

## **No Health Insurance? It's Enough to Make You Sick - Scientific Research Linking the Lack of Health Coverage to Poor Health**

### **Foreword**

In the past ten years, several hundred studies have been conducted to document the plight of uninsured Americans. The evidence from these studies contradicts the notion that a lack of insurance is merely an inconvenience as is often supposed by many Americans. These studies confirm that there are real consequences of being uninsured. The American College of Physicians-American Society of Internal Medicine (ACP-ASIM), representing 115,000 physicians of internal medicine and medical students, presents the significant data it has collected in "No Health Insurance? It's Enough to Make You Sick."

The quality of American medicine is world-renowned. The failure to provide access to this care for all Americans is equally well-known. As we enter the new millennium, in a period of record prosperity, a staggering 44 million Americans do not have access to health care and suffer poorer medical outcomes simply because they lack health insurance.

As physicians, our primary mission is to care, to heal, to advocate for the sick, and to promote the good health of the individual and the nation. On a daily basis, we see the delayed treatment and poorer health that results from a lack of insurance. It is consistent with the mission of the College to take on the challenge of documenting the consequences of a lack of insurance.

Uninsured Americans are far less likely to have a regular source of care or to have recently seen a physician. They are more likely to delay seeking care, even when ill or injured, and more likely to report unmet medical needs. They are more likely to forego even those services that many of us take for granted, such as annual exams, well-child care visits, prescriptions drugs, eyeglasses, or dental care.

As a result of this reduced access to care, uninsured Americans are more vulnerable to adverse health outcomes. Because uninsured Americans do not have the same access to care, they are more often hospitalized for conditions, such as diabetes, hypertension, pneumonia, or ulcers, that the insured are able to manage as outpatients through physician care or medications. Uninsured Americans are more often diagnosed with cancer at a later stage and, as a result, suffer a lower survival rate.

Uninsured children are much less likely to receive medical care for normal childhood illnesses, such as a sore throat, an earache, or asthma. They are also less likely to receive recommended childhood immunizations. Even if an uninsured child suffers a serious illness or injury, such as appendicitis or a broken bone, they are often unable to seek medical care.

Evidence from these studies indicates that reduced access to care and poorer medical outcomes do not affect only the chronically uninsured. Even those with gaps in coverage - as short as one month or as long as a year or more - are less likely to seek care, pursue preventive care, or even to have prescriptions filled.

A lack of insurance is not simply an inconvenience. It is a real barrier to access and definitely contributes to poorer health. With 44 million Americans uninsured, and 100,000 more added to their ranks each month, their vulnerability to poorer health has reached epidemic proportions.

Lack of insurance is a public health risk that results in poorer health and earlier death. Ensuring that all Americans have health insurance can reduce the total burden of illness facing the United States. ACP-ASIM calls upon all elected leaders and policy-makers to focus their attention on the documented problems of uninsured Americans to ensure that all Americans benefit from the provision of health insurance.

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## **INTRODUCTION**

There is great admiration throughout the world for the advanced science, technology, and practice of American medicine. The work of expert researchers, renowned clinical and academic institutions, and accomplished practitioners continues to advance the practice of medicine in the United States. As a result, Americans with access to health care benefit from widely available medications and treatments for diseases such as cardiovascular disease, cancer, and various infections, in addition to state-of-the-art equipment and professionals when hospitalization is required. Also significant is American medicine's focus on preventive care and early disease detection, which helps those with access to health care to avoid preventable diseases.

However, the benefits of American medicine are available only to those with access to the health care system. As citizens, we often take for granted that we will benefit from this admired science and technology when needed. Yet the existence of the best medical services is not in itself sufficient. If the services are inaccessible, their existence is meaningless.

Insurance coverage is the key to access; the uninsured experience reduced access to health care services compared with the insured. However, although health insurance can improve access, it does not guarantee it. Low family income and education levels, limited availability of local primary health care facilities, lack of transportation, language differences, and inability to meet out-of-pocket expenses are among the other barriers to accessing health care services. (95) *Nonetheless, most experts still believe that health insurance is essential for access to timely and effective health services that can save and improve the quality of lives.*

## **CONSEQUENCES OF A LACK OF INSURANCE**

The lack of health insurance has important health and financial consequences for both the individual and the nation. Millions of Americans are unable to receive the care they need, which endangers the health and lives of all patients, adds cost to the health care system, and reduces productivity. (58) Missed or delayed care may result in unnecessary morbidity or mortality and

greater severity of illness. (53) Delays in seeking care are particularly damaging in diseases such as cancer and diabetes for which diagnosis and treatment during early stages may prevent further complications and prolong survival. (6, 97)

Medical treatment for the uninsured is often more expensive than preventive, acute, and chronic care of the insured because the uninsured are more likely to receive medical care in the emergency department than in a physician's office. (58) According to the National Center for Health Statistics, non-urgent cases accounted for more than 50% of the 90 million visits to U.S. hospital emergency departments in 1992. (80) These increased costs are absorbed by providers as free care, passed on to the insured via cost shifting and higher health insurance premiums, or paid by taxpayers through higher taxes to finance public hospitals and public insurance programs. (39)

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The inability of the uninsured to access preventive care also increases the nation's health care costs. For example, uninsured pregnant women typically seek prenatal care late in the pregnancy, if at all (117), and this increases the probability that newborn care will occur in a neonatal intensive care unit. Another example is the failure to detect and treat hypertension in its early stages, which increases the likelihood of hospitalization and care in the intensive care unit for stroke, myocardial infarction, or congestive heart failure. (111) The failure to prevent these complications results in loss of productivity and increased costs of medical care. In consideration of these facts alone, it is clear that insuring the uninsured is in everyone's best interest.

Making preventive medicine and existing treatment therapies accessible to uninsured people will not only increase overall access to health care but may also substantially contribute to a reduction in the total burden of illness facing the United States.

## **RELIANCE ON INSURANCE**

Dependence on chief wage earners for income and on doctors and hospitals for medical treatment sparked a demand for health insurance in the U.S. in the 1920s. Within a household, the sole wage earner's illness disrupted the normal income flow and imposed unanticipated expenses for medical care. (106) Health insurance, however, did not become prevalent until the 1940s. The number of Americans covered by health insurance, either public or private, increased steadily from the 1940s through the 1970s as employers began offering health insurance to workers as a fringe benefit in response to wage limits and favorable tax policy changes during World War II. In addition, Congress in 1965 created Medicaid and Medicare, two government-funded programs of medical care for the poor and the elderly. Employment-based private insurance and public health programs continued to expand through the 1970s.

## **DECLINING INSURANCE COVERAGE**

Since 1980, however, the percentage of Americans under 65 with private health insurance, either purchased individually or obtained through the workplace, has declined. In 1980, 79.5% of Americans under 65 were insured but by 1998 the figure had dropped to 70.2%. (28, 113) At the same time, the number of Americans covered by Medicare and Medicaid increased significantly.

Burdened by increasing costs, companies of all sizes increased co-payments, raised deductibles, limited coverage, and reduced health benefits. (38, 50, 112) Many of these efforts to reduce costs, or at least to minimize the growth of health costs, shifted larger shares of the visible costs to the employee and also limited the employee's coverage options. In the process, many people lost or declined job-based health insurance.

As the cost of private health insurance has increased, the number of Americans without coverage has risen, from 11.8% in 1980 to 16.3% in 1998. (28, 113) Between 1990 and 1995, the percentage of non-elderly Americans who received health insurance through their employers (or

the employers of family members) dropped from 67% to 64%. The changing nature of jobs within and across industries – especially the growth of service-sector jobs without health benefits and the increase in part-time and contract workers – and the unaffordably high cost of the employee share of premiums account for most of this decline.

## **CURRENT ESTIMATES OF THE UNINSURED**

The Census Bureau estimates that 44.3 million people in the United States, or 16.3% of the population, had no health insurance in 1998 -- an increase of about 1 million people since 1997. (28) The proportion of the uninsured population was statistically unchanged from the previous year.

Those more likely to lack health insurance continue to include young adults in the 18-to-24-year-old age group, people with lower levels of education, people of Hispanic origin, those who work part-time, and the foreign born.

The status of children's health care coverage did not change significantly from 1997 to 1998, with 11.1 million, or 15.4%, of all children under age 18 uninsured. Children 12 to 17 years of age were slightly more likely to be without health care coverage (16.0%) than those under age 12 (15.1%).

Nearly half (47.5%) of poor full-time workers did not have health insurance in 1998, and 11.2 million poor had no health insurance. Among households with annual incomes of \$75,000 or more, 8.3% were uninsured; among households with less than \$25,000 in income, 25.2% were uninsured.

A higher proportion of the foreign-born population was without health insurance compared with the native-born population (34.1% versus 14.4%). The proportion without health insurance was higher for Hispanics than for non-Hispanic whites (35.3% versus 11.9%).

Trends in health insurance coverage in the U.S. from 1989 to 1997 show that, despite economic prosperity, the numbers and rates of the uninsured continued to rise. (30) Children, young adults, poor and middle-income families, blacks, and Hispanics are the groups principally affected. (29, 30)

## **LITERATURE SEARCH**

As the number of uninsured Americans continues to rise (now over a staggering 44 million), it is important to document the relationship between health insurance and access to health care and medical outcomes. This paper reviews and evaluates the available literature, published within the last 10 years, linking health insurance coverage with the utilization of health care services (access) and individual health outcomes to verify whether scientific evidence supports the premise that the uninsured experience reduced access to health care.

An initial search of major medical and scientific databases for published articles resulted in more than 1000 documents. The search was conducted utilizing a computerized search of the Medline database, scanning the bibliographies of articles, and reviewing reports from major health care surveys. The compiled research was ultimately narrowed down to approximately 100 documents by focusing on studies that adjusted for factors other than insurance in order to focus on the link between the lack of health insurance and access to care and medical outcomes. Articles published during the past 10 years were reviewed. These articles were generally based on analyses of national surveys, and most of the studies analyzed data collected in the late 1980s or early 1990s. The consistency of findings from analyses of surveys completed at different times suggests that findings from earlier surveys remain relevant. Although a number of other factors such as income and ethnicity may also influence health care use, the research suggested that insurance is a primary factor in health care access,.

Evidence from the available medical and scientific literature suggests that:

### ***Uninsured Americans Experience Reduced Access to Care***

- Uninsured Americans are less likely to have a regular source of care.
- Uninsured Americans are less likely to have had a recent physician visit.
- Uninsured Americans are more likely to delay seeking care.
- Uninsured Americans are more likely to report they have not received needed care.
- Uninsured Americans are less likely to use preventive services.

### ***Uninsured Americans Experience Poorer Medical Outcomes***

- Uninsured Americans experience a generally higher mortality and a specifically higher in-hospital mortality.
- Uninsured Americans may be up to three times more likely than privately insured individuals to experience adverse health outcomes.
- Uninsured Americans have been found to be up to four times as likely as insured patients to require both avoidable hospitalizations and emergency hospital care.

In short, uninsured Americans tend to live sicker and die earlier than privately insured Americans.

## REDUCED ACCESS TO HEALTH SERVICES

Access to care is defined by the Institute of Medicine's Committee on Monitoring Access to Personal Health Care Services as “the timely use of personal health services to achieve the best possible health outcome.” (62) As such, access cannot be measured directly; therefore, most studies measure access by the use of a regular source of care (which facilitates continuity of care), reported physician visits (as a straightforward measure of access), or self-reported access problems. Patient reports of unmet needs are another important way to track the consequences of limited access to health care. The table below shows several studies that evaluated these consequences:

CONSEQUENCE	STUDY
NO REGULAR SOURCE OF CARE	Berk, Schur, Cantor (9)      Newacheck et al (84, 87) Bindman et al (15)      Zuvekas, Weinick (124) Bloom et al (17) Burstin et al (27)
NO RECENT PHYSICIAN VISIT	Burstin et al (27)      Hafner-Eaton (55) Franks et al (45)      Newacheck et al (84, 87) Freeman et al (47)
DELAYED CARE	Bloom et al (17)      Haas, Goldman (52) Burstin et al (27)      Weissman et al (121)
UNMET NEEDS	Berk, Schur (8)      Newacheck et al (84) Bloom et al (17)
USE OF ER AS REGULAR SOURCE OF CARE	Bloom et al (17)      Simpson et al (102) Freeman et al (47)
SELF-REPORT OF A POORER HEALTH STATUS	Hahn, Flood (56) Weinick et al (116)

Numerous studies confirm that the lack of health insurance is linked to reduced access to health care services. (24, 43, 47, 61, 95, 111) These studies also show that uninsured Americans are less likely to receive preventive and primary care than insured Americans. (16, 17, 74, 79) Uninsured citizens are also less likely to have a relationship with a primary care physician (a regular source of care) (33, 67, 71) or to receive required preventive services, like cancer screening for adults and checkups for children (6, 97). These differences exist even for those who have chronic conditions and special health care needs. (57) Even when ill, uninsured Americans are less likely to receive a physician's care for their health problems, such as asthma or acute earache. (9, 41)

## No Regular Source of Care

<b>Uninsured Americans, compared with the insured, are:</b>
• Up to 4´ less likely to have a regular source of care
<b>Uninsured children, compared with the insured, are:</b>
• Up to 8´ less likely to have a regular source of care
<b>Uninsured adolescents, compared with the insured, are:</b>
• Up to 6.6´ less likely to have a regular source of care

A regular source of care promotes continuity of patient care and has been found to be a strong predictor of the receipt of preventive care. (16) Depending on the methodology used, estimates of uninsured American's lack of a regular source of care ranged from 16% to 41% compared with a range of 2% to 18% for the insured. (8, 17, 33, 111) Uninsured Americans are 2 to 4 times less likely to have a regular source of care and are also 2 to 4 times less likely to have had a recent physician visit. (8, 17, 95)

Bloom et al evaluated data on over 61,000 persons from the 1993 Access to Care and Health Insurance Surveys of the National Health Interview Survey (NHIS). The authors found that the uninsured in 1993 were 4 times less likely to have a regular source of care compared with the insured (40% versus 10%). (17)

The U.S. Department of Health and Human Services has reported that uninsured children are 8 times less likely to report a regular source of care than the insured (16% versus 2%). (111) Newacheck et al found that uninsured adolescents are 6.6 times less likely to have a regular source of care than the insured (29% versus 4.4%). (84)

## No Recent Physician Visit

<b>Uninsured Americans, compared with the insured, are:</b>
• Up to 66% less likely to have had a recent physician visit
<b>Uninsured children, compared with the insured, are:</b>
• Up to 2.8´ less likely to have had a recent physician visit
<b>Uninsured adolescents, compared with the insured, are:</b>
• 2.5´ less likely to have had a recent physician visit

Uninsured Americans who do not receive timely and appropriate ambulatory care when ill may suffer adverse consequences that require more intensive care in the future. (111) Better access to primary care is important because primary care facilitates better preventive care and specialized services. A number of studies found that the uninsured had fewer health care and dental visits and fewer preventive visits. (16, 25, 88, 95)

In an analysis using the 1989 National Health Insurance Survey data, Hafner-Eaton found that non-elderly uninsured were consistently less likely to have received any medical care in the



previous 12 months. The acutely ill uninsured were 66% as likely to have seen a physician, and the chronically ill were only 50% as likely to have seen a physician in the last year. The uninsured acutely ill are less likely to delay medical care than the uninsured chronically ill or those who are well, but their use of physician services is still well below that of insured individuals. (54)

The lack of a recent visit is critical for children and adolescents. Newacheck found that uninsured adolescents were 2.5 times less likely than the insured to have had at least one physician visit in the previous year (25.1% versus 11.2%). (84) The U.S. Department of Health and Human Services reports that poor uninsured children were 2.8 times more likely to go without a physician visit than poor insured children. (111) Uninsured children, generally, were found to be 1.4 times less likely to have had a physician visit in the last year than insured children (22.6% versus 16.2%). (87)

These data on less frequent physician visits reflect the findings of Blumenthal and Rizzo from a study on physician involvement with uninsured patients. The authors found that the proportion of the average physician's patients who are uninsured is below estimates of the proportion of the general uninsured population. Thus, findings that the uninsured experience reduced access to health care are consistent with the authors' results indicating that physicians see fewer uninsured patients, presumably because the uninsured are not seeking care. (18)

### Delayed Care

<b>Uninsured Americans, compared with the insured, are:</b>
<ul style="list-style-type: none"> <li>• Up to 3.6' more likely to delay seeking care</li> </ul>
<b>Uninsured children, compared with the insured, are:</b>
<ul style="list-style-type: none"> <li>• 4' more likely to delay seeking care</li> </ul>

Delayed care may result in a more serious illness for the patient, a worse prognosis, or a longer or avoidable hospital stay. (111, 120) Several studies found evidence that uninsured Americans were more likely to be hospitalized for conditions that could have been managed with appropriate outpatient care. (14, 15, 120, 121) The U.S. Department of Health and Human Services reports that the uninsured are 3.6 times more likely to delay seeking care than the privately insured (29% versus 8%). (111) Weissman et al found that the uninsured were 1.5 times less likely to delay seeking care than the privately insured. Those who reported a delay in seeking care had a significantly longer (on average, about 9% longer) hospital stay than did other patients. (121) Uninsured children are 4 times more likely to delay seeking medical care. (102) Additionally, individuals who lost or changed insurance coverage were also more likely to delay seeking care. (27)

### Unmet Needs

<b>Uninsured Americans, compared with the insured, are:</b>
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- 3.8' less likely to obtain medical/surgical care
- Up to 3.9' less likely to obtain dental care
- 4.7' less likely to obtain prescription drugs
- 3.3' less likely to obtain needed eyeglasses

Berk and Schur present data from the 1994 Robert Wood Johnson Foundation (RWJF) National Access to Care Survey. The 1994 survey included specific questions about dental care, prescription drugs, eyeglasses, and mental health care or counseling. Berk and Schur found that more than 34% of the uninsured were unable to obtain one or more of the health services they needed during the previous year, compared with 22% of Medicaid enrollees and 13% of persons with private insurance. (8, 9) Similar variation in inability to obtain medical/surgical care, dental care, prescription drugs, and eyeglasses was found for each insurance status. For each of the specific health services, the uninsured were almost 4 times as likely as the privately insured to report an unmet need. The largest disparity was for prescription drugs.

The uninsured were found to be 3.8 times less likely to obtain needed medical/surgical care compared the privately insured (15.1% versus 4.0%). The uninsured were also found to be 3.9 times less likely to obtain needed dental care associated with improved oral health, (34) compared with the privately insured (22.8% versus 5.8%). Compared with the insured, the uninsured were 4.7 times less likely to obtain needed prescription drugs (2.9% versus 13.6%). Only 3.7% of the privately insured reported an inability to obtain eyeglasses, compared with 12.2% of the uninsured. (8, 9)

### Use of Emergency Room as Regular Source of Care

<b>Uninsured adult Americans, compared with the insured, are:</b>
• 4' more likely to use the emergency room as a regular place of care
<b>Uninsured children, compared with the insured, are:</b>
• 5' more likely to use the emergency room as a regular place of care

Although the emergency room is meant to be used for treating life-threatening illness or injury, the uninsured, compared with the insured, are more likely to receive their care in an emergency room rather than in a physician's office. (47) Bloom et al report that uninsured adults are 4 times more likely to use the emergency room as a regular source of care. (17) Simpson et al report that uninsured children are 5 times more likely than privately insured children to use the emergency room as a regular source of care. (102)

Emergency room care is more expensive than other types of care and does not provide the opportunity for preventive or follow-up care. A study of community hospitals in Michigan confirmed higher costs of emergency room care; it found \$124 was the average charge for a non-urgent emergency room visit compared with \$53 for an office visit. (122)

## Self-Report of Poorer Health Status

<b>Uninsured Americans, compared with the insured, are:</b>
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| <ul style="list-style-type: none"><li>• 1.5' more likely to report only fair or poor health</li></ul> |
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The uninsured report poorer general health than the privately insured. (56) The CDC found that the uninsured are, on average, 1.5 times more likely to self-report only poor-to-fair health status than are the insured. (31) Franks et al reviewed data from the 1987 National Medical Expenditure Survey and also found that uninsured individuals had significantly lower levels of self-reported health status than did the insured. These results held even when adjustments were made for the effects of age, sex, race, income, attitude toward the value of medical care and health insurance, and medical conditions. (45) Uninsured children are also 1.5 times more likely to self-report only fair or poor health than are privately insured children. (116)

## Other Indicators of Reduced Access

Other evidence suggests that specific patient populations, even those normally requiring more health care, suffer reduced access. (37, 42) As in-hospital care is shifted to follow-up care after discharge, many uninsured patients are unable to access the needed follow-up care. (64) Additionally, many uninsured Americans turn to a pharmacist as their first point of contact in the medical system, perhaps because they are unable to access traditional physician care. (77)

Chiang et al found that an estimated 1.5 million visually impaired working-age Americans are not covered by any form of health insurance and that the visually impaired have a greater proportion of uninsured (20.7%) than the general population. The authors conclude that visual impairment poses a barrier to accessing health insurance. (37)

Earnest et al determined that uninsured individuals with neurologic disorders (approximately 340,000 new cases per year) had fewer doctor's office visits and hospital admissions than privately insured individuals. The uninsured with neurologic disorders were less likely to have a regular source of care or to see a physician or a neurologist. (42)

<b>Uninsured Americans, compared with the insured, are:</b>
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| <ul style="list-style-type: none"><li>• Less likely to receive follow-up care after hospital discharge</li></ul> |
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The average length of a patient's hospital stay has been decreasing, partially because of an effort to control costs. As a consequence, important medical problems are often deferred for follow-up care after patient discharge. Kerr and Siu examined whether patients actually receive post-discharge care. The authors found that uninsured patients were less likely to receive follow-up care, less likely to identify a regular physician, and less likely to complete discharge instructions. (64)

<b>Uninsured Americans, compared with the insured, are:</b>
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| <ul style="list-style-type: none"><li>• 2' more likely to use a pharmacist rather than a physician for medical triage</li></ul> |
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Martin, Perri, and Kotzan conducted a survey to determine the relationship between health insurance status and the choice of a pharmacist as the initial contact in the health care system. Of all intended health care provider contacts, pharmacists were selected as the initial contact 21% of the time. The study concluded that uninsured persons were nearly twice as likely to seek pharmacist triage than insured individuals. The authors concluded that pharmacists may be filling an important gap for individuals with limited access to traditional sources of physician care. (77)

## **SUMMARY: REDUCED ACCESS TO CARE**

Substantial evidence suggests that individuals without insurance experience a reduced access to health care. Uninsured Americans have fewer physician visits, even adjusting for factors such as income and health status. These general results are true for all patient populations that were evaluated. In addition, uninsured individuals are more likely to delay or forego medical care, even in the case of serious medical conditions.

## POORER MEDICAL OUTCOMES

Establishing a relationship between insurance status and health outcomes is more difficult but several studies present evidence supporting the premise that the uninsured face specific consequences as a result of a lack of insurance. Uninsured Americans are more likely to experience avoidable hospitalizations (14, 15, 120), be diagnosed at later stages of life-threatening diseases (6, 97), be hospitalized on an emergency basis (15), be hospitalized for chronic conditions that could be better controlled with reliable access to physician services (120), and experience an increased risk of mortality (46, 53). Specific studies are indicated below:

CONSEQUENCE	STUDY
AVOIDABLE HOSPITALIZATION	Billings, Anderson, Newman (14) Bindman et al (15) Hafner-Eaton (55) Weissman et al (120)
HOSPITAL-RELATED OR CLINICAL MORTALITY	Franks, Clancy, Gold (46) Hadley, Steinberg, Feder (53) Sorlie et al (103)
LATE STAGE AT DIAGNOSIS/LOWER CANCER SURVIVAL RATE	Ayanian et al (6) Roetzheim et al (97)

The literature provides evidence that there are important differences in health outcomes associated with a lack of insurance, including:

### Avoidable Hospitalizations

<b>Uninsured Americans, compared with the insured, are more likely to experience an avoidable hospitalization:</b>
<ul style="list-style-type: none"> <li>• Up to 2.8' more likely to be hospitalized for diabetes</li> <li>• Up to 2.4' more likely to be hospitalized for hypertension</li> <li>• Up to 1.6' more likely to be hospitalized for pneumonia</li> <li>• Up to 1.6' more likely to be hospitalized for a bleeding ulcer</li> </ul>

Delay in receiving or failure to obtain timely, effective ambulatory care can result in avoidable hospital admissions for many conditions such as asthma, diabetes, or congestive heart failure. Higher rates of admission for these conditions in a specific geographic area or among a population subgroup can be an indication of serious access or performance problems. (14) Delaying or not receiving timely and appropriate care for chronic conditions and other health problems may lead to the development of more serious health conditions that require hospitalization. Hospital stays for specific conditions have been identified as potentially avoidable in the presence of appropriate and timely ambulatory care. (111)

Weissman et al used computerized hospital discharge data from 1987 to select a cross-sectional sample of hospitalized patients. The authors found that uninsured patients were more likely than

insured patients to be hospitalized for avoidable conditions such as diabetes, hypertension, pneumonia, and ulcers. The authors' findings indicate that patients who are uninsured have higher rates of hospitalization for conditions that can often be treated out of hospital or avoided altogether. (120) Weissman et al also found that patients reporting delays in care before admissions stayed in hospitals about 9% longer than did insured patients. This remained true after adjustments for hospital site, age, severity, or income. (121)

Bindman et al examined California hospital discharge data to calculate the hospitalization rates for five chronic diseases: asthma, hypertension, congestive heart failure, chronic obstructive pulmonary disease, and diabetes. A total of 6,674 adults aged 18 to 64 years were asked about their access to care, chronic medical conditions, and likelihood of seeking health care. The authors found that in areas where residents perceived their access to care as poor, the health care system had higher rates of hospitalization for chronic illnesses. With fewer physician visits and frequent lack of a primary care physician, the uninsured often allow the early stages of chronic illnesses such as hypertension and diabetes to proceed without seeking diagnosis and treatment. (15)

In a study of hypertension in more than 200 ethnic minority patients in New York, Shea et al found that greater severity of condition was significantly related to absence of a relationship with a primary care provider. Moreover, those without health insurance had a greater tendency to use emergency departments for hypertension testing. The authors concluded that primary care access improved through health insurance can increase effectiveness in controlling hypertension among ethnic minority patients. Because hypertension has been linked to adverse outcomes, control of this condition suggests better health for these persons. (100)

<b>Uninsured Americans, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• More likely to experience an avoidable hospitalization for asthma</li></ul>



DeCorte et al analyzed data from the 1991 NHIS to show the relationship between insured and uninsured persons who self-identify as having asthma. A lack of health insurance was found to increase the number of hospitalizations associated with asthma. The authors concluded that a lack of health insurance decreases a patient's ability to seek physician contact for preventive care to better control the disease. Thus, the uninsured experience more frequent hospitalizations and ultimately increased health care costs. (41)

## Higher Mortality

<b>Uninsured Americans, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• Up to 3.2' more likely to die in-hospital (have a higher in-hospital mortality)</li><li>• 1.25' more likely to die (have a higher general mortality)</li></ul>



Using abstracts submitted to the Commission on Professional and Hospital Activities in 1987, Hadley et al analyzed a large national sample of hospital discharges by comparing both the condition on hospital admission and resource use while in the hospital between privately insured and uninsured patients. They found that the expected in-hospital mortality rate (an indicator of severity of illness upon admission) was significantly higher for the uninsured than the privately insured in 10 of the 16 age-sex-race categories studied. The uninsured were sicker upon admission than were the insured, possibly an indicator that they waited longer before entering the hospital. In 10 of the 16 age-sex-race-specific groups, the uninsured were significantly more likely to experience an in-hospital death than were the privately insured. The increased probabilities ranged from 20% to 320%. (53)

Using longitudinal data from the National Health Examination Survey Epidemiologic Follow-up Study, Franks et al analyzed the impact of insurance status on mortality rates during the 16-year period from 1971 to 1987. Adjusting for physical, economic, and behavioral factors, the study found that a lack of insurance was associated with a 25% higher risk of mortality. The lack of health insurance was associated with higher mortality rates for those with and without morbidity at the beginning of the study and for those with varying levels of income and education. (46)

In another study, Sorlie et al analyzed data from the National Longitudinal Mortality Study (NLMS) and matched these data to the National Death Index. After adjustment for age and income, uninsured persons had higher mortality than those with employer-based insurance, with a relative risk of 1.2 times for white men and 1.5 times for white women. After adjusting for employment status, the working uninsured showed mortality between 1.2 and 1.3 times greater than that of the working insured. (103)

Haas and Goldman analyzed data on 15,008 patients hospitalized from the emergency department with acute trauma in Massachusetts in 1990. After adjustment for complicating factors, uninsured patients were more likely to die in a hospital (2.15 times more likely) than the insured. The authors concluded that the uninsured receive less trauma-related care and have a higher mortality rate. (52)

## Late Stage at Diagnosis/Lower Cancer Survival Rate

<b>Uninsured Americans, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 1.7' more likely to be diagnosed with colon cancer at a late stage</li><li>• 2.6' more likely to be diagnosed with melanoma at a late stage</li></ul>
<b>Uninsured women with breast cancer, compared with the insured:</b>
<ul style="list-style-type: none"><li>• Have a 49% higher adjusted risk of death</li></ul>

Stage at diagnosis is one of the most important prognostic factors for most cancers. For many cancers, early stage disease can be effectively treated with a good chance for a cure, whereas late stage disease is generally incurable. (97) The presence and type of health insurance have been consistently predictive of access to care and the provision of screening services (6, 97).

Roetzheim et al studied data from 1994 for all Florida patients with incident cases of four types of cancer for which screening is associated with detection of early stage disease: colorectal, breast, prostate, and melanoma. Persons who were uninsured were more likely to be diagnosed at a late stage (colorectal cancer odds ratio [OR] of 1.67 and melanoma OR of 2.59) than were persons with private insurance. For all four types of cancer examined, the presence and type of health insurance were statistically significantly associated with stage at diagnosis. The authors concluded that persons without health insurance are more likely diagnosed with late stage cancers at diverse sites. Importantly, these cancers can be detected at an early stage by screening. Melanoma, for example, is especially amenable to early detection.

Patients without adequate health insurance, however, may have markedly limited access to dermatologists. Although skin examinations are relatively inexpensive, skin biopsies and other follow-up care may not be affordable to patients lacking health insurance. (97)

Ayanian et al studied 4,675 women, 35 to 64 years of age, in whom invasive breast cancer was diagnosed from 1985 through 1987. Uninsured women had significantly more advanced disease than privately insured women when their disease was initially diagnosed (53.9% local disease for uninsured women versus 44.4% for insured women; 12.3% distant disease for uninsured women versus 7.3% for insured women). Survival during the 54 to 89 months after diagnosis was significantly worse for uninsured patients than for privately insured patients with local or regional disease.

The adjusted risk of death was significantly greater for uninsured patients 35 to 49 years of age (relative risk of 1.57) and uninsured patients 50 to 64 years of age (relative risk of 1.43). Overall, uninsured women had a 49% greater chance of dying after a diagnosis of breast cancer than did privately insured women. The authors concluded that women without private health insurance who have breast cancer receive this diagnosis later and die sooner after the diagnosis than privately insured women. (6)



## Other Indicators of Poorer Medical Outcomes

The uninsured mental health patient population also experiences poorer outcomes.

<b>Uninsured adults with mental health conditions, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 1.3' less likely to have received any mental health treatment prior to a hospitalization</li><li>• 1.6' more likely to be involuntarily admitted for hospitalization</li><li>• 6.5' more likely to be hospitalized in a public hospital rather than a community hospital</li></ul>

Using data from the National Comorbidity Survey, the National Advisory Mental Health Council reported that, of individuals with severe mental disorders, 18% were uninsured. Similar findings of poorer outcomes have been demonstrated for uninsured patients with mental health conditions.

Rabinowitz et al found that having private insurance was associated with a greater likelihood of having received previous mental health treatment in general, and psychotherapy specifically. Forty-four percent of first-admission psychotic patients had no health insurance. Those with health insurance were more likely to have received mental health assistance before their first psychiatric hospitalization. Uninsured Americans are 1.3 times less likely, compared with the insured, to have received any mental health treatment prior to a hospitalization (44.6% of the uninsured had not received any mental health treatment compared with 34% of the insured).

The authors also found that having private insurance was related to a greater likelihood of being hospitalized within three months of onset of psychosis, being admitted voluntarily, and being admitted to a community hospital rather than a public hospital. The uninsured are 1.6 times more likely to be involuntarily hospitalized (63.5% of the uninsured are involuntarily hospitalized compared with 39.4% of the insured). The uninsured, compared to the insured, are 6.5 times more likely to be hospitalized in a public hospital rather than a community hospital (51.1% of the uninsured versus 7.9% of the insured are hospitalized in a public hospital).(96)

### **SUMMARY: POORER MEDICAL OUTCOMES**

Substantial evidence suggests that individuals without insurance experience poorer or adverse medical outcomes. Uninsured Americans are more likely to be hospitalized for a medical condition that could have been better managed with physician care and/or medications. The uninsured are more often diagnosed at a later stage of disease and suffer a lower survival rate as a result. Most importantly, the uninsured experience a higher mortality rate, both generally over time and specifically while in the hospital.

## SPECIFIC PATIENT POPULATIONS

Many studies have examined specific uninsured patient populations: children, adolescents, women, pregnant women, newborns, the chronically ill, and men. These studies confirm reduced access to care and poorer medical outcomes for these populations.

### UNINSURED CHILDREN AT RISK

In 1998 11.1 million children under 18 years of age were uninsured. (28) Evidence from the studies indicates that uninsured children experience a reduced access to preventive and acute or chronic health care. (74, 119) Uninsured children are less likely to have an established relationship with a physician (a regular source of care). A regular source of care increases the likelihood that a child will receive preventive or acute health care. (59, 85, 86) Additionally, uninsured children are more likely to be hospitalized for conditions that could have been treated through primary care. Uninsured children are less likely to be up to date with well-child care, less likely to have had all recommended immunizations (120), less likely to receive treatment for common childhood illnesses (108), and less likely to receive treatment even for a serious injury (93), a chronic illness (69, 98), or special needs (2). Extending health insurance to uninsured children has been found to have a major positive impact on children's health. (86, 90)

To meet current and emerging health needs of children, the U.S. Maternal and Child Health Bureau sponsored the development of new health care guidelines for children. (51) These guidelines recommend health care visits for children at key developmental stages. These visits should include physical examinations and medical intervention, observation, screening, and counseling. According to these guidelines, pediatric care, which employs preventive and health-promoting interventions, will lead to improved outcomes. These outcomes are best ensured by a regular source of health care that is accessible and offers continuous, comprehensive, family-centered, coordinated, and compassionate care.

A lack of insurance for children has serious consequences:

<b>Uninsured children, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• Up to 6´ more likely to have gone without needed medical, dental, or other health care</li><li>• 2´ more likely to have gone without a physician visit during the previous year</li><li>• Up to 4´ more likely to have delayed seeking care</li><li>• Up to 10´ less likely to have a regular source of care</li></ul>

Newacheck et al analyzed the effects of health insurance coverage on children's access to primary care on the basis of a current and nationally representative sample of 49,367 children under 18 years of age from the 1993-94 NHIS. Uninsured children were more than 6 times less likely to have a regular source of care (24.1% versus 3.8%). Uninsured children were also 3.6 times more likely to have gone without some needed medical, dental, or other health care (22.2%

of the uninsured reported unmet needs versus 6.1% of the insured). Specifically, uninsured children were 5.7 times more likely to have gone without needed medical care (6.3% uninsured versus 1.1% insured), 4 times more likely to have gone without needed dental care (16.7% uninsured versus 4.2% insured), and 3.6 times more likely to have gone without needed medications, eyeglasses, or mental health care (7.0% uninsured versus 2.0% insured). Even after the authors had adjusted for the effects of other variables, such as age, race, income, and health status, insurance continued to be a substantial factor. (87)

Simpson et al presented national estimates of access to medical care and unmet health care needs for children through 17 years of age. The authors found that health insurance plays an important role in children having a regular source of care. Uninsured children were nearly 10 times less likely to have a regular source of care compared with the privately insured (29% versus only 3%). (102)

More than 7.3 million children had difficulty obtaining at least one of the medical services they needed in 1993. Almost 1.3 million children were unable to get needed medical care. Almost 4.2 million children were unable to get dental care and over 800,000 went without prescription medicine and glasses. Uninsured children were 6 times more likely to go without medical care than those with private insurance. Uninsured children were more than 4 times as likely as insured children to have delayed getting medical care because their parents were worried about the cost of care. Berk and Schur found that uninsured children were 3.4 times less likely to get needed dental care, 5.7 times less likely to get needed prescriptions filled, and 2.7 times less likely to get needed glasses than were privately insured children. Although some of the unmet needs, such as the inability to obtain glasses, are not life threatening, they can seriously affect a child's quality of life. (8, 9)

<b>Uninsured children who are ill, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 1.7' less likely to receive medical treatment for sore throat or tonsillitis</li><li>• 1.9' less likely to receive medical treatment for an acute earache</li><li>• 2.1' less likely to receive medical treatment for a recurrent earache</li><li>• 1.7' less likely to receive medical treatment for asthma</li></ul>

Using national survey data, Stoddard et al studied the use of ambulatory care by children with specific common symptoms who were or were not insured, while controlling for other variables that may affect access to care. The purpose of the study was to determine whether uninsured children are less likely than insured children to receive medically indicated ambulatory care when they have specific illnesses or symptoms. Stoddard's analysis focused on the 7,578 children under age 17 included in the 1987 National Medical Expenditure Survey. (108)

Stoddard et al studied four conditions (sore throat, acute earache, recurrent ear infection, and asthma). <sup>[1]</sup> All are relatively common among children. For each condition, children with insurance were more likely than uninsured children to see a physician. The authors adjusted for other variables that could influence the use of services, such as the child's age, sex, family size, family income, race or ethnic group, and place of residence.

Uninsured children were 1.72 times more likely to go without a visit to a physician for a sore throat, 1.85 times for acute earache, 2.12 times for recurrent ear infections, and 1.72 times for asthma. (108)

Timely medical care can shorten the duration of symptoms associated with the conditions studied. Each of the conditions can also cause sequelae if left untreated. A sore throat caused by group A streptococci can lead to rheumatic fever. Untreated middle ear infections can lead to hearing loss and resultant speech and language deficits. (108) Asthma, when severe, can cause respiratory failure and death. Recent evidence indicates that rates of hospitalization and mortality due to childhood asthma are increasing. (118)

<b>Uninsured children, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• Up to 30% less likely to receive medical attention for any injury</li><li>• Up to 40% less likely to receive medical attention for a serious injury</li></ul>



Overpeck and Kotch conducted an analysis to determine the extent to which uninsured children are likely to have received treatment for nonfatal injuries compared with children who have insurance. They analyzed data from the 1988 Child Health Supplement to the National Center for Health Statistics' Health Interview Survey (NHIS). More than 17,000 children were included in the study. Injuries were analyzed according to severity levels (total, serious, and minor). In 1988, children younger than 18 had total injury rates of 16.3 per 100. Serious injuries that resulted in restricted activity, bed days, surgery, hospitalization, or substantial pain represented about half of total injuries. (93)

The results of this analysis show that uninsured children are less likely to seek medical attention for both total and serious injuries even after adjusting for potential complicating factors. The relative rates show that, for uninsured children, between 20% and 30% of total injuries in 1988 may not have been attended, ranging from 30% of injuries in children aged 12 to 17 to 20% of injuries in children younger than 6 years. At least 40% of serious injuries occurring in uninsured children aged 11 and younger may not have received medical attention.

## **Other Indicators of Reduced Access or Poorer Medical Outcomes for Children**

Uninsured children often use the emergency room as a regular source of care (102) because they do not have a physician as a regular source of care. Uninsured children with specific disorders or serious illnesses must often delay seeking care. (68, 92) Uninsured children with chronic illnesses also endure reduced access and poorer medical outcomes as a consequence of a lack of insurance. (85, 105)

### **Emergency Room as a Regular Source of Care**

Another issue in the provision of health services is the utilization of the emergency room for non-emergency care. According to survey findings, 4.6% of children with public insurance and 2.6% without health insurance used the emergency room as a regular place of care (102). Inappropriate utilization of the emergency room results in high medical costs and disruptive care for the child. A study of community hospitals in Michigan found that the average charge for a non-urgent emergency room visit was \$124, whereas the average charge for an office visit in 1993 was \$53. Nonpayment for emergency room visits was 50%. To compensate for the high rate of nonpayment, the charges for emergency room visits were higher than the actual costs. (122) An additional concern is that most physicians in the emergency room are not residency trained in pediatrics. Therefore, children using the emergency room as a regular source of care are deprived not only of continuity of care and preventive checkups but of the attention of pediatrics-trained providers. (102)

### **Specific Disorders or Serious Illness**

Attention deficit hyperactivity disorder (ADHD) is the most commonly diagnosed behavioral disorder of childhood, estimated to affect 3% to 5% of school-age children. Its core symptoms include developmentally inappropriate levels of attention, concentration, activity, distractibility, and impulsiveness. Barriers to identification and evaluation arise when central screening programs limit access to mental health services. The lack of insurance coverage for psychiatric or psychological evaluations, behavior modification programs, school consultation, parent management training, and other specialized programs presents a major barrier to accurate classification, diagnosis, and management of ADHD. (68)

<b>Uninsured children under 16 years of age presenting with appendicitis, compared with the insured:</b>
<ul style="list-style-type: none"><li>• Wait almost 2' as long before seeking care</li><li>• Have a hospital visit almost 2' as long</li></ul>



In the pediatric population, there is strong evidence suggesting that a delay in treatment results in an increased risk of appendiceal perforation. O'Toole et al performed a retrospective chart review of all cases of confirmed acute appendicitis that presented to the pediatric surgical service of the Children's Hospital of Buffalo during a four-year period (January 1990 through December

1993). Their times until emergency room presentation, operating room presentation, and hospital discharge were recorded and compared. Complications and perforation rates were also noted. Two hundred eighty-eight cases were reviewed.

The authors found that uninsured children were 1.9 times more likely to present with an appendiceal perforation. Uninsured children delayed seeking care by almost twice as long (47.3 +/- 4.1 hours versus 23.1 +/- 2.5 hours for privately insured children). Uninsured children also required a longer hospital stay, nearly twice as long, as the privately insured (7.9 +/- 0.9 days versus 4.6 +/- 0.44 days). (92)

## **Chronic Illnesses**

Many children have a chronic condition: one study estimated that nearly a third of children have one or more chronic conditions. (83) The National Center for Health Statistics estimated that about 15% of children who had chronic conditions had special health care conditions that were disabling because they caused the children to miss school, stay in bed, limit activities, or experience pain or discomfort on a regular basis. (2) About 13% of children with chronic conditions and special health care needs are uninsured: low-income, Hispanic, and nonsuburban children are more likely to be uninsured. (2) Poor children with chronic conditions were more likely to lack a regular source of routine and sick care and had fewer annual physician visits (83). They were also less likely to have been hospitalized in the past year (2). A lack of appropriate ambulatory care can cause chronically ill children to be inappropriately hospitalized when they could have been treated as outpatients. Most of the potentially avoidable hospitalizations for children younger than 15 were for pneumonia or asthma. (94)

Looking at rarer conditions, Spivak et al examined severity of illness when privately insured and underinsured children were diagnosed with inflammatory bowel diseases.<sup>121</sup> Inflammatory bowel diseases (Crohn's disease and ulcerative colitis) can result in absence from school, progressive malnutrition, weight loss, anemia, depression, and fatigue. Early diagnosis can catch these diseases before they have progressed to a debilitating stage so that they can be treated with less aggressive therapies. The authors found that children who were underinsured had 2.5 times the weight loss of insured children and had waited 8 months longer before diagnosis. The children's laboratory results also indicated that they were sicker before diagnosis and were more likely to be anemic. (105)

## **UNINSURED ADOLESCENTS AT RISK (11-17 YEARS OF AGE)**

Experts have found that adolescents can benefit from the guidance of a health provider during the time when their bodies are changing and when they may be tempted to take risks such as unprotected sex and drug, alcohol, or tobacco use. Yet uninsured adolescents have problems accessing care. Researchers found that adolescents who were not insured were less likely to have a regular health care provider. (72) Bartman et al, using data from the 1987 National Medical Expenditure Survey, found that 16 million adolescents experienced symptoms but that only 33% saw a physician. Adolescents lacking a regular source of care were at greater odds for not receiving care. (7) Adolescent girls are more likely to miss care than boys. (65)

<b>Uninsured adolescents aged 10-18, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 5´ less likely to have a usual source of care</li><li>• 2´ less likely to have had a physician visit during the course of the year</li></ul>



Adolescents are more likely to be uninsured than younger children, putting them at risk for underutilization of health care services (116). Newacheck et al analyzed data on 14,252 adolescents, aged 10 to 18 years, included in the 1995 NHIS. In 1995, 14.1% of adolescents, or 4.2 million, had no health insurance coverage at all. The authors found that uninsured adolescents were far more likely than insured adolescents (29.0% versus 4.4%) to have a regular source of care. Uninsured adolescents were also twice as likely than insured adolescents to go without a physician visit during the course of a year (25.1% versus 10.1%). Insured adolescents had more contacts per year on average than uninsured adolescents (2.8 versus 1.5 contacts). (84)

<b>Uninsured adolescents aged 10-18, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 4´ more likely to have unmet health needs</li><li>• 4´ less likely to get needed dental care</li><li>• 4´less likely to get needed prescriptions and/or eyeglasses</li><li>• 6´ less likely to get needed medical care</li></ul>



Using data from this same survey, Newacheck et al also found that uninsured adolescents were less likely than insured adolescents to obtain needed medical care, dental care, prescriptions, eyeglasses, and mental health care. Uninsured adolescents were nearly 4 times more likely than insured adolescents to have at least one unmet need (23.1% versus 6.2%) and 6 times more likely to have multiple unmet needs (7.2% versus 1.2%). The presence of health insurance was independently associated with an increased likelihood of having a regular source of care, fewer unmet health care needs, and increased use of physician services. (84)

## **UNINSURED WOMEN AT RISK**

Health insurance coverage is an important factor associated with the use of preventive health care services for women. Uninsured women use less preventive health care than insured women. (32, 33, 107) Makuc et al found that health insurance coverage was strongly associated with use of recent preventive services for women. (76) Uninsured women of childbearing age are less than half as likely as insured women to receive counseling on preventive health topics such as diet and eating habits, smoking habits, alcohol use, and birth control. (88)

Prevention is thought to be key to the reduction of both the incidence and severity of chronic diseases. The lack of preventive counseling for uninsured women could lead to serious health outcome differences in the future. Routine screening is used to detect the presence of disease at an early stage. The effectiveness of Pap tests in reducing cervical cancer mortality for women of all ages has been clearly demonstrated as has the effectiveness of mammography screening in reducing breast cancer mortality for women over 50 years of age. (76)

Breast cancer is the most common site of a new cancer among women and second to lung cancer as a leading cause of cancer deaths among women. The majority of currently identified risk factors (advancing age, first-degree relative with breast cancer, early menarche, late menopause, absence of breast feeding) are not easily amenable to changes in a woman's personal health habits. Therefore, especially because studies have found room for improvement in screening rates (32, 36, 76, 91), the main medical focus for breast cancer management has been on early detection through screening and effective treatment of diagnosed cases. (111)

<b>Uninsured women, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 2' less likely to have had both a mammogram and clinical breast examination in the previous 2 years</li></ul>



Data from the 1993 Behavioral Risk Factor Surveillance System (BRFSS) on the status of health insurance coverage and the receipt of preventive health services among women aged 18 to 64 years were evaluated by the CDC. Uninsured women were nearly 3 times as likely to report having no regular place of medical care (10% versus 26.2%) and at least 50% less likely than insured women to have had a mammogram and a clinical breast examination (CBE) during the previous two years (69.4% versus 34.6%). (32)



<b>Uninsured women aged 50-64, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 2.1' less likely to have had a recent mammogram</li><li>• 1.9' less likely to have had a recent Pap test</li><li>• 2.1' less likely to have had a recent clinical breast examination</li></ul>



<b>Uninsured women aged 40-49, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 1.5' less likely to have had a recent mammogram</li><li>• 1.9' less likely to have had a recent Pap test</li><li>• 1.9' less likely to have had a recent clinical breast examination</li></ul>



The CDC evaluated data from the 1992 NHIS conducted by the National Center for Health Statistics. Questions on cancer screening included length of time since the last Pap test, mammogram, and CBE. The relationship between health insurance coverage and use of screening was examined for women in subgroups based on age (40-49 years, 50-64 years, and over 65 years). (36, 76)

In 1992, health insurance coverage was strongly associated with the use of each of these procedures for women aged 50 to 64 years. Only 19% of uninsured women aged 50 to 64 reported a recent mammogram; 32% reported Pap testing; and 38% reported a CBE. Uninsured women aged 50 to 64 years were twice as likely as insured women to have gone without a recent mammogram (81% versus 38%); twice as likely to have gone without a Pap test (68% versus 35%); and twice as likely to have gone without a CBE (62% versus 29%). (76)

Again, health insurance coverage was strongly associated with the use of all three procedures for women 40 to 49 years of age. Only 18% of uninsured women aged 40 to 49 years reported a recent mammogram; 30% reported Pap testing; and 37% reported a CBE. Uninsured women aged 40 to 49 years were 1.5 times less likely than insured women to have had a recent mammogram than (82% versus 55%); nearly twice as likely to have gone without a Pap test (70% versus 36%); and nearly twice as likely to have gone without a CBE (63% versus 34%). (76)

Based on an evaluation of data from the 1987 National Medical Expenditure Survey, Himmelstein and Woolhandler also found that more than one third of women had not had a CBE in the previous two years, one fifth had not had a Pap smear within the previous four years, and one half had never had a mammogram (ages 50-69 only). (59)

<b>Uninsured women with breast cancer, compared with the insured:</b>
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| <ul style="list-style-type: none"><li>• Have a 49% higher adjusted risk of death</li><li>• Are 1.4' more likely to be diagnosed with breast cancer at a late stage</li></ul> |
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Ayanian et al studied 4,675 women, 35 to 64 years of age, in whom invasive breast cancer was diagnosed from 1985 through 1987. They compared the stage of disease and stage-specific survival among women with private insurance, no insurance, and Medicaid coverage through 1992. They also estimated the adjusted risk of death for these groups, using proportional-hazards regression analysis to control for age, race, marital status, household income, coexisting diagnoses, and disease stage.

Uninsured women had significantly more advanced disease than privately insured women when their disease was initially diagnosed (44.4% local disease versus 53.9% local disease for insured women and 12.3% distant disease versus 7.3% distant disease for insured women). Survival during the 54 to 89 months after diagnosis was significantly worse for uninsured patients than for privately insured patients with local disease. Survival was also significantly worse for uninsured patients who had regional disease. (6)

The adjusted risk of death was significantly greater for uninsured patients 35 to 49 years of age (relative risk of 1.57) and uninsured patients 50 to 64 years of age (relative risk of 1.43). Women without health insurance had more advanced breast cancer than women with private health insurance when the disease was initially diagnosed. The survival of those women was also worse than that of privately insured women with local and regional disease; overall, uninsured women had a 49% greater chance of dying after a diagnosis of breast cancer than did privately insured women. (6)

Ayanian et al concluded that women without private health insurance who have breast cancer receive this diagnosis later and die sooner after the diagnosis than privately insured women with breast cancer. (6)

Roetzheim et al studied data from 1994 for all Florida patients with incident cases of four types of cancer for which screening is associated with detection of early stage disease: colorectal, breast, prostate, and melanoma. The final study population consisted of 28,237 Floridians diagnosed with colorectal, breast, or prostate cancer, or melanoma in 1994. Uninsured women were 1.43 times more likely than privately insured women to be diagnosed at a later stage of breast cancer. For all four types of cancer examined, the presence and type of health insurance were statistically significantly associated with stage at diagnosis. Roetzheim et al concluded that women lacking health insurance are more likely to be diagnosed with late stage cancer at diverse sites. (97)

<b>Uninsured women, compared with the insured:</b>
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| <ul style="list-style-type: none"><li>• Have a worse cardiovascular disease risk factor profile</li></ul> |
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Ford et al studied data from the National Health and Nutrition Examination Survey III conducted from 1988 to 1994. Uninsured women were less likely to have had their blood pressure checked during the previous six months, their cholesterol level checked, or to be aware of hypercholesterolemia. Insured women were three times more likely than uninsured women to use estrogen replacement therapy (24.9% versus 7.9%). The authors concluded that uninsured women have a worse cardiovascular disease risk factor profile and use health care services less frequently than insured women. (44)

## **UNINSURED PREGNANT WOMEN AND THEIR NEWBORNS AT RISK**

Pregnant women are encouraged to obtain regular prenatal care beginning in the first trimester of pregnancy to ensure a healthy pregnancy and birth. (111) Women without health insurance have been shown to obtain prenatal care later in pregnancy and to make fewer visits for care than do privately insured women. (89) Only 2% of uninsured women are cared for during their pregnancies by private physicians. (90)

Uninsured maternity patients are typically in their early twenties, black (44%), single (52%), employed without health care benefits, and either sought prenatal care later in the pregnancy or not at all. Weis found that uninsured women had shorter hospital stays with more maternal complications. Lack of insurance coverage was also associated with a lower birth weight. (117)

<b>Uninsured pregnant women, compared with the insured:</b>
<ul style="list-style-type: none"><li>• Have a 31% higher likelihood of an adverse hospital outcome</li></ul>



Braveman et al studied hospital discharge data on births to residents of an eight-county region of California and found that a lack of health insurance was associated with an elevated and increased risk of adverse outcomes in newborns. In 1986, uninsured newborns were 1.3 times more likely to suffer an adverse hospital outcome--defined as a prolonged hospital stay, transfer of the newborn to another institution, or death--than privately insured newborns. This was true after controlling for race or ethnic group. Uninsured women face a 31% higher probability of an adverse outcome after giving birth. (19)

Bronstein et al studied Alabama vital statistics records between 1988 and 1990, comparing hospital of birth and maternal and infant transfer status, and controlling for infant birthweight and for maternal pregnancy history and demographic characteristics. The authors found that maternal race, prenatal care use, and insurance status influence the likelihood that very low birth-weight infants would require neonatal intensive care. (20)

## **UNINSURED CHRONICALLY ILL AT RISK**

Failure to receive high-quality care for chronic conditions may have the greatest potential consequences for the health and functioning of the population. Chronic illness has replaced infectious disease as the number one source of death in the world. Approaches for treating chronic conditions are growing, from high-tech treatments such as coronary artery bypass graft surgery or angioplasty, to low-tech solutions such as home care and assistive devices.

In other cases, knowledge of the most efficacious treatment of chronic conditions does exist, yet treatment approaches are unevenly applied. Care for persons with diabetes provides an example. Diabetes mellitus accounts for 5.8% of total U.S. health care costs. Hospitalization expenses produce 40.5% of these costs. Uninsured diabetes mellitus patients were younger and had relative mild disease compared with insured patients. Only 6% of uninsured patients identified a regular source of care, and they also had a higher incidence of hospital admissions associated with lack of medications. (123) Harris et al found that in 1994 almost 600,000 people with diabetes were without any form of health insurance coverage. The lack of health insurance coverage reduces the ability of the uninsured diabetic patients to obtain services necessary for care of their disease. (57)

Waters et al found that uninsured patients with systemic lupus erythematosus (SLE) had significantly fewer physician visits than privately insured patients. SLE can affect the lungs, heart, skin, joints, blood, kidneys, and brain. It has many different symptoms including fatigue, skin rashes, arthritis (swelling or pain in the joints), fevers, loss of appetite and kidney problems. SLE patients, clearly, could benefit from the care of a physician. (115)

<b>Uninsured Americans with chronic back pain, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 2.7' less likely to get back to work quickly</li></ul>

Eighty percent of all adults experience back pain at some time. For 1 in 10 adults, back pain is a chronic problem. About 2.6 million people are permanently disabled by back pain. Back injuries account for one third of all workplace injuries. Industrial back injuries cost \$14 billion each year. The typical back pain episode results in 14 lost working days. The National Institute on Disability and Rehabilitation Research conducted a literature review to determine if the uninsured had a favorable outcome, defined as a return to work, compared with the insured. One study found that 65% of treated people were working at follow-up compared with only 24% of uninsured people who had been rejected for treatment. (81)

## **UNINSURED MEN AT RISK**

<b>Uninsured men, compared with the insured, are:</b>
<ul style="list-style-type: none"><li>• 1.5' more likely to be diagnosed with prostate cancer at a late stage</li></ul>

Roetzheim et al studied data from 1994 for all Florida patients with incident cases of four types of cancer for which screening is associated with detection of early stage disease: colorectal, breast, prostate and melanoma. The final study population consisted of 28,237 Floridians diagnosed with colorectal, breast, or prostate cancer, or melanoma in 1994. Uninsured men were 1.47 times more likely than insured men to be diagnosed at a later stage of prostate cancer. For all four types of cancer examined, the presence and type of health insurance were statistically significantly associated with stage at diagnosis. Roetzheim et al concluded that men lacking health insurance are more likely to be diagnosed with late stage cancer at diverse sites. (97)

## **UNINSURED HISPANICS AT RISK**

Thamer et al examined the health insurance status of the U.S. foreign-born population and the influence of race, ethnicity, and length of residence on health insurance status. Data were obtained from the 1989 and 1990 NHIS. In 1989 and 1990, the foreign-born population was 2 times more likely than the U.S.-born population to be uninsured (26.2% versus 13.0%). The highest rate of uninsured status, 40.8%, was found among foreign-born Hispanics. Persons who had lived in the U.S. for less than 15 years were 1.5 to 4.7 times more likely to be uninsured than were U.S.-born whites. (109, 110)

The Census Bureau estimates that in 1998 more than one-third of Hispanic Americans have no health insurance (35%). The Hispanic population is the largest group of uninsured and most at risk for reduced access to care and poorer medical outcomes.

## **INSURANCE COVERAGE GAPS RESULT IN REDUCED ACCESS AND POORER MEDICAL OUTCOMES**

The reduced access to care and poorer medical outcomes evidenced in these studies do not affect only the chronically uninsured. Even those with gaps in coverage – as short as one month or as long as a year or more – are less likely to seek care, pursue preventive care, or even to have prescriptions filled. (27, 35, 75) Although people with no insurance face the greatest barriers to receiving needed health care, those who are intermittently insured or have inadequate coverage are also exposed to potentially burdensome medical bills in the event of major or prolonged illness. (35) Even the insured who change health plans experience similar reductions in access. (27)

Data from the 1995 Behavioral Risk Factor Surveillance System (BRFSS) showed that the prevalence of persons who reported lapses in health insurance coverage of less than one year ranged from 1.8% in New Jersey to 9.4% in California. Lapses equal to or greater than one year ranged from 2.9% in Hawaii to 17.1% in California. (35)

More than a decade ago, Lurie et al documented loss of access and poor outcomes for patients with hypertension and diabetes when Medi-Cal was terminated for those getting care at the UCLA Ambulatory Medical Center. Poor outcomes persisted one year later. (75)

Burstin et al examined how changes in health insurance status affect patients and their care. Their results show that patients who lost insurance and patients who changed insurance were more likely to delay seeking care within the four months after visiting an emergency department than people whose health insurance status did not change. Among patients with a loss or change in insurance, 53.4% of patients who lost their health insurance and 22.7% of patients who changed insurance reported that they had no primary care physician at the four-month follow-up compared with 21% for patients without any disruption in coverage. Patients who lost coverage were more likely to report no primary care physician and were less likely to have recommended follow-up care within the four-month period; 32.8% of patients who lost their insurance and 29.1% of patients who changed insurance reported that they delayed seeking medical care compared with 17.7% of patients without a disruption. Loss of insurance was also associated with lower likelihood of vaccine use and check-ups during the previous year. (27)

Burstin et al found that those recently losing coverage fared poorly on nearly every parameter. They did not have a regular physician, delayed seeking care, did not get prescriptions filled, and did not follow up after the visit to the emergency department. Nor did they receive most recommended preventive services. Those who experienced a change in insurance from one source of coverage to another also experienced a decrease in access to care as reflected in more significant delays in seeking needed care. Patients with new doctors may delay seeking care, may miss appropriate preventive care, and may not know where to turn in emergencies. (27)

Copeland evaluated insurance coverage data from October 1994 to September 1995 based on the Survey of Income and Program Participation (SIPP) data. Copeland found that 85% of the periods without health insurance with an observed beginning and end lasted for four months or less, and 99% lasted for eight months or less. Investigation of all periods without health insurance showed that approximately 50% lasted for eight months or longer. This report found that 66% last for less than one year. (39)

## **CONCLUSION**

Arguments that uninsured Americans receive the same levels of medical care as insured Americans, despite their lack of coverage, are contradicted by these studies. Research has clearly demonstrated that having health insurance makes a difference in health care for Americans. The uninsured – even those who are sick, chronically ill, or who have special health care needs – get less health care than those who have insurance. Many studies have shown that increasing coverage improves access to care.

Evidence from the available medical and scientific literature also clearly demonstrates that uninsured Americans experience poorer medical outcomes. A lack of insurance is associated with a delay in seeking care, disease progression, and reduction of the likelihood of a favorable outcome or survival. It is also associated with the increased probability of avoidable hospitalizations for manageable illnesses (some of which are risk factors for the leading causes of death), a generally higher mortality level, and a specifically higher in-hospital mortality. Uninsured children are particularly vulnerable to reduced levels of medical care for normal childhood illnesses such as a sore throat, earache (which, left untreated, can lead to hearing loss

and speech and language deficits), and asthma, in addition to reduced levels of medical care for serious injuries or acute illnesses such as appendicitis.

Lack of insurance contributes to the endangerment of the health of each uninsured American as well as the collective health of the nation. Because lack of insurance is as much a risk to the public health as smoking, alcoholism, and obesity, this national crisis merits the immediate attention of America's elected officials and policymakers.

# NO HEALTH INSURANCE? IT'S ENOUGH TO MAKE YOU SICK

## List of References and Abstracts

1. Aday LA. Health Insurance and the Utilization of Medical Care for Chronically Ill Children with Special Needs. Health of Our Nation's Children, United States, 1988. *Adv Data 1992; 215:1-8*

A substantial proportion of Hispanic and low-income chronically ill children with special needs have neither private insurance nor Medicaid coverage. Those who averaged the fewest doctor visits during the past year for their condition (such as black or low-income children) also tended to be more likely to be hospitalized. Children who did not live with a biological mother or biological mother and father were least likely to have been to a physician or to be taking prescribed medications for their condition. These analyses pinpoint chronically ill children with special needs who are likely to have the least access to routine medical care. Further research is warranted to estimate the probable impact of the differential non-response and underreporting by minority and low-income respondents on these estimates.

2. Aday LA; Lee ES; Spears B; Chung CW; Youssef A; Bloom B. Health Insurance and Utilization of Medical Care for Children with Special Health Care Needs. *Med Care 1993;31:1013-26*

Based on analyses of the 1988 National Center for Health Statistics, National Health Interview Survey, Child Health Supplement, this study examines the insurance coverage and utilization of physicians, hospitals, and prescribed medicine among the 9.6 million U.S. children with special health care needs, defined as children who had one or more selected chronic conditions that caused them to experience pain, discomfort, or being upset often or all of the time in the last year, or who were limited in their major childhood activities (playing or going to school) as a result of these or other impairments or health problems. The findings confirmed that substantial variation in access to routine medical care exists among these children. Though health status is an important predictor of which children use services in general, poor minority children who lived with their mother or someone other than their parents, or those without insurance or an identifiable regular medical provider, were most likely to experience financial barriers to access or were less apt to seek care than other children with comparable needs. Access to routine medical care remains particularly problematic for these subsets of children with special health care needs.

3. Agency for Health Care Policy and Research. Millions Face Barriers to Obtaining Medical Care. *Access to Health Care in America - 1996, MEPS Highlights 3 (AHCPR Pub. No. 98-0002), and Access to Health Care in America - Sources and Barriers: 1996, MEPS Research Findings 3 (AHCPR Pub. No. 98-0001)*
4. Andersen R; Chen MS; Aday LA; Cornelius L. Health Status and Medical Care Utilization. *Health Aff (Millwood) 1987;6:136-56*
5. Andrulis DP. Access to Care is the Centerpiece in the Elimination of Socioeconomic Disparities in Health. *Ann Inter Med 1998;129:412-6*

Many health care professionals have sustained an almost single-minded conviction that disparities in access to health care across socioeconomic groups are the key reason for the major discrepancies in health status between wealthy persons and poor persons. Others, however, have



argued that a host of factors work to create major impediments and that reducing or eliminating financial barriers to health care in particular will do little to reduce discrepancies in health status. This paper, while acknowledging the spectrum of contributing factors, argues that the elimination of financially based differences in access is central to any effort to create equity in outcomes across socioeconomic groups. Through selected review of the many studies on health insurance, access, outcomes, and socioeconomic status, it establishes that a core links affected populations, their difficulty in financing health care, and the threat to their well-being. In so doing, it cites findings that strongly associate lack of insurance (especially for persons who live in poverty), inability to obtain services, and adverse health outcomes. It also uses the example of Medicaid and other coverage for HIV-infected persons in particular as an important positive instance in which leveling the discrepancies in health care across socioeconomic groups can move toward creating quality in access and outcomes. The competitive pressures in today's health care environment threaten to drive socioeconomic groups further apart, especially insured and uninsured persons. However, the recent enactment of state actions, especially the State Child Health Insurance Program, represents powerful examples of health insurance expansion that have lessons for policymakers at all levels for the monitoring and reduction of socioeconomic disparities.

6. Ayanian, JZ; Kohler BA; Abe T; Epstein AM. The Relation Between Health Insurance Coverage and Clinical Outcomes Among Women with Breast Cancer. *N Engl J Med* 1993;329:326-31

Women without private health insurance are less likely than privately insured women to be screened for breast cancer, and their treatment may differ after cancer is diagnosed. In this study we addressed two related questions: Do uninsured patients and those covered by Medicaid have more advanced breast cancer than privately insured patients when the disease is initially diagnosed? And, for each stage of disease, do uninsured patients and patients covered by Medicaid die sooner after breast cancer is diagnosed than privately insured patients? **METHODS:** We studied 4675 women, 35 to 64 years of age, in whom invasive breast cancer was diagnosed from 1985 through 1987, by linking New Jersey State Cancer Registry records to hospital-discharge data. We compared the stage of disease and stage-specific survival among women with private insurance, no insurance, and Medicaid coverage through June 1992. We also estimated the adjusted risk of death for these groups, using proportional-hazards regression analysis to control for age, race, marital status, household income, coexisting diagnoses, and disease stage. **RESULTS:** Uninsured patients and those covered by Medicaid presented with more advanced disease than did privately insured patients ( $P < 0.001$  and  $P = 0.01$ , respectively). Survival was worse for uninsured patients and those with Medicaid coverage than for privately insured patients with local disease ( $P < 0.001$  for both comparisons) and regional disease ( $P < 0.001$  for both comparisons) but not distant metastases. The adjusted risk of death was 49 percent higher (95 percent confidence interval, 20 to 84 percent) for uninsured patients and 40 percent higher (95 percent confidence interval, 4 to 89 percent) for Medicaid patients than for privately insured patients during the 54 to 89 months after diagnosis. **CONCLUSIONS:** The more frequent adverse outcomes of breast cancer among women without private health insurance suggest that such women would benefit from improved access to screening and optimal therapy.

7. Bartman BA; Moy E; D'Angelo LJ. Access to Ambulatory Care for Adolescents: The Role of a Usual Source of Care. *J Health Care Poor Underserved* 1997;8:214-26

Using data from the 1987 National Medical Expenditure Survey, characteristics of ambulatory service utilization for adolescents aged 11 through 17 were examined. Access to health care was further explored by identifying adolescents at risk of not receiving an ambulatory service in the event of symptomatology. Approximately two-thirds of an estimated 25 million adolescents experienced an outpatient visit. African American race, Hispanic ethnicity, middle income, and lack of insurance and a usual source of care placed adolescents at risk for not receiving an ambulatory service. Sixteen million adolescents experienced symptomatology, but only one-third saw a physician. Those lacking a usual source of care were at greater odds of not receiving care. For symptom-based care, inequities were related more to lack of usual source of care rather than socioeconomic characteristics. Health care reform efforts may benefit from ensuring that adolescents have an identified usual source of care to ensure equity of access to care.

8. Berk ML; Schur CL. Access to Care: How Much Difference Does Medicaid Make? *Health Aff (Millwood)* 1998;17:169-80

Using the 1994 Robert Wood Johnson Foundation National Access to Care Survey, we examine the likelihood of having a usual source of care, inability to obtain needed care, and number of physician visits for persons with private insurance, Medicaid coverage, and no insurance. Inability to obtain services is surprisingly consistent: For each service, Medicaid enrollees were about half as likely as uninsured persons and about twice as likely as privately insured persons to report difficulty. For other access measures, access for those on Medicaid more closely resembles that of the privately insured than that of the uninsured.

9. Berk ML; Schur CL; Cantor JC. Data Watch: Ability to Obtain Health Care: Recent Estimates from the Robert Wood Johnson Foundation National Access to Care Survey. *Health Affairs (Millwood)* 1995;14:139-46

This DataWatch presents findings on Americans' ability to obtain health care. Data from the 1994 National Access to Care Survey sponsored by the Robert Wood Johnson Foundation suggest that earlier studies have underestimated the access problems facing Americans by not asking about supplementary services such as prescription drugs, eyeglasses, dental care, and mental health care or counseling. Using this more inclusive definition of health care needs, we estimate that 16.1 percent of Americans were unable to obtain at least one service they believed they needed. While income is highly correlated with unmet need, most persons reporting access are not poor.

13. Berwick DM. As Good As It Should Get: Making Health Care Better in the New Millennium. Washington, DC: National Coalition on Health Care, 1998.
14. Billings J; Anderson GM; Newman LS. Recent Findings on Preventable Hospitalizations. *Health Aff (Millwood)* 1996;15:239-49

Disparities in health outcomes for low-income populations as by rates of preventable hospital admission remain large in the United States, even with the moderate expansion of Medicaid and efforts at state and local levels to improve primary care services that began in the mid-1980s. These differences in outcome for rich and poor are not an isolated phenomenon of a few old and decaying Northeast urban centers but are documented in a broad range of urban areas. Much smaller differences are found in urban areas in Ontario, where universal coverage may help to reduce barriers to care.

15. Bindman AB; Grumbach K; Osmond D; Komaromy M; Vranizan K; Lurie N; Billings J; Stewart A. Preventable Hospitalizations and Access to Care. *JAMA* 1995;274:305-11

To examine whether the higher hospital admission for chronic medical conditions such as asthma, hypertension, congestive heart failure, chronic obstructive pulmonary disease, and diabetes in low-income communities resulted from community differences in to care, prevalence of the diseases, propensity to seek care, or physician admitting style. DESIGN: Analysis of California hospital discharge data. We calculated the hospitalization rates for these five chronic conditions for the 250 ZIP code clusters that define urban California. We performed a random-digit telephone survey among adults residing in a random sample of 41 of these urban ZIP code clusters stratified by admission rates and a mailed survey of generalist and emergency physicians who practiced in the same 41 areas. SETTING: Community based. PARTICIPANTS: A total of 6674 English- and Spanish-speaking adults aged 18 through 64 years residing in the 41 areas were asked about their access to care, their chronic medical conditions, and their propensity to seek health care. Physician-admitting style was measured by written clinical vignettes among 723 generalist and emergency physicians practicing in the same communities. MAIN OUTCOME MEASURES: We compared respondents' reports of access to medical care in an area with the area's cumulative admission rate for these five chronic conditions. We then tested whether access to medical care remained independently associated with preventable hospitalization rates after controlling for the prevalence of the conditions, health care seeking, and physician practice style. RESULTS: Access to care was inversely associated with the hospitalization rates for the five chronic medical conditions ( $R^2 = 0.50$ ;  $P < .001$ ). In a multivariate analysis that included measure of access, prevalence of conditions, health care seeking, and physician practice style to predict cumulative hospitalization rates for chronic medical conditions, both self-rated access to care ( $P < .002$ ) and the prevalence of the conditions ( $P < .03$ ) remained independent predictors. CONCLUSION: Communities where people perceive poor access to medical care have higher rates of hospitalization for chronic diseases. Improving access to care is more likely than changing patients' propensity to seek health care or eliminating variation in physician practice style to reduce hospitalization rates for chronic conditions.

16. Bindman AB; Grumbach K; Osmond D; Vranizan K; Stewart AL. Primary Care and Receipt of Preventive Services. *J Gen Intern Med* 1996;11:269-76

OBJECTIVE: To examine whether health insurance, a regular place of care, and optimal primary care are independently associated with receiving preventive care services. DESIGN: A cross-sectional telephone survey. SETTING: Population based. PARTICIPANTS: Probability sample of 3846 English-speaking and Spanish-speaking women between the ages of 18 and 64 in urban California. INTERVENTIONS: Women were asked about their demographic characteristics, financial status, health insurance status, need for ongoing care, regular place of care, and receipt of blood pressure screening, clinical breast examinations, mammograms, and Pap smears. Women who reported a regular place of care were asked about four components of primary care: availability, continuity, comprehensiveness, and communication. MEASUREMENTS AND MAIN RESULTS: In multivariate analyses that controlled for differences in demographics, financial status, and need for ongoing care, having a regular place of care was the most important factor associated with receiving preventive care services ( $P < .0001$ ). Having health insurance ( $P < .001$ ) and receiving optimal primary care from the regular place of care ( $P < .01$ ) further significantly increased the likelihood of receiving preventive care services. CONCLUSION: A regular source of care is the single most important factor associated with the receipt of preventive services, but optimal primary care from a regular place increases the likelihood that women will receive preventive care.

17. Bloom B; Simpson G; Cohen RA; Parsons PE. Access to Health Care. Part 2: Working-Age Adults. *Vital and Health Statistics: Series 10. Data from the National Health Survey, CDC/National Center for Health Statistics, July 1997*

**OBJECTIVES:** This report presents data on access to health care for U.S. working-age adults, 18-64 years old. Access indicators are examined by selected sociodemographic characteristics including sex, age, race and/or ethnicity, place of residence, employment status, income, health status, and health insurance status. **METHODS:** Data are from the 1993 Access to Care and 1993 Health Insurance Surveys of the National Health Interview Survey (NHIS), a continuing household survey of the civilian non-institutionalized population of the United States. The sample contained 61,287 persons in 24,071 households. **RESULTS:** In 1993, approximately 3 out of 4 working-age adults had a regular source of medical care. Nine out of 10 adults with health insurance had a regular source of care compared with 6 out of 10 adults without health insurance. For adults with a regular source of care, 86 percent received care in a private doctor's office, 9 percent in a clinic, and 2 percent in a hospital emergency room. The two main reasons given for not having a regular source of care were "do not need a doctor" (49 percent), and "no insurance--can't afford it" (22 percent). Persons in the highest income group were more likely to report no need for a doctor (59 percent) than persons in the lowest income group (35 percent). About 40 percent of uninsured persons and 16 percent of insured persons reported an unmet medical need. **CONCLUSIONS:** Health insurance plays a key role in the access to medical care services. Persons who are uninsured or have low incomes are at the greatest risk of having unmet medical needs.

18. Blumenthal D; Rizzo JA. Who Cares for Uninsured Persons? A Study of Physicians and Their Patients Who Lack Health Insurance. *Med Care* 1991;29:502-20

Physician involvement with uninsured patients is a topic of increasing policy interest. In the past, data limitations have hindered analysis of factors influencing physician contact with uninsured patients. This article attempts to bridge this gap in the health services research literature. Using a nationally representative sample of nonfederal patient care physicians, the study revealed marked variations in physician involvement with uninsured patients by specialty class, employment status, and other practice characteristics. Pediatricians and general practitioners had roughly comparable involvement with uninsured patients, while internists and surgeons were significantly less involved. Self-employed physicians generally participated less in caring for uninsured patients than did employed physicians. While definitive evidence that people without coverage face serious access problems is not provided, such a conclusion is certainly consistent with the results of this study. Indeed, the proportion of the average physician's patients who are uninsured is substantially below current estimates of the proportion of the general population that is uninsured.

19. Braveman P; Oliva G; Miller MG; Reiter R; Egerter S. Adverse Outcomes and Lack of Health Insurance Among Newborns in an Eight-County Area of California, 1982 to 1986. *N Engl J Med* 1989;321:508-13

In this study of hospital discharge data on births to residents of an eight-county region of California, we found an increasing lack of health insurance that was associated with an elevated and increasing risk of adverse outcomes in newborns. Between 1982 and 1986, the percentage of newborns without health insurance increased overall by 45 percent (from 5.5 to 8.0 percent; P less than 0.001); the increases were larger among Asians (by 54 percent [from 7.8 to 12.0 percent]; P less than 0.001) and Latinos (by 140 percent [from 8.2 to 19.7 percent]; P less than 0.001). By 1986, the odds ratio for an adverse hospital outcome (defined as a prolonged hospital stay, transfer of the newborn to another institution, or death) was 1.31 (95 percent confidence interval, 1.17 to 1.46) in uninsured as compared with privately insured newborns, with control

for race or ethnic group. There was a significant increase in risk over time ( $P < 0.03$ ); the comparable odds ratios in 1982 and 1984 were 1.11 (95 percent confidence interval, 0.93 to 1.33) and 1.19 (1.05 to 1.35), respectively. In 1986 the risks were especially elevated for uninsured as compared with privately insured blacks and Latinos (odds ratios, 2.24 [95 percent confidence interval, 1.60 to 3.13] and 1.56 [1.26 to 1.94], respectively); the increases in risk over time were the most marked in these groups. We believe that the elevated and increasing risks for uninsured newborns are explained at least in part by inadequate and diminishing access to care and that this burden is borne disproportionately by blacks and Latinos.

20. Bronstein JM; Capilouto E; Carlo WA; Haywood JL; Goldenberg RL. Access to Neonatal Intensive Care for Low Birthweight Infants: The Role of Maternal Characteristics. *Am J Public Health* 1995;85:357-61

**OBJECTIVES.** This study assessed the impact of mother's race, insurance status, and use of prenatal care on very low birthweight infant delivery in or transfer to hospitals with neonatal intensive care units (ICUs). **METHODS.** Multivariate analysis of Alabama vital statistics records between 1988 and 1990 for infants weighing 500 to 1499 g was conducted, comparing hospital of birth and maternal and infant transfer status, and controlling for infant birthweight and for maternal pregnancy history and demographic characteristics. **RESULTS.** With other factors adjusted for, non-white mothers with early prenatal care were more likely than white mothers to deliver their very low birthweight infants in hospitals with neonatal ICUs without transfer. Among the mothers who presented first at hospitals without such facilities, those who had late prenatal care were less likely than those with early care to be transferred to hospitals with neonatal ICUs before delivery. Medicaid coverage increased the likelihood of antenatal transfer for white women. Likelihood of infant transfer was not associated with these maternal characteristics. **CONCLUSIONS.** Maternal race, prenatal care use, and insurance status may influence the likelihood that very low birth weight infants will have access to neonatal intensive care. Interventions to improve perinatal regionalization should address individual and system barriers to the timely referral of high-risk mothers.

21. Brown ER; Ojeda VD; Lara LM; Valenzuela A. Undocumented Immigrants: Changes in Health Insurance Coverage with Legalized Immigration Status. *UCLA Center for Health Policy Research, Policy Report, June 1999*
22. Brown ER; Wyn R; Ojeda VD. Noncitizen Children's Rising Uninsured Rates Threaten Access to Health Care. *UCLA Center for Health Policy Research, Policy Brief, June 1999*
23. Brown ER; Wyn R; Ojeda VD. Access to Health Insurance and Health Care for Children in Immigrant Families. *UCLA Center for Health Policy Research, Policy Report, June 1999*

24. Brown ME; Bindman AB; Lurie N. Monitoring the Consequences of Uninsurance: A Review of Methodologies. *Med Care Res Rev* 1998;55:177-210

The proportion of the United States population without health insurance continues to grow. How will this affect the health of the nation? Prior research suggests that the uninsured are at risk for poor health outcomes. They use fewer medical services and have higher mortality rates than do insured persons. The episodic nature of uninsurance and its prevalence among disadvantaged groups make it difficult to ascertain the health effects of uninsurance. The goal of this review is to assist researchers and policy makers in choosing methodologies to assess the effects of uninsurance. It provides a compendium of methods that have been used to examine the health consequences of uninsurance, the populations in which these methods have been used, and the strengths and weaknesses of different approaches. The review highlights the need for more longitudinal studies that focus on community-based samples of the uninsured.

25. Broyles RW; McAuley WJ; Baird-Holmes D. The Medically Vulnerable: Their Health Risks, Health Status, and Use of Physician Care. *J Health Care Poor Underserved* 1999;10:186-200

Employing the Andersen/Neuman model of health behavior, this research compares the medically vulnerable (elderly, poor, and uninsured) with their less vulnerable counterparts with regard to (1) health and disability status, (2) likelihood of physician use, and (3) (among users) amount of physician use. Data were from the Oklahoma Behavioral Risk Factor Surveillance Survey and the Area Resource File. Findings indicate that the medically vulnerable are more likely to be disabled and to experience poorer health than the non-medically vulnerable. The uninsured are less likely to have seen a physician in the past year. Among those who have seen a physician in the past year, the uninsured and Medicare recipients without supplemental insurance experienced fewer physician visits. The results point to inequalities in the distribution of physician care that may be exacerbated by federal policies that are currently under consideration.

26. Budetti J; Shikles J; ABT Associates; Duchon L; Schoen C. Can't Afford to Get Sick: A Reality for Millions of Working Americans. *The Commonwealth Fund 1999 National Survey of Workers Health Insurance, September 1999*

27. Burstin HR; Swartz K; O'Neil AC; Orav EJ; Brennan TA. The Effect of Change of Health Insurance on Access to Care. *Inquiry* 1998-99;35:389-97

This study examines how changes in health insurance status affect patients and their care. Results show that, controlling for socioeconomic factors, condition, age, and urgency, patients who lost insurance and patients who changed insurance were more likely to delay seeking care within the four months after visiting an emergency department than people whose health insurance status did not change. Patients who lost coverage were more likely to report no primary care provider and were less likely to have recommended follow-up care within the four-month period. Loss of insurance also was associated with lower likelihood of vaccine use and check-ups in the prior year. The study confirms that a loss or change in health insurance in the prior year has a measurable effect on access to health care. The greatest impact was among patients who lost insurance, though patients who changed health plans also were more likely to delay seeking care than patients whose health insurance status did not change.

28. Campbell JA. Current Population Reports: Health Insurance Coverage 1998. U.S. Department of Commerce, Economics & Statistics Administration. U.S. Census Bureau. October 1999.

29. Carrasquillo O; Himmelstein DU; Woolhandler S; Bor DH. Going Bare: Trends in Health Insurance Coverage, 1989 through 1996. *Am J Public Health* 1999;89:36-42 [erratum appears in *Am J Public Health* 1999;89:256].

**OBJECTIVES:** This study analyzed trends in health insurance coverage in the United States from 1989 through 1996. **METHODS:** Data from annual cross-sectional surveys by the US Census Bureau were analyzed. **RESULTS:** Between 1989 and 1996, the number of uninsured persons increased by 8.3 million (90% confidence interval [CI] = 7.7, 8.9 million). In 1996, 41.7 million (90% CI = 40.9, 42.5 million) lacked insurance. From 1989 to 1993, the proportion with Medicaid increased by 3.6 percentage points (90% CI = 3.1, 4.0), whereas the proportion with private insurance declined by 4.2 percentage points (90% CI = 3.7, 4.7). From 1993 to 1996 private coverage rates stabilized but did not reverse earlier declines. Consequently, the number uninsured continued to increase. The greatest increase in the population of uninsured [corrected] was among young adults aged 18 to 39 years; rates among children also rose steeply after 1992. While blacks had the largest percentage increase, Hispanics accounted for 36.4% (90% CI = 32.3%, 40.5%) of the increase in the number uninsured. From 1989 to 1993, the majority of the increase was among poor families. Since then, middle-income families have incurred the largest increase. Northcentral and Northeastern states had the largest increases in percent uninsured. **CONCLUSIONS:** Despite economic prosperity, the numbers and rates of the uninsured continued to rise. Principally affected were children and young adults, poor and middle income families, blacks, and Hispanics.

30. Carrasquillo O; Himmelstein DU; Woolhandler S; Bor DH. Trends in Health Insurance Coverage, 1989-1997 (In Process). *Int J Health Serv* 1999;29:467-83

The authors analyze trends in health insurance coverage in the United States from 1989 through 1997, using cross-sectional surveys by the U.S. Census Bureau (Current Population Survey) of 160,000 persons representative of the non-institutionalized population. Between 1989 and 1997, the number of people without health insurance increased by 10.1 million to 43.4 million. From 1989 to 1993, the proportion covered by Medicaid increased by 3.6 percentage points, whereas the proportion covered by private insurance declined by 4.2 percentage points. Since then, private coverage rates have stabilized and Medicaid coverage has decreased. Consequently, the number and percent uninsured continues to rise. Young adults age 18-39 had the largest increase in the proportion uninsured, and rates among children have also risen steeply since 1992. While blacks had the largest increase in the percent uninsured, Hispanics accounted for 35.6 percent of the increase in the number uninsured. Low-income families constituted over half of the increase in the number uninsured, but since 1993 the middle income group had the largest increase in the percent uninsured. Northeastern states had the largest increase in the percent uninsured. Thus, despite economic prosperity, the numbers and rates of the uninsured continue to rise. Principally affected are children and young adults, poor and middle- income families, blacks, and Hispanics.

31. Centers for Disease Control. Self-Assessed Health Status and Selected Behavioral Risk Factors Among Persons With and Without Health-Care Coverage - U.S., 1994-1995. *MMWR* 1998;47:176-80

Persons without health-care coverage are more likely to have poor health and be at greater risk for chronic disease outcomes than persons who have health-care coverage. In the United States, the number of persons and the proportion of the population without health-care coverage has increased each year since 1987. State-specific surveillance of health-care coverage can be used to identify subgroups of the population who lack such coverage and may be at increased risk for poor health. To determine state-specific estimates of the prevalence of self-assessed health status and risk factors for chronic disease by health-care coverage status among adults aged 18-64

years, CDC analyzed data from the 1994 and 1995 Behavioral Risk Factor Surveillance System (BRFSS). This report summarizes the results of that analysis and indicates that adults without health-care coverage were more likely than those with health-care coverage to have poor health status, to be current smokers, and to be less physically active.

32. Centers for Disease Control. Health Insurance Coverage and Receipt of Preventive Health Services, U.S., 1993. *MMWR* 1995;44:219-25

In 1992, an estimated 38.5 million U.S. residents aged < 65 years did not have health insurance. Efforts by states to expand health-care coverage will require surveillance for and state-specific information about coverage for acute care and the receipt of preventive services. This report summarizes state-specific and aggregated data from the 1993 Behavioral Risk Factor Surveillance System (BRFSS) regarding the status of health insurance coverage and the receipt of preventive health services among adults aged 18-64 years. In addition, findings from the analysis of supplemental questions added to the BRFSS in Minnesota are included that address health-care utilization, source of health-care coverage, and coverage of children.

33. Centers for Disease Control. Demographic Characteristics of Persons Without a Regular Source of Medical Care - Selected States, 1995. *MMWR* 1998;47:277-9

Having a regular source of medical care (i.e., a regular provider or site) is one of the strongest predictors of access to health-care services, which has been associated with greater use of preventive health services. This report summarizes state-specific data from the 1995 Behavioral Risk Factor Surveillance System (BRFSS) and examines demographic factors associated with not having a regular source of medical care among adults in the 10 states for which this information was available. The findings indicate that certain demographic characteristics are associated with lack of a regular source of medical care.

34. Centers for Disease Control. Dental Service Use and Dental Insurance Coverage - U.S., Behavioral Risk Factor Surveillance System, 1995. *MMWR* 1997;46:1199-1203

In the United States, 94% of adults have evidence of past or current tooth decay, and only one third of adults aged 35-44 years have all of their permanent teeth. Dental insurance is associated with increased use of dental services and improved oral health status. This report summarizes state-specific and aggregated state data on both private and public sources of dental insurance coverage and the use of dental services among adults in 25 states who participated in the oral health module of the 1995 Behavioral Risk Factor Surveillance System (BRFSS). The findings indicate that nearly half (44.3%) of adults in this survey reported having no dental insurance coverage.

35. Centers for Disease Control. State-Specific Prevalence of Lapses in Health-Care-Insurance Coverage - U.S., 1995. *MMWR* 1998;47:73-7

Lack of health-care-insurance coverage has been associated with decreased use of preventive health services, delay in seeking medical care, and poor health status. In 1995, an estimated 30.5 million persons aged 18-64 years in the United States did not have health insurance. To determine state-specific estimates of the prevalence of persons aged 18-64 who reported either short-term (i.e., <12 months) or long-term (i.e., > or = 12 months) lapses in health-care coverage, CDC analyzed data from the 1995 Behavioral Risk Factor Surveillance System (BRFSS). This



report summarizes the results of this analysis and indicates that, among adults who reported having no health insurance in 1995, most were without insurance for 1 year or longer and that long-term lapses were more prevalent among men than women.

36. Centers for Disease Control. Self-Reported Use of Mammography and Insurance Status Among Women Aged Greater Than or Equal to 40 Years - United States, 1991-1992 and 1996-1997. *MMWR* 1998;47:825-30

In the United States, breast cancer is the most commonly diagnosed malignancy among women and the second leading cause of cancer death. Lack of health insurance coverage often is an important financial barrier to seeking preventive health care such as mammography screenings. To assess mammography use and the impact of insurance status on mammography use, state-specific proportions of women aged 40 years or older who reported receiving a mammogram during the preceding 2 years by insurance status were derived using data from the Behavioral Risk Factor Surveillance System (BRFSS) for 1991-92 and 1996-97. This report describes the results of this analysis and indicates that the percentage of women reporting having had a screening mammogram during the previous 2 years increased but that women with insurance were substantially more likely than women without insurance to have had a mammogram.

37. Chiang YP; Javitt J; Metrick S. Health Insurance Coverage and Medical Care Utilization Among Working-Age Americans with Visual Impairment. *Ophthalmic Epidemiol* 1994;1:41-52

As access to and cost of medical care emerge as the fundamental issues in the discussion of reforming the nation's health care system, more attention needs to be devoted to the understanding of how visual impairment and functional disability in general affects an individual's access to health insurance as well as medical care utilization. Based on the 1984 Survey of Income and Program Participation (SIPP), we estimate that only 57.5% of 7.0 million working-age (15-64 years old) visually impaired Americans, compared with 79.0% of those not visually impaired, have private health insurance coverage. Moreover, an estimated 1.5 million visually impaired working-age Americans are not covered by any form of health insurance, public or private. This 20.7% uninsurance rate is significantly higher than the 14.1% reported among those who are not visually impaired ( $P < 0.001$ ). Multivariate logistic regression also supports the inverse association between visual impairment and insurance coverage. On the other hand, multivariate logistic regression suggests a positive association between visual impairment and utilization of outpatient medical services. Although there is a trend toward higher utilization of inpatient services as well among the visually impaired, the finding is not statistically significant. These findings suggest that visual impairment poses a barrier to accessing health insurance, even when controlling for income, education, and employment status. On the other hand, regardless of health insurance status, visually impaired Americans are likely to have utilized more physician services, but not hospital services, than the non-visually impaired.

38. Congressional Budget Office. *Trends in Health Care Spending by the Private Sector*. April 1997.

39. Copeland C. Characteristics of the Nonelderly with Selected Sources of Health Insurance and Lengths of Uninsured Spells. *EBRI Issue Brief* 1998;198:1-26

This Issue Brief examines the characteristics of individuals with selected sources of coverage and combinations of sources of coverage over a 12-month period. In addition, it examines the characteristics of individuals who experience spells without health insurance and the lengths of these spells. It uses the most recent 12-month period from the Survey of Income and Program Participation and builds on previous research on the lengths of spells with and without health insurance. Analysis of individual health insurance coverage from October 1994 to September

1995 showed that approximately 77.6 percent of the non-elderly had health insurance coverage during this entire period. In addition, 22.4 percent of the non-elderly were uninsured for at least one month during this period, and 7.4 percent of the non-elderly were uninsured for the entire period. Of those with health insurance coverage for the entire year, approximately 83 percent were covered by private health insurance, with at least 81 percent of this group receiving the coverage from employment-based sources. Eighty-five percent of the spells without health insurance with an observed beginning and end lasted for 4 months or less, and 99 percent lasted for 8 months or less. When examining the spells with either an observed beginning or end, 55 percent of these spells were found to last for 4 months or less, and 87 percent were found to last for 8 months or less. However, investigation of all spells without health insurance showed that approximately one-half of all spells without health insurance coverage lasted for 8 months or longer. This report found that two-thirds of spells without health insurance last for less than one year, confirming previous research that a majority of these spells are for less than a year. However, this report also confirms the existence of a significant number--approximately one-third of all individuals with a spell of noncoverage--of chronically uninsured individuals. These individuals are the most likely to delay seeking treatment for illnesses and to use the emergency room as their only site of care. Because they are in poverty or near poverty, much of this care is uncompensated. Thus, to the extent that providers can shift these costs onto other payers, all individuals and employers share in these costs through higher health insurance premiums or higher taxes to finance public hospitals and public insurance programs. Recent major health insurance legislation has addressed access to health insurance, and in many cases focused solely on continued access to employment-based coverage, but has done very little to address the affordability of coverage. However, as this report demonstrates, many individuals experiencing spells without health insurance have low incomes. Thus, to obtain coverage, individuals need not only increased access to health insurance but also the ability to afford this health insurance.

40. Davis K; Rowland D; Altman D; Collins KS; Morris C. Health Insurance: The Size and Shape of the Problem. *Inquiry* 1995;32:196-203

Assessment of experiences with health care will continue to be important given the rapid changes in the health care system and retreat from broad national attention on health reform. This paper reports on the findings of the 1993 Kaiser/Commonwealth Survey of Americans and their health insurance. The survey findings highlight the chronic problem of uninsurance as well as concerns among those with insurance, including the worry that benefits will be reduced or become unaffordable. Limited choice of health plans and providers and having to join a managed care plan are further concerns. These findings suggest that many Americans' needs remain unaddressed but will have to be considered as the health care system is restructured.

41. DeCorte P; Gunther J; Harrison-Woodside T; Jewell D; Kaloti F. Health Insurance: Impact on Hospitalization Rates for Asthma. *Nursing Connections* 1995;8:33-42

Recent studies have shown that hospitalization rates for asthma have increased. Data from the 1991 National Health Interview Survey were analyzed to show the relationship between insured and uninsured persons who self-identify as having asthma. Having health insurance was found to decrease the number of hospitalizations associated with asthma, particularly at low and high income levels. A collateral finding demonstrated an inverse relationship between doctor visits and hospitalizations. This suggests that having health insurance will result in patients' seeking physician contact for preventive care; this leads to better control, infrequent hospitalizations, and, ultimately, decreased health care costs.

42. Earnest MP; Norris JM; Eberhardt MS; Sands GH. Report of the American Academy of Neurology Task Force on Access to Health Care: The Effect of No Personal Health Insurance on Health Care for People with Neurologic Disorders. *Neurology* 1996;46:1471-80

Access to medical care is limited for people with no health insurance. In the United States, an estimated 31 to 41 million people under age 65 have no health insurance. Among the uninsured, an estimated 340,000 new cases of neurologic disorders occur annually. The Task Force on Access to Health Care of the Academy analyzed data from four nationwide health surveys to describe the national population of people with neurologic disorders (PWND) by insurance status and to examine access to care, utilization of services, and expenses for health care of PWND. Health insurance status significantly affected access to and utilization of health care services. Compared with insured PWND, the uninsured less often had a usual source of medical care, saw a particular doctor, or visited a neurologist. The uninsured had fewer doctor's office visits and fewer hospital admissions than privately insured PWND. In the doctor's office they got fewer tests, fewer referrals for therapies, but more medications. In the hospital they received more diagnostic and therapeutic procedures overall, but those with cerebrovascular disease received fewer angiograms and endarterectomies. National health care reform may improve access to care for PWND if they are equitably included in the new systems. However, neurologists should assertively advocate for the needs of PWND to have adequate insurance and appropriate access to neurologic consultations, tests, and treatments.

43. Elixhauser A; Johantgen M; Andrews R. Descriptive Statistics by Insurance Status for Most Frequent Hospital Diagnoses and Procedures. *Healthcare Cost and Utilization Project (HCUP-3), Research Note 5, 1997, AHCPR Publication No. 97-0009*
44. Ford ES; Will JC; De Proost Ford MA; Mokdad AH. Health Insurance Status and Cardiovascular Disease Risk Factors Among 50-64 Year-Old U.S. Women: Findings from the Third National Health and Nutrition Examination Survey. *J Womens Health 1998;7:997-1006*

To examine the cardiovascular disease risk factors profile and use of preventive health services for cardiovascular disease among uninsured women aged 50-64 years, we studied data from the National Health and Nutrition Examination Survey III (NHANES III), conducted from 1988 to 1994. Insured women (n = 1308) and uninsured women (n = 303) had similar levels of blood pressure and lipids, but uninsured women were more likely to be current smokers, sedentary, and overweight and to consume less fiber, vitamin C, folate, calcium, and potassium than insured women. Compared with insured women, uninsured women were less likely to have had their blood pressure checked during the previous 6 months, to have had their cholesterol level checked, and to be aware of hypercholesterolemia. Insured women (24.9%) were three times more likely to use estrogen replacement therapy than were uninsured women (7.9%). NHANES III data suggest that women without health insurance have a worse cardiovascular disease risk factor profile and use healthcare services less frequently than women with health insurance.

45. Franks P, Clancy CM, Gold MR, et al. Health Insurance and Subjective Health Status: Data from the 1987 National Medical Expenditure Survey. *Am J Public Health 1993;83:1295-9*

**OBJECTIVES:** The relationship between health insurance and subjective health status was investigated. It was hypothesized that persons without health insurance would have lower levels of subjective health status than those with health insurance and that this relationship would hold for both poor and non-poor persons. **METHODS:** Data from the 1987 National Medical Expenditure Survey were analyzed to examine the relationship between health insurance and self-reported health status. The analysis controlled for sociodemographic and attitudinal variables and medical conditions. **RESULTS:** Persons without health insurance had significantly lower levels of subjective health status than did persons with insurance. This adverse effect persisted after adjustments were made for the effects of age, sex, race, income, attitude toward the value of medical care and health insurance, and medical conditions. The detrimental effect of lacking health insurance on subjective health status was present for persons at all income levels and was greater than the effect on subjective health status found for 2 of the 11 reported medical conditions. **CONCLUSIONS:** Lacking health insurance is associated with clinically significant lower levels of subjective health status in both poor and non-poor persons.

46. Franks P; Clancy CM; Gold MR. Health Insurance and Mortality: Evidence from a National Cohort. *JAMA 1993;270:737-41*

**OBJECTIVE:** To examine the relationship between lacking health insurance and the risk of subsequent mortality. **DESIGN:** Adults older than 25 years who reported they were uninsured or privately insured in the first National Health and Nutrition Examination Survey, a representative cohort of the US population, were followed prospectively from initial interview in 1971 through 1975 until 1987. **PARTICIPANTS:** Complete baseline and follow-up information was obtained on 4694 (91%) persons of the 5161 who reported not receiving publicly funded insurance at baseline. **MAIN OUTCOME MEASURE:** The relationship between insurance status and subsequent mortality was examined using Cox proportional hazards survival analysis. The analysis adjusted for gender, race, baseline age, education, income, employment status, the presence of morbidity on examination, self-rated health, smoking status, leisure exercise, alcohol consumption, and obesity. The effects of interactions between insurance and all other baseline variables were also examined. **RESULTS:** By the end of the follow-up period, 9.6% of the insured and 18.4% of the uninsured had died. After adjustment for all other baseline variables, the hazard ratio for lacking insurance was 1.25 (95% confidence interval [CI], 1.00 to 1.55). The effect of insurance on mortality was comparable to that of education, income, and self-rated health. There were no statistically significant ( $P < .05$ ) interactions. **CONCLUSIONS:** Lacking health insurance is associated with an increased risk of subsequent mortality, an effect evident in all sociodemographic health insurance and mortality groups examined.

47. Freeman HE; Aiken LH; Blendon RJ; Corey CR. Uninsured Working-Age Adults: Characteristics and Consequences. *Health Serv Res* 1990;24:811-23

Although estimates of the country's uninsured vary, ranging from 10 to 18 percent of the general population, virtually every study on use of medical services reports that lack of health insurance represents a major barrier to medical care. Based on the 1986 national Robert Wood Johnson Access Survey of 10,130 non-institutionalized persons, the characteristics of working-age adults without health insurance, and the consequences, are examined. Among working-age adults, the uninsured are most likely to be poor or near-poor, Hispanic, young, unmarried, and unemployed. Compared with the insured, they have significantly fewer ambulatory visits during a year, are less likely to have contact with a medical provider during a 12-month period, and are more likely to receive their care in a hospital outpatient clinic or emergency room. Differences in health status do not account for these findings. Especially among persons with chronic and serious illnesses, the uninsured are less likely than the insured to receive medical care. Further, the uninsured are significantly more likely to report needing but not receiving medical care, primarily for economic reasons, and, although poorer, they have higher out-of-pocket medical expenses than others in the population.

48. Fronstin P. Sources of Health Insurance and Characteristics of the Uninsured: Analysis of the March 1997 Current Population Survey. *EBRI Issue Brief* 1998;204:1-27

This Issue Brief provides summary data on the insured and uninsured populations in the nation and in each state. It discusses the characteristics most closely related to an individual's health insurance status. Based on EBRI analysis of the March 1998 Current Population Survey, it represents 1997 data--the most recent data available. In 1997, private or public health insurance, or both, covered 81.7 percent of Americans (193.1 million) at some point. Seventy-one percent of the non-elderly population had private insurance, 64.2 percent through an employment-based plan. Almost 15 percent of the non-elderly had public health insurance. In 1997, 18.3 percent of the non-elderly population was uninsured compared with 14.8 percent a decade earlier, in 1987. The percentage of uninsured Americans has been increasing since at least 1987. Although the increase in the uninsured between 1987 and 1993 can be attributed to the erosion of employment-based health benefits, the portion of Americans covered by employment-based health insurance increased between 1993 (63.5 percent) and 1997 (64.2 percent). The decline in public sources of health insurance would mostly explain the recent increase in the uninsured population. For example, between 1994 and 1996 the percentage of non-elderly Americans covered by CHAMPUS/CHAMPVA declined from 3.8 percent to 2.9 percent, in large part due to downsizing in the military. Similarly, between 1996 and 1997, the percentage of non-elderly Americans covered by Medicaid (the federal-state insurance program for the poor) declined from 12.1 percent to 11.0 percent as people left welfare for the private sector. This follows a decline in Medicaid participation between 1995 and 1996. Between 1996 and 1997 the percentage of non-elderly Americans without health insurance coverage increased from 17.7 percent to 18.3 percent. Further examination indicates that adults ages 18-64 accounted for almost all of this increase. In 1996, 14.8 percent of children and 18.9 percent of persons ages 18-64 were uninsured compared with 15.0 percent of children and 19.7 percent of

persons ages 18-64 in 1997. The decline in Medicaid coverage among non-working and working adults appears to account for the overall increase in the uninsured. Employment and income play a dominant role in determining an individual's likelihood of having health insurance. In addition, age, gender, firm size, hours of work, and industry are all important determinants of an individual's likelihood of having coverage; however, these variables are also closely linked to employment status and income. Some of the widest variations involve factors that are not always examined in traditional demographic assessments, such as citizenship. However, variations by race, ethnicity, and citizenship are also closely linked to employment status and income.

49. GAO. Health Insurance Coverage Leads to Increased Health Care Access for Children. *U.S. General Accounting Office, GAO/HHS-98-14, 1997*
50. Ginsburg PB; Pickreign JD. Tracking Health Care Costs: An Update. *Health Affairs, July/August 1997, p 154*
51. Green M (Ed.). Bright Futures: Guideline for Health Supervision of Infants, Children, and Adolescents. Arlington, VA: National Center for Education in Maternal and Child Health. 1994
52. Haas JS; Goldman L. Acutely injured patients with trauma in Massachusetts: differences in care and mortality, by insurance status. *Am J Public Health 1994;84:1605-8*

**OBJECTIVES:** This study was designed to determine whether resource use and mortality differed by insurance status for patients with acute trauma. **METHODS:** All adults emergently hospitalized in Massachusetts during 1990 with acute trauma (n = 15,008) were examined. **RESULTS:** After adjustment for confounders, uninsured patients were as likely to receive care in an intensive care unit as were patients with private insurance (odds ratio [OR] = 0.97, 95% confidence interval [CI] = 0.85, 1.11) but were less likely to undergo an operative procedure (OR = 0.68, 95% CI = 0.63, 0.74) or physical therapy (OR = 0.61, 95% CI = 0.57, 0.67) and were more likely to die in a hospital (OR = 2.15, 95% CI = 1.44, 3.19). Compared with patients with private insurance, those with Medicaid were less likely to receive an operative procedure (0.85, 0.75-0.97), were equally likely to receive care in an intensive care unit (OR = 1.05, 95% CI = 0.86, 1.30) or physical therapy (OR = 0.90, 95% CI = 0.79, 1.02), and were no more likely to die (OR = 1.28, 95% CI = 0.69, 2.39). **CONCLUSIONS:** These results suggest that the uninsured receive less trauma-related care and have a higher mortality rate. The excess mortality in uninsured patients may be avoided if their resource use is increased to that of insured patients.

53. Hadley J; Steinberg EP; Feder J. Comparison of Uninsured and Privately Insured Hospital Patients. Conditions on Admission, Resource Use, and Outcome. *JAMA* 1991;265:374-9

To investigate the association between insurance status and condition on admission, resource use, and in-hospital mortality, we analyzed discharge abstracts for 592,598 patients hospitalized in 1987 in a national sample of hospitals. In 13 of 16 age-sex-race-specific cohorts, the uninsured had a 44% to 124% higher risk of in-hospital mortality at the time of admission than did the privately insured. After controlling for this difference, the actual in-hospital death rate was 1.2 to 3.2 times higher among uninsured patients in 11 of 16 cohorts. The uninsured also were 29% to 75% less likely to undergo each of five high-cost or high-discretion procedures and 50% less likely to have normal results on tissue pathology reports for biopsies performed during five of seven different endoscopic procedures. Our results suggest that insurance status is associated with a broad spectrum of aspects of hospital care.

54. Hafner-Eaton, C. Patterns of Hospital and Physician Utilization Among the Uninsured. *J Health Care PoorUnderserved* 1994;5:297-315

Despite numerous studies of access to care by the uninsured, few researchers have examined whether access to hospitals among the uninsured differs from access to physicians. This study employs a correlational, two-group design (n = 102,055) to analyze cross-sectional data from the 1989 National Health Interview Survey. Multiple logistic regression was used to compare the likelihood of hospitalization for the uninsured and insured in chronically ill, acutely ill, and well nonelderly subpopulations. When compared with data from a previous study on physician visits, disparities in hospitalization among the three subgroups differed in both magnitude and relative order from disparities in physician visits. The disparities between the insured and uninsured clustered at 38 percent for hospitalization and 20 percent for physician visits. Overall, being uninsured resulted in a larger difference for hospital utilization than for physician utilization. These findings suggest that the uninsured face even greater access barriers for hospitalization than they do for physician care.

55. Hafner-Eaton, C. Physician Utilization Disparities Between the Uninsured and Insured: Comparisons of the Chronically Ill, Acutely Ill, and Well Non-Elderly Populations. *JAMA* 1993;269:787-92

**BACKGROUND:** This study examines the associations between lack of health insurance coverage and physician utilization for the chronically ill, acutely ill, and well non-elderly populations in the United States. **METHODS:** Cross-sectional data from the 1989 National Health Interview Survey, conducted by the National Center for Health Statistics, were analyzed for the non-elderly population using a correlational, two-group design (n = 102,055). Analytic models, using multiple logistic regression, were tested to predict the odds and likelihood of physician utilization for the uninsured and insured in the three subpopulations (i.e., chronically ill, acutely ill, and well), controlling for health status, number of conditions, and geographic, sociodemographic, and economic factors. Disparities in utilization were then calculated between the uninsured and insured for each

subpopulation. **RESULTS:** The non-elderly uninsured were consistently less likely than the insured to have received any health care within 12 months. Moreover, there were differential effects of being uninsured on utilization depending on whether an individual was chronically ill, acutely ill, or well. Whereas chronically ill and well uninsured persons were half as likely to have seen a physician as their insured counterparts (odds ratio, 0.50), acutely ill uninsured persons were almost two thirds as likely to receive physician care (odds ratio, 0.62). Thus, the disparity in physician utilization between the uninsured and insured was larger for the chronically ill and well than for the acutely ill; uninsured acutely ill were less likely to go without care. Of the three populations, those in the well population had average disparities with the largest magnitude (40%), compared with disparities of the chronically ill (20%) and acutely ill (10%). **CONCLUSIONS:** These disparities represent large inequities in utilization of care by the uninsured, particularly for the chronically ill and well. Whether these disparities result from lower access or individual choice cannot be determined from this study. When viewed in light of other studies examining the impact of utilization on health status, these results provide support for the development of comprehensive health insurance packages with universal coverage and better inclusion of chronic and preventive care models in benefit packages.

56. Hahn B; Flood AB. No Insurance, Public Insurance, and Private Insurance: Do These Options Contribute to Differences in General Health? *J Health Care Poor Underserved* 1995;6:41-59

This paper examines the validity of two of the basic assumptions made about health care insurance and health, namely that having any insurance is associated with better health and, in particular, that having public, welfare-based insurance has better health consequences for the poor than does having no insurance. These questions were addressed using data from the National Medical Expenditure Survey, a national household-based survey in 1987 of more than 36,000 people who were asked to report in detail about their medical care use and expenditures, health insurance coverage, and health and functional status. The results of the analysis indicate that those without insurance have poorer general health than persons with private insurance, and that the health of persons who qualify for public insurance is the poorest of any group---poorer even than those without insurance.

57. Harris MI; Cowie CC; Eastman R. Health-Insurance Coverage for Adults with Diabetes in the U.S. Population. *Diabetes Care* 1994;17:585-91

OBJECTIVE: To compare the extent and types of health insurance coverage for adults with diabetes to coverage for those without diabetes in the U.S. population. DESIGN AND METHODS: Nationally representative samples of 2405 adults with diabetes and 20,131 adults who were not known to have diabetes in the U.S. completed a questionnaire on current health insurance, including coverage through Medicare, private insurance, the military, and Medicaid and other public programs. RESULTS: Among all adults with diabetes, 92.0% have some form of health insurance, including 86.5% of those 18-64 years of age and 98.8% of those 65 years of age or older. Approximately 41% are covered by more than one health insurance mechanism, but almost 600,000 people with diabetes do not have any form of health-care coverage. Little difference was found by type of diabetes in the proportion who have health insurance. Only small differences exist between people with diabetes and those without diabetes in the percentages covered and the types of health-care coverage. Government-funded programs are responsible for health-care coverage of 57.4% of adults with diabetes, including 26.4% of those 18-64 years of age and 96.0% of those 65 years of age or older. Private health insurance is held by 69.3% of people with diabetes. Lack of private insurance appears to be attributable primarily to lower income. CONCLUSIONS: Almost all patients with diabetes who are 65 years of age or older have health-care coverage, but 13.5% of those 18-64 years of age have no health insurance. Few differences exist in coverage between individuals with and without diabetes. However, the absence of insurance should have a substantially greater impact on the ability of patients with diabetes to obtain services necessary for care of their disease compared with those without diabetes. Government-funded insurance mechanisms cover a large proportion of diabetic patients, which indicates a significant societal burden associated with diabetes. Any changes in government reimbursement and coverage policies could have a major impact on health care for patients with diabetes.

58. Health Care Quality Commission. Quality First: Better Health Care for All Americans. Final Report of the President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry. March 1998.

59. Himmelstein DU; Woolhandler S. Care Denied: U.S. Residents Who Are Unable to Obtain Needed Medical Services. *Am J Public Health* 1995; 85:341-4

OBJECTIVES: This study analyzed data on U.S. residents reporting that they were unable to obtain needed care. Inadequately immunized children and women inadequately screened for breast or cervical cancer were also examined. METHODS: Data from the 1987 National Medical Expenditure Survey were analyzed. RESULTS: A total of 6,375,000 (90% confidence interval [CI] = 6,039,000, 6,711,000) people could not get hospitalization, prescription medications, medical equipment/supplies, or emergency, pediatric, mental health, or home care. Although the uninsured were more likely to forego care unavailable, three quarters of those unable to obtain services were insured, and 46% (90% CI = 42.4%, 49.6%) had private coverage. Of those reporting the reason why they failed to obtain care, 65.1% (90% CI = 61.7%, 68.6%) listed high costs or lack of insurance, including 60.7% (90% CI = 57.1%, 64.3%) of the privately insured. More than a third of women had not had a breast examination in the previous 2 years, a fifth had not had a Pap smear within the previous 4 years, and half had never had a mammogram (ages 50-69 only). Of children 2 to 5 years old,

35.1% (90% CI = 31.5%, 35.7%) were inadequately immunized. Medicaid recipients had measures of access to care similar to those of the uninsured. CONCLUSIONS: Many U.S. residents--most of whom have insurance--are unable to obtain needed care, usually because of high costs.

60. Hoffman C. Uninsured in America: A Chart Book. *Kaiser Commission on Medicaid and Uninsured; June 1998*
61. Hogan AJ; Mickus M. Health Insurance and Access to Care in Michigan's Changing Health Care System. *MSU State of the State Survey, June 1998, Briefing Paper 98-38*
62. Institute of Medicine, Committee on Monitoring Access to Personal Health Care Services. *Access to Health Care in America*. Michael Millman (Ed.). National Academy of Sciences. Washington, DC: National Academy Press, 1993.
63. Jones DS; McNagny SE; Williams MV; Parker RM; Sawyer MF; Rask KJ. Lack of a Regular Source of Care Among Children Using a Public Hospital Emergency Department. *Pediatr Emerg Care 1999;15:13-6*

OBJECTIVES: This study examined risk factors for not having a regular source of care among children presenting to an urban public hospital for non-appointment care. Lack of a regular source of care is associated with decreased use of appropriate health care services and preventive care among children. METHODS: A cross-sectional survey was conducted for all children less than 16 years of age attending an emergency department at an urban public hospital over a consecutive 7-day period. Univariate and multivariate logistic regression analyses were conducted. RESULTS: In 791 interviews available for analysis, 52% of preschool children and 66% of school-aged children did not have a regular source of care. Children without a regular source of care were more likely to present for non-urgent conditions ( $P < 0.0005$ ). In multivariate analysis, older age of the child (OR = 1.6, 95% CI = 1.13-2.25), lack of insurance (OR = 1.47, 95% CI = 1.03-2.11), and lack of personal vehicle (OR = 1.44, 95% CI = 1.05-1.97) were associated with not having a regular source of care. CONCLUSIONS: The majority of children using an urban emergency department were without a regular source of care. In this population, no single factor identified children without a regular source of care, but increased age and lack of insurance were associated with it. Addressing this situation will require a multifaceted approach that includes, but is not limited to, decreasing financial barriers.

64. Kerr EA; Siu AL. Follow-up After Hospital Discharge: Does Insurance Make a Difference? *J Health Care Poor Underserved 1993;4:133-42*

As the length of hospital stays decreases, important medical problems are often deferred for follow-up after discharge. We investigated whether patients without regular physicians actually receive post-discharge care. Patients without regular physicians at the time of admission to a private nonprofit teaching hospital were surveyed by telephone one month after discharge. Forty-six percent were non-Caucasian and 53 percent had Medicaid or no insurance. Although discharge planning was documented for 97 percent of patients, only 54 percent of study participants had completed follow-up one month later and only 46 percent could identify a regular physician. Among all patients with a particular need for follow-up, Medicaid and uninsured patients were less likely to receive follow-up ( $P = 0.042$ ), to identify a regular physician ( $P = 0.007$ ), or to complete discharge instructions ( $P = 0.018$ ). Cost of medical care was found to be a significant deterrent to obtaining follow-up for patients with Medicaid or with no insurance ( $P = 0.001$ ). Expanded access to care, along with focused discharge planning, may improve completion of follow-up for Medicaid and uninsured patients.

65. Klein JD; Wilson KM; McNulty M; Kappahn C; Collins KS. Access to Medical Care for Adolescents: Results from the 1997 Commonwealth Fund Survey of the Health of Adolescent Girls. *J Adolesc Health 1999;25:120-30*

PURPOSE: This study examined the factors associated with access to care among adolescents, including gender, insurance coverage, and having a regular source of health care. METHODS: Analyses were done on the 1997 Commonwealth Fund Survey of the Health of Adolescent Girls, a nationally representative sample of in-school adolescents in 5th through 12th grade. Access to health care, missing needed care, and whether



the adolescent had private time with his/her provider were assessed. Cochran-Mantel-Haenszel chi-square statistics were computed using SUDAAN. RESULTS: Nearly a third of the 6,748 adolescents surveyed had missed needed care. The most common reason for missing care was not wanting a parent to know (35%). Girls were more likely than boys to miss care (29% vs. 24%). Most adolescents reported using a source of primary health care (92%); girls were more likely than boys to use a physician's office rather than another site (65% vs. 60%). Eleven percent of adolescents reported having no health insurance. Uninsured adolescents were more likely to have missed needed care (40% vs. 23%). CONCLUSIONS: Certain groups of adolescents have less access to health care. Girls have more emotional barriers, such as not wanting parents to know about care, and embarrassment. Adolescents without health insurance are at high risk for missing care because of financial strain. States, insurers, and advocates can influence policies around confidentiality and insurance coverage to address these issues.

66. Kogan MD; Alexander GR; Teitelbaum MA; Jack BW; Kotelchuck M; Pappas G. The Effect of Gaps in Health Insurance on Continuity of a Regular Source of Care Among Preschool-aged Children in the United States. *JAMA* 1995;274:1429-35

OBJECTIVE: To estimate the prevalence and length of gaps in health insurance coverage and their effect on having a regular source of care in a national sample of preschool-aged children. DESIGN: Follow-up survey of a nationally representative sample of 3-year-old children in the U.S. population by phone or personal interview. PARTICIPANTS: A total of 8129 children whose mothers were interviewed for the 1991 longitudinal follow-up to the National Maternal and Infant Health Survey. MAIN OUTCOME MEASURES: Report of any gap in health insurance for the children, the length of the gap, and the number of different sites where the children were taken for medical care as a measure of continuity of a regular source of care. RESULTS: About one quarter of U.S. children were without health insurance for at least 1 month during their first 3 years of life. Over half of these children had a health insurance gap of more than 6 months. Less than half of US children had only one site of care during their first 3 years. Children with health insurance gaps of longer than 6 months were at increased risk of having more than one care site (odds ratio = 1.52; 95% confidence interval = 1.19-1.96). This risk further increased when an emergency treatment was discounted as a multiple site of care. CONCLUSIONS: Having a gap in health insurance coverage is an important determinant for not having a regular source of care for preschool-aged children. This finding is of concern given the sizable percentage of children in the United States who lacked continuous health care coverage during a critical period of development.

67. Kubrin AI. The Role of Health Insurance in the Use of Health Services Among the Non-Elderly. *J Health Soc Policy* 1994;6:73-90

Ronald Andersen's behavioral model was used to develop and test predictive expectations about the role of health insurance in the use of hospital and physician services. Health insurance should be more predictive of the use of physician than hospital services and should not be predictive of the use of health care for those in poorer health who are in greater need of care. As expected, health insurance status was a predictor of physician use and not of hospital use. However, contrary to expectation, health insurance was also a predictor of hospital and physician use for those in poorer health. The results underscore the national debate concerning the uninsured and their access to health care, particularly for those in poorer health.

68. Kupfer DJ; Baltimore RS; Berry DA; Breslau N; Ellinwood EH; Ferre J; Ferriero DM; et al. Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder. *NIH Consensus Development Conference Statement, November 16-18, 1998*

Attention deficit hyperactivity disorder (ADHD) is a commonly diagnosed behavioral disorder of childhood that represents a costly major public health problem. Children with ADHD have pronounced impairments and can experience long-term adverse effects on academic performance, vocational success, and socioemotional development, which have a profound impact on individuals, families, schools, and society. The lack of insurance coverage preventing the appropriate diagnosis and treatment of ADHD and the lack of integration with educational services are substantial barriers and represent considerable long-term costs for society.

69. Lave JR; Keane CR; Lin CJ; Ricci EM; Amersbach G; La Vallee CP. The Impact of Lack of Health Insurance on Children. *J Health Soc Policy* 1998;10:57-73

This paper examines the impact that the lack of health insurance has on children and their families. A random sample of families of children who were newly enrolled in a children's health insurance program were interviewed by telephone and asked about the children's health status, the amount of unmet need and delayed care for a number of services, consequences of unmet need and delayed care, usual activities, and the effects of the lack of health insurance. Data were analyzed by using both quantitative and qualitative methods. We found that uninsured children had experienced considerable unmet need and delayed care that increased as the time without insurance increased. The parents reported some adverse consequences. Finally, the parents reported considerable stress and worry associated with their children's lack of coverage. We conclude that being without health insurance has broad consequences for America's children.

70. Lave JR; Keane CR; Lin CJ; Ricci EM; Amersbach G; LaVallee CP. Impact of a Children's Health Insurance Program on Newly Enrolled Children. *JAMA* 1998;279:1820-25

CONTEXT: Although there is considerable interest in decreasing the number of U.S. children who do not have health insurance, there is little information on the effect that health insurance has on children and their families. OBJECTIVE: To determine the impact of children's health insurance programs on access to health care and on other aspects of the lives of the children and their families. DESIGN: A before-after design with a control group. The families of newly enrolled children were interviewed by telephone using an identical survey instrument at baseline, at 6 months, and at 12 months after enrollment into the program. A second group of families of newly enrolled children were interviewed 12 months after the initial interviews to form a comparison sample. SETTING: The 29 counties of western Pennsylvania, an area with a population of 4.1 million people. SUBJECTS: A total of 887 families of newly enrolled children were randomly selected to be interviewed; 88.3% agreed to participate. Of these, 659 (84%) responded to all 3 interviews. The study population consists of 1031 newly enrolled children. The children were further classified into those who were continuously enrolled in the programs. The 330 comparison families had 460 newly enrolled children. MAIN OUTCOME MEASURES: The following access measures were examined: whether the child had a usual source of medical or dental care; the number of physician visits, emergency department visits, and dentist visits; and whether the child had experienced unmet need, delayed care, or both for 6 types of care. Other indicators were restrictions on the child's usual activities and the impact of being insured or uninsured on the families. RESULTS: Access to health

care services after enrollment in the program improved: at 12 months after enrollment, 99% of the children had a regular source of medical care, and 85% had a regular dentist, up from 89% and 60%, respectively, at baseline. The proportion of children reporting any unmet need or delayed care in the past 6 months decreased from 57% at baseline to 16% at 12 months. The proportion of children seeing a physician increased from 59% to 64%, while the proportion visiting an emergency department decreased from 22% to 17%. Since the comparison children were similar to the newly enrolled children at enrollment into the insurance programs, these findings can be attributed to the program. Restrictions on childhood activities because of lack of health insurance were eliminated. Parents reported that having health insurance reduced the amount of family stress, enabled children to get the care they needed, and eased family burdens. CONCLUSIONS: Extending health insurance to uninsured children had a major positive impact on children and their families. In western Pennsylvania, health insurance did not lead to excessive utilization but to more appropriate utilization.

71. Liebman J; Kotranski L; Loeb JG; Eckels T; Arnold J; Needleman J. Pennsylvania's Medically Uninsured Population: Findings from a Statewide Survey. *J Health Soc Policy* 1991;3:71-89

Pennsylvania is currently considering legislative options to expand coverage and improve access to medical care for state residents who lack health insurance. Relevant data are presented from a telephone survey of 10,809 Pennsylvania households. Almost nine percent (8.5%) of the state's population lacks health insurance, representing over one million people. Those most likely to be uninsured are children and young adults, non-whites, and the poor. A substantial number of poor people are not covered by the state's Medicaid program. The uninsured report poorer health status, more obstacles to receiving care, and greater use of hospital services for primary care.

72. Lieu TA; Newacheck PW; McManus MA. Race, Ethnicity, and Access to Ambulatory Care Among U.S. Adolescents. *Am J Public Health* 1993;83:960-5

OBJECTIVES: Improving the health of minority adolescents will require a better understanding of factors that influence their access to and use of health care. This study describes the differences in health care access and use among white, black, and Hispanic adolescents and evaluates how such differences are influenced by insurance. METHODS: We used data on 7465 10- to 17-year-olds included in the child health supplement to the 1988 National Health Interview Survey. RESULTS: Much higher proportions of blacks (16%) and Hispanics (28%) than of whites (11%) were uninsured. Despite having worse reported health status, black and Hispanic adolescents made notably fewer doctor visits in the past year than their white peers and were more apt to lack usual sources of routine and acute care as well as continuity between sources of care. Having health insurance was associated with greater increase in access and usage measures for minority youth than for white youth. However, racial differences persisted even after adjusting for health insurance, family income, need, and other factors. CONCLUSIONS: Minority adolescents are particularly vulnerable to the problems of health care access that affect all youth. While health insurance is especially important for increasing appropriate health care use among minority youth, nonfinancial methods of enabling more equitable use also deserve further study.

73. Long SH; Marquis MS. The Uninsured "Access Gap" and the Cost of Universal Coverage. *Health Aff (Millwood)* 1994;13:211-20

This study estimates the effect of universal coverage on the use and cost of health services by the uninsured. Adults lacking insurance for a full year have about 60 percent as many ambulatory contacts and about 70 percent of the inpatient hospital days they would have if they were covered by insurance. This "access gap" is only slightly smaller for children. Providing universal coverage would increase ambulatory contacts and inpatient days by less than 4 percent a year. The dollar cost of these new services is estimated to be \$19.9 billion--a 2 percent increase in health spending.

74. Long SH; Marquis MS. Geographic Variation in Physician Visits for Uninsured Children: The Role of the Safety Net. *JAMA* 1999;281:2035-40

CONTEXT: Although extensive literature exists comparing national access to health care for uninsured and insured children, few data exist regarding differences in access across states. OBJECTIVE: To examine variation in access to physician services for uninsured children in 10 states, the safety net's role in explaining this variation, and the potential effects of the State Children's Health Insurance Program (CHIP) on insurance coverage and access. DESIGN AND SETTING: The population-based Robert Wood Johnson Foundation Family Health Insurance Survey, conducted between summer 1993 and spring 1994 in 10 states (Colorado, Florida, Minnesota, New Mexico, New York, North Dakota, Oklahoma, Oregon, Vermont, and Washington), with a response rate of families by state ranging from 61% to 83%. PARTICIPANTS: A total of 8565 children who were uninsured (1586), covered by Medicaid (2723), or covered by employer-sponsored private insurance (4256) for one full year prior to the survey. MAIN OUTCOME MEASURES: Percentage of low-income children who are uninsured and predicted annual physician visits by state if insurance was provided to uninsured children in families with incomes of less than 200% of poverty level. RESULTS: In the 10 study states, low-income children ranged from 61% to 86% of all uninsured children and the uninsured rate for low-income children varied from 9% to 31%. On average, providing public coverage would increase annual physician visits from 2.3 to 4.6 (a 105% increase), but the increase would range from 41% to 189% across states. The annual physician visit rate in the 3 states with the highest access for the uninsured was 160% of that in the 3 lowest-access states. Safety net capacity in the high-access states ranged from 120% to 220% of that in the low-access states. CONCLUSIONS: Our data suggest that the potential effects of CHIP vary substantially across states. Notably, improvements in access to health care by uninsured low-income children should be greater in states with the fewest safety nets.

75. Lurie N; Ward NB; Shapiro MF, et. al. Special Report: Termination of Medi-Cal Benefits. A Follow-Up Study One Year Later. *N Engl J Med* 1986;314:1266-8

76. Makuc D; Fried V; Parsons PE. Health Insurance and Cancer Screening Among Women. *Advance Data, Number 254, August 3, 1994; Vital and Health Statistics of the CDC and Prevention, National Center for Health Statistics*

77. Martin BC; Perri M 3d; Kotzan JA. Health Care Triage Alternatives and the Influence of Health Insurance, Education, and Race. *Patient Educ Couns 1996;28:287-96*

The relationship between one of Andersen's enabling factors, health insurance status, and the choice of a pharmacist as the initial contact in the health care system was examined via telephone surveys. Eighty-seven percent of the sample reported having some form of health insurance. Of all intended health care provider contacts, pharmacists were selected as the initial contact 21% of the time. Logistic regression identified insurance status, education, and race as significant ( $\alpha < 0.05$ ) covariates in the model. The odds ratios generated from the model indicated that non-whites, persons with less education, and persons with no health insurance were more likely to select a pharmacist for triage. The study concluded that uninsured persons were nearly twice as likely to seek pharmacist triage than insured individuals. Pharmacists may be filling an important triage gap for individuals who have limited financial access to traditional sources of physician care.

78. Moy E; Bartman BA; Weir MR. Access to Hypertensive Care: Effects of Income, Insurance, and Source of Care. *Arch Intern Med 1995;155:1497-502*

BACKGROUND: This study examines the relationship between income, health insurance, and usual-source-of-care characteristics and the screening and management of hypertension. METHODS: This is a secondary analysis of data from the 1987 National Medical Expenditure Survey. Adult survey respondents constitute a sample representative of the total adult non-institutionalized U.S. population. Screening, follow-up care, and pharmacologic treatment for hypertension were examined among low-income individuals, the uninsured, those without a usual-source-of-care place, and those without a particular usual-source-of-care physician. RESULTS: The uninsured, those without a usual-source-of-care place, and those without a particular usual-source-of-care physician received less screening, follow-up care, and pharmacologic treatment for hypertension. Income did not affect receipt of hypertensive care. CONCLUSIONS: Lack of health insurance and lack of a usual source of care are barriers to hypertensive care. Policies that increase access to health insurance or to usual-source-of-care physicians may enable more individuals to attain control of hypertension.

79. Mueller KJ; Patil K; Boilesen E. The Role of Uninsurance and Race in Healthcare Utilization by Rural Minorities. *Health Serv Res 1998;33:597-610*

OBJECTIVE: To examine the independent effects of minority status, residence, insurance status, and income on physician utilization, controlling for general health status and the presence of acute or chronic health problems. Of special interest was the question of utilization differences among rural minority populations compared with urban non-Latino whites. DATA SOURCE: Data from the 1992 National Health Interview Survey (NHIS). STUDY DESIGN: Multivariate analyses used multiple logistic regression methods to detect independent effects of residence and minority status on whether or not individuals used physician services. DATA COLLECTION/EXTRACTION METHODS: Data were obtained from the National Health Interview Survey, 1992. The survey included information about the race/ethnicity of the respondent, health status, utilization of services, insurance status, and socioeconomic status. PRINCIPAL FINDINGS: The most salient determinant of utilization of healthcare services is insurance status, regardless of race/ethnicity or (rural or urban) place of residence. Racial and ethnic minorities were less likely than whites to use physician services, and use was generally lower for rural residents. The most striking differences were for rural Latinos and rural Asians/other persons. CONCLUSIONS: Although the results demonstrate a need to adjust policies designed to improve utilization by accounting for particular problems faced by minority populations, they also demonstrate the primacy of addressing financial access.

80. National Center for Health Statistics. National Hospital Ambulatory Medical Care Survey: 1992 Emergency Data Summary. *Advance Data from Vital and Health Statistics of the National Center for Health Statistics.*

Rockville, MD: U.S. Department of Health, Education and Welfare, Public Health Services, Health Resources Administration, 1994. DHHS Publication No. 94-1250.

81. National Institute on Disability and Rehabilitation Research. Rehab Brief: Chronic Back Pain. National Institute on Disability and Rehabilitation Research Office of Special Education and Rehabilitative Services, Department of Education, 1993; 15(7).
82. Nelson DE; Thompson BL; Bland SD; Rubinson R. Trends in Perceived Cost as a Barrier to Medical Care, 1991-1996. *Am J Public Health* 1999;89:1410-3.

OBJECTIVES: This study examined trends in perceived cost as a barrier to medical care. METHODS: The Behavioral Risk Factor Surveillance System was used to analyze monthly telephone survey data from 45 states. RESULTS: Overall, the percentage of persons perceiving cost as a barrier to medical care increased from 1991 until early 1993 and then declined to baseline values in late 1996. Perceived cost was a greater barrier in 1996 than in 1991 for persons with low incomes and for those who were unemployed and uninsured. For self-employed persons, percentages increased until mid-1993 and then remained constant. CONCLUSIONS: Further efforts are needed to improve access to medical care for socially disadvantaged populations.

83. Newacheck PW. Poverty and Childhood Chronic Illness. *Arch Pediatr Adolesc Med* 1994;148:1143-9

OBJECTIVE: To present national estimates of the prevalence and impact of chronic conditions for children from poor and nonpoor families by using data from the 1988 National Health Interview Survey. METHODS: Proxy responses to a checklist of child health conditions administered for 17,110 children younger than 18 years were used. Conditions were classified as chronic if they were first noticed more than 3 months before the interview or if they were the type that would ordinarily be of extended duration, such as arthritis. RESULTS: While nonpoor families were more likely than poor families to report chronic conditions for their children, children from poor families exhibited a higher risk of experiencing severe chronic conditions. Children with chronic conditions from poor families also experienced substantial barriers to care; they were 118% more likely to be uninsured than were children from nonpoor families and 42% more likely to lack a usual source of care. Children with chronic conditions from poor families were found to use fewer ambulatory care services but more inpatient hospital care than their nonpoor counterparts. CONCLUSION: Children from poor families experience chronic health problems that are inadequately addressed by our existing health care system.

84. Newacheck PW; Brindis C; Cart CU; Marchi K; Irwin CE. Adolescent Health Insurance Coverage: Recent Changes and Access to Care. *Pediatrics* 1999;104:195-202

OBJECTIVE: To assess the health insurance status of adolescents, the trends in adolescent health care coverage, the demographic and socioeconomic correlates of insurance coverage, and the role that insurance coverage plays in influencing access to and use of health care. Together, the results provide a current and comprehensive profile of adolescent health insurance coverage. METHODS: We analyzed data on 14,252 adolescents, aged 10 to 18 years, included in the 1995 National Health Interview Survey. The survey obtained information on insurance coverage and several measures of access and utilization, including usual source of care, site of the usual source of care, indications of missed or delayed care, and use of ambulatory physician services by adolescents. We conducted multivariate analyses to assess the independent association of age, sex, race, poverty status, family structure, family size, region of residence, metropolitan resident status, and health status on the likelihood of insurance coverage. We conducted bivariate and multivariate analyses to ascertain how insurance coverage was related to each of the access and utilization measures obtained in the survey. We also examined trends in health insurance coverage using the 1984, 1989, and 1995 editions of the National Health Interview Survey. RESULTS: An estimated 14.1% of adolescents were uninsured in 1995. Risk of being uninsured was higher for older adolescents, minorities, adolescents in low-income families, and adolescents in single parent households. Compared with their insured counterparts, uninsured adolescents were five times as likely to lack a usual source of care, four times as likely to have unmet health needs, and twice as likely to go without a physician contact during the course of a year. Between 1984 and 1995 the percentage of adolescents with some form of health insurance coverage

remained essentially unchanged. During this period, the prevalence of private health insurance decreased, while the prevalence of public health insurance increased. CONCLUSIONS: This study demonstrates the critical importance of health insurance as a determinant of access to and use of health services among adolescents. It also shows that little progress has been made during the past 15 years in reducing the size of the uninsured adolescent population. The new State Children's Health Insurance Program could lead to substantial improvements in access to care for adolescents, but only if states implement effective outreach and enrollment strategies for uninsured adolescents.

85. Newacheck PW; Hughes DC; Cisternas M. Children and Health Insurance: An Overview of Recent Trends. *Health Aff (Millwood) 1995;14:244-54*

This DataWatch examines trends in health insurance coverage of children using recent data from the Current Population Survey. The results indicate that the number and proportion of children who were uninsured changed little between 1988 and 1992. However, substantial changes occurred in the composition of the insured population: The proportion of children covered by employer-based private insurance declined from 60.7 percent in 1988 to 56.2 percent in 1992, while the proportion of children covered by Medicaid increased from 15.6 percent to 21.6 percent over the same period. These results indicate that a fundamental shift is occurring in responsibility for insuring the nation's children--from the private sector to the public sector.

86. Newacheck PW; Hughes DC; Stoddard JJ. Children's Access to Primary Care: Differences by Race, Income, and Insurance Status. *Pediatrics 1996;97:26-32*

OBJECTIVE: Congressional initiatives to reduce spending under major public programs designed to improve access to health care have brought renewed attention to the health care needs of traditionally disadvantaged populations. The objective of this study was to assess access to and use of primary care services for poor, minority, and uninsured children in the United States. DESIGN AND SETTING: We analyzed data on 7578 1- to 17-year-old children of families responding to the 1987 National Medical Expenditure Survey, a nationally representative sample of families and children. OUTCOME MEASURES: Adult respondents were asked to report on several measures of access and use of care for children in the household. These included the presence of a usual source of care and its characteristics (type of site, travel time, waiting time, after-hours care, and availability of a regular physician). We also examined the volume of physician contacts relative to the sample child's health status, the receipt of measles vaccinations, and whether children received care in response to selected symptoms of ill health. Results are presented for children generally and for four subgroups: poor children; minority children; uninsured children; and white, non-poor, insured children (the reference group). RESULTS: Poor, minority, and uninsured children fared consistently worse than the children in the reference group on all indicators studied. For example, children in each of the three at-risk groups were twice as likely as the children in the reference group to lack usual sources of care, nearly twice as likely to wait 60 minutes or more at their sites of care, and used only about half as many physician services after adjusting for health status. Multivariate analyses revealed that poverty, minority status, and absence of insurance exert independent effects on access to and use of primary care. CONCLUSIONS: The existence of substantial barriers to the access to and use of primary care for low-income, minority, and uninsured children is cause for significant concern, especially in an era of program cutbacks. New initiatives are needed to address both financial and nonfinancial barriers to the receipt of primary care for disenfranchised children.

87. Newacheck PW; Stoddard JJ; Hughes DC; Pearl M. Health Insurance and Access to Primary Care for Children. *N Engl J Med 1998;338:513-9*

BACKGROUND: Numerous studies have demonstrated that insurance status influences the amount of ambulatory care received by children, but few have assessed the role of insurance as a determinant of children's access to primary care. We studied the effect of health insurance on children's access to primary care. METHODS: We analyzed a sample of 49,367 children under 18 years of age from the 1993-94 National Health Interview Survey, a nationwide household survey. The overall rate of response was 86.5 percent. The survey included questions on insurance coverage and access to primary care. RESULTS: An estimated 13 percent of U.S. children did not have health insurance in 1993-94. Uninsured children were less likely than insured children to have a usual source of care (75.9 percent vs. 96.2 percent,  $P < 0.001$ ). Among those with

a usual source of care, uninsured children were more likely than insured children to have no regular physician (24.3 percent vs. 13.8 percent,  $P < 0.001$ ), to be without access to medical care after normal business hours (11.8 percent vs. 7.1 percent,  $P < 0.001$ ), and to have families that were dissatisfied with at least one aspect of their care (19.6 percent vs. 14.0 percent,  $P = 0.01$ ). Uninsured children were more likely than insured children to have gone without needed medical, dental, or other health care (22.2 percent vs. 6.1 percent,  $P < 0.001$ ). Uninsured children were also less likely than insured children to have had contact with a physician during the previous year (67.4 percent vs. 83.8 percent,  $P < 0.001$ ). All differences remained significant after we controlled for potential confounders using linear and logistic regression. CONCLUSIONS: Among children, having health insurance is strongly associated with access to primary care. The new children's health insurance program enacted as part of the Balanced Budget Act of 1997 may substantially improve access to and use of primary care by children.

88. Nickel JT; Salsberry PJ; Polivka BJ; Kuthy RA; Loebs SF; Slack C; Shapiro N. Preventive Health Counseling Reported by Uninsured Women with Limited Access to Care. *J Health Care Poor Underserved* 1998;9:293-308.

Low-income women in the childbearing years are at an increasing risk of becoming uninsured as welfare reforms are enacted and women enter minimum-wage jobs without insurance benefits. This study contrasts preventive counseling reported by low-income uninsured mothers and mothers insured through Medicaid. Low-income women attending Women, Infant, and Children (WIC) clinics and human services offices who had received health care during the previous 12 months ( $n = 406$ ) were asked if they had received counseling from a health provider regarding any of seven types of preventive health behaviors. Uninsured women were less than half as likely to receive counseling on three or more preventive topics ( $OR = 0.42$ ) as were mothers on Medicaid. Risk estimates were stable on bivariate analyses and logistic regression models. Findings indicate that opportunities for preventive health counseling need to be maximized for this group already experiencing compromised access to care.

89. Oberg CN; Lia-Hoagberg B; Hodkinson E; Skovholt C; Vanman R. Prenatal Care Comparisons Among Privately Insured, Uninsured, and Medicaid-Enrolled Women. *Public Health Rep* 1990;105:533-5

Women without health insurance and those covered by Medicaid have been shown to obtain prenatal care later in pregnancy and make fewer visits for care than do women with private insurance. Factors that keep women from obtaining care include inadequate maternity care resources, difficulty in securing financial coverage, and the psychosocial issues of pregnancy. This study identified and compared prenatal care use patterns, insurance coverage changes, and psychosocial factors among 149 women in Minneapolis, MN, with private health insurance, Medicaid, and no health insurance. Little information has been available on the insurance status of women at the start of pregnancy and the paths subsequently taken to obtain financial coverage for prenatal care.

90. Oberg CN; Lia-Hoagberg B; Skovholt C; Hodkinson E; Vanman R. Prenatal Care Use and Health Insurance Status. *J Health Care Poor Underserved* 1991;2:270-92

Many observers explain the prevalence of inadequate prenatal care in the United States by citing demographic or psychosocial factors. But few have evaluated the barriers faced by women with different health insurance status and socioeconomic backgrounds. In this study of 149 women at six hospitals in Minneapolis, insurance status was significantly related to the source of prenatal care ( $P < .0001$ ). Private physicians cared for 52 percent of privately insured, 23 percent of Medicaid-insured, and 2 percent of uninsured women. Public clinics were the primary source of care for Medicaid and uninsured women, who, compared to privately insured women, experienced longer waiting times ( $P < .001$ ) during prenatal visits and were more likely ( $P < .01$ ) to lack continuity of care with a provider. Multiple measures, including expanding Medicaid eligibility, may help correct these problems.

91. O'Malley AS; Mandelblatt J; Gold K; Cagney KA; Kerner J. Continuity of Care and the Use of Breast and Cervical Cancer Screening Services in a Multiethnic Community. *Arch Intern Med* 1997;157:1462-70

OBJECTIVE: To examine how continuity of care affects the use of breast and cervical cancer screening in a multiethnic population. METHODS: All data came from a structured telephone survey of a population-based quota sample designed to determine the cancer prevention needs of multiethnic blacks and Hispanics in New York in 1992. The study included 1420 women of 7 racial/ethnic groups: U.S.-born blacks, English-speaking Caribbean-born blacks, Haitian blacks, and Puerto Rican, Dominican, Colombian, and Ecuadorian Hispanics. The main outcome measures were ever and recently having had a Papanicolaou smear, clinical breast examination (CBE), or mammogram. RESULTS: Among respondents who qualified for the survey on the basis of age and ethnicity, the refusal rate for completing the interview was 2.1%. Compared with women without a usual site of care, those with a usual site, but no regular clinician, were 1.56, 2.45 ( $P < \text{or} = .01$ ), and 2.32 ( $P < \text{or} = .05$ ) times as likely ever to have received a Papanicolaou smear, CBE, or mammogram, respectively and 1.84, 1.92 ( $P < \text{or} = .05$ ), and 1.75 times as likely to have received a recent Papanicolaou smear, CBE, or mammogram, respectively. Compared with women without a usual site of care, women with a regular clinician at that usual site of care were 2.63 ( $P < \text{or} = .01$ ), 2.83 ( $P < \text{or} = .01$ ), and 2.30 ( $P < \text{or} = .05$ ) times as likely ever to have received a Papanicolaou smear, CBE, or mammogram, and were 2.00 ( $P < \text{or} = .05$ ), 2.65 ( $P < \text{or} = .01$ ), and 1.40 times as likely to have recently received a Papanicolaou smear, CBE, or mammogram, respectively (adjusted odds ratios). For uninsured women, presence of a usual site of care was associated with increases in recent use of cancer screening for all screening tests. CONCLUSIONS: There is a linear trend in increasing breast and cervical cancer screening rates when one goes from having no usual source of care, to having a usual source, and to having a regular clinician at that usual source. Emphasis on continuity of care, especially on usual source of care, may help to bridge the gap in access to cancer prevention services faced by minority women.

92. O'Toole SJ; Karamanoukian HL; Allen JE; Caty MG; O'Toole D; Azizkhan RG; Glick PL. Insurance-Related Differences in the Presentation of Pediatric Appendicitis. *J Pediatr Surg* 1996;31:1032-4

In the pediatric population, there is strong evidence to suggest that a delay in treatment results in an increased risk of appendiceal perforation. However, it is not clear whether this delay arises from the parent seeking medical advice, the referring physician seeking surgical consultation, or the surgeon deciding to operate. To resolve this issue, the authors performed a retrospective chart review of all cases of confirmed acute appendicitis that presented to the pediatric surgical service of the Children's Hospital of Buffalo during a 4-year period (January 1990 through December 1993). All children (16 years of age or younger) were categorized with respect to type of insurance coverage: Medicaid (or uninsured), health maintenance organization (HMO), or private fee-for-service. Times until their emergency room (ER) presentation, operating room (OR) presentation, and hospital discharge were recorded and compared. Their complications and perforation rates also were noted. Two hundred eighty-eight cases were reviewed. The rate of appendiceal perforation was significantly higher among the Medicaid patients (Medicaid, 44%; HMO, 27%; private, 23%;  $P < .05$ ); their duration of symptoms before presentation was significantly longer (Medicaid, 47.3 +/- 4.1 hours; HMO, 29.3 +/- 1.9 hours; private, 23.1 +/- 2.5 hours;  $P < .01$ ), and their hospital stay was longer (Medicaid, 7.9 +/- 0.9 days; HMO, 4.8 +/- 0.27 days; private, 4.6 +/- 0.44 days;  $P < .01$ ). However, there were no significant differences in the time from presentation to the ER until definitive surgery in the OR. Children covered by Medicaid (or uninsured) presented later, had a higher risk of appendiceal perforation, and required a longer hospital stay. The parents of these children either failed to recognize the significance of their children's symptoms or delayed seeking medical advice because of financial or logistical reasons. The gatekeeper consultation required by the HMOs did not result in a delay in presentation or have a negative impact on morbidity. Providing easier access to a primary care physician and improving parental health education/awareness may shorten the time until presentation for the uninsured/Medicaid patient.



93. Overpeck MD; Kotch JB. The Effect of U.S. Children's Access to Care on Medical Attention for Injuries. *Am J Public Health* 1995;85:402-4

This analysis examined the effect of access to care on nonfatal medically attended injury rates for U.S. children in 1988. Rates of medically attended injury were about the same for children with health insurance and Medicaid, after adjustment for other characteristics. However, lack of medical care coverage (health insurance or Medicaid) had the effect of decreasing the rates of both total and serious medically attended injury compared with the rates for children with coverage. For children without coverage, as many as 30% of total injuries and 40% of serious injuries may not have been attended in 1988.

94. Pappas G; Hadden WC; Kozak LJ; Fisher GF. Potentially Avoidable Hospitalizations: Inequalities in Rates Between U.S. Socioeconomic Groups. *Am J Public Health* 1997;87:811-6

**OBJECTIVES:** The National Hospital Discharge Survey (NHDS) was used to evaluate potentially avoidable hospital conditions as an indicator of equity and efficiency in the U.S. health care system. **METHODS:** With the use of 1990 data from the NHDS, the National Health Interview Survey, and the census, national rates of hospitalization were calculated for avoidable conditions by age, race, median income of zip code, and insurance status. **RESULTS:** An estimated 3.1 million hospitalizations were for potentially avoidable conditions. This was 12% of all hospitalizations in 1990 (excluding psychiatric admissions, women with deliveries, and newborns). Rates of potentially avoidable hospitalizations were higher for persons living in middle- and low-income areas than for persons living in high-income areas and were higher among blacks than among whites. These class and racial differences were also found among the privately insured. Differences among income and racial groups for persons aged 65 and over were not significant. **CONCLUSIONS:** Inequalities in potentially avoidable hospitalizations suggest inequity and inefficiency in the health care delivery system. Avoidable hospital conditions are a useful national indicator to monitor access to care.

95. Powell-Griner E; Bolen J; Bland S. Health Care Coverage and Use of Preventive Services Among the Near Elderly in the U.S. *Am J Public Health* 1999;89:882-6

**OBJECTIVES:** It has been proposed that individuals aged 55 to 64 years be allowed to buy into Medicare. This group is more likely than younger adults to have marginal health status, to be separating from the workforce, to face high premiums, and to risk financial hardship from major medical illness. The present study examined prevalence of health insurance coverage by demographic characteristics and examined how lack of insurance may affect use of preventive health services. **METHODS:** Data were obtained from the Behavioral Risk Factor Surveillance System, an ongoing telephone survey of adults conducted by the 50 states and the District of Columbia. **RESULTS:** Many near-elderly adults least likely to have health care coverage were black or Hispanic, had less than a high school education and incomes less than \$15,000 per year, and were unemployed or self-employed. Health insurance coverage was associated with increased use of clinical preventive services even when sex, race/ethnicity, marital status, and educational level were controlled. **CONCLUSIONS:** Many near-elderly individuals without insurance will probably not be able to participate in a Medicare buy-in unless it is subsidized in some way.

96. Rabinowitz J; Bromet EJ; Lavelle J; Severance KJ; Zariello SL; Rosen B. Relationship between Type of Insurance and Care during the Early Course of Psychosis. *Am J Psychiatry* 1998;155:1392-97

**OBJECTIVE:** Little is known about the relationship between insurance and care in the early course of psychosis. This study explored the insurance status of first-admission psychotic patients and the relationship between type of insurance and care received up to this admission. **METHOD:** Data are from the Suffolk County Mental Health Project, an epidemiologic study of first-admission psychosis. Data on insurance status (n = 525) were pooled from hospital records, respondents, and significant others. Logistic regression analysis, controlling for key background variables and diagnosis, was used to study the relationship between insurance and care. **RESULTS:** At first admission, 233 (44%) of the patients had no insurance, 78 (15%) had Medicaid or Medicare, 203 (39%) had private insurance, eight (1.5%) were insured by the Veterans Administration, and the insurance status of three (1.5%) was unknown. Having private insurance increased

the likelihood of having received previous mental health treatment (psychotherapy specifically), being admitted voluntarily, being hospitalized in a community hospital rather than a public hospital, and being hospitalized within 3 months of onset of psychosis. Having Medicaid/Medicare increased the likelihood of receiving non-antipsychotic medication before this hospitalization, admission to a community hospital rather than a public hospital, having received previous mental health treatment in general, and voluntary admission. CONCLUSIONS: During the early course of psychotic illness, many people lack any type of health insurance, and this is associated with a decreased likelihood of obtaining care before their first hospital admission.

97. Roetzheim RG; Pal N; Tennant C; Voti L; Ayanian JZ; Schwabe A; Krischer JP. Effects of Health Insurance and Race on Early Cancer Detection. *J Natl Cancer Inst* 1999;91:1409-15

BACKGROUND: The presence and type of health insurance may be an important determinant of cancer stage at diagnosis. To determine whether previously observed racial differences in stage of cancer at diagnosis may be explained partly by differences in insurance coverage, we studied all patients with incident cases of melanoma or colorectal, breast, or prostate cancer in Florida in 1994 for whom the stage at diagnosis and insurance status were known. METHODS: The effects of insurance and race on the odds of a late stage (regional or distant) diagnosis were examined by adjusting for an individual's age, sex, marital status, education, income, and comorbidity. All P values are two-sided. RESULTS: Data from 28,237 patients were analyzed. Persons who were uninsured were more likely diagnosed at a late stage (colorectal cancer odds ratio [OR] = 1.67, P = .004; melanoma OR = 2.59, P = .004; breast cancer OR = 1.43, P = .001; prostate cancer OR = 1.47, P = .02) than were persons with commercial indemnity insurance. Patients insured by Medicaid were more likely diagnosed at a late stage of breast cancer (OR = 1.87, P < .001) and melanoma (OR = 4.69, P < .001). Non-Hispanic African American patients were more likely diagnosed with late stage breast and prostate cancers than were non-Hispanic whites. Hispanic patients were more likely to be diagnosed with late stage breast cancer but less likely to be diagnosed with late stage prostate cancer. CONCLUSIONS: Persons lacking health insurance and persons insured by Medicaid are more likely diagnosed with late stage cancer at diverse sites, and efforts to improve access to cancer-screening services are warranted for these groups. Racial differences in stage at diagnosis are not explained by insurance coverage or socioeconomic status.

98. Scanlon W. Health Insurance: Coverage Leads to Increased Health Care Access for Children. *GAO/HEHS-98-14, November 1998*

99. Schoen C; Puleo E. Low-Income Working Families at Risk: Uninsured and Underserved. *J Urban Health:Bull N Y Acad Med* 1998;75:30-49

100. Shea S; Misra D; Ehrlich MH; Field L; Francis CK. Correlates of Nonadherence to Hypertension Treatment in an Inner-City Minority Population. *Am J Public Health* 1992;82:1607-12

OBJECTIVE: Adherence to treatment is a key factor in achieving blood pressure control among hypertensives. We examined correlates of nonadherence to hypertension treatment in an inner-city minority population. METHODS: Subjects (n = 202) were interviewed as part of a case-control study of severe, uncontrolled hypertension conducted in two New York City hospitals in 1989-91. All subjects were African American or Hispanic. Self-reported nonadherence to drug treatment for hypertension was measured using a five-item scale, and the sample was dichotomized as more (n = 87) or less (n = 115) adherent. Multiple logistic regression analysis was used to adjust for demographic and other covariates. RESULTS: Nonadherence was associated with having blood pressure checked in an emergency room (adjusted odds ratio [OR] = 7.9; 95% confidence interval [CI] = 1.75, 35.77; P < .01), lack of a primary care physician (adjusted OR = 2.9; 95% CI = 1.37, 6.02; P < .01), current smoking (adjusted OR = 2.4; 95% CI = 1.10, 5.22; P = .03), and younger age (adjusted OR = 1.03; 95% CI = 1.00, 1.06; P = .03). CONCLUSIONS: Changing the locus of care for hypertension from emergency rooms to primary care physicians may improve adherence to hypertension treatment in minority populations.

101. Shulman NB. Economic Issues Relating to Access to Medications. *Cardiovasc Clin* 1991;21:75-82

Millions of uninsured, low-income workers (a disproportionate number of them black) are financially unable to obtain prescription drugs for treatment of conditions such as hypertension. As a result, funds spent to diagnose their underlying illnesses may be wasted, and these workers are likely to suffer complications that require much more costly care. The tendency for income levels to be inversely correlated with blood pressure means that those least able to pay for antihypertensive medication are those most susceptible to complications. Since current programs are inadequate to help most of these patients, there is a need for a joint initiative by the federal government and the pharmaceutical industry to fund programs to make medications easily accessible for the medically indigent population.

102. Simpson G; Bloom B; Cohen RA; Parsons PE. Access to Health Care. Part 1: Children. *Vital Health Stat* 1997;196:1-46

**OBJECTIVES:** This report presents national estimates of access to medical care and unmet health care needs for children through 17 years of age by selected sociodemographic variables including sex, age, race and/or ethnicity, family income, family structure, place of residence, and health status. In addition, the impact of children's health insurance status on access to care is described. **METHODS:** Data from the 1993 Access to Care and Health Insurance questionnaires of the National Health Interview Survey (NHIS) were analyzed to examine access indicators. The NHIS is a continuing household survey of the civilian non-institutionalized population of the United States. The sample included 16,907 children from infants through 17 years of age from 24,071 households. **RESULTS:** In 1993, over 7.3 million U.S. children had at least one unmet health care need or had medical care delayed because of worry about the cost of care. These health care needs included medical care, dental care, prescription medicine, glasses, and mental health care. In addition, almost 4.2 million children lacked a regular source of health care. Factors related to access indicators included health insurance, family income, race and/or ethnicity, family structure, and place of residence. The lack of health insurance or inability to afford care was the main reason given by respondents for children lacking a regular source of medical care. **CONCLUSIONS:** In the United States, millions of children do not receive needed health care services. Uninsured children and those in families with low income are at the greatest risk of having unmet health needs.

103. Sorlie PD; Johnson NJ; Backlund E; Bradham DD. Mortality in the Uninsured Compared with that in Persons with Public and Private Health Insurance. *Arch Intern Med* 1994;154:2409-16

**OBJECTIVE:** To compare mortality in persons with employer-provided health insurance, Medicare, Medicaid, military health benefits, other private health insurance, and no health insurance, before and after adjustment for income and employment status. **DESIGN:** Cohort study using national survey data containing information on social, economic, and demographic factors and health insurance, with deaths identified through matching to the National Death Index resulting in a mortality follow-up period of 5 years. **SETTING:** Non-institutionalized population of the United States. **PARTICIPANTS:** Approximately 150,000 respondents to national surveys conducted by the Bureau of the Census (Current Population Surveys), aged 25 to 64 years. **RESULTS:** After adjustment for age and income, persons with Medicare and Medicaid had the highest mortality in comparison with those with employer-provided insurance, with relative risks generally greater than 2. With adjustment for age and income, persons without insurance had higher mortality than those with employer-provided insurance, with relative risks of 1.2 for white men and 1.5 for white women. These relationships held after adjustment for employment status, with the working uninsured showing mortality between 1.2 and 1.3 times higher than that of the working insured. Mortality was higher in those with lower incomes after adjustment for insurance status. Those with annual income of \$10,000 or less per year had mortality about two times that of persons with incomes greater than \$25,000 per year. **CONCLUSION:** Mortality was lowest in employed persons with employer-provided health insurance. The higher mortality in those with public insurance or with no insurance reflects an indeterminate mix of selection on existing health status and access to medical care.

104. Sox CM; Burstin HR; Edwards RA; O'Neil AC; Brennan TA. Hospital Admissions Through the Emergency Department: Does Insurance Status Matter? *Am J Med* 1998;105:506-12

PURPOSE: To assess the effect of insurance status on the probability of admission and subsequent health status of patients presenting to emergency departments. SUBJECTS AND METHODS: We performed a prospective cohort study of patients with common medical problems at five urban, academic hospital emergency departments in Boston and Cambridge, Massachusetts. The outcome measure for the study was admission to the

hospital from the emergency department and functional health status at baseline and follow-up. RESULTS: During a 1-month period, 2,562 patients younger than 65 years of age presented with either abdominal pain (52%), chest pain (19%), or shortness of breath (29%). Of the 1,368 patients eligible for questionnaire, 1,162 (85%) completed baseline questionnaires, and, of these, 964 (83%) completed telephone follow-up interviews 10 days later. Fifteen percent of patients were uninsured and 34% were admitted to the hospital from the emergency department. Uninsured patients were significantly less likely than insured patients to be admitted, both when adjusting for urgency, chief complaint, age, gender, and hospital (odds ratio = 0.5; 95% confidence interval = 0.3 to 0.7), and when additionally adjusting for comorbid conditions, lack of a regular physician, income, employment status, education, and race (odds ratio = 0.4; 95% confidence interval = 0.2 to 0.8). However, there were no differences in adjusted functional health status between admitted and nonadmitted patients by insurance status, either at baseline or at 10-day follow-up. CONCLUSIONS: Uninsured patients with one of three common chief complaints appear to be less frequently admitted to the hospital than are insured patients, although health status does not appear to be affected. Whether these results reflect underutilization among uninsured patients or overutilization among insured patients remains to be determined.

105. Spivak W; Sockolow R; Rigas A. The Relationship Between Insurance Class and Severity of Presentation of Inflammatory Bowel Disease in Children. *Am J Gastroenterol* 1995;90:982-7

OBJECTIVE: To determine whether there is an association between insurance class and the severity of presentation of inflammatory bowel disease in children. METHODS: Twenty underinsured (either no insurance or Medicaid) children were computer-matched with 20 children with private insurance with regard to diagnosis and age but without regard to severity of disease from a pool of 63 patients (20 underinsured patients and 43 insured patients). We compared four patient-reported parameters and eight laboratory values. RESULTS: There were 22 patients with Crohn's disease (11 underinsured and 11 insured) and 18 patients with ulcerative colitis (9 underinsured and 9 insured), with a mean age at diagnosis of 13.7 +/- 4.2 yr in the underinsured and 13.4 +/- 3.8 yr in the privately insured patients. Patients in the underinsured category had more than 2.5 times the weight loss of the privately insured patients (20.0 +/- 13.9 vs. 7.8 +/- 8.6, P < 0.005) and longer delay in months (10.3 +/- 10.9 vs. 2.7 +/- 2.6, P < 0.005) before the diagnosis was made. Laboratory data in the underinsured children indicated that they were more ill at time of presentation than the insured patients. The underinsured patients had significantly lower hemoglobins (10.5 +/- 2.4 vs. 12.5 +/- 2.1, P < 0.01), a higher erythrocyte sedimentation rate (59 +/- 35 vs. 21 +/- 24, P < 0.005), and higher platelet counts (536 +/- 205 x 10<sup>3</sup> vs. 418 +/- 140 x 10<sup>3</sup>, P < 0.05) compared to the insured group. Alkaline phosphatase levels, normally elevated in children during osseous growth, were significantly depressed in the underinsured group when compared with the insured group (117 +/- 42 vs. 155 +/- 71, P = 0.05). CONCLUSION: Underinsured children have clinical and laboratory parameters that indicate that their disease is more severe at presentation than privately insured patients. We postulate that this is partly related to the fact that underinsured patients have inferior access to quality healthcare when compared with privately insured patients.

106. Starr P. *The Social Transformation of American Medicine*. New York: Basic Books; 1982.

107. Steiner CB. Access to Cancer Prevention, Detection, and Treatment. *Cancer* 1991;67(6 Suppl):1736-40

The American Cancer Society Hearings on Cancer and the Poor made visible to the nation the harsh realities and consequences of lack of access to health care among the poor and uninsured in America. Access to care is more than mere availability; it is also financial accessibility, effectiveness, acceptability, appropriateness,

and comprehensiveness of care. The problems and consequences of lack of health care access and its impact on the cancer problem among poor Americans are explored, and ways practitioners and public advocates can improve access are suggested. Local communities have risen to action to make health care more accessible. Those initiating successful programs have done their research to document access problems; then they have taken their findings to county governments to request additional funding and to health care institutions to request institutional policy and service changes to make health care more available and accessible.

108. Stoddard JJ; St. Peter RF; Newacheck PW. Health Insurance Status and Ambulatory Care for Children. *N Engl J Med* 1994;330:1421-25

**BACKGROUND:** Many children in the United States lack health insurance. We tested the hypothesis that these children are less likely than children with insurance to visit a physician when they have specific conditions for which care is considered to be indicated. **METHODS:** We examined the association between whether children were covered by health insurance and whether they received medical attention from a physician for pharyngitis, acute earache, recurrent ear infections, or asthma. Data were obtained on the subsample of 7578 children and adolescents 1 through 17 years of age who were included in the 1987 National Medical Expenditures Survey, a national probability sample of the civilian, non-institutionalized population. **RESULTS:** Uninsured children were more likely than children with health insurance to receive no care from a physician for all four conditions (unadjusted odds ratios, 2.38 for pharyngitis; 2.04 for acute earache; 2.84 for recurrent ear infections; and 1.87 for asthma). Multiple logistic-regression analysis was subsequently used to control for age, sex, family size, race or ethnic group, region of the country, place of residence (rural vs. urban), and household income. After adjustment for these factors, uninsured children remained significantly more likely than insured children to go without a visit to a physician for pharyngitis (adjusted odds ratio, 1.72; 95 percent confidence interval, 1.11 to 2.68), acute earache (1.85; 95 percent confidence interval, 1.15 to 2.99), recurrent ear infections (2.12; 95 percent confidence interval, 1.28 to 3.51), and asthma (1.72; 95 percent confidence interval, 1.05 to 2.83). **CONCLUSIONS:** As compared with children with health insurance, children who lack health insurance are less likely to receive medical care from a physician when it seems reasonably indicated and are therefore at risk for substantial avoidable morbidity.

109. Thamer M; Richard C; Casebeer AW; Ray NF. Health Insurance Coverage Among Foreign-Born U.S. Residents: The Impact of Race, Ethnicity, and Length of Residency. *Am J Public Health* 1997;87:96-102

**OBJECTIVES:** This study examined the health insurance status of the U.S. foreign-born population and the influence of race, ethnicity, and length of residence on health insurance status. **METHODS:** Data were obtained from the 1989 and 1990 National Health Interview Surveys, including the Insurance and Family Resource Supplements. **RESULTS:** In 1989 and 1990, the foreign-born population was twice as likely as the U.S.-born population to be uninsured (26.2% vs. 13.0%). The highest rate of uninsured status, 40.8%, was found among foreign-born Hispanics. Persons who had lived in the United States for less than 15 years were 1.5 to 4.7 times more likely to be uninsured than were U.S.-born whites. **CONCLUSIONS:** Foreign-born US residents, especially Hispanics and persons residing in the United States for less than 15 years, are vulnerable to not having health insurance, which may limit their access to medical services. The administrative criteria for public programs may explain the high rates of uninsured status among recent immigrants. Recently enacted federal legislation could substantially increase the number of uninsured among the U.S. foreign-born population, with profound public health implications.

110. Thamer M; Rinehart C. Public and Private Health Insurance of U.S. Foreign-Born Residents: Implications of the 1996 Welfare Reform Law. *Ethn Health* 1998;3:19-29

**OBJECTIVE:** U.S. policy towards immigrants is undergoing considerable change, often in the absence of objective data. In this paper, the insurance status of the U.S. foreign-born population is presented overall and disaggregated by race, ethnicity, and length of residency in the United States. **DESIGN:** Data from the National Health Interview Surveys, a cross-sectional household survey representing the non-institutionalized U.S. population, were used to identify respondents as foreign- or native-born and to determine the type of health insurance coverage. The surveys also collected race and ethnicity information from all respondents based on self-reports, and, for the foreign-born population, the length of residency in the United States.

RESULTS: Compared with native-born residents, foreign-born residents are twice as likely to be uninsured (26.3% versus 13.0%), less likely to have private insurance (62.3% vs. 78.8%) and Medicare (88.6% vs. 96.2%) and somewhat more likely to have Medicaid (6.5% vs. 4.1%). A separate analysis of Hispanic and Asian foreign-born residents was conducted. Length of residency in the United States, race, and ethnicity significantly affect the type and extent of health insurance coverage among the foreign-born population. CONCLUSION: Recent legislative initiatives restricting immigrants' access to public services could lead to adverse public health consequences including further exacerbation of the high rates of uninsuredness found in this study.

111. U.S. Department of Health and Human Services. *Health, United States, 1998, Socioeconomic Status and Health Chartbook, U.S. DHHS, 1998 (DHHS Publication No. PHS 98-1232-1)*
112. U.S. General Accounting Office. *Employment-Based Health Insurance: Costs Increase and Family Coverage Decreases*. GAO/HEHS-97-35, February 1997, pp 9-21
113. U.S. General Accounting Office. *Private Health Insurance: Continued Erosion of Coverage Linked to Cost Pressures*. GAO/HEHS-97-122, July 1997, p 4
114. Waldman HB. More Children Are Unable To Get Dental Care Than Any Other Single Health Service. *ASDC J Dent Child* 1998;65:204-8

Data from the National Health Interview Survey provide information on the access and unmet need for health care services for children through 17 years of age by selected sociodemographic variables and the availability of health insurance. Dental care unmet needs are the single most frequently reported health need. Recent legislation that increases health insurance for children improves the possible availability for care, but there are problems.

115. Waters TM; Chang RW; Worsdall E; Ramsey-Goldman R. Ethnicity and Access to Care in Systemic Lupus Erythematosus. *Arthritis Care Res* 1996;9:492-500

OBJECTIVE: To define access to care and to examine the relationship between ethnicity and access to care in systemic lupus erythematosus (SLE). METHODS: A review of published literature was supplemented with preliminary data from a pilot study. Data from patient interviews, chart reviews, and insurer surveys were collected at two sites and used to develop several measures of access. The relationship between ethnicity and access was examined through chi-square analyses, difference of means testing, and multivariate regression. RESULTS: Although African-American SLE patients appear less likely to be privately insured and more likely to be uninsured, no significant differences in utilization rates were detected between ethnic groups. Uninsured patients, however, had significantly fewer physician visits than both the Medicaid and the privately insured patients. Multivariate regression confirm a strong and negative relationship between physician visits and patient coinsurance rates. CONCLUSION: Careful examination of multiple dimensions of access may highlight differences between ethnic groups. Further research is necessary to document these differences and explore their relationships to outcomes.

116. Weinick RM; Weigers ME; Cohen JW. Children's Health Insurance, Access to Care, and Health Status: New Findings. *Health Aff (Millwood)* 1998;17:127-36

Despite various policy initiatives, a substantial number of children in the United States remain uninsured, have problems with access to health care, or are in fair or poor health. These difficulties are not evenly distributed across the population. Hispanic children, those whose parents have little education, and those who live in families without an employed parent are at disproportionately high risk of encountering these problems. Although multivariate analyses would be required to disentangle the complex relationships among these factors, these descriptive data reveal the segments of the population to which new health-related programs, such as CHIP-funded state plans, might most productively be directed. Issues concerning children's health are likely to remain on the national policy agenda for some time. Because MEPS is a continuing data collection effort, it will enable researchers and policymakers to follow trends in these issues over time. For example, MEPS data will support evaluations at the national level to determine whether

children who lack health insurance or a usual source of care will actually face fewer barriers after CHIP-funded programs are implemented. This paper provides a baseline against which to evaluate the impact of CHIP and other policy changes on the health and well-being of America's children.

117. Weis D. Uninsured Maternity Clients: A Concern for Quality. *Appl Nurs Res* 1992;5:74-82

Differences among demographic characteristics, health status indicators, and resource use of maternity clients privately insured, insured through public entitlement funds, or uninsured were examined in a public hospital. The uninsured were in their early twenties, black (44%), single (52%), lived in the central city area, were employed in service occupations without health care benefits, and either sought prenatal care later in the pregnancy or not at all. Compared with the privately insured, the uninsured had more lifestyle risks. The uninsured women had a shorter hospital stay with more maternal complications. Insurance coverage and prenatal care were positive predictors of birthweight and lifestyle risk factors detracted. Length of stay was not influenced by insurance coverage but rather by health problems before delivery. Earlier discharge of the uninsured patients suggest the need for quality of care monitoring and outreach programs.

118. Weiss KB; Wagener DK. Changing Patterns of Asthma Mortality: Identifying Target Populations at High Risk. *JAMA* 1990;264:1683-7

Studies have suggested increases in hospitalization for asthma and in asthma mortality during the early 1980s. Using U.S. Vital Records, we examined asthma mortality from 1968 through 1987 to describe the rates of change among children and young adults (aged 5 to 34 years) with time and in small geographic areas. During the 1970s, U.S. asthma mortality declined by 7.8% per annum (+/- 1.0%), declining faster among women and nonwhites. During the 1980s, mortality increased by 6.2% per annum (+/- 1.2%), increasing faster among those aged 5 to 14 years than among those aged 15 to 34 years. Small-area geographic analysis revealed four areas with persistently high asthma mortality. Neither changes in International Classification of Diseases coding nor improved recognition of asthma, as demonstrated by trends in autopsy rates or rates of in-hospital deaths, seems to explain the increasing mortality of the 1980s.

119. Weissman J; Epstein AM. *Falling Through the Safety Net: Insurance Status and Access to Health Care*. Baltimore: Johns Hopkins University Press; 1994.

120. Weissman JS, Gastonis C, Epstein AM. Rates of Avoidable Hospitalization by Insurance Status in Massachusetts and Maryland. *JAMA* 1992;268:2388-94

**OBJECTIVE:** To determine whether uninsured and Medicaid patients have higher rates of avoidable hospitalizations than do insured patients. **DESIGN:** We used 1987 computerized hospital discharge data to select a cross-sectional sample of hospitalized patients. Population estimates from the Current Population Survey were used to estimate rates of admission, standardized for age and sex. **SETTING:** Nonfederal acute care hospitals in Massachusetts and Maryland. **PATIENTS:** All patients under 65 years of age who were uninsured, privately insured, or insured by Medicaid. Hospitalizations for obstetric and psychiatric conditions were excluded. **MAIN OUTCOME MEASURES:** Relative risk of admission for 12 avoidable hospital conditions (AHCs) identified by a physician panel. **RESULTS:** Uninsured and Medicaid patients were more likely than insured patients to be hospitalized for AHCs. Rates for uninsured patients were significantly greater than for privately insured patients in Massachusetts for 10 of 12 individual AHCs and in Maryland for 5 of 12 AHCs. After adjustment for baseline utilization, the results were statistically significant for 10 of 12 AHCs in Massachusetts and 7 of 12 AHCs in Maryland. For Medicaid patients, rates were significantly greater than for privately insured patients for all AHCs in each state before adjustment, and for 9 of 12 and 7 of 12 AHCs in Massachusetts and Maryland, respectively, after adjustment for baseline utilization. **CONCLUSION:** Our findings suggest that patients who are uninsured or who have Medicaid coverage have higher rates of hospitalization for conditions that can often be treated out of hospital or avoided altogether. Our approach is potentially useful for routine monitoring of access and quality of care for selected groups of patients.

121. Weissman JS, Stern R, Fielding SL, Epstein AM. Delayed Access to Health Care: Risk Factors, Reasons, and Consequences. *Ann Intern Med* 1991;114:325-31

**OBJECTIVE:** To determine characteristics of patients reporting delays in care before hospitalization and the reasons for those delays. **DESIGN:** Survey and personal interviews. **SETTING:** Five hospitals in Massachusetts. **PATIENTS:** Subjects were drawn from a consecutive sample of all adult patients (excluding obstetric or psychiatric patients) hospitalized during the first 6 months of 1987 as part of a larger study of hospital costs. For the current study, if patients were re-admitted, we included in our analysis only data on the first admission during the study period. We obtained usable survey data from 12,068 of 17,231 eligible patients. **RESULTS:** Delays in care were reported by 16% of patients. The odds of reporting delays in care among patients who were black, poor, uninsured, or without a regular physician were 40% to 80% greater than those for other patients ( $P < .01$ ). Most patients who reported delays thought that their problem was not serious (64%). Cost was an important factor in delaying care for patients in lower socioeconomic positions; the odds of delaying care because of cost for patients who were both poor and uninsured were 12 times greater than the odds for other patients ( $P < .001$ ). After controlling for diagnosis-related groups and severity, patients who reported delays had 9% longer hospital stays compared with others ( $P < .001$ ). **CONCLUSIONS:** Patients generally thought to be disadvantaged are at especially high risk for delaying care for conditions that eventually lead to hospitalization. Because these delays are associated with longer hospital stays and potentially poorer health outcomes, interventions that reduce delays seem especially important.

122. Williams RM. The Costs of Visits to Emergency Departments. *N Engl J Med* 1996;334:642-6

**BACKGROUND:** Many visits to emergency departments are for minor medical problems, and these visits are criticized as being expensive and economically inefficient. This study examines the marginal costs (the extra costs for an additional visit) of emergency department visits. **METHODS:** Monthly data on the costs of hospital and physician services from 1991 through 1993 were obtained from a sample of six community hospitals in Michigan. The data were analyzed with ordinary least-squares regression techniques to determine the ratio of marginal to average costs. Average and marginal costs were then determined for 24,010 visits during 12 randomly selected weeks in 1993. A visit by an individual patient was the unit analysis, and visits were classified as nonurgent, semiurgent, or urgent according to explicit criteria. Costs and charges were determined for all visits and were classified according to the degree of urgency. **RESULTS:** For all emergency department visits, the average charge was \$383, the average cost was \$209, and the marginal cost was \$88 (42 percent of the average cost). Thirty-two percent of the visits were classified as nonurgent, 26 percent as semiurgent, and 42 percent as urgent. For nonurgent visits, the average charge was \$124, the average cost was \$62, and the marginal cost was only \$24. For semiurgent visits, the average charge was \$312, the average cost was \$159, and the marginal cost was \$67. For urgent visits, the average charge was \$621, the average cost was \$351, and the marginal cost was \$148. **CONCLUSIONS:** The true costs of nonurgent care in the emergency department are relatively low. The potential savings from a diversion of nonurgent visits to private physicians' offices may therefore be much less than is widely believed.

123. Wilson BE; Sharma A. Public Cost and Access to Primary Care for Hyperglycemic Emergencies, Clark County, Nevada. *J Community Health* 1995;20:249-56

124. Zuvekas SH; Weinick RM. Changes in Access to Care, 1977-1996: The Role of Health Insurance. *Health Serv Res* 1999;34(1 Pt 2):271-9

**OBJECTIVE:** To describe changes in Americans' access to health care over the last 20 years by focusing on the uninsured, Hispanic American, and young adult populations, and to analyze the factors underlying these changes with a particular focus on the role of health insurance. **DATA SOURCES:** Data from the 1977 National Medical Care Expenditure Survey, the 1987 National Medical Expenditure Survey, and the 1996 Medical Expenditure Panel Survey. **STUDY DESIGN:** Focusing on whether each individual has a usual source of health care, we present descriptive statistics and algebraic decompositions. **DATA COLLECTION/EXTRACTION METHODS:** We combine data from the household surveys with questions from access-to-care supplements. **PRINCIPAL FINDINGS:** Hispanic Americans and young adults aged 18 to 24 are more likely to lack a usual source of care than other Americans; these inequalities increased over the period studied and cannot be explained solely by changes in health insurance coverage. **CONCLUSIONS:** Although increasing health insurance coverage will likely improve access to care among Hispanics and



young adults, our findings suggest that the expansion of insurance coverage will not be sufficient to eliminate current disparities.

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<sup>[1]</sup> Stoddard's definitions for these conditions were pharyngitis, or sore throat with high fever or tonsillitis for at least 2 days during the past 30 days; acute earache, or ear infection or earache for at least 2 of the past 30 days; recurrent ear infections, or more than 2 ear infections within the past 12 months; and asthma, or asthma or wheezing within the past 12 months.

<sup>[2]</sup> The authors combined uninsured children and children in Medicaid to come up with their category of Underinsured. They considered children in Medicaid as having insufficient insurance because of the difficulty Medicaid children had in getting primary and specialty care at that time (1983-93) in that locality.