

Cover Missouri Project: Report 1

Consequences of the Lack of Health Insurance on Health and Earnings



About MFH

Established in 2000, the Missouri Foundation for Health is dedicated to its mission of empowering the people of the communities we serve to achieve equal access to quality health services that promote prevention and encourage healthy behaviors. In support of its mission, the Foundation undertakes policy research to educate the public and decision makers on effective health policies that will result in long-term, positive health system change in the state of Missouri. Formulating sound health policies advances the Foundation's efforts to increase access to high quality, cost-effective preventive and curative care, especially for the uninsured, underinsured, and underserved in our service region of 84 Missouri counties and the City of St. Louis.

The Missouri Foundation for Health does not take responsibility for any analysis, errors, or omissions of fact found in this report.

Cover Missouri Project

Preface

In an effort to inform the discussion regarding practical policy options to expand health care coverage for the uninsured in Missouri, the Missouri Foundation for Health (MFH) has established the Cover Missouri Project. Under this project, MFH has engaged The Urban Institute to produce a series of papers which considers strengths and weaknesses of the current health care system in Missouri and explores options for decreasing the number of uninsured. MFH offers these studies as a means to further understand and ultimately improve access to health care coverage.

Missouri currently faces considerable challenges related to creating an equitable and comprehensive system of health care for all Missourians. In 2005, between 635,000 and 707,000 Missouri residents were without health insurance. In addition, eligibility cuts and cost-sharing changes to Missouri's Medicaid program made in 2005 increased the number of uninsured. Ultimately, these changes may shift Missouri from being one of the 12 states with the lowest uninsurance rates to being among the 12 states with the highest rates of uninsurance.

Research broadly documents the serious health and financial consequences associated with being uninsured. The uninsured live sicker and die younger than those with insurance. They forego preventive care and seek health care at more advanced stages of disease. Society then bears these costs through lower productivity, increased rates of communicable diseases, and higher insurance premiums. Those without health insurance often must choose between visiting a doctor and paying for other essentials.

This paper, "Consequences of the Lack of Health Insurance on Health and Earnings," represents the first in the series emerging under the Cover Missouri Project. It examines the serious health and financial consequences associated with being uninsured, as well as the importance of health insurance as it relates to people's access to care, use of services, and ultimately to their health outcomes.

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Jack Hadley, PhD, is a Principal Research Associate with The Urban Institute's Health Policy Center and a Senior Fellow at the Center for Studying Health System Change. He is a past president of AcademyHealth (the Association for Health Services Research) and a former editor of *Inquiry*, a professional journal devoted to health services research and policy. His research has emphasized statistical analysis of various issues in health care organization and financing, including determinants of health insurance coverage, the consequences of lack of health insurance, access to care, physician and hospital payment, and the effects of managed care on health care delivery systems.

"Consequences of the Lack of Health Insurance on Health and Earnings" builds on prior work funded by the Kaiser Family Foundation. Dr. Hadley acknowledges Matt Cravens for his excellent research assistance in the preparation of Report 1 for the Cover Missouri Project.

About The Urban Institute

The Urban Institute is a nonprofit nonpartisan policy research and educational organization established to examine the social, economic, and governance problems facing the nation. It provides information and analysis to public and private decision makers to help them address these challenges and strives to raise citizen understanding of the issues and tradeoffs in policy making. The Urban Institute works to promote sound social policy and public debate on national priorities through gathering and analyzing data, conducting policy research, evaluating programs and services, and educating all Americans. More information about The Urban Institute may be found at www.urban.org.

Consequences of the Lack of Health Insurance on Health and Earnings

In 2005, between 635,000 and 707,000 Missouri residents were without health insurance. Additionally, changes to the state's Medicaid program in 2005 substantially increased the number of uninsured. This first Cover Missouri Project report presents an overview of the serious health and financial consequences associated with being uninsured and examines how much insurance matters in relation to people's access to care, use of services, and ultimately health outcomes.

The link between health insurance and health status has been documented in major reports¹⁻⁶ published between 2000 and 2004 by the American College of Physicians, the Institute of Medicine (IOM), and others. Those reports established that lack of health insurance creates substantial financial

barriers to receiving medical care. An extensive body of research found that, on average, the uninsured receive about half as much medical care as the insured.⁷

More important, the reports collected a solid base of evidence supporting the conclusion that lower use of medical care by the uninsured results in poorer health status for these individuals. The uninsured use fewer screening and prevention services and delay seeking care when sick. As a result, when they do enter the medical care system, they tend to be sicker and at more advanced disease stages than the insured. Moreover, even when seriously ill or suffering from an identified chronic condition, the uninsured receive less care than the insured. Together, these factors result in higher rates of morbidity and mortality for the uninsured, both in general and for specific diseases.

Poor health exacts an obvious and direct physical impact on people. It also has a significant economic impact in the form of lost earnings due to fewer years of healthy life and lower productivity while at work. These economic costs are substantial and represent a hidden cost of uninsurance, over and above the cost of the medical care used by the uninsured.

This Cover Missouri Project report highlights and updates key findings from research studies, organizing the results around a series of propositions about the use of health services and health outcomes of the uninsured. Specifically, this report poses and presents evidence in support of the

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following hypotheses. Relative to the privately insured, the uninsured are:

- more likely to postpone or fail to receive needed medical care;
- less likely to be screened for serious illnesses;
- more likely to enter the health care system in poorer health;
- more likely to receive less treatment, even for serious acute or chronic health conditions; and
- more likely to have worse health outcomes, both in general and for specific diseases.

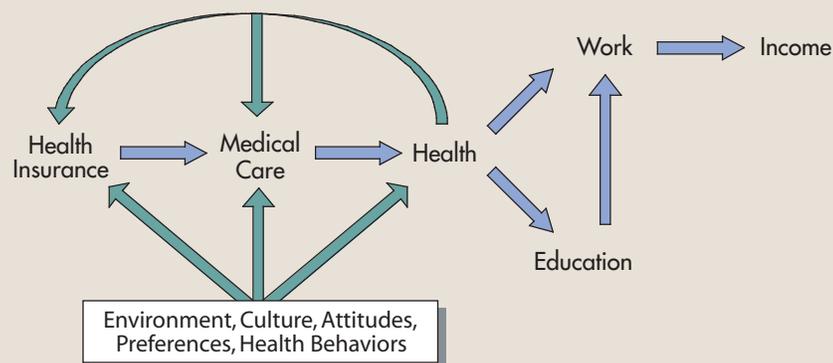
The last section addresses the economic consequences of uninsurance and poor health. Not surprisingly, poor health associated with lack of insurance reduces earning capacity. However, the larger economic impact stems from the value of good health and longevity lost because individuals lack health insurance. If insurance coverage was expanded to cover the uninsured, the “benefit” would be the value of lost health that would be gained by an increase in coverage for the currently uninsured. It would then be possible to compare this “benefit” to estimates of the extra cost of medical care that the uninsured would receive if they had coverage. A

comparison of the cost and benefit of expanding insurance coverage shows that covering the uninsured would be a good investment for the nation.

Although the propositions listed above seem relatively straightforward, empirical verification can be difficult because of the inability to conduct experiments that randomly assign people to be insured or uninsured and then follow their experiences over a sustained period of time. As illustrated by Figure 1, the relationships among health insurance coverage, medical care use, health, work, education, and income are complex because causation moves in multiple directions and outcomes are affected by many difficult to observe factors.

Critical literature reviews by Jack Hadley⁶ and the IOM^{3,4} assessed a large body of research in considerable detail, focusing on issues of research design, methodological rigor, and data quality. Because these issues have been addressed extensively by those recent reviews, this current effort focuses on the results of key studies using charts to facilitate and simplify the presentation of findings for a broad, policy-oriented audience.

Fig. 1. Relationships Among Health Insurance, Medical Care Use, Health, Education, and Income



The Uninsured Are More Likely To Postpone or Fail To Receive Needed Medical Care

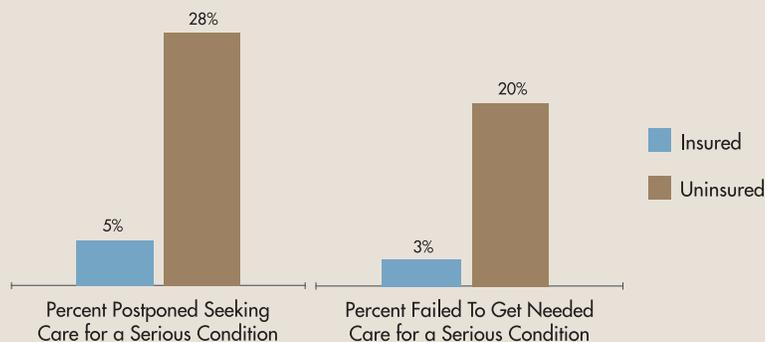
Numerous general household surveys have found that the uninsured, both adults and children, are more likely than the insured to report having had an unmet medical care need in the last year. For example, using data from national surveys conducted in 1997, 1999, 2001, and 2003, Strunk and Cunningham⁸ showed that the uninsured are more than three times as likely to report an unmet medical need. Other national surveys⁹ confirm these results and show that people with intermittent insurance coverage are also more likely than the continuously insured to report that they did not receive needed medical care.

While the differences in reports of unmet medical needs between the uninsured and the insured are striking, most Americans (57%) nevertheless believe that the uninsured are able to obtain medical care if it is truly required.¹⁰ This general opinion of the uninsured reflects the idea that surveys of self-reported unmet needs

illustrate differences between the perceptions of the uninsured and the insured in terms of what is needed medical care or an unmet need, rather than differences in real need for care. For example, the uninsured may have a lower threshold of perceiving a need for care because of greater concerns than the insured about being able to pay for care if they become seriously ill.

The studies summarized in Figures 2 and 3 show that the gap in access to care persists even when survey questions ask explicitly about serious conditions. For example, the uninsured are almost seven times more likely than the insured (20% compared to 3%) to not obtain needed medical care for a serious condition. This gap persists even when people are asked about seeking medical care in response to the onset of specific medical conditions or symptoms that physicians judge to require medical attention. The uninsured are much less likely to obtain care in these situations (relative odds¹¹ of not

Fig. 2. Uninsured More Likely To Postpone or Fail To Get Needed Medical Care for Serious Conditions Because of Cost



Source: C Hoffman and A Schlobohm, *Uninsured in America – A Chart Book* (Washington, DC: The Kaiser Commission on Medicaid and the Uninsured, 2000).

obtaining care of 0.28-0.46). The latter studies are also significant because they found that the uninsured and the insured have the same perceptions of when medical care is needed, contradicting the contention

that differences in reports of unmet need reflect differences in perceptions rather than differences in the clinically objective need for care.

In the studies summarized in this report, an odds ratio greater than 1 means that the event is more likely for the uninsured than the insured, while an odds ratio less than 1 implies that the event is less likely to occur among the uninsured than the insured.

Fig. 3. Uninsured Less Likely To Receive Care for Specific Medical Symptoms and Conditions Requiring Medical Attention

Relative Odds of Receiving Needed Care, Uninsured Compared To Insured



Sources: DW Baker, MF Shapiro, and CL Schur, "Health Insurance and Access to Care for Symptomatic Conditions," *Arch Intern Med* 160 (2000): 1269-74. P Cunningham and J Hadley, *Measuring Access to Needed Medical Care: Symptom-Specific vs. General Questions of Unmet Need* (Washington, DC: Center for Studying Health System Change, 2005).

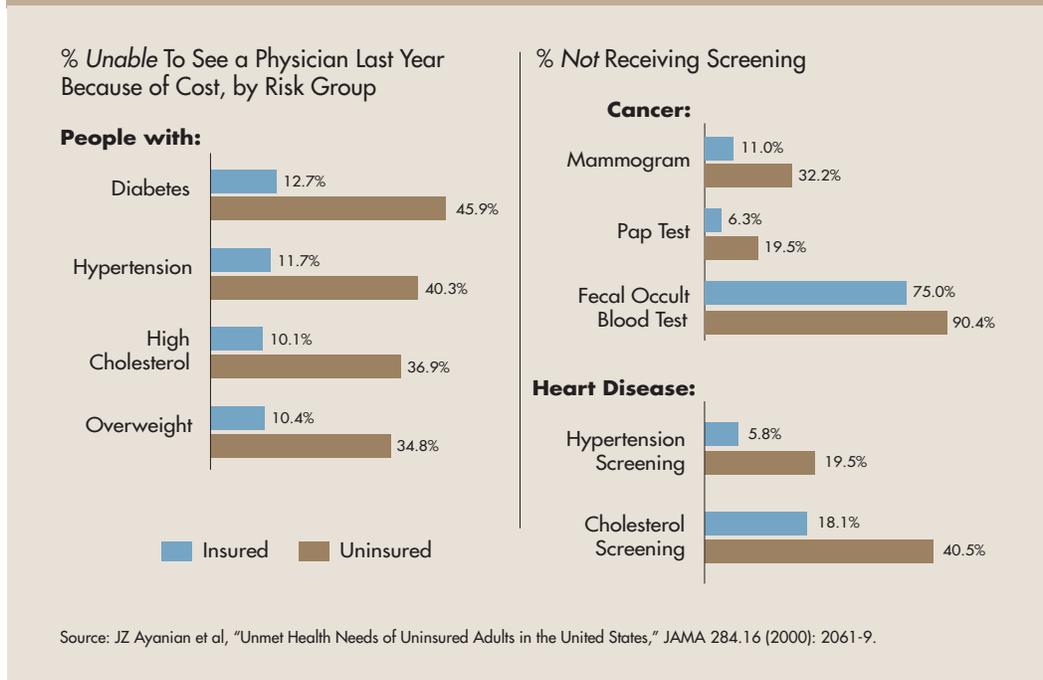
The Uninsured Are Less Likely To Be Screened for Serious Illnesses

The successful treatment and management of cancer, cardiovascular diseases, and diabetes depends heavily on the early detection of these diseases. Nevertheless, the uninsured are significantly less likely to receive screening and preventive care for these conditions. Figure 4 summarizes the results from one study that found that among people with specific risk factors significantly higher proportions of the uninsured, sometimes by a factor of three or four, did not see a doctor because of cost. More generally, several studies¹²⁻¹⁷

found that the uninsured are significantly less likely to receive specific screening tests for cancer or heart disease.

In 2004, a study¹⁸ of Medicare beneficiaries confirmed the importance of early detection for cancer survival rates. Screening, early detection, and early treatment are likely to become even more important in the future as the trend of increasing obesity leads to a growing incidence of diabetes, hypertension, and other chronic conditions.

Fig. 4. Uninsured Less Likely To Be Screened for Serious Illnesses



The Uninsured Are More Likely To Enter the Health Care System in Poorer Health or More Advanced Disease Stage

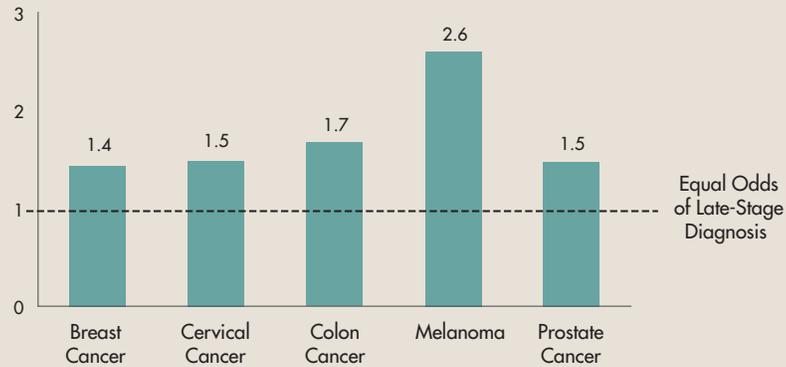
If the uninsured have greater difficulty obtaining needed care or are more likely to forego clinically validated screening services, then it would be expected that when they do enter the health care system, especially for a serious illness, they would more likely be in poorer health or at a more advanced disease stage than the privately insured. Figures 5 and 6 summarize studies of cancer patients in Florida and of diabetics who enter Medicare’s End Stage Renal Disease (ESRD) program.

Uninsured cancer patients are much more likely to be diagnosed at an advanced disease stage when the cancer has spread beyond the

local site where it first occurs and successful treatment becomes more difficult. For example, the relative odds of 2.6 for a late-stage melanoma diagnosis reflects underlying proportions of 31.9 percent of uninsured melanoma patients diagnosed at a late stage compared to 10.8-15.6 percent of commercially insured melanoma patients. The underlying proportions for late-stage breast cancer diagnosis were 42.6 percent for the uninsured compared to about 32 percent for the commercially insured. Similar results were found in studies involving breast cancer patients in New Jersey and California.^{19,20}

Fig. 5. Uninsured Cancer Patients More Likely To Be Diagnosed with Late-Stage Disease

Relative Odds of Late- vs. Early-Stage Cancer Diagnosis, Uninsured/Private Insured

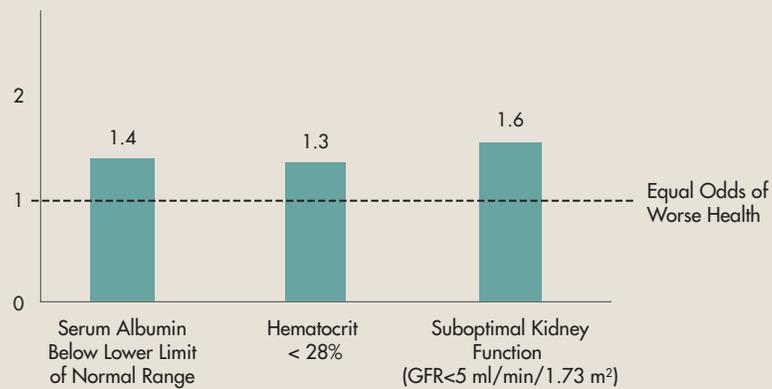


Sources: RG Roetzheim et al, "Effects of Health Insurance and Race on Early Detection of Cancer," *Journal of the National Cancer Institute* 91.16 (1999): 1409-15. JM Ferrante et al, "Clinical and Demographic Predictors of Late-Stage Cervical Cancer," *Archives of Family Medicine* 9 (May 2000): 439-45.

Similarly, the studies of the initial health condition of diabetics qualifying for the ESRD program (Figure 6) found that uninsured diabetics have worse ratings than the insured for several kidney function indicators, which have been shown to be important indicators of successful treatment.

For example, 62 percent of previously uninsured people beginning dialysis under the ESRD program had low hematocrit levels, compared to 49 percent of people who had private insurance (relative odds = 1.3).

Fig. 6. Uninsured Diabetics in Worse Health When They Enter ESRD Program



Sources: GT Obrador et al, "Prevalence of and Factors Associated with Suboptimal Care Before Initiation of Dialysis in the United States," *J Am Society of Nephrology* 10.8 (1999): 1793-800. AT Kausz et al, "Late Initiation of Dialysis Among Women and Ethnic Minorities in the United States," *J Am Society of Nephrology* 11 (2000) 2351-7.

Two large national studies of hospital admissions (Figure 7) found that when the uninsured are admitted to a hospital, it is for a more serious mix of diseases and conditions, based on expected mortality, than the privately insured. Figure 7 also presents evidence of the consequences of

delayed care associated with the lack of insurance. Two studies of people admitted to the hospital for appendicitis found that the uninsured are significantly more likely to have a ruptured appendix. For example, in the California study, 34.3 percent of the uninsured adult appendicitis patients

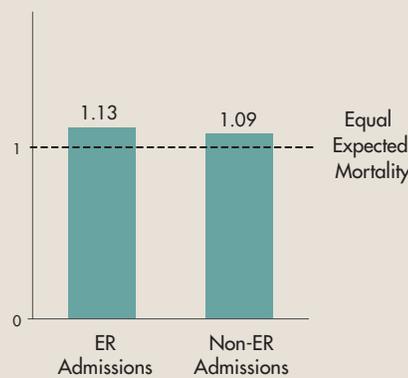
Fig. 7. Uninsured Admitted to the Hospital for More Serious Conditions Than Privately Insured

Average Relative Severity Index on Admission



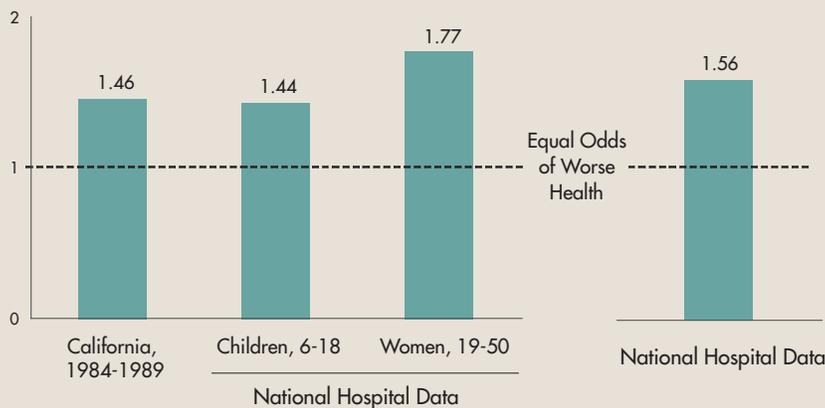
Source: J Hadley, EP Steinberg, and J Feder, "Comparison of Uninsured and Privately Insured Hospital Patients: Condition on Admission, Resource Use, and Outcome," JAMA 265.3 (1991): 374-9.

Relative Expected Mortality Rate for Admission Diagnoses



Source: RC Bradbury, JH Golec, and PM Steen, "Comparing Uninsured and Privately Insured Hospital Patients: Admission Severity, Health Outcomes and Resource Use," Health Services Management Research 14.3 (2001): 203-10.

Relative Odds of Ruptured Appendix



Sources: P Braveman et al, "Insurance-Related Differences in the Risk of Ruptured Appendix," New England J Medicine 331 (1994): 444-49. J Hadley and E Steinberg, *Access to Care in the Medicaid Program: Analyses of Hospital Discharge Data for Women and Children* (Institute for Health Care Research and Policy, Washington, DC: Georgetown Univ. Medical Center, 1996). J Hadley, EP Steinberg, and J Feder, "Comparison of Uninsured and Privately Insured Hospital Patients: Condition on Admission, Resource Use, and Outcome." JAMA 265.3 (1991): 374-9.

experienced a ruptured appendix, compared to 28.1 percent of the privately insured patients. In another study, an analysis of tissue pathology results for people who had

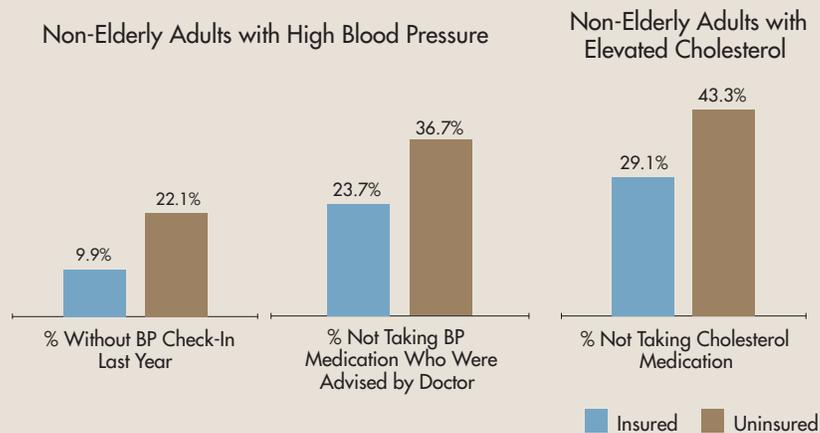
in-hospital colonoscopies or endoscopies found that the uninsured were 50 percent more likely to have an abnormal tissue report.

The Uninsured Receive Less Therapeutic Care, Even for Serious Acute or Potentially Life Threatening Chronic Conditions

Although many studies⁷ have shown that the uninsured receive less medical care than the insured, many people believe that once a person enters the health care system with a serious illness or injury, he or she will receive the care needed regardless of insurance coverage.¹⁰ However, studies of care received by cancer, heart, and trauma patients indicate that the uninsured receive less care than the insured, even for serious illnesses or conditions. Similarly, studies have found that uninsured people with potentially life threatening chronic conditions are less likely to receive treatment or to have their conditions monitored on a regular basis. Figures 8-12 summarize the results of several

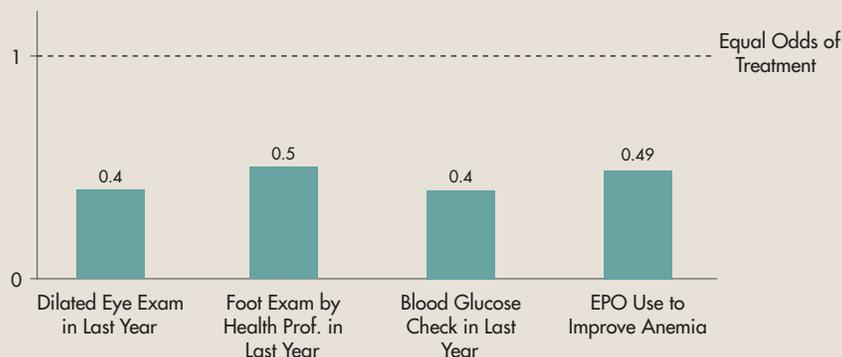
studies supporting the hypothesis that the uninsured receive less care even when ill. For example (from Figure 8), 36.7 percent of uninsured people with high blood pressure did not take blood pressure medication, even though advised to do so by a doctor; the proportion of insured patients not taking recommended blood pressure medication was 23.7 percent. Similarly, 43.3 percent of uninsured people with elevated cholesterol were not taking cholesterol medication, compared to 29.1 percent of insured people with elevated cholesterol. Uninsured diabetics are about half as likely as insured diabetics to receive recommended monitoring or treatment for

Fig. 8. Uninsured Receive Less Treatment When Sick: High Blood Pressure and Elevated Cholesterol



Source: Families USA, *Getting Less Care: The Uninsured with Chronic Health Conditions* (Washington, DC: Families USA Foundation, 2001).

Fig. 9. Uninsured Receive Less Treatment When Sick: Diabetes



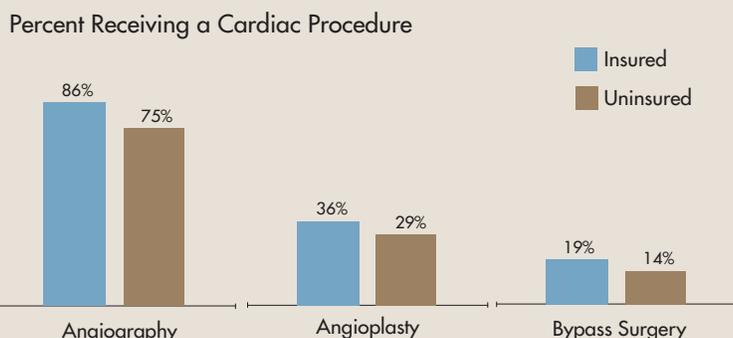
Sources: KM Nelson et al, "The Association Between Health Insurance Coverage and Diabetes Care: Data from the 2000 Behavioral Risk Factor Surveillance System," *Health Services Research* 40.2 (2005): 261-372. GT Obrador et al, "Prevalence of and Factors Associated with Suboptimal Care before Initiation of Dialysis in the United States," *J Am Society of Nephrology* 10.8 (1999): 1793-800.

their condition (Figure 9). Several other studies have found similar results for treating people with hypertension,^{21, 22} cardiovascular disease,²³⁻²⁵ and cardiovascular disease and chronic kidney disease.^{26, 27}

Even more striking are the studies that compare care received by people who have heart attacks or experience serious traumas, which are arguably independent of prior insurance status and do not reflect people's choices about whether to be covered or not. Roughly 5-10 percent fewer uninsured heart

attack patients (Figure 10) received angiography, angioplasty, or bypass surgery. Figure 11 shows that uninsured trauma patients in Massachusetts were 20-30 percent less likely to undergo surgery, even in cases of severe trauma or when treated in a Level I trauma unit. Additionally, in a study of serious automobile accident victims in Wisconsin, the uninsured spent almost three fewer days in the hospital and received about one-third less care (measured by total hospital charges) compared to the insured. In a study of care received by sick newborns

Fig. 10. Uninsured Receive Less Treatment When Sick: Heart Attack Patients



Source: MJ Sada et al, "Influence of Payor on Use of Invasive Cardiac Procedures and Patient Outcome after Myocardial Infarction in the United States," *J Am College of Cardiology* 31.7 (1998): 1474-80.

in California (Figure 12), uninsured newborns had significantly shorter stays (by 1.8-5.9 days) and received significantly less care (measured by total hospital charges) than privately insured newborns for several specific medical diagnoses. Finally, another study²⁸ found that the uninsured are at

much greater risk of substandard hospital care due to negligence or poor quality: 40.3 percent of adverse events among the uninsured were due to negligence, compared to 20.3 percent for the privately insured who experienced adverse events.

Fig. 11. Uninsured Receive Less Treatment When Sick: Trauma and Severe Auto Accidents

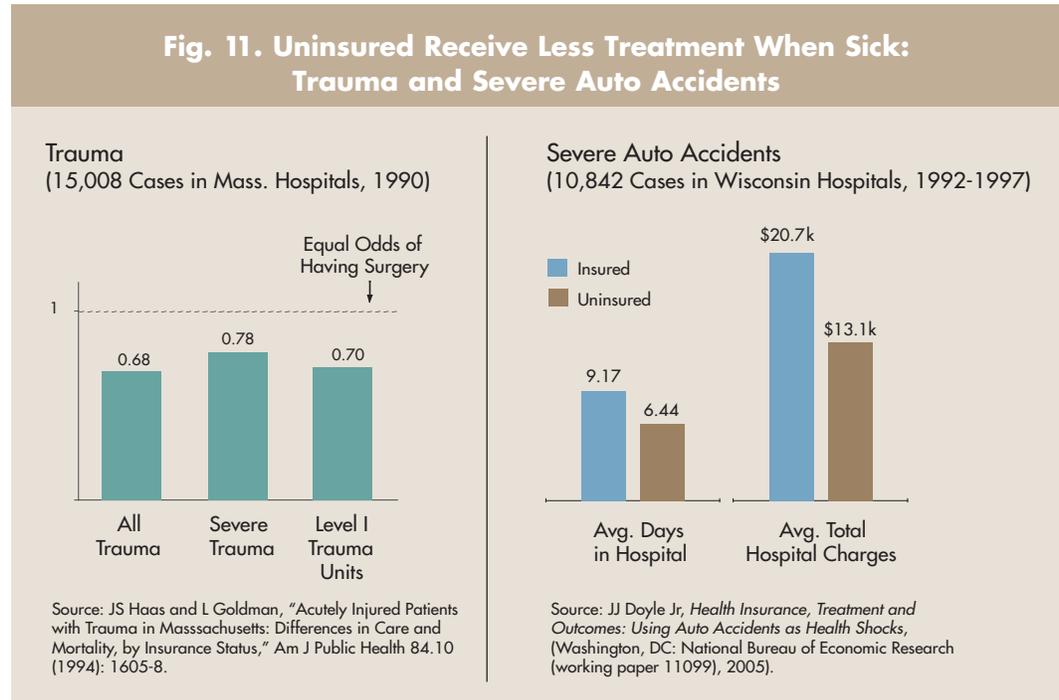
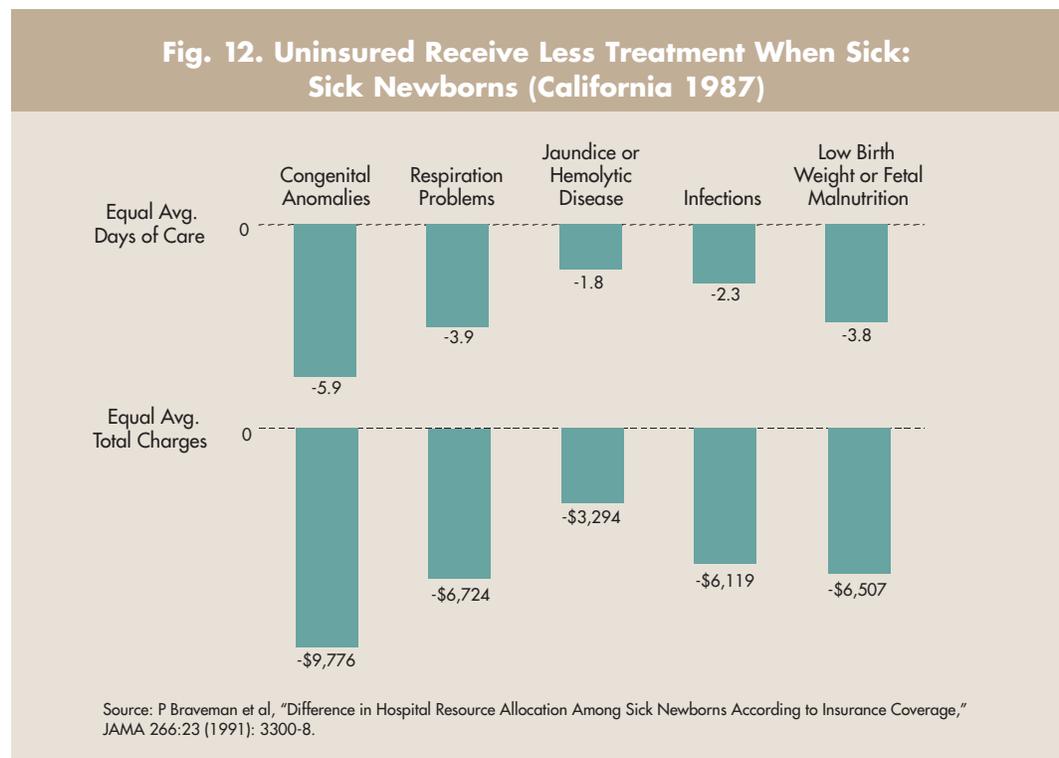


Fig. 12. Uninsured Receive Less Treatment When Sick: Sick Newborns (California 1987)



The Uninsured Have Worse Health Outcomes Than the Insured, Both in General and for Specific Diseases

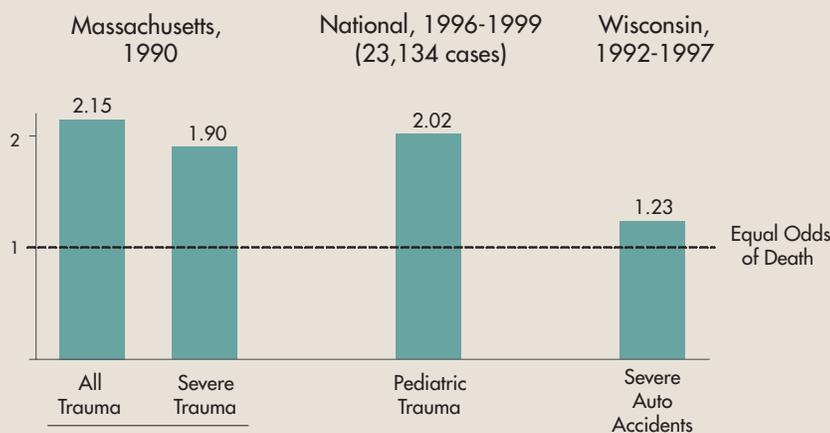
Despite the documented differences in access to care and service use, some might still believe that these differences reflect overuse of unnecessary services by the insured, rather than underuse of needed services by the uninsured. The ultimate resolution of this question lies in comparisons of health outcomes. If the “access gap” between the uninsured and the insured primarily reflects a lower likelihood of receiving needed medical care when sick, then this difference should show up in the form of worse health outcomes.

The studies summarized in Figures 13-17 support this conclusion. Each presents evidence that the uninsured have worse health outcomes than the privately insured. Three different studies of trauma cases, two of which also documented that the uninsured receive less care, show significantly higher odds of in-hospital death for uninsured cases (Figure 13). The studies

of trauma cases in Massachusetts hospitals and of pediatric trauma cases nationwide found that the relative odds of death were about twice as large for the uninsured as the insured. Among pediatric trauma cases, 2.1 percent of children with commercial insurance died, compared to 4.2 percent of uninsured children.

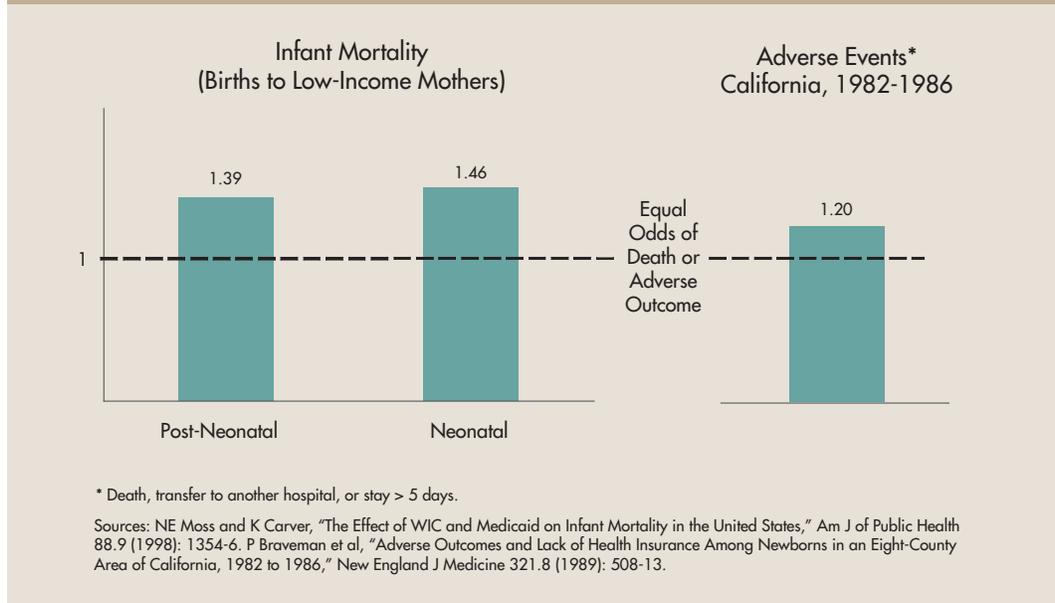
Two studies of infant health, one national and one in California, found a significantly greater likelihood of either infant mortality or other adverse infant health outcomes (Figure 14). Although infant death is a relatively rare event, the national study of low-income mothers found that 1.7 percent of uninsured mothers’ babies died during the neonatal period, compared to 0.8 percent of privately insured mothers’ babies. Studies of different cancers in Florida and New Jersey and of heart attack victims nationally and in Massachusetts found lower survival rates for uninsured cancer patients and higher

Fig. 13. Uninsured Have Worse Health Outcomes: Trauma Deaths



Sources: JS Haas and L Goldman “Acutely Injured Patients with Trauma in Massachusetts: Differences in Care and Mortality, by Insurance Status,” *Am J Public Health* 84.10 (1994): 1605-8. G Li and G Davis, “Insurance Status and Survival Outcome in Pediatric Trauma Patients,” *Academic Emergency Medicine* 8.5 (2001) 517. JJ Doyle Jr, *Health Insurance, Treatment and Outcomes: Using Auto Accidents as Health Shocks*, (Washington, DC: National Bureau of Economic Research (working paper 11099), 2005).

Fig. 14. Uninsured Have Worse Health Outcomes: Infant Mortality



mortality rates (both in-hospital and within 30 days of discharge) for uninsured patients who had a heart attack (Figure 15). The higher relative odds of death for the uninsured reported in Figure 15 reflect significant differences by insurance status in the underlying probabilities of dying. For example, without controlling for the effects of other factors 5.4 percent of the uninsured heart patients in the national study died in the hospital, compared to 3.8 percent of the privately insured patients. In the Massachusetts study, which was limited to heart attack victims but included 30-day post-hospital follow-up, 13.1 percent of the uninsured died, compared to 8.3 percent of the privately insured. In the Florida study of breast cancer patients, 18 percent of the uninsured died within 3-4 years of diagnosis, compared to 13-14 percent of privately insured patients.

Research that followed a group of medically indigent people in California who lost their Medicaid coverage found that the group that lost coverage experienced a significant

worsening of their hypertensive condition and also experienced higher mortality, although the difference was not statistically significant due to the small sample size.²⁹ However, that study's findings were similar to those reported by the National Health Insurance Experiment,³⁰ which found that low-income people assigned to the high cost-sharing plan had a significant decrease in blood pressure control and an increase of 10 percent in expected mortality as a result. Similarly, another analysis of a small sample of veterans who lost access to free care from the Veterans Administration found that the group that lost coverage had a higher incidence of uncontrolled high blood pressure.³¹

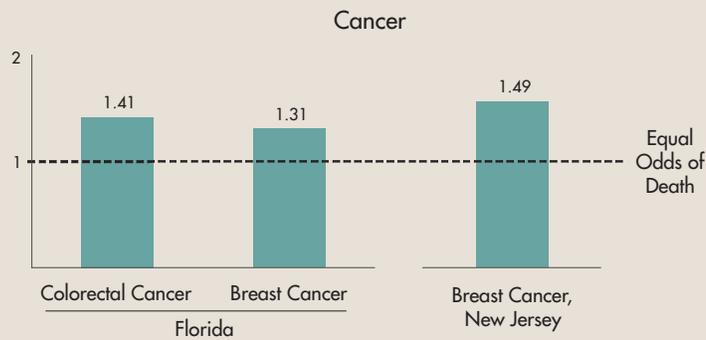
Findings of higher death rates for uninsured trauma patients, newborns, cancer patients, and heart attack patients are the culmination of less preventive care and screening for serious chronic conditions, poorer health, or more advanced disease upon entry into the health care system and less therapeutic care even when seriously ill or injured. Figures 16

and 17 extrapolate the pattern shown to exist for specific diseases to adult deaths from all causes of mortality and for increased morbidity among the near-elderly, who may be especially vulnerable to the lack of insurance because of the increasing incidence of serious health conditions during later middle age.

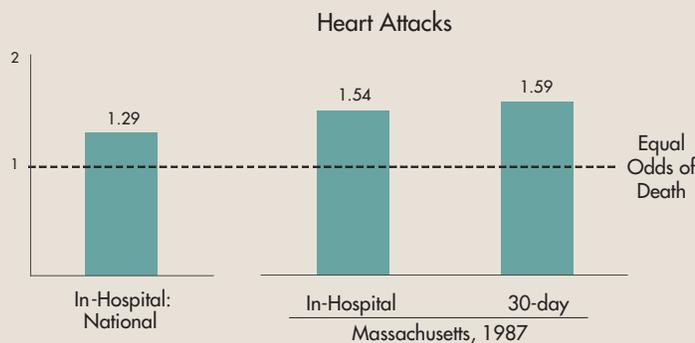
The studies reported in Figure 16 followed the same people from five to 14 years and, with the one exception of African American women, found that the uninsured had a significantly higher mortality rate than the

privately insured. The relative odds of 1.25 found in the 1993 study by Franks, Clancy, and Gold reflects an almost twofold difference in mortality rates between adults uninsured at baseline compared to those insured at baseline, 18.4 percent vs. 9.6 percent. Based on this study, the IOM estimated that there are approximately 18,000 excess deaths among non-elderly adults each year due to the lack of health insurance.³ The relative odds found by Sorlie et al in 1994 suggest that this estimate may be conservative.

Fig. 15. Uninsured Have Worse Health Outcomes: Cancer and Heart Attack Deaths

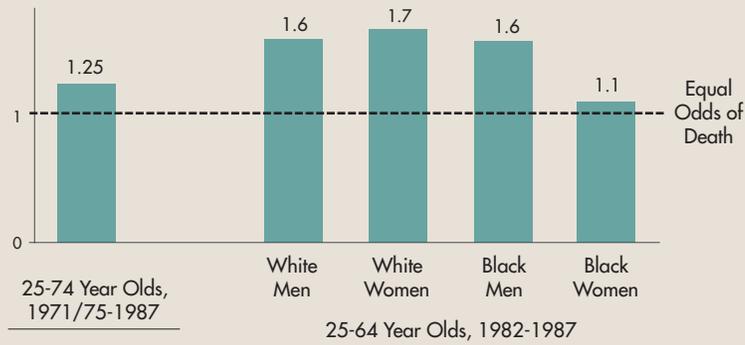


Sources: RG Roetzheim et al, "Effects of Health Insurance and Race on Colorectal Cancer Treatments and Outcomes," *Am J Public Health* 90.11 (2000): 1746-54. RG Roetzheim et al, "Effects of Health Insurance and Race on Breast Carcinoma Treatments and Outcomes," *Cancer* 89.11 (2000): 2202-13. JZ Ayanian et al, "The Relationship Between Health Insurance Coverage and Clinical Outcomes Among Women with Breast Cancer," *New England J Medicine* 329 (July 1993): 326-31.



Sources: JG Canto et al, "Payer Status and the Utilization of Hospital Resources in Acute Myocardial Infarction," *Arch Intern Med* 160 (2000): 817-23. GJ Young and BB Cohen, "Inequities in Hospital Care, the Massachusetts Experience," *Inquiry* 28 (Fall 1991): 255-62.

Fig. 16. Uninsured Have Worse Health Outcomes: Adult Mortality, All Causes

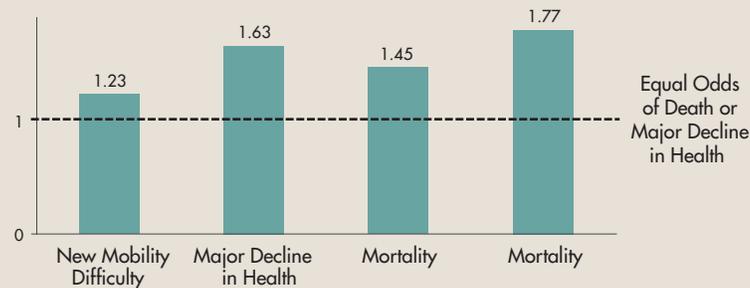


Sources: P Franks, CM Clancy, and MR Gold, "Health Insurance and Mortality: Evidence from a National Cohort," JAMA 270.6 (1993): 737-41. PD Sorlie et al, "Mortality in the Uninsured Compared with that in Persons with Public and Private Health Insurance," Arch Intern Med 154 (Nov 1994): 2409-16.

Figure 17 summarizes the primary results of three studies that used very different statistical methods and measures of health change in analyses of the same near-elderly population participating in the longitudinal National Health and Retirement Survey.

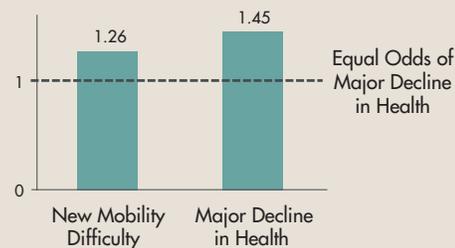
All three found that the uninsured near-elderly were significantly more likely to die prematurely or to experience a significant decline in health status. Relative odds varied in these studies from 1.23 to 1.77.

Fig. 17. Uninsured Have Worse Health Outcomes: Mortality and Morbidity in the Near Elderly



Sources: DW Baker et al, "Lack of Health Insurance and Decline in Overall Health in Late Middle Age," New England J Med 345.15 (2001): 1106-12. JM McWilliams et al, "Health Insurance Coverage and Mortality Among the Near-Elderly," Health Affairs 23.4 (2004): 223-33. J Hadley and T Waidmann, "Health Insurance and Health at Age 65: Implications for Medicare," Health Services Research (forthcoming 2005).

Near-Elderly Who Became Uninsured, 1992-1996



Source: DW Baker et al, "Loss of Health Insurance and the Risk for a Decline in Self-Reported Health and Physical Functioning," Medical Care 40.11(2002): 1126-31.

The Value of Lost Health

Although public policy tends to focus primarily on the cost of paying for medical care used by the uninsured, research shows that the uninsured use much less care than the insured and that the uninsured pay for about one-third of the care they receive out of their own pockets.³² In 2001, uncompensated care, i.e., care received by the uninsured but paid for by some other source of payment, was estimated to be \$34.5 billion, which represented about 2.6 percent of total health care spending.

As much as 75-85 percent of the cost of uncompensated care was financed by a combination of government grants, subsidies, indirect payments to private health care providers, and care delivered by public health care providers.³²

Subsequent research updated the cost of uncompensated care to be \$40.7 billion in 2004.³³ This research also estimated that if the uninsured had coverage comparable to the range of coverage held by lower and lower-middle income families, medical care spending by the uninsured would increase by \$48 billion per year, which represents about 3 percent of total health care spending and 0.4 percent of the nation's gross domestic product.

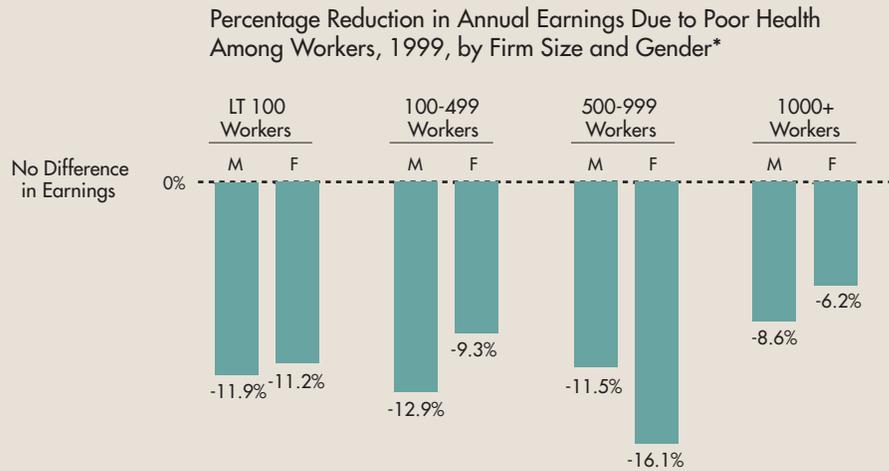
These costs, however, represent only a fraction of the total economic costs associated with the reduction in health that can be attributed to the lack of health insurance. The bulk of the economic cost due to the lack of insurance takes the form of lower productivity, time lost from work, lower earnings, and the lost intrinsic value that people place on a year of healthy life.

Figure 18 summarizes the results of two studies that focused on one portion of the economic cost of poor health, the

relationship between health and annual earnings, which combines the effects of both reduced wages and fewer hours of work. The cross-sectional study, which used data from 1999 on almost 54,000 wage and salary workers, found that after controlling for firm size, industry, age, marital status, and race and ethnicity, workers in poor health earned about 11 percent less per year than workers in good health. An earlier study analyzed annual earnings of older middle-aged (45-64 years) workers who participated in a 10-year longitudinal study that began in the mid-1960s and found that health problems over time reduced annual earnings by about 20 percent for men, 12.5 percent for white women, and 27.8 percent for black women.

While these estimates imply substantial economic losses incurred by the uninsured, they do not account for the subjective value that people place on a year of healthy life. This broader concept of value includes freedom from morbidity and physical discomfort, reduced emotional stress for one's self and family, and the ability to enjoy physical and mental activities during time away from work. These elements of the cost of poor health were assessed in a study conducted by the IOM,³⁴ which used a dollar value of \$160,000 as its benchmark for the subjective worth of a year of healthy life.³⁵ Relying on an extensive prior literature, the IOM developed annual estimates of the value of health lost that ranged between \$1,645 and \$3,280 per uninsured person in 2001. The lower estimate assumes that lack of insurance affects only mortality while the higher estimate assumes that it also influences morbidity. Applying these per-person estimates to the number of uninsured people in 2001 produced an annual national total

Fig. 18. Poor Health Reduces Annual Earnings from Work



* Estimates represent averages across smaller firm size categories.

Source: Calculated from P Fronstin and AG Holmann, *Workers and Access to Health Care: Consequences of Being Uninsured* (EBRI-ERF Policy Forum, Washington, DC: Employee Benefit Research Institute, May 2000).



* Estimates represent averages across smaller firm size categories.

Source: TN Chirikos and G Nestel, "Further Evidence on the Economic Effects of Poor Health," *Review of Economics and Statistics* 67 (1985): 61-9.

value of lost health ranging from \$65 billion to \$130 billion.

The midpoint of this range is \$97.5 billion, which can be thought of as the total national value of the health that is lost in a single year because of lack of insurance. Updating this figure to 2004 dollars increases the estimate to \$104 billion, more than two times the estimated additional \$48 billion cost of providing coverage for the nation's uninsured.³³

The IOM study used these figures to calculate the "cost-effectiveness" of treating expanded health insurance coverage as a life-saving measure and compared it to a variety of both medical and non-medical approaches to saving lives and improving health. Using the metric of "cost per quality-adjusted life-year (QALY) saved," this study showed that covering all of the uninsured has a mid-range cost-effectiveness value of \$115,000 per QALY. As summarized in Table 1, this compares favorably to coronary

Table 1. Cost-Effectiveness Ratios for Selected Life-Saving Measures*

Intervention	Comparison	Target Population	Cost per QALY Saved
Annual colorectal screening	No Screening	People 50-75	\$22,000
Frontal airbags with manual belts	Manual belts (50% use)	Drivers of passenger cars	\$30,000
Dual passenger airbags	Driver side only	Front right passenger	\$75,000
Universal Coverage	16.5% uninsured population under age 65	Currently uninsured	\$115,000
Coronary angioplasty	No revascularization	Patients with mild angina and one-vessel disease	\$136,000
Annual mammography	Annual clinical breast exam	Women ages 55-65	\$186,000
Annual mammography	Annual clinical breast exam	Women ages 40-50	\$297,000
Screening to prevent HIV transmission to patients	Universal precautions	Health care workers in acute care setting	\$606,000
Annual Pap smear	Pap smear every 2 years	Women ages 20-75	\$2,000,000

* All dollars adjusted to 2001 dollars by the medical care price index.

Source: Institute of Medicine, *Hidden Costs, Value Lost: Uninsurance in America* (Washington, DC: National Academy Press, 2003).

angiography for people with mild angina, annual mammograms for women between the ages of 40 and 65, screening health care workers to prevent HIV transmission to patients, and annual Pap smears to detect cervical cancer.

Although these dollar estimates convey a sense of precise valuation of the costs imposed on society by the lack of insurance, it is important to remember that they are still estimates. They rely on numerous assumptions regarding the impact of the lack of insurance on mortality and morbidity, the incidence of those effects over a person's lifetime, including the consequences of adverse health events that occur when a person is uninsured and carry

over to periods when a person has coverage, for example, when the uninsured turn 65 and qualify for Medicare.³⁶

Table 2 provides a conceptual framework for organizing the broad cost consequences of the lack of insurance. While the consequences are probably greatest for the uninsured themselves, there are undoubtedly effects on their families and, in the aggregate, on their employers and communities. Although many, if not most of these impacts are difficult or impossible to quantify, they should nevertheless be considered and included in the policy debate over the value of providing insurance coverage for the uninsured.

Table 2. Cost Consequences of Being Uninsured

Internal or Private Costs (for Individuals, Families, and Firms)

- Greater morbidity and premature mortality
- Developmental losses for children
- Family financial uncertainty and stress, depletion of assets including bankruptcy
- Lost income of uninsured breadwinner in ill health
- Lower business productivity (e.g., absenteeism, reduced efficiency on the job)

External or Spillovers Costs

- Diminished quality and availability of personal health services (e.g., emergency rooms)
- Diminished public health system capacity because of diversion of resources for acute care services for the uninsured
- Diminished population health (e.g., higher rates of vaccine-preventable disease)
- Higher public program costs connected with worse health (e.g., Medicare, disability payments) (primarily transfer costs)
- Diminished workforce productivity, lower tax payments

ENDNOTES

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