

Using the National Health Interview Survey to Monitor Health Insurance and Access to Care¹

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Abstract

National Health Interview Survey (NHIS) data can be used to monitor access to health care and health insurance in the United States. The NHIS, conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics, enables policymakers and researchers to examine trends in health coverage and emerging health care access issues for the U.S. non-institutionalized civilian population. This paper focuses on status changes in health insurance coverage and patterns of health care utilization to demonstrate the depth and versatility of the NHIS health insurance data. Examples of innovative ways to use NHIS data in examining health insurance policy issues at the state level are also presented.

Key Words: Health insurance, Access to care, Consumer-directed health care, National Health Interview Survey

1. Introduction

Health Insurance coverage is critically important in the U.S. for obtaining needed health care (Institute of Medicine, 2009). An extensive body of literature shows that lack of health insurance coverage affects both access to health care and health status (Institute of Medicine, 2001). Major pieces of legislation concerning health insurance coverage have been passed recently. National attention to consumer-directed health care has increased following the enactment of the Medicare Prescription Drug Improvement and Modernization Act of 2003 (P.L. 108-173), which established tax-advantaged health savings accounts (United States Government Accountability Office, 2006). In February 2009, the Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA or Public Law 111-3) reauthorized the Children's Health Insurance Program (CHIP), Title XXI of the Balanced Budget Act of 1997. CHIP was enacted to reduce the disparities in access to health care services and to improve health outcomes for poor and near poor children (Newacheck, Hung, and Park et al. 2003) by providing federal matching funds to states to expand health insurance coverage for children above states' Medicaid eligibility levels.

¹ The findings and conclusions in this paper are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention, National Center for Health Statistics

The National Center for Health Statistics (NCHS) has recently started to produce state-level health insurance estimates from the National Health Interview Survey (NHIS). In 2005, NHIS began publishing annual state level insurance estimates for the largest 10 states through the Early Release Program (ER) (Cohen and Martinez, 2005). Currently the ER program publishes annual state-level insurance estimates for the 20 largest states (Cohen and Martinez, 2009). In 2008, the first State, Regional and National health insurance estimate report was published (Cohen and Makuc, 2008).

This paper presents examples of how the NHIS can be used by researchers and policymakers to monitor health insurance and access to medical care for the U.S. population. For this paper, analysis was limited to persons under 65 years of age. In the U.S., almost all persons 65 years of age and over are covered by some type of health care coverage (Medicare, private, Medicaid).

National estimates are presented for health insurance coverage and access to care measures. State-level insurance estimates are also presented for selected states. State-specific health insurance estimates are presented for adults aged 18-64 years from 41 states aggregated over the period 2006-2008. In addition, uninsured estimates for adults aged 18-64 are discussed for individual years for California, Massachusetts, and Ohio.

2. Methods

2.1 Data Source

The estimates in this paper are based on data from the NHIS. The main objective of the NHIS is to monitor the health of the U.S. population through the collection and analysis of data on a broad range of health topics. The NHIS is a continuous multistage probability sample survey of the civilian non-institutionalized population of the United States. It is a multipurpose health survey conducted by the Centers for Disease Control and Prevention's NCHS. NHIS interviewers are from the U.S. Census Bureau. Information on insurance, other socioeconomic characteristics and selected health topics is collected for all household members, by proxy from one family member if necessary (all members of the household 17 years of age and over who are home at the time of the interview are invited to participate and respond for themselves).

The NHIS questionnaire, now called the Basic Module or Core, consists of three main components: The Family Core, the Sample Adult Core, and the Sample Child Core. The Family Core collects information on all family members regarding household composition and socio-demographic characteristics, along with basic indicators of health status, activity limitations, and utilization of health care services. The Sample Adult and Sample Child Cores obtain additional information on the health of one randomly selected adult and child in the family; the sample adult responds for himself or herself, and a knowledgeable adult in the family provides proxy responses for the sample child. In addition, supplements may be added each year. Supplements are co-sponsored questions that are in the NHIS for a year (or more) at a time. A supplement or one or more supplementary questions may be interwoven among core questions, or may be placed at the end of a core section. Users can obtain information about co-sponsored supplements from our website: <http://www.cdc.gov/nchs/nhis/co-sponsors.htm>.

Because NHIS is conducted throughout the year, yielding a nationally representative sample each week, data can be analyzed weekly or quarterly to monitor health insurance

coverage and access to care trends. Data analyses in this paper for the 2006, 2007, and 2008 NHIS were based on 71,590, 71,674, and 70,879 persons under age 65 in the Family Core, respectively.

NHIS microdata files based on the different components are released annually. In recent years these microdata releases have occurred less than six months after the end of the data collection year. In addition, estimates are released quarterly and biannually through the Early Release (ER) Program. The ER Program provides estimates of important health indicators six months after the collection of each quarter of NHIS data. Provision of timely estimates enables policymakers, researchers, and public health practitioners to make decisions that align with changing health needs of the U.S. population based on the most up-to-date information. Three ER reports are produced regularly: (1) *Early Release of Selected Estimates Based on Data from the National Health Interview Survey* contains estimates for 15 selected measures of health, including health insurance coverage. Other measures of health include estimates of usual place to go for medical care, obtaining needed medical care, influenza vaccination, pneumococcal vaccination, obesity, leisure-time physical activity, current smoking, alcohol consumption, HIV testing, general health status, personal care needs, serious psychological distress, diagnosed diabetes, and asthma episodes and current asthma. (2) A detailed health insurance ER report, *Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey*, contains additional detailed estimates on several measures of health insurance coverage. (3) *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey* is published in May and December and provides estimates of cell phone and landline telephone coverage in the United States.

The sample for the NHIS is redesigned about every 10 years. A new sample design for the NHIS was implemented in 2006. The fundamental structure of the new 2006 NHIS sample design is very similar to the previous 1995-2005 NHIS sample design. Oversampling of the black and Hispanic populations has been retained, and the new sample design also oversamples the Asian population. In addition, persons 65 years and over have a higher probability of being selected as a sample adult. The impact of the new sample design on estimates presented in this report is expected to be minimal. Visit the NCHS website (<http://www.cdc.gov/nchs/nhis.htm>) for more information on the design, content, and use of the NHIS.

Information on health insurance status and coverage type has been collected every year in the NHIS starting in 1989. Between 1968 and 1989, health insurance information was collected every 2-3 years, and between 1959 and 1968 it was collected every 3-4 years. Since 1997, health insurance status has been collected in the Family Core component of the questionnaire for all members of the family.

The NHIS insurance questions have changed and expanded over time, reflecting changes in the availability of different types of coverage, issues of interest, and questionnaire design. Starting in 1997, respondents select the types of coverage held by all family members from a list of different types of coverage. Coverage is collected at the time of interview for private plans, public coverage (Medicaid, Medicare, CHIP), Indian Health Service (IHS), Military health coverage (TRICARE, VA, and CHAMP-VA), and single service plans. For these analyses, persons with only IHS or single service plan coverage were considered to be uninsured. For persons who currently have coverage, the family respondent is asked about periods of non-coverage in the previous 12 months. For persons who are currently uninsured, the family respondent is asked how long it has been

since the person had coverage. Item non-response rates for the health insurance questions are low (about 1%). Health insurance coverage status presented in this paper is at the time of interview. A more complete description of health insurance information collected on the NHIS may be found elsewhere (Cohen, Makuc, Bernstein, et al. 2009).

Data on access to medical care are found in the Family Core, Sample Adult Core and Sample Child Core NHIS files. In addition to health insurance, measures of access include, but are not limited to: utilization of services (visits to doctors, specialists, regular source of medical care, emergency room use, home visits), immunizations, unmet medical need, and nonfinancial barriers to care. Many of the access and utilization measures are based on the 12 months prior to interview, with the exception of regular source of medical care, which is based on status at the time of interview. Because of the differences in reference period, an individual's coverage status when physician or dentist services were used or emergency departments visited are not known. For this paper, only selected measures of access will be presented.

2.2 Estimation Procedures

The NHIS data are based on a sample of the population and are therefore subject to sampling error. Point estimates and estimates of their variances are calculated using the SUDAAN software package to account for the complex sample design of NHIS. The Taylor series linearization method is used for variance estimation (Research Triangle Institute, 2005). Differences between percentages or rates are evaluated using two-sided significance tests at the 0.05 level. Terms such as "higher than" and "less than" indicate a statistically significant difference. Terms such as "similar" and "no difference" indicate that the statistics being compared are not significantly different. Lack of comments regarding the difference between any two statistics does not necessarily suggest that the difference was tested and found to be not significant.

State-specific health insurance estimates are presented for adults aged 18-64 from 41 states, based on aggregated 2006-2008 NHIS data. In addition, individual years of uninsured estimates are discussed for California, Massachusetts, and Ohio.

For state-specific estimates, the following methodology was utilized for the estimation of standard errors. The Taylor series linearization method was chosen for estimation of standard errors for the 10 states with the largest populations (California, Florida, Illinois, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, and Texas). Due to small sample sizes and limitations in the NHIS design, estimated standard errors for other states could be unstable or negatively biased. For these states, an estimated design effect was used to calculate standard errors. The design effect used here is the ratio of the standard error of an estimated percentage, calculated taking the complex sample design into account, to the standard error of the estimated percentage from a hypothetical simple random sample (SRS) based on the same number of persons.

The average design effect for each health insurance measure and domain was estimated by averaging the design effect derived from SUDAAN-based estimates of standard errors for the ten largest states. Standard errors for states that were not part of the "big 10" were estimated by multiplying the SRS standard error by the average design effect for each health insurance measure and domain. The average design effects in 2008 ranged from 1.55 for uninsured adults aged 18-64 years to 2.34 for all persons with private coverage.

The estimated standard error of the difference between state and national estimates accounted for non-independence of state and national estimates by incorporating their covariance.

2.3 Definitions

2.3.1 Health Insurance

For persons under age 65 years, a health insurance hierarchy of four mutually exclusive categories was developed (Simpson, Bloom, Cohen et al. 1997; Bloom, Simpson, Cohen et al. 1997). Persons with more than one type of health insurance were assigned to the first appropriate category in the following hierarchy:

Private coverage--Includes persons who have any comprehensive private insurance plan (including health maintenance organizations and preferred provider organizations). These plans include those obtained through an employer, union or professional organization, purchased directly, or purchased through local or community programs.

Medicaid/CHIP--Includes persons who do not have private coverage, but who have Medicaid or other state-sponsored health plans, including CHIP.

Other coverage--Includes persons who do not have private coverage or Medicaid (or other public coverage), but who have any type of military health plan (includes VA, TRICARE, and CHAMP-VA) or Medicare. This category also includes persons who are covered by other government programs.

Uninsured--Includes persons who have not indicated that they are covered at the time of the interview under private health insurance (from employer or workplace, purchased directly, or through a state, local government or community program), Medicare, Medicaid, CHIP, a state-sponsored health plan, other government programs, or military health plan (includes VA, TRICARE, and CHAMP-VA). In addition, in 1978-1996, the uninsured include persons who do not have any type of public or private health care coverage and also do not receive Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI). A person was also defined as uninsured if he or she has only Indian Health Service coverage or a private plan that paid for one type of service such as accidents or dental care.

2.3.2 Access to Care

Regular source of care--Individuals were classified as having a regular source of care if they had at least one particular person or place that they usually went to when sick or needed advice about health. Emergency rooms are excluded as a regular source of care.

Unmet medical needs--Individuals were classified as having an unmet medical need if they responded “yes” to any of the following: delayed seeking medical care because of worry about the cost; needed medical care but could not afford it; needed prescription medicine but could not afford it; needed mental health care or counseling but could not afford it; needed eyeglasses but could not afford them; or needed dental care (including check-ups) but could not afford it.

Nonfinancial barriers to care--Individuals were classified as having a nonfinancial barrier to care if there was a “yes” response to any of the following: could not get through on the telephone; could not get an appointment soon enough; once there, the wait was too long to see the doctor; clinic or doctor’s office was not open when individual could get there; or did not have transportation.

2.3.3 Poverty

Poverty status--Poverty status is based on family income and family size using the U.S. Census Bureau poverty thresholds. “Poor” persons are defined as persons whose family incomes are below the poverty threshold. “Near poor” persons have family incomes of 100% to less than 200% of the poverty threshold. “Not poor” persons have family incomes that are 200% of the poverty threshold or greater. More information on income and poverty on the NHIS can be found in the annual Survey Description Document (<http://www.cdc.gov/nchs/nhis.htm>).

3. Results

3.1 National Estimates of Health Insurance Coverage

During the period 1990 to 2008, the percentage of persons under age 65 with no coverage was stable at approximately 17%, while the number of persons who were uninsured at the time of interview increased by 6.6 million to 43.8 million persons (Figure 1). During the earlier period 1978 to 1990, the percentage uninsured increased at a rate of 3% per year, from 12% in 1978 to 17% in 1990. The number of uninsured rose by 14.2 million persons during this period.

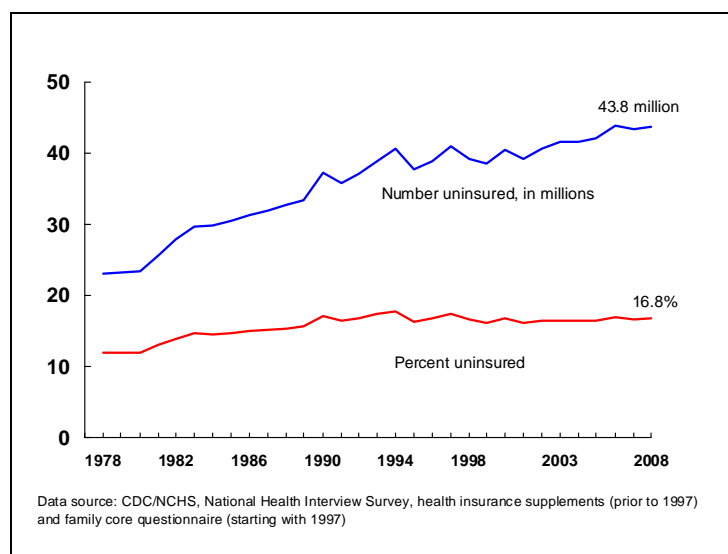


Figure 1: Number and percentage of persons under age 65 years without insurance: United States, 1978-2008

The profile of health insurance coverage is different for children aged 0-17 and adults aged 18-64. In 2008, among adults aged 18-64, 68.5% had private insurance, 7.8% were covered by Medicaid or CHIP, 3.8% had other coverage, and 19.9% were uninsured at

the time of interview. In 2008, among children, 58.4% had private insurance, 30.1% were covered by Medicaid or CHIP, 2.4% had other coverage, and 9.0% were uninsured at the time of interview.

Among children, all poverty status groups experienced an increase in public coverage between 1997 and 2008 (data not shown). However, the largest increase was seen among near poor children, for whom coverage by a public plan more than doubled between 1997 and 2008 (Figure 2). The rate of private coverage among near poor children was 22.1 percentage points lower in 2008 than in 1997. As shown in Figure 2, among near poor children, lack of health insurance and private health insurance coverage has declined since 1997, while public coverage has increased. Private coverage decreased among near poor adults aged 18-64 years from 52.6% in 1997 to 38.3% in 2008 (Figure 3). Private coverage among not poor adults decreased from 87.1% in 1997 to 82.4% in 2008 (data not shown).

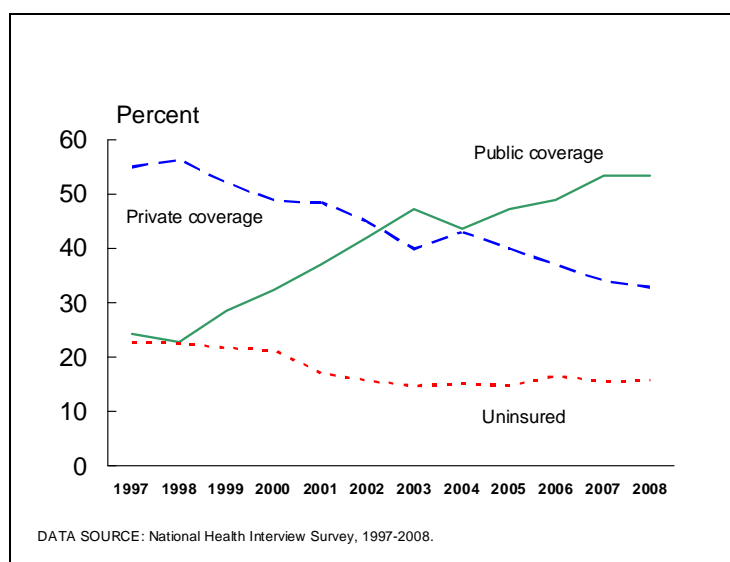


Figure 2: Percentage with health insurance, by coverage type and percentage uninsured at the time of interview, for near poor children under 18 years of age: United States, 1997-2008

3.2 Health Insurance Coverage and Access to Care

Children are more likely than adults aged 18-64 and the insured were more likely than the uninsured to have a regular source of medical care (Figure 4). Among children with private insurance 97.3% had a regular source of medical care compared with 89.7% of adults aged 18-64 with private coverage. Among children with Medicaid or CHIP coverage, 95.7% had a regular source of medical care compared with 88.7% of adults aged 18-64 with Medicaid or CHIP coverage. Among the uninsured, 69.8% of children had a regular source of medical care compared with 47.9% of adults aged 18-64.

Among adults aged 18-64, there was an increase in unmet medical needs between 2007 and 2008 overall and for those with private insurance, Medicaid or CHIP, and the uninsured (Figure 5). Unmet medical needs were higher among adults aged 18-64 who were uninsured. In 2008, 54.9% of uninsured adults had an unmet medical need

compared with 16.7% of those with private coverage and 34.5% with Medicaid or CHIP coverage.

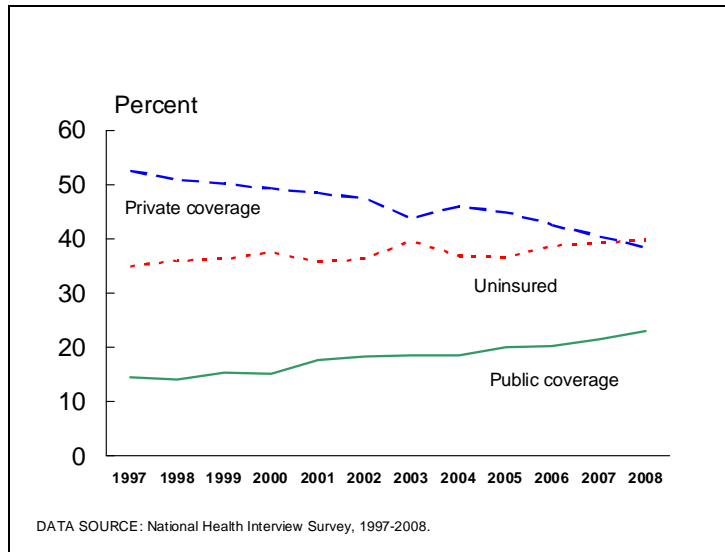


Figure 3: Percentage with health insurance, by coverage type and percentage uninsured at the time of interview, for near poor adults aged 18-64: United States, 1997-2008

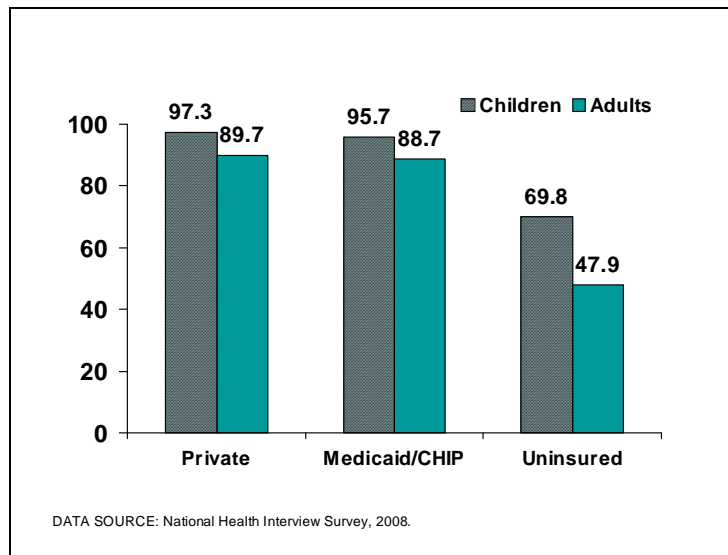


Figure 4: Percentage of children and adults aged 18-64 with a regular source of medical care, by insurance type: United States, 2008

Among adults aged 18-64 without insurance, nonfinancial barriers to care increased from 9.6% in 2007 to 12.0% in 2008 (data not shown). The observed increases in nonfinancial barriers to care for adults aged 18-64 with private or Medicaid or CHIP coverage were not significant. In 2008, among adults aged 18-64 with private coverage, 10.6% had a nonfinancial barrier to care, and among adults aged 18-64 with Medicaid or CHIP coverage, 19.7% had a nonfinancial barrier to care.

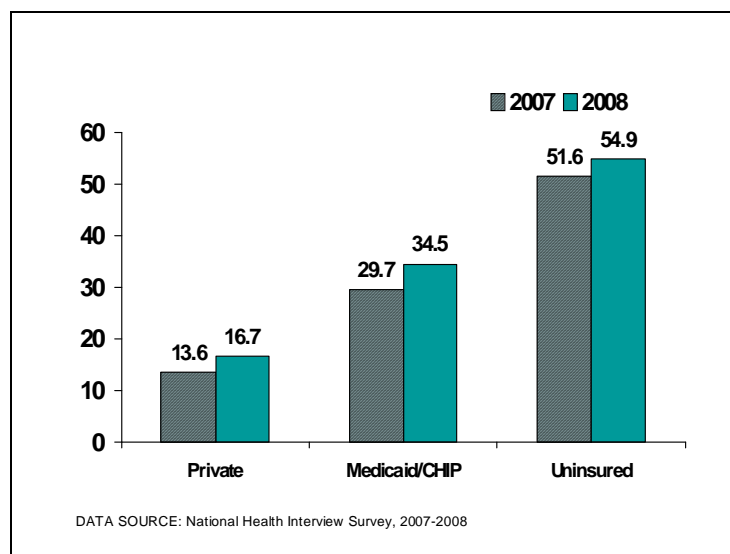


Figure 5: Percentage of adults aged 18-64 with an unmet medical need, by insurance type and year: United States, 2007 and 2008

3.3 State-Level Health Insurance Estimates

Data are not shown here for the discussion of state-level estimates. Preliminary state-level estimates for individual years may be found in the June releases of the *Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey* (Cohen and Martinez, 2007; Cohen and Martinez, 2008; Cohen and Martinez, 2009). The percentage of adults aged 18-64 who were uninsured during 2006-2008 ranged from 7.6% in Massachusetts to 32.8% in Oklahoma among the 41 states analyzed. In nine states (Arizona, California, Florida, Georgia, New Mexico, North Carolina, Oklahoma, South Carolina, and Texas) concentrated in the Southwest and Southeast regions, the percentage of adults aged 18-64 who were uninsured was higher than the U.S. rate (19.9%). In 15 states (Connecticut, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Virginia, Wisconsin) concentrated in the New England, Mideast, Great Lakes, and Plains regions, the percentage of uninsured adults aged 18-64 was lower than the U.S. rate.

The percentage of adults aged 18-64 who were covered by private insurance during 2006-2008 ranged from 52.6% in New Mexico to 84.8% in Iowa among the 41 states analyzed. In nine states (Arizona, California, Florida, Georgia, New Mexico, North Carolina, Oklahoma, South Carolina, and Texas) concentrated in the Southwest and Southeast

regions, the percentage of adults aged 18-64 who were covered by private insurance was lower than the U.S. rate (69.0%). In 13 states (Connecticut, Illinois, Iowa, Kansas, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, Ohio, Pennsylvania, Virginia,) concentrated in the New England, Mideast, Great Lakes, and Plains regions, the percentage of privately insured adults aged 18-64 was higher than the U.S. rate.

There was relatively little change in the percentage of adults aged 18-64 who were uninsured nationally from 2006 to 2008, which ranged from 19.6% to 20.0%. In California the percentage of adults aged 18-64 who were uninsured increased from 20.9% in 2006 to 24.3% in 2008. An increase in the percentage of uninsured was also observed in Ohio, where it rose from 12.9% in 2006 to 17.0% in 2008. During this same time period, Massachusetts experienced a decrease in the percentage of uninsured adults aged 18-64 from 10.2% in 2006 to 4.6% in 2008.

4. Discussion

4.1 Strengths of the National Health Interview Survey Health Insurance Data

The NHIS has included questions to estimate the percentage and number of persons with different types of health coverage over an almost 50-year period from 1959 to 2008. Some of the strengths of the NHIS health insurance data are: The questions have a low item non-response rate of around 1%; plan names for all the coverage types are collected from the family respondent; and follow-up questions are asked that are utilized in the verification process. In addition, supplemental coding is conducted for better classification of individuals into health insurance categories. Health insurance can be analyzed with other health and health care information. The survey is also designed so that data can be analyzed quarterly, which aids in monitoring policy and economic changes in the U.S.

4.2 Recent modifications to National Health Interview Survey Health Insurance Questions

The healthcare market is dynamic, and the NHIS continuously monitors changes in public health programs and the private health insurance market to make sure that the questions asked on the NHIS are policy relevant. National attention to consumer-directed health care has increased following the enactment of the Medicare Prescription Drug Improvement and Modernization Act of 2003 (P.L. 108-173), which established tax-advantaged health savings accounts. In 2007, three additional questions were added to the health insurance section of the NHIS to monitor enrollment in consumer-directed health care among persons with private health insurance.

For persons with private health insurance, a new question regarding the annual deductible of each private health insurance plan was added beginning in 2007. For plans considered to be High Deductible Health Plans (HDHPs), a follow-up question was asked regarding special accounts or funds used to pay for medical expenses: a health savings account (HSA) or a Health Reimbursement Account (HRA). Lastly, a new question about family enrollment in a flexible spending account (FSA) for medical expenses was added.

In 2008, a new question about whether a comprehensive private health insurance plan covered any costs associated with dental care was added. In 2010 the NHIS survey instrument will undergo changes to address the increase in enrolment in Medicare Advantage plans by improving plan name collection and premium payment information.

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