women over the age of 40 who had mammograms in the last two years had only one mammogram in that time, so that the annual rate is half that, or 33%. This means that there were 67 million x 33% = roughly 22 million women who had mammograms, a probable understatement since many have them annually. Since there are 213,000 women newly diagnosed with breast cancer in the course of a year and at least 22 million who have mammograms, that means that more than 100 women have mammograms for every one diagnosed with breast cancer (22 million/213K). If the women in fact get mammograms every year, it would mean more than 200 people get screened for every one diagnosed.

204. The math is a little more complicated than this due to false positives, but that doesn’t change the main point. For a discussion of false positives, see Michael Blastland and Andrew Dilnot, “When Numbers Deceive,” *The Week*, 27 February 2009, an extract from their book *The Numbers Game*. Simplifying the story somewhat: about 8 women out of 100 would be told that they had cancer. In fact, 7 of these would be false positives. That means that 92 women would be relieved, and 8 should be told promptly, “We need to run another test.”

205. Daniel Gilbert, “What You Don’t Know Makes You Nervous,” *New York Times*, 20 May 2009.

206. Ibid.

207. Gina Kolata, “Sick and Scared, and Waiting, Waiting, Waiting,” *New York Times*, 20 August 2005.

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208. Ibid. The article goes on to discuss the fact that doctors dismiss as unimportant and not fixable the fact that patients don't like waiting, when solutions are available.
209. Tara Parker-Pope, "Study Equates Stress of Cancer and of Wait for Biopsy Data," *New York Times*, 25 February 2009.
210. Ibid.
211. Melinda Beck, "Stress So Bad It Hurts — Really," *Wall Street Journal*, 17 March 2009.
212. Kathleen Fackelmann, "Stress Can Ravage the Body, Unless the Mind Says No," *USA Today*, 22 March 2005.
213. Ibid. See also Claudia Dreifus, "Finding Clues to Aging in the Fraying Tips of Chromosomes," *New York Times*, 03 July 2007. Psychological stress causes cells to age, and the aging of the cells is highly correlated with cardiovascular disease and may be correlated with cancer. It appears that stress literally ages people and directly causes many diseases.
214. Sharon Sung, "Direct Reporting of Laboratory Test Results to Patients by Mail to Enhance Patient Safety," *Journal of General Internal Medicine*, October 2006.
- See also T.K. Gandhi, "Fumbled Handoffs: One Dropped Ball After Another," *Annals of Internal Medicine*, 01 March 2005. This study reports that doctors tell patients normal results only 25% of the time, and abnormal ones only 67% of the time.
215. Bill Hendrick, "Patients Not Always Told of Lab Results," *WebMD Health News*, 22 June 2009.
216. Ibid.
217. Sharon Sung, "Direct Reporting of Laboratory Test Results to Patients by Mail to Enhance Patient Safety," *Journal of General Internal Medicine*, October 2006.
218. Lawrence P. Casalino, Daniel Dunham, Marshall H. Chin, Rebecca Bielang, Emily O. Kistner, Theodore G. Karrison, Michael K. Ong, Urmimala Sarkar, Margaret A. McLaughlin, David O. Meltzer, "Frequency of Failure to Inform Patients of Clinically Significant Outpatient Test Results," *Archives of Internal Medicine*, 22 June 2009.
219. Michael K. Paasche-Orlow, Holly A. Taylor, and Frederick L. Brancati, "Readability Standards for Informed-Consent Forms as Compared with Actual Readability," *New England Journal of Medicine*, 20 February 2003.
220. Ibid.
221. "Health Literacy Overview," Columbia University School of Nursing, found at <http://www.nursing.columbia.edu/informatics/HealthLitRes/overview.html>. Downloaded 17 August 2009.
222. "'What Did the Doctor Say?' Improving Health Literacy to Protect Patient Safety," Joint Commission, 2007.
223. Daniel R. Beyer, Michael S. Lauer, Steve Davis, "Letter to the Editor: Readability of Informed-Consent Forms," *New England Journal of Medicine*, 29 May 2003.
224. "Problems with Patient Communication Increase Risk for Injury, Death," *Kaiser Daily Health Policy Report*, 26 March 2007. This article describes a news article appearing in USA Today which summarizes a report published by the Joint Commission on Accreditation of Healthcare Organizations, which accredits hospitals.
225. "JCAHO Asks Clinicians to Speak Plain English," *FierceHealthcare*, 08 February 2007.
226. Marie Skelton, "Report: Patient Illiteracy Threatens Health Care," *USA Today*, 25 March 2007.
227. Jane Brody, "The Importance of Knowing what the Doctor is Talking about," *New York Times*, 30 January 2007.
228. Roy P. C. Kessels, "Patients' Memory for Medical Information," *Journal of the Royal Society of Medicine*, May 2003.
229. Ibid.
230. Ibid.
231. "Health Advocate: A Remedy for Healthcare Confusion," *PR Newswire*, 10 October 2006.

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Chapter Eight: “I don’t get no respect.” “I can’t get no satisfaction.”

232. This quotation is commonly attributed to Theodore Roosevelt.
233. Professor Miller, now emeritus, was a tireless advocate for students. Drawing a parallel to the concept of “patient-centric” in health care, one might term him “student-centric” in education. He championed a focus on providing students with what they needed from the school in order to get the best outcomes. When my personal medical crisis struck, he was one of the first people to whom I turned for support. Even though the situation had nothing to do with academics, I recognized that he would take a student/patient/individual-centric view and think through what I needed to know in order to proceed. After the surgery, as my family sat in a waiting room, he somehow talked his way into the Intensive Care Unit and confirmed that my mental faculties were intact.
234. “Grasping for Straws,” *Mystery Diagnosis*, Discovery Health Channel, Season 1, Episode 5, first aired 21 November 2005.
235. Jerome Groopman, *How Doctors Think*, Boston/New York: Houghton Mifflin, 2007. One of the cover blurbs comments, “Dr. Jerome Groopman lifts the veil on possibly the most taboo topic in medicine: the pervasive nature of misdiagnosis. His engrossing narrative exposes all of the subtle mental traps — the snap judgments and stereotypical thinking, the premature conclusions and herd instinct — that dangerously narrow the vision of too many physicians.”
236. Ibid.
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238. Rosemary Gibson and Janardan Prasad Singh, *Wall of Silence: The Untold Story of the Medical Mistakes That Kill and Injure Millions of Americans*, New York: Lifeline Press, 2003.
239. Ibid.
240. “Restless Legs Syndrome,” Mayo Clinic, 17 August 2009.
241. This anecdote, complete with the man’s name and comments from his widow, appeared in a publication by the Restless Legs Syndrome Foundation. When I was unable to locate the document, I spoke with several Board members of the organization, who commented that a number of people have killed themselves under similar circumstances as a result of undiagnosed RLS. The Summer 2009 issue of *Nightwalkers*, the organization’s quarterly magazine, contains a short submission by a reader that echoes the experience of the patient described here. The writer notes that given more information about the condition, “Doctors no longer think I’m crazy!”
242. Robert Klitzman, “CASES: Seeing Risk and Reward Through a Patient’s Eyes,” *New York Times*, 27 May 2003.
243. Ibid. All quotations in this section are from this article.
244. Tony Miksanek, “On Caring for ‘Difficult’ Patients,” *Health Affairs*, September/October 2008. The doctor’s description of the three patients in this section comes from this article.
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246. Melinda Beck, “Bedside Manner: Advocating for a Relative in the Hospital,” *Wall Street Journal*, 28 October 2008, quoting Beverly Johnson, president of the Institute for Family-Centered Care.
247. Melinda Beck, “Bedside Manner: Advocating for a Relative in the Hospital,” *Wall Street Journal*, 28 October 2008.
248. “MCG Health,” Institute for Family Centered Care, <http://www.familycenteredcare.org/prfiles/prof-mcg.html>, downloaded 14 December 2009.
249. Laura Landro, “When a Hospital Let Families Call for Rapid-Response Help,” *Wall Street Journal*, 31 August 2009.
250. Ibid.
251. Randolph Fillmore, “Hopkins And State Team Up On Bioethics,” *Johns Hopkins Gazette*, 23 June 1997. “A quiet but stunning bomb dropped on the health care community in November 1995. That’s when the SUPPORT Study, a Robert Wood Johnson Foundation \$28 million multi-center study, found that in hospitals across the nation, despite the world’s best medical care, the critically ill were not receiving the care they wanted and needed. Worse, the study disclosed that interventions aimed at improving

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the care of the dying, implemented in phase two of the study, had no effect as physicians continued to ignore advance directives, living wills and patient wishes.”

252. Susan Gilbert, “Study Finds Doctors Refuse Patients’ Requests on Death,” *New York Times*, 22 November 1995.

253. See, for example, Joan M. Teno, Brian R. Clarridge, Virginia Casey, Lisa C. Welch, Terrie Wetle, Renee Shield, and Vincent Mor, “Family Perspectives on End-of-Life Care at the Last Place of Care,” *JAMA*, 07 January 2004, which notes that about a quarter of families “reported concerns with physician communication regarding medical decision making.”

Similarly, a description of Dr. Joseph S. Weiner’s work found at <http://www.northshorelij.com/body.cfm?id=2719&oTopID=2719&PLinkID=2584>, 04 February 2006, reports: “‘Approaching Death: Improving Care at the End-of-Life’ summarized serious deficiencies in end-of-life patient care. These deficiencies include poor pain management, aggressive care counter to patients’ wishes, and lack of physician training.”

254. A video documenting classroom sessions and their effect on the students who went through the experience can be found at www.pbs.org/wgbh/pages/frontline/shows/divided/.

Chapter Nine: Torture

255. http://www.dannyhaszard.com/stockholm_syndrome.htm.

See also http://en.wikipedia.org/wiki/Stockholm_syndrome.

See also <http://ask.yahoo.com/20030324.html>. “It’s important to note that these symptoms occur under tremendous emotional and often physical duress. The behavior is considered a common survival strategy for victims of interpersonal abuse, and has been observed in battered spouses, abused children, prisoners of war, and concentration camp survivors.”

See also <http://marriage.about.com/od/domesticviolence/g/stockholmsyn.htm>. “Stockholm Syndrome is a common survival mechanism of . . . those in controlling and/or intimidating relationships.”

See also <http://serendip.brynmawr.edu/bb/neuro/neuro04/web1/kkrasnec.html>. “This development occurs when there are perceived threats of violence, disempowerment of the subject, high levels of stress or trauma upon [the] subject, and ultimate dependence upon the person in control for base survival.”

See also <http://www.knut.com/english/stockhs.html>. “It takes only 3-4 days for the characteristic bond of the Stockholm syndrome to emerge when captor and captive are strangers. After that, research shows, the duration of captivity is no longer relevant.” Excerpted from Jeri Martinez, *Domestic Violence Response Training Curriculum*, November 1991.

See also Dee L.R. Graham, Edna Rawlings, and Nelly Rimini, “Survivors of Terror: Battered Women, Hostages, & The Stockholm Syndrome,” in *Feminist Perspectives on Wife Abuse*, Kirsti Yllo and Michele Bograd, eds., Sage: Thousand Oaks, 1988. “Victims are encouraged to develop psychological characteristics pleasing to captors: submissiveness, passivity, docility, dependency, lack of initiative, inability to act, decide, think, etc.”

See also Paul T. P. Wong, “Elizabeth Smart and the Stockholm Syndrome,” Interpersonal Network on Personal Meaning, http://www.meaning.ca/archives/archive/art_stockhom-syndrome_P_Wong.htm, undated, downloaded 14 July 2007.

256. Paul T. P. Wong, “Elizabeth Smart and the Stockholm Syndrome,” Interpersonal Network on Personal Meaning, http://www.meaning.ca/archives/archive/art_stockhom-syndrome_P_Wong.htm, undated, downloaded 14 July 2007.

257. “Stockholm Syndrome,” undated, downloaded 14 July 2007 from <http://www.knut.com/english/stockhs.html>.

258. Laura Landro, “Finding a Way to Ask Doctors Tough Questions,” *Wall Street Journal*, 04 March 2009.

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260. Jon Harding, “The Penalty For Being Difficult,” *Health Affairs*, January/February 2009.

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261. Ibid.
262. Laura Landro, "Finding a Way to Ask Doctors Tough Questions," *Wall Street Journal*, 04 March 2009.
263. http://www.dannyhaszard.com/stockholm_syndrome.htm.
264. Dee L.R. Graham, Edna Rawlings, and Nelly Rimini, "Survivors of Terror: Battered Women, Hostages, & The Stockholm Syndrome," in *Feminist Perspectives on Wife Abuse*, Kirsti Yllo and Michele Bograd, eds., Sage: Thousand Oaks, 1988.
265. Donald M. Berwick, "What 'Patient-Centered' Should Mean: Confessions of an Extremist," *Health Affairs*, web exclusive, 19 May 2009.

Chapter Ten: Gods and Mortals

266. Esther Jansen, Sandra Mulkens and Anita Jansen, "Do Not Eat the Red Food!: Prohibition of Snacks Leads to Their Relatively Higher Consumption in Children," *Appetite*, November 2007. "In this study, it was tested whether a prohibition of food in the first phase would lead to an increase in desire for the target food and overeating in the second phase. Sure enough, desire increased significantly in the prohibition group, whereas it remained constant in the no-prohibition group."

Consider also Marije Nije Bijvank, Elly A. Konijn, Brad J. Bushman, and Peter H. M. P. Roelofsma, "Age and Violent-Content Labels Make Video Games Forbidden Fruits for Youth," *Pediatrics*, 03 March 2009. Classifying a game as appropriate for older users, for example, made it more attractive to young children.

Consider also Liz Plosser, "Got Cravings? Ditch That Diet Mentality," *MSNBC.com*, 23 May 2008, which notes, "Ever notice that when you decide to give up a favorite food, it's the only thing you can think about? You're totally normal. When researchers at the University of Toronto deprived women of chocolate for a week, they found that the restrained eaters experienced more intense, chronic chocolate cravings and swallowed approximately double the amount of the forbidden food when it was finally allowed."

Consider also "The Porn Paradox," *The Week*, 20 March 2009. "Guess which states are most interested in online pornography? That's right — those with the highest concentrations of politically conservative and traditionally religious people . . . Utah boasts the highest porn-buying rate in the entire nation." Why? "If you're told you can't have this, then you want it more."

267. Doctors, like the rest of us, are a mixed lot. Some doctors approach their patients' imminent deaths with compassionate support rather than with a flurry of high-tech interventions, and thus give a profound gift both to patients and to their families. This approach to care is described in a book written by Dennis McCullough, *My Mother, Your Mother: Embracing "Slow Medicine," the Compassionate Approach to Caring for Your Aging Loved One*, New York: Harper, 2008. Yet, as Dr. Cullough notes: "So often today . . . we face a medical care system that seems to work at odds with our parents' stated desires and wishes. . . . Stories of elders' and families' distress abound."

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272. Diana B. Henriques and Jack Healy, "Madoff Goes to Jail After Guilty Pleas," *New York Times*, 13 March 2009.

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276. "Fewer Patients Using Health Care Provider Quality Ratings Web Sites To Make Decisions," *Kaiser Daily Health Policy Report*, 02 December 2008.
277. Laura Landro, "Learning to Ask Tough Questions of Your Surgeon," *Wall Street Journal*, 09 January 2008.
278. Laura Landro, "Finding a Way to Ask Doctors Tough Questions," *Wall Street Journal*, 04 March 2009.
279. Anne Harding, "Docs Often Write Off Patient Side Effect Concerns," *Reuters Health*, 28 August 2007.
280. Roni Caryn Rabin, "With Rise in Radiation Exposure, Experts Urge Caution on Tests," *New York Times*, 19 June 2007.
281. Alex Berenson, "Study Finds Radiation Risk for Patients," *New York Times*, 27 August 2009.
282. Roni Caryn Rabin, "With Rise in Radiation Exposure, Experts Urge Caution on Tests," *New York Times*, 19 June 2007.
283. Alex Berenson, "Study Finds Radiation Risk for Patients," *New York Times*, 27 August 2009.
284. Katharine Greider, "Dirty Hospitals," *AARP Bulletin*, January 2007, quoting Betty McCaughey, who founded the Committee to Reduce Infection Deaths.
285. Amy L. Pakyz, Conan MacDougall, Michael Oinonen, and Ronald E. Polk, "Trends in Antibacterial Use in US Academic Health Centers 2002 to 2006," *Archives of Internal Medicine*, 10 November 2008. "Antibacterial drug use is a major risk factor for bacterial resistance."
286. Nicholas Bakalar, "Antibiotic Use in First Year May Increase Asthma Risk," *New York Times*, 19 June 2007.
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- See also http://en.wikipedia.org/wiki/Gum_recession.
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Chapter Eleven: There's Many a Slip 'Twixt the Cup and the Lip

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316. Ibid.
317. One version of this fable can be found at <http://aesopfables.com/cgi/aseop1.cgi?2&TheHareandtheTortoise>.
318. The hare's contempt for the tortoise is a feature of some versions of the fable. See, for example, <http://aesopfables.com/cgi/aseop1.cgi?2&TheHareandtheTortoise2&&hareort2.ram>.
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320. Donald M. Berwick, "Continuous Improvement as an Ideal in Health Care," *New England Journal of Medicine*, 05 January 1989.

Chapter Twelve: Purpose

321. Sharon Sung, "Direct Reporting of Laboratory Test Results to Patients by Mail to Enhance Patient Safety," *Journal of General Internal Medicine*, October 2006.
322. Ibid.
323. Incidentally, this second solution would also solve the doctors' time problem.
324. Noel Gardner, conversation with the author, May 2008. Dr. Gardner has been involved in education of medical students for decades and noted that virtually all students reply with this answer when asked what their job is.

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325. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, "Health, United States, 2008," November 2008. The first two statistics come from Table 94 and the third from Table 106. All refer to data from the year 2006.

326. Many people would say that a "customer" is someone who writes the check (so to speak) to buy something. They would conclude that therefore the customer of health care is the government, which pays about half the tab in the United States, and employers, who pay another 25- 40%, depending on how you count. For the purpose of this chapter, customer is defined a bit differently. Health care can change or end people's lives. They have to live in the bodies treated. They also have to take many of the actions required to prevent or treat medical problems. For these reasons, I suggest that they should be viewed as the primary customers of health care.

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See also Gina Kolata, "New Guidelines Suggest Fewer Mammograms," *New York Times*, 17 November 2009. The subtitle reads "Reversal on Screening," and the article notes, "While many women do not think a screening test can be harmful, medical experts say the risks are real. A test can trigger unnecessary further tests, like biopsies, that can create extreme anxiety. And mammograms can find cancers that grow so slowly that they never would be noticed in a woman's lifetime, resulting in unnecessary treatment . . . One cancer death is prevented for every 1,904 women age 40 to 49 who are screened for 10 years."

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See also Tara Parker-Pope, "A Call for Caution in the Rush to Statins," *New York Times*, 18 November 2008.

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335. Following are eight references spanning 15 years to support this impression:

From Lucian Leape, "Error in Medicine," *JAMA*, 21 December 1994: "Autopsy studies have shown high rates (35% to 40%) of missed diagnoses causing death."

From Lawrence K. Altman, "Diagnoses and the Autopsies Are Found to Differ Greatly," *New York Times*, 14 October 1998: "A new study has found a substantial discrepancy between the number of cancers detected during life and those found in autopsies. Despite advances in medical technology, the disparity between the diagnosis of cancer before and after death was 44 percent, similar to that found in studies conducted in earlier decades, said the authors."

From Atul Gawande, *Complications: A Surgeon's Notes on an Imperfect Science*, New York: Henry Holt, 2002, p. 197 of the paperback version, with footnotes on p. 262: "How often do autopsies turn up a major misdiagnosis in the cause of death? . . . According to three studies done in 1998 and 1999 . . . the figure is about 40 percent. A large review of autopsy studies concluded that in about a third of the misdiagnoses the patients would have been expected to live if proper treatment had been administered. . . . The most surprising fact of all: the rates at which misdiagnosis is detected in autopsy studies have not improved since at least 1938."

From Anahad O'Connor, "Deaths Go Unexamined and the Living Pay the Price," *New York Times*, 02 March 2004: "A growing number of missed or mistaken diagnoses are going unchecked, depriving doctors of a learning tool. And studies, including one published last week, find that autopsies uncover missed or incorrect diagnoses in up to 25 percent of hospital deaths."

From David Leonhardt, "Why Doctors So Often Get It Wrong," *New York Times*, 22 February 2006: "Studies of autopsies have shown that doctors seriously misdiagnose fatal illnesses about 20 percent of the time. So millions of patients are being treated for the wrong disease."

From "Because the Doctor Isn't Always Right," *CBS News*, May 07, 2006: "Experts find a 40 percent misdiagnosis rate."

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From *Kaiser Daily Health Policy Report*, 29 November 2006: “The *Wall Street Journal* on Wednesday examined how Kaiser Permanente and the Department of Veterans Affairs ‘are leading new efforts to improve diagnostic accuracy.’ According to the *Journal*, ‘diagnostic errors are the Achilles’ heel of medicine — yet little has been done to prevent their deadly toll.’ Studies have found that diagnostic errors occur in 10% to 30% of cases and ‘generally stem from flaws in doctors’ thinking, glitches in the health care system or some combination of both,’ the *Journal* reports. According to a 2002 study conducted by the Agency for Healthcare Research and Quality, diagnostic errors that might have changed patient outcomes are found in 5% to 10% of all autopsies.”

From “Alternative Diagnosis,” www.wrongdiagnosis.com, downloaded 23 April 2009: “Misdiagnosis can and does occur and is reasonably common with error rates ranging from 1.4% in cancer biopsies to a high 20-40% misdiagnosis rate in emergency or ICU care. Surveys of patients also indicate the chance of experiencing a misdiagnosis to range from 8% to 40%.”

336. Laura Landro, “Preventing the Tragedy of Misdiagnosis,” *Wall Street Journal*, 29 November 2006.

337. Cathryn Gunther, health care strategist, in a conversation with the author, 03 December 2009, noted that it can be very difficult to arrive at a diagnosis. At the same time, doctors feel pressured to specify a diagnostic code — write down a diagnosis when filing an insurance claim — in order to support the need for certain tests, get paid for the consultation, etc. As a result, they go on record with a diagnosis — indicating a degree of certainty that they may not feel.

338. As an example, consider the story discussed in Chapter Five of the woman who was prescribed a diabetes drug for five years despite the fact that it caused a 70-pound weight gain. Other alternatives were readily available that did not have this side effect. Drawn from Mary Duenwald, “Is Your Medicine Cabinet Making You Fat?” *New York Times*, 16 August 2005.

339. John Carey, “Medical Guesswork,” *Business Week*, 29 May 2006.

340. *Ibid.*

341. There are dozens, if not more, variations on SMART goals. This one is drawn from The Open Group and can be found at http://www.opengroup.org/architecture/togaf8-doc/arch/chap34.html#tag_35_09.

342. “1,001 Joint Replacement Patients Tell You What Doctors Can’t,” *Consumer Reports*, June 2006.

343. Robert Galvin, “‘A Deficiency of Will and Ambition’: A Conversation with Donald Berwick,” *Health Affairs*, 12 January 2005.

Chapter Thirteen: The Blind Men and the Elephant

344. One version of this story appears at <http://www.geocities.com/Tokyo/Courtyard/1652/Elephant.html>. Another version, with six blind men, appears at http://www.milk.com/randomhumor/elephant_fable.html. The version in this book is an amalgam of the two.

345. Consider the perspective in “Health Care’s Infectious Losses,” by Paul O’Neill, *New York Times*, 06 July 2009: “Which of the [health reform] proposals will eliminate the annual toll of 300 million medication errors? . . . Which of the proposals will capture even a fraction of the roughly \$1 trillion of annual ‘waste’ that is associated with the kinds of process failures [questions like this] imply? So far, the answer . . . is ‘none.’”

Additionally, there is limited research indicating that many of these solutions actually move the dial. For example, see Sumit R. Majumdar and Stephen B. Soumerai, “The Unhealthy State of Health Policy Research,” *Health Affairs*, 11 August 2009 (online). This article describes the flawed research that creates unsupported claims that Health Information Technology, Pay for Performance, and increased cost-sharing (Consumer-Directed Health Plans) yield improved results.

See also “Study Questions Effectiveness of Pay-for-Performance System,” *Kaiser Daily Health Policy Report*, 10 March 2009.

346. “America’s Uninsured Crisis: Consequences for Health and Health Care,” Institute of Medicine, February 2009.

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347. See, for example, Elizabeth Docteur and Robert A. Berenson, "How Does the Quality of U.S. Health Care Compare Internationally?" Robert Wood Johnson Foundation, August 2009, which notes, "If reform accomplishes no more than extending insurance coverage to the more than 45 million Americans without insurance, it will be an important step forward, but more is needed to ensure health care quality improvement."

See also Arnold Milstein, "Toxic Waste in the U.S. Health System," *Health Affairs Blog*, 02 June 2008, which notes that 24,000 people a year were expected to die as a result of lack of insurance. Contrast this number with the numbers of deaths from medical errors, from hospital acquired infections, and from other care-related problems noted in Chapter One.

348. Uwe Reinhardt, "Why Does U.S. Health Care Cost So Much? (Part II: Indefensible Administrative Costs)," *New York Times*, 21 November 2008. The article quotes a McKinsey study from 2003, which he extrapolates to 2008, estimating the excess spending (roughly, spending beyond what should be necessary to do the job) on administration to be \$150 billion in 2008. McKinsey estimated that 85% of the excess spending on administration is related to the private insurance system. Thus, \$150 billion x .85 = roughly \$128 billion. Other researchers come up with even bigger numbers, but this one is big enough to make the point.

349. Gardiner Harris, "Prosecutors Plan Crackdown on Doctors Who Accept Kickbacks," *New York Times*, 04 March 2009.

350. Robert Pear, "Obama Push to Cut Health Costs Faces Tough Odds," *New York Times*, 12 May 2009. "Such cost-control devices have proved spectacularly ineffective in limiting the growth of Medicare spending on doctors' services."

351. "Birth Control Prices Soar on Campus," *MSNBC*, 23 March 2007.

352. "Decrease Price . . . Increase Supply?" *Healthcare Economist*, 27 October 2006. "When Medicare decides to reduce its fees, the quantity of medical services supplied by physicians actually increases."

353. Andrew Pollack, "The Minimal Impact of a Big Hypertension Study," *New York Times*, 28 November 2008.

354. Tara Parker-Pope, "A Hurdle for Health Reform: Patients and Their Doctors," *New York Times*, 03 March 2009.

See also Gardiner Harris, "Document Details Plan to Promote Costly Drug," *New York Times*, 02 September 2009, which starts off, "The pharmaceutical industry has developed thousands of medicines that have saved millions of lives, but it has also used its marketing muscle to successfully peddle expensive pills that are no more effective than older drugs sold at a fraction of the cost."

355. "Fewer Patients Using Health Care Provider Quality Ratings Web Sites to Make Decisions," *Kaiser Daily Health Policy Report*, 02 December 2008.

See also "2008 Update on Consumers' Views of Patient Safety and Quality Information," Kaiser Family Foundation, October 2008, which notes, "The share of the public now saying that they have seen and/or used information comparing the quality among various health care related providers has fallen back to levels last recorded in 2000. . . . Furthermore, people report real difficulty in finding comparative costs related [sic] information that many believe would help patients become more cost-conscious consumers of health care."

356. "Health Care Costs: A Primer — Key Information on Health Care Costs and Their Impact," Kaiser Family Foundation, August 2007.

357. Atul Gawande, "The Cost Conundrum," *New Yorker*, 01 June 2009, quoting a cardiac surgeon.

358. For a discussion of traditional quality measures in health care, see Anthony R. Kovner, *Health Care Delivery in the United States*, Fourth Edition, New York: Springer, 1990.

359. Regina Herzlinger, *Market-Driven Health Care: Who Wins, Who Loses In the Transformation of America's Largest Service Industry*, New York: Addison-Wesley, 1997.

360. Michael E. Porter and Elizabeth Olmsted Teisberg, *Redefining Health Care: Creating Value-Based Competition on Results*, Boston: Harvard Business School, 2006.

361. Consider, for example, the data reported by Siri Carpenter, "Treating an Illness Is One Thing. What About a Patient With Many?" *New York Times*, 31 March 2009. "Two-thirds of people over age 65, and almost three-quarters of people over 80, have multiple chronic health conditions, and 68 percent

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of Medicare spending goes to people who have five or more chronic diseases. . . . Yet people with multiple health problems . . . are largely overlooked both in medical research and in the nation's clinics and hospitals. The default position is to treat complicated patients as collections of malfunctioning body parts rather than as whole human beings."

362. NCQA (The National Committee for Quality Assurance) has published an impressive 32-page document, "Physician Practice Connections-Patient Centered Medical Home Companion Guide," available at <http://www.ncqa.org/tabid/1034/Default.aspx>. It details the standards a medical practice must meet to garner recognition as a medical home.

363. Ibid.

Chapter Fourteen: The Path Forward

364. Roni Caryn Rabin, "Bad Habits Asserting Themselves," *New York Times*, 09 June 2009. The percentage of people age 40-74 who:

- Eat five fruits and vegetables a day: 26%
- Don't smoke: 84%
- Exercised 30 minutes 3x week 43%

Multiplying these together yields the conclusion that 9.4% of people did all three.

Then, from the "Health Behaviors of Adults: United States 2002-2004," U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Vital and Health Statistics, Series 10, Number 230, September 2006, it develops that 61% of the population drinks (Table 3.1) and 20% of them have had more than five drinks in a single day in the last year (Table 3.3.) This means that, understating the case somewhat, $.61 \times .20 = 12\%$ of the population might be considered problem drinkers, yielding 88% who are not. Factoring this in to the calculation above, about 8% of the population is doing well on all four measures.

See also Dana E. King, Arch G. Mainous III, Mark Carnemolla, and Charles J. Everett, "Adherence to Healthy Lifestyle Habits in US Adults, 1988-2006," *American Journal of Medicine*, June 2009. It paints a bleaker picture: "Only 3% of US adults adhered to 4 healthy lifestyle characteristics (5 fruits and vegetables a day, regular physical activity, maintaining a healthy weight, and not smoking)."

365. Chris Browne, "Hagar the Horrible," *Daily Courier*, 27 February 2009.

366. Assume 37 million hospital stays averaging 6 days each, per "Health, United States, 2008," U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, 2009, Table 106. Further assume that each individual is visited 10 times a day by various doctors, nurses, aides, and other people providing care or support. That's 37,000,000 stays x 6 days x 10 interactions with care providers = 2,220,000,000 opportunities to pass on an infection. (That's 2.2 billion.)

According to the CDC, 1.7 million people pick up infections in the hospital and 99,000 die. See "Estimates of Healthcare-Associated Infections," Centers for Disease Control and Prevention, 30 May 2007. One simplified way to look at the numbers is this: 1,700,000 of the 2,220,000,000 contacts resulted in transmission of a perceptible infection. That's 17 out of 22,200 contacts, or less than one in a thousand. And it means that infections that cause deaths are passed on to patients 99,000 times out of 2.2 billion encounters. That's one out of every 22,000 times.

(The number of 10 contacts was chosen somewhat arbitrarily and probably understates the number of contacts by quite a bit — just delivering and picking up meal trays would yield 6 contacts a day. The effect of lowballing the number of contacts is that it paints a worse picture than is accurate. Instead of one infection for every 22,000 encounters, it's probably more like one infection for every 50,000 encounters, or more. You are welcome to estimate a different number of contacts if you like and see what the result is.)

I can hear the statisticians objecting: if someone acquires an infection in her first encounter with a doctor on the first day of a hospital stay, you don't really know if more germs are transmitted in subsequent

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encounters; they get drowned out, so to speak. The point is that the percentage of people harmed by hospital-acquired infections is relatively small compared to the number of opportunities to cause harm.

367. "Wash Your Hands. No, Really." *Prevention*, March 2009.

368. S. Jay Olshansky, Douglas J. Passaro, Ronald C. Hershow, Jennifer Layden, Bruce A. Carnes, Jacob Brody, Leonard Hayflick, Robert N. Butler, David B. Allison, and David S. Ludwig, "A Potential Decline in Life Expectancy in the United States in the 21st Century," *New England Journal of Medicine*, 17 March 2005.

See also the 2008 video at www.healthiestnation.org, which notes, "For the first time our children will have shorter life expectancies than ours."

369. This view is echoed in an article by David Leonhardt, "Fat Tax," *New York Times*, 16 August 2009. "The debate over health care reform has so far revolved around how insurers, drug companies, doctors, nurses and government technocrats might be persuaded to change their behavior. And for the sake of the economy and the federal budget, they do need to change their behavior. But there has been far less discussion about how the rest of us might also change our behavior. It's as if we have little responsibility for our own health. We instead outsource it to something called the health care system."

The article continues, "The promise of that system is undeniably alluring: whatever your ailment, a pill or a procedure will fix it. Yet the promise hasn't been kept. For all the miracles that modern medicine really does perform, it is not the primary determinant of most people's health. J. Michael McGinnis, a senior scholar at the Institute of Medicine, has estimated that only 10 percent of early deaths are the result of substandard medical care. About 20 percent stem from social and physical environments, and 30 percent from genetics. The biggest contributor, at 40 percent, is behavior." The article goes on to argue for a new public health effort aimed at supporting higher activity levels, better nutrition, and so forth.

370. Kenneth E. Thorpe, David H. Howard, and Katya Galactionova, "Differences in Disease Prevalence as a Source of the U.S.-European Health Care Spending Gap," *Health Affairs* online, 02 October 2007.

371. Matthew 7:3, New International Version (1984), downloaded from www.biblegateway.com on 03 Dec 2009.

372. "Health, United States, 2008," U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, 2009. Table 108 notes that "all employed civilians" in 2007 total 146,047,000. Health care employment for 2007 was 14,687,000 people.

See also Gerald F. Seib, "U.S. Psyche Bedevils Health Effort," *Wall Street Journal*, 04 August 2009, which notes that not only are there more than 14 million jobs in health care today, but it's expected to add "a staggering three million new wage and salaried jobs in the next decade or so, more than any other industry."

373. "Health Care Spending Will Account for One-Fifth of GDP in 2018, Federal Government Will Pay More Than 50% of Those Costs, According to CMS Report," *Kaiser Daily Health Policy Report*, 24 February 2009.

374. Micah Hartman, Anne Martin, Patricia McDonnell, Aaron Catlin, and the National Health Expenditure Accounts Team, "National Health Spending In 2007: Slower Drug Spending Contributes to Lowest Rate of Overall Growth Since 1998," *Health Affairs*, January/February 2009.

375. Paul Otellini, "Making Health Care Personal," *Politico*, 27 July 2009. The author is CEO of Intel Corp.

376. Ibid.

377. "Constant Stress Linked to Overeating," *United Press International*, 14 May 2008.

See also "Why We Overeat and Overspend," *TheWeek*, 13 June 2009. This research showed that people overeat and overspend when they have been thinking about death. The idea for the research arose as a result of data showing that sales of "indulgent snacks" skyrocketed after the 9/11 terrorist attacks. While this study is focused on just one cause of stress, thinking about death, it seems plausible to suggest that many causes of stress might result in similar behavior. The data on overeating certainly suggest such a conclusion.

378. "Constant Stress Linked to Overeating," *United Press International*, 14 May 2008.

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379. Edward T. Creagan, "How Do I Control Stress-Induced Weight Gain?" MayoClinic.com, 17 August 2009, found at <http://www.mayoclinic.com/health/stress/an01128>.
380. "Stress Symptoms: Effects on Your Body, Feelings and Behavior," MayoClinic.com, 20 February 2009, found at http://www.mayoclinic.com/health/stress-symptoms/SR00008_D.
381. Rob Stein, "Baby Boomers Appear To Be Less Healthy Than Parents," *Washington Post*, 20 April 2007.
382. Ibid.
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384. Ron French, "Losing the Battle of the Bulge," *Detroit News*, 27 September 2006.
385. Nothing contained herein should be construed as personalized medical advice.
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387. M. P. Dunleavy, "It Might Pay to Follow Your Bliss," *New York Times*, 16 June 2007.
388. Anthony Shih, Karen Davis, Stephen Schoenbaum, Anne Gauthier, Rachel Nuzum, and Douglas McCarthy, *Organizing the U.S. Health Care Delivery System for High Performance*, ed. Martha Hostetter, Commonwealth Fund, 7 August 2008.

Chapter Fifteen: Surviving the Geeks-in-Garages Era

389. <http://www.washingtonpavilion.org/VisualArtsCenter/events/punchcardart.cfm>.
390. The IBM Archives (at www.ibm.com) provide a sense of the magnitude of the change from centralized computing (data centers and mainframes) to decentralized (widespread use of personal computers in addition to mainframes): "It wasn't that long before the August 1981 debut of the IBM PC that an IBM computer often cost as much as \$9 million and required an air-conditioned quarter-acre of space and 60 people to run and keep it loaded with instructions. The IBM PC changed all that. It was a very small machine that could . . . process information faster than those ponderous mainframes of the 1960s . . . for a price tag of less than \$1,600." Now imagine a similar revolution in health care, from centralized activity run by experts to decentralized activity handled by individuals using systems created by experts.
391. H. Gilbert Welch, "To Overhaul the System, 'Health' Needs Redefining," *New York Times*, 28 July 2009.
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394. Jerome Groopman, *How Doctors Think*, Boston: Houghton Mifflin, 2008.
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others, it might be three months. Continuation of the drug would then be approved only if the feedback loop showed that the benefits exceeded the downsides.

In addition, what I am suggesting is that a feedback loop be created every time an individual is prescribed a drug for a chronic condition. Having a formal process to check for side effects and weigh benefits against the problems the drug may be causing could help people get treatments that work better for them much more frequently than is the case today. It could also help avoid some of the 8-10 million hospitalizations/year for adverse drug events. (See Chapter One.)

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