Leading the Elephant Out of the Corner
The Future of Health Care

Presidential Address at the American Heart Association
2006 Scientific Sessions

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I will break with tradition and address a topic that is more political and social than scientific—the future of health care. Although I will focus initially on the growing healthcare crisis in this country, I will cite similar concerns and trends elsewhere in the world and suggest fundamental principles for change that are relevant throughout our global society.

Of the 192 member states of the World Health Organization in 2003 (Figure 1), 85 countries spent less than $100 per capita each year on health care.1 Another 85 countries spent between $100 and $2000 per capita. Only 22 countries, or 11.5%, spent more than $2000 per capita. Most of us are privileged, as we work in one of these 22 countries (Table 1).

The recent growth in healthcare expenditures is an issue in many of these countries, including the United States. In the United States, federal government spending on Medicare and Medicaid continues to accelerate (Figure 2). These 2 items now comprise almost 21% of the budget, equal to Social Security.2 Along with other mandatory items and interest payments, these nondiscretionary expenditures now approach 61% of the total federal budget (Figure 3). Of the remaining 39%, 20% goes to defense, leaving 19% of the federal budget for all other discretionary spending.

In 2004, state expenditures on Medicaid passed elementary and secondary education, making Medicaid the largest state spending program.3

We are not the only country with problems in health care. The increase in healthcare costs in Germany has far exceeded the growth in gross domestic product (GDP)4 (Figure 4). At the same time, widespread concern about working conditions and salaries has led to physician strikes.5 One potential solution to rising healthcare costs is to restrict resources and ration services. Waiting time in Canada from referral by a general practitioner until surgery or other treatments is now 17.7 weeks, a 90% increase since 19936 (Figure 5). In the United Kingdom, Patricia Hewitt, the health secretary, recently admitted that “the extra billions of pounds invested in the NHS have failed to make much difference to patients.”7

The US system is unique among Western developed countries, as it relies on private, employer-funded health insurance to provide health care for about 60% of its citizens.8 Government reimbursement for services for the elderly has not kept pace with their cost, leading to a predictable cascade of effects (Figure 6). Less reimbursement for Medicare and Medicaid services has led to cost shifting to non-Medicare patients. This has led to increased health insurance premiums and fewer employers providing insurance. As a result, more patients are uninsured, which has led to less reimbursement. The compounded cumulative effects from 1991 to 2006 are large (Figure 7). Private health insurance now costs more than 3 times what it did 15 years ago, far in excess of inflation. Although the annual rate of increase in health insurance premiums has recently fallen to below 10%, the increase far exceeds inflation and has occurred on a very large base, so the gap between the curves continues to widen. The average insurance premium for family coverage in the United States now exceeds $11 500 per year.9 Multiple small businesses can no longer afford to provide health insurance for their employees. Nearly every US corporation has required their employees to share more of these costs through increased copayments and deductibles.

Despite this cost sharing, health benefit expense continues to rise rapidly for US corporations and will likely exceed corporate after-tax profits in 2008 (see http://www.mckinseyquarterly.com/article_page.aspx?ar=1394). Wages of US workers have stagnated despite increases in productivity, at least partially due to this trend. Since 1988, the percentage of large corporations offering retiree health benefits declined from 67% to 33%10 (Figure 8).

Although we spend 16% of GDP on health care, 15.9% of Americans are uninsured (Figure 9). This percentage ranges from 8.7% in Minnesota to 24.6% in Texas. In our largest state, California, 18.8% are uninsured; here in Illinois, 14.2%11 (Figure 10). Immigrant populations contribute to these differences as well as to the profound racial and ethnic differences in the prevalence of the uninsured (Figure 11). Eleven point two percent of non-Hispanic whites are uninsured; 19.5% of African Americans; 32.6% of Hispanic Americans. Shame on us.
Figure 1. Pie diagram showing the distribution of the 192 member states of the World Health Organization based on per capita health spending in 2003. Only 22 countries, or 11.5%, spent more than $2000 per capita. Based on data from the World Health Organization.1

Figure 2. Growth in federal government spending on Medicare and Medicaid from 2003 to 2006. The Medicaid spending does not include the contribution from the states. Based on data from Borger et al.56


Figure 4. Growth in health care costs (upper line) in Germany since 1970 compared to the growth in gross domestic product (lower line). From “German health care costs.”4

TABLE 1. World Health Organization Member Statistics With Per Capita Health Spending Greater Than $2000

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Figure 5. Median waiting time in Canada from referral by a general practitioner until surgery or other treatment. The median time increased 90% from 1993 to 2005. Based on data from Esmail et al.6

Figure 6. Flow diagram showing the cascade of effects when Medicare and Medicaid services do not keep pace with their cost.


Figure 8. The percentage of employers with more than 200 employees offering retiree health benefits from 1988 to 2005. Reprinted from Opdyke,10 with permission from the author.

Figure 9. Percentage of residents of the United States without health insurance from 1999 to 2005. Based on data from the US Census Bureau.11

Figure 10. Percentage of uninsured residents of the United States and of selected states in 2005. Based on data from the US Census Bureau.11
The current crisis will soon worsen. Contrary to popular wisdom, the aging of the population has until now only been a minor factor in increasing healthcare costs. However, this will change over the next 25 years, when the number of Americans over the age of 65 doubles (Figure 12). The demographic facts are compelling—beginning in 2011, when the baby boomers, including me and many of you, begin to celebrate their 65th birthdays, 10,000 people will turn 65 every day...for the next 20 years. I am counting on those of you who are younger than me to solve the problem of the healthcare system before I lose what little hair I have left!

Many countries will have similar increases in the elderly (Figure 13). The percentage of the population over age 65 will increase similarly in Canada and Australia. Italy, Japan, and Germany already have an older population, and they will maintain their lead. China currently has a lower percentage of citizens over age 65, but this will double by 2030. These demographic trends will dramatically increase cardiovascular disease and stroke, as these are diseases that are much more common in the elderly.

In the face of this escalating crisis, there has been remarkably little public discussion of the need for fundamental change in the healthcare system. It is the “elephant in the corner” that everyone tries to politely ignore. Although we can debate the multiple reasons for this silence, there is no question that further delays will only increase the changes required in the healthcare system. I believe that the time is long overdue for responsible members of the healthcare community to begin the public discussion that must take place before the public, our patients, our political leaders, and we ourselves are willing to make the necessary difficult decisions. Further delay will only lead to an increase in the number of uninsured, an increase in racial and ethnic disparities in health care, further wage stagnation, and a decrease in our societal commitment to education. The existing crisis is an increasing threat to the AHA’s 2010 goal to reduce coronary heart disease, stroke, and risk by 25%. This baby boomer will try to lead the elephant out of the corner to center stage today.

I do not intend to offer any detailed solutions. One of the factors that has inhibited adequate public discussion is the widespread inertia favoring the status quo for the short term rather than recognizing the necessity of long-term change and accepting its potentially adverse short-term consequences. Suggested solutions, such as the 1993 Clinton healthcare proposal (or the multiple recent state proposals) inevitably elicit severe criticism from every group who feels that they are better off with the status quo than with the proposed change. My intent today is simply to outline some of the fundamental changes (Table 2) that I think must underlie meaningful improvement over the next 10 years in our healthcare system. Readers from abroad can decide if these suggestions should apply to your country as well.

1. There must be a renewed emphasis on patient education and personal health. Patients often fail to understand the importance of their own lifestyle choices. Recent data show that at age 50, men and women who have never smoked have a risk of death that is increased by 20% to 40% if they are simply overweight (a BMI of 26 to 29) and by a factor of at least 2 if they are obese (a BMI of >30) (Table 2). The rate of patient compliance with prescribed medications is dismal. One in 7 patients is no longer taking a thienopyridine 30 days after the placement of a drug-eluting stent for treatment of their acute myocardial infarction (MI); their mortality 1 year later is increased significantly.

2. There must be an increased focus on disease prevention as opposed to disease treatment. Obesity and diabetes are growing worldwide threats to our past progress. They often start with childhood obesity, which our pediatric nurses, pediatric cardiologists, and others have called to our attention in recent years.

3. Health care should rely much more on allied health staff, including nurses, exercise physiologists, physician extenders, dietitians, and others. For example, the long-term care of chronic diseases such as congestive heart failure and diabetes demands a much better team effort from all health professionals.

4. The healthcare system ought to place a greater emphasis on research. Our country currently spends more than $7100 annually per capita on health care, but only $95 on NIH research, although the opportunities for fundamental advances to eliminate disease and improve health throughout the world are enormous. A second study comparing the United States and Canada reported similar results.23 Within this country, there are tremendous regional and local variations that cannot be explained. In a well-publicized example, one region that is first in the country among Medicare referral regions in its use of percutaneous coronary intervention has a rate that is 3

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5. Health care must give efficiency a higher priority. Compared to other countries, US health care is remarkably inefficient. We spend a much greater share of GDP than Germany, Canada, Australia, Spain, or Japan, with little benefit in life expectancy (Figure 17). Of these 6 countries, Japan has the best life expectancy, and the United States has the worst. Based on self-reported data, citizens in the United Kingdom appear to have less diabetes, hypertension, MI, and stroke than US citizens (Figure 18). A second study comparing the United States and Canada reported similar results. Within this country, there are tremendous regional and local variations that cannot be explained. In a well-publicized example, one region that is first in the country among Medicare referral regions in its use of percutaneous coronary intervention has a rate that is 3
Figure 11. Percentage of uninsured residents of the United States as well as non-Hispanic whites, African Americans, and Hispanic Americans. Based on data from the US Census Bureau.11

Figure 12. Percentage of US population over the age of 65. Future projections are shown on the dotted line. Reprinted from Foot et al,58 with permission from the American College of Cardiology Foundation. Copyright 2000.

Figure 13. Percentage of the population over the age of 65 in multiple nations in 2005 and 2030. The similarity in trends is obvious. Based on data from the United Nations Department of Economic and Social Affairs, Population Division.14

Figure 14. The relative risk of death as a function of body mass index (BMI) in men and women who are age 50 and have never smoked. Reprinted from Adams et al,15 with permission from the Massachusetts Medical Society. Copyright 2006.

Figure 15. Mortality over 1 year after treatment with a drug-eluting stent for acute myocardial infarction as a function of adherence to thienopyridine therapy 30 days after placement of the drug-eluting stent. Patients who discontinued thienopyridines prematurely were much more likely to die. Reprinted from Spertus et al,17 with permission from the American Heart Association. Copyright 2006.

Figure 17. Healthcare expenditures in 2004 as a percentage of gross domestic product for multiple developed nations. US health spending is clearly the highest. Based on data from the World Health Organization.

Figure 18. Self-reported prevalence of multiple disease conditions in the United Kingdom (open bars) and the United States (solid bars). Reprinted from Banks et al,22 with permission from the American Medical Association. Copyright 2006.

Figure 19. Adjusted rate of percutaneous coronary intervention per 1000 Medicare enrollees in the top-ranked Medicare region in the United States (region) compared with the average from the state containing the region (state). Based on data from the Dartmouth Atlas of Health Care. Available at: http://www.dartmouthatlas.org/atlases/2006_Chronic_Care_Atlas.pdf. Accessed March 14, 2007. Figure courtesy of Dr John Wennberg.

Figure 20. Relationship between annual Medicare spending per beneficiary in each of the 50 states and the ranking of each state in quality, as judged by multiple performance measures. The 5 states with the lowest Medicare spending (HI, NH, UT, OR, and SD) all rank in the top 20 in quality. In contrast, of the 5 states with the highest Medicare spending (MD, FL, CA, TX, and LA), 4 of the 5 states ranked in the lowest 10 in quality. Reprinted from Baicker,25 with permission.

Figure 21. Intensive care unit days during the last 6 months of life in 75 leading academic medical centers. Selected medical centers in Los Angeles, San Francisco, and New York are shown in the solid circles. Based on data from the Dartmouth Atlas of Health Care. Available at: http://www.dartmouthatlas.org/atlases/2006_Chronic_Care_Atlas.pdf. Accessed March 14, 2007. Figure courtesy of Dr John Wennberg.

Figure 22. The rate of selected cardiac procedures per 1000 Medicare beneficiaries from 1993 to 2001. Stress imaging refers to stress echocardiography and stress myocardial perfusion imaging. The rate of increase in stress imaging far exceeds the rate of increase in cardiac catheterization, revascularization, or acute myocardial infarction. Acute MI indicates acute myocardial infarction. Reprinted from Lucas et al,28 with permission from the American Heart Association. Copyright 2006.
times its state average\textsuperscript{24} (Figure 19). Is more care better? There is growing evidence that increased spending does not produce better care. Of the 5 states with the lowest Medicare spending per beneficiary—Hawaii, Utah, New Hampshire, Oregon, and South Dakota—all rank in the top 20 in quality\textsuperscript{25} (Figure 20). Of the 5 states with the greatest Medicare spending—Louisiana, Texas, California, Florida, and Maryland—all but Maryland rank in the bottom 10 in quality.

Data from the Dartmouth Atlas of Health Care show a tremendous variation in intensive care days during the last 6 months of life across 77 leading academic medical centers.\textsuperscript{26} There are differences of 30% to 60% within San Francisco and Los Angeles, with much higher rates in Los Angeles. There are astonishing differences of 140% within New York City (Figure 21). Additional analyses have suggested that these differences reflect differences in the supply of ICU beds, not the patients.\textsuperscript{27}

Another example of increased spending is the rapid growth of stress cardiac imaging procedures in the United States\textsuperscript{28} (Figure 22). I doubt that this 6% per year increase in Medicare patients is efficient. It dwarfs the rate of increase of cardiac catheterization, revascularization, or acute MI and is 3 times the absolute rate in Canada.\textsuperscript{29} In a preliminary analysis, we applied the American College of Cardiology/American Society of Nuclear Cardiology appropriateness criteria\textsuperscript{30} for single-photon emission computed tomography perfusion imaging to 296 consecutive studies ordered at the Mayo Clinic by salaried physicians with no financial interest in the imaging equipment. Eleven percent of the patients were unclassified, that is, referred for reasons not listed in the appropriateness criteria, suggesting a need for improvement of the published criteria. Sixty-six percent of the patients were referred for appropriate indications, 10% for inappropriate indications, and 13% for indications of uncertain appropriateness. We must all strive to decrease the numbers of tests in these last 2 categories to improve efficiency.

6. Health care should place greater emphasis on quality. Reperfusion therapy for ST-elevation MI is one of the great advances in the past 20 years. However, data from several large national and international registries show that 28% to 30% of eligible patients with ST-elevation MI do not receive any reperfusion therapy\textsuperscript{31–33} (Figure 23). Although some unpublished recent data are better, there is still great opportunity for quality improvement. Although there are fewer data regarding the use of thrombolytic therapy in acute stroke, published evidence suggests that more than half of eligible patients are not treated\textsuperscript{34–37} (Figure 24).

In July, the state of Minnesota defined optimal care for coronary artery disease, based on existing national guidelines for blood pressure, low-density lipoprotein cholesterol, aspirin, and abstinence from tobacco.\textsuperscript{38} Currently, only 38% of coronary artery disease patients in Minnesota receive optimal care. Optimal care for diabetes includes an additional target of a hemoglobin A1C <7% (Figure 25). Currently, only 6% of diabetic patients receive optimal care. We can and must do better.

Core laboratories for imaging are well aware of the need for quality improvement. My laboratory validated and published a phantom experiment for single-photon emission computed tomography perfusion imaging.\textsuperscript{39,40} In a worldwide experience of 895 centers, 10% of centers have failed (Figure 26). Even in those centers that pass, the quality of patient studies is suboptimal. In a recent series of 489 patient studies, 17% had major technical deficiencies.

We have only begun to scratch the surface of how to measure and improve quality. Performance measures are in their infancy. We need much more study of these measures to determine whether they are the best way to achieve the goal of improving the quality of care.\textsuperscript{41,42}

7. Finally, the healthcare system must provide appropriate incentives. The current US system has inappropriate financial incentives favoring procedures and tests compared to pretest evaluation, management, and patient education.\textsuperscript{43} Appropriate incentives should be linked to quality and efficiency, not simply to the number of procedures. US medical graduates are no longer choosing family medicine, general internal medicine, and general surgery, as these areas are thought to have a lifestyle that cannot be controlled and inadequate income\textsuperscript{44–46} (Figure 27). Instead, they are entering radiology, anesthesiology, and dermatology in increasing numbers. These trends will make it increasingly difficult for you to identify a new primary care physician when your current one retires.

Less reimbursement for Medicare/Medicaid services has started another cascade of effects. The response of healthcare providers is to make it up on volume. This “grow the business” mentality has fueled increases in procedures and tests, which by federal mandate should further reduce reimbursement, although this has not always occurred. The increases in procedures and tests are yet another contributor to the increase in healthcare premiums in the cascade I described earlier. With less time per patient or procedure, quality has suffered, and efficiency has fallen. The final result is lower healthcare value.

Space has not permitted me to touch on many other issues, including universal coverage,\textsuperscript{47} tort reform,\textsuperscript{48} administrative expense,\textsuperscript{49} end-of-life issues,\textsuperscript{50} the electronic medical record,\textsuperscript{51} financing,\textsuperscript{52} and the emergency department crisis.\textsuperscript{53} They are important components of the current crisis that also merit attention.

Our ability to reduce disability and death from cardiovascular disease and stroke is threatened by the growing crisis in healthcare delivery. The elephant must be led out of the corner to center stage. We must look beyond short-term concerns in the interest of long-term progress. I have offered my ideas to start the process. Whether you agree or disagree with my ideas, please discuss your own ideas and the need for healthcare reform with your patients, your peers, your institution, and your community. Public discussion is a necessary first step if we are ever going to work together with the public, our patients, and our political leaders to build a mandate for change. We must begin—we owe it to the AHA mission, to the 100 000 citizens of Tennessee who lost their health insurance last year,\textsuperscript{54} and to the hundreds of thousands
Figure 23. Percentage of patients with ST-elevation myocardial infarction who were eligible for reperfusion therapy with either thrombolytic therapy or percutaneous intervention and received neither. Based on data from the National Registry of Myocardial Infarction-3 (NRMI3), the Global Rate of Acute Coronary Events (GRACE) registry, and the EuroHeart Acute Coronary Syndromes-II registry (EuroHeart ACSII).

Figure 24. The percentage of patients with acute stroke who were eligible for intravenous thrombolytic therapy and did not receive this therapy in 4 different published series. UHC indicates University Health Consortium. Based on data from Barber et al, Johnston et al, Gropen et al, and Katzan et al.

Figure 25. The rate of optimal care in coronary artery disease (CAD) and diabetes in the state of Minnesota in 2004, as reported in Minnesota QCare. See text for description of optimal care. From the Minnesota Department of Health.

Figure 26. The failure rate observed in the Mayo Nuclear Cardiology Core Lab in the performance of a phantom experiment by 895 worldwide single-photon emission computed tomography laboratories and in a recent series of 489 patients from a multicenter US study.

Figure 27. The choice of medical specialty by US medical graduates between 1996 and 2001. Based on data from Garibaldi et al and Dorsey et al.
of Medicaid patients in this country who are now paying an increased copayment to get their statins.55
We must begin to face the facts in health care:
  • The current “system” is not sustainable.
  • Minor patches will not address the long-term problems.
  • The required major fix will be painful.

References


55. Pub L No. 109-171. The Deficit Reduction Act of 2005. Title VI, Subtitle A, Chapter 4, Sections 6041 (State Option for Alternative Medicaid Premiums and Cost-Sharing) and 6042 (Special Rules for Cost-Sharing for Prescription Drugs).


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