Technical Notes

Data source. Data used to produce this Early Release report are derived from the three main components of the National Health Interview Survey (NHIS) from 1997 through June 2012: (a) the Family Core, which collects information on all family members in each household; (b) the Sample Child Core, which collects information on one randomly selected child (the "sample child") in each family with a child; and (c) the Sample Adult Core, which collects information from one randomly selected adult (the "sample adult") aged 18 or over in each family. Data analyses for the January–June 2012 NHIS were based on 52,945 persons in the Family Core, 16,929 adults in the Sample Adult Core, and 6,564 children in the Sample Child Core. Visit the **NHIS website** for more information on the design, content, and use of NHIS.

Transition to weights based on the 2000 U.S. census. Estimates were calculated using the NHIS sample weights, which were calibrated to 2000 census-based totals for sex, age, and race/ethnicity of the U.S. civilian noninstitutionalized population. In Early Release reports prior to September 2003, the weights for the 1997–2002 NHIS data were derived from 1990 census-based postcensal population estimates. Beginning with the 2003 data, NHIS transitioned to weights derived from 2000 census-based population estimates. The impact of this transition was assessed for data from the 2000–2002 NHIS by comparing estimates that used the 1990 census-based weights with those that used the 2000 census-based weights. The results are presented in Tables II and III in the Appendix of the September 2003 Early Release (10). Although the changes for all selected measures are no more than 1 percentage point, the 2000–2002 estimates for all measures have been recalculated in the present report using weights derived from the 2000 census. An error was made in the poststratification component of the NHIS calculation of weights from January 2006 through 2008. The error affected "nonminority" person weights. Compared with the corrected weight estimates, those calculated with the original weights generally differ by 0.01 percentage point, and variances generally differ by 0.001 percentage point.

Implementation of a new sample design. A new sample design was implemented with the 2006 NHIS. In addition to the continued oversampling of black and Hispanic persons carried out in the 1995–2005 NHIS sample design, persons of Asian descent are oversampled in the new design. Also, for the Sample Adult Core, a new level of oversampling began in 2006 for persons aged 65 and over who are black, Hispanic, or Asian. These older adults are now more likely than other adults in the family to be selected as the sample adult. Some of the differences between estimates for 2006 and later and estimates for earlier years may be influenced by the new sample design. However, the impact of the new design on estimates presented in this report is expected to be minimal.

Estimation procedures. NCHS creates weights for each calendar quarter of the NHIS sample. The NHIS data weighting procedure is described in more detail elsewhere (**view / download PDF**). Because the estimates for January–June 2012 are being released prior to final data editing and final weighting, they should be considered preliminary and may differ slightly from estimates that will be made later using the final 2012 data files. Estimates from the 1997–2011 NHIS are based on previous reports and are therefore also based on preliminary data files and not final data files. Differences between estimates calculated using preliminary data files and final data files are typically less than 0.1 percentage point. For 2008, differences may be as high as 1.5 percentage points because a larger-than-usual number of records were removed for insufficient quality in the final data files. As mentioned previously, estimates for 2000–2002 were recalculated in this report using the 2000 census-based weights that were not included in the final files. See “Lack of Health Insurance Coverage and Type of Coverage” (Section 1 in this release) for details on special data editing for health insurance variables. For NHIS announcements and more detailed information, visit the **NHIS website**.

Point estimates, and estimates of their variances, were calculated using the SUDAAN software package to account for the complex sample design of NHIS. The Taylor series linearization method was chosen for variance estimation. All estimates shown meet the NCHS standard of having less than or equal to 30% relative standard error. Point estimates in some figures and tables are accompanied by 95% confidence intervals. Beginning with the June 2006 release, confidence intervals are shown to two decimal places to improve the precision of further calculations. The June 2007 Early Release report used final in-house design variables for estimating variance. Early Release reports other than the June 2007 report use Early Release interim design variables to estimate variance.

Significance testing. Trends were assessed by using Joinpoint regression (11), which characterizes trends as joined linear segments. A joinpoint is the year at which two segments with different slopes meet. Joinpoint software uses statistical criteria to determine the fewest number of segments necessary to characterize a trend and the year(s) when segments begin and end.

Differences between percentages or rates for current estimates were evaluated by using two-sided significance tests at the 0.05 level. Terms such as “higher than,” “less than,” “more likely,” and “less likely” indicate a statistically significant difference. Terms such as “similar” and “no difference” indicate that the statistics being compared were not significantly different. Lack of comment regarding the difference between any two statistics does not necessarily mean that the difference was tested and found to be not significant. Because of small sample sizes, estimates based on less than 1 year of data may have large variances, and caution should be used in analyzing these estimates. Patterns for such estimates may change as more data become available.

Adjustment for age and sex. Age-sex-adjusted percentages were calculated for three race/ethnicity groups. For the prevalence of obesity, only age-adjusted sex-specific percentages are presented because the race/ethnicity patterns in obesity prevalence differ by sex. Similarly,

only sex-adjusted age-specific prevalences are presented for the asthma measures because the race/ethnicity patterns in asthma episodes and current asthma differ by age. Direct standardization was used for adjustment, using the projected 2000 U.S. population as the standard population (12) and using age groups that varied depending on the impact of age on the specific measure. Rates presented are crude rates unless otherwise stated.

Race / ethnicity categories. The race/ethnicity categories for data years beginning in 2003 are defined using the 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity* (13) promulgated by the U.S. Office of Management and Budget (OMB). Subsequent to the Early Releases based on data through 2002, the categories "non-Hispanic white" and "non-Hispanic black" were changed to "not Hispanic white, single race" and "not Hispanic black, single race." The term "Hispanic" was changed to "Hispanic or Latino," and "black" was changed to "black or African American." However, the text and figures in this report use shorter terms, for conciseness. For example, the category "not Hispanic or Latino, white, single race" in the tables is referred to as "non-Hispanic white" in the text. Race/ethnicity-specific estimates for years prior to 2003, released previously, were based on the 1977 OMB standards and therefore are not strictly comparable with estimates for 2003 and later. However, the changes in the OMB standards have little effect on the health estimates reported here. See Tables XI and XII in *Health, United States, 2003* (14) for a comparison of estimates for cigarette smoking and private health insurance coverage using both the 1977 and 1997 OMB standards. In addition, beginning with the 2003 NHIS (first incorporated in the September 2004 Early Release), NHIS editing procedures were changed to maintain consistency with U.S. Census Bureau procedures for collecting and editing data on race/ethnicity. These changes reflect the elimination of "other race" as a separate race response. This response category is treated as missing, and race is imputed if this was the only race response. In cases where "other race" was mentioned along with one or more OMB race groups,

the “other race” response is dropped and the OMB race group information is retained. This change is not expected to have a substantial effect on the estimates.

Health insurance. Additional estimates for health insurance can be found in the Early Release Program’s quarterly report, *Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey, January–June 2012* (1).

The data on health insurance status were edited using an automated system based on logic checks and keyword searches. For comparability, the estimates for all years were created using these same procedures. The resulting estimates of persons without health insurance coverage are generally 0.1–0.3 percentage point lower than those based on the editing procedures used for the final data files. Occasionally, due to decisions made for the final data editing and weighting, estimates based on preliminary editing procedures may differ by more than 0.3 percentage point.

To reduce potential errors in reporting Medicare and Medicaid status, two additional questions were added to the health insurance section of NHIS beginning in the third quarter of 2004. Persons aged 65 and over not reporting Medicare coverage were asked explicitly about Medicare coverage. Persons under age 65 with no reported coverage were asked explicitly about Medicaid coverage. For the present report, estimates that exclude the two additional questions are labeled “Method 1,” and estimates that include the additional questions are labeled “Method 2.” Estimates for years 1997–2003 in this report are generated using Method 1. Estimates for 2004 are presented using Method 2 in figures and both Method 1 and Method 2 in tables. Estimates for 2005 and beyond are calculated using Method 2. Statements about trends or comparisons for 1997–2003 are based on estimates calculated using Method 1. Statements about trends or comparisons for 2004–present are based on estimates calculated using Method 2. Statements about trends over groups of years from before 2004 to 2004 or later take both methodologies into account. Conclusions regarding trends are not made in cases where using one method yields a different result than the same trend

analysis using the other method. Note that although both methods may yield the same conclusion, the extent of the increasing or decreasing trend may be larger using one method than with the other method.

Estimates for 2004 were calculated using both methods, to assess the effect of adopting Method 2. From July through December 2004 (third and fourth quarters combined), with the use of Method 2, the estimates (weighted) for persons without health insurance coverage decreased from 10.4% to 9.9% for persons under age 18, from 19.7% to 19.5% for adults aged 18–64, and from 1.7% to 1.2% for persons aged 65 and over. Also with the use of Method 2, the estimates for public coverage increased from 28.1% to 29.6% for children under age 18, from 11.3% to 11.4% for adults aged 18–64, and from 89.5% to 93.3% for persons aged 65 and over. The two additional questions had no impact on the estimates for private coverage. Additional information on the impact of these two questions on health insurance estimates can be found in "Impact of Medicare and Medicaid Probe Questions on Health Insurance Estimates from the National Health Interview Survey, 2004" (15).

Influenza vaccination. An error in calculating influenza vaccination rates occurred from the first quarter of 2005 through the first quarter of 2007. The effect of this error on estimates was small. Compared with the original estimates, corrected estimates are slightly higher, usually by no more than 0.3 percentage point. The error has been corrected for all estimates in this Early Release, and the correction of estimates had no perceptible impact on the graphs.

Responses to the influenza vaccination questions used to calculate the influenza vaccination estimates presented in this report (See Appendix) cannot be used to determine when during the preceding 12 months the subject received the influenza vaccination. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of an influenza vaccination is seasonal. The prevalence of influenza vaccination during the

past 12 months may differ from season-specific coverage (estimates available from: http://www.cdc.gov/flu/professionals/vaccination/vaccinecoverage.htm).

Human immunodeficiency virus (HIV) testing. From 1997 to 2010, the question on HIV testing was located in the AIDS Knowledge and Attitudes (ADS) section of the NHIS questionnaire. The question was preceded by questions that asked respondents whether they had donated blood to a blood bank since March 1985 and, if they had, whether they had donated blood during the past 12 months. The wording of the HIV testing question depended on the respondent's answers to the blood donation questions. If the respondent had donated blood, they were instructed to exclude tests they may have had as part of blood donations before they were asked if they had ever been tested for HIV. If the respondent had not donated blood, they were only asked if they had ever been tested for HIV. The ADS section was the last section fielded in the Sample Adult Core questionnaire and was preceded by the Adult Access to Health Care and Utilization (AAU) section.

In 2011, the ADS section was dropped from NHIS with only the HIV testing question retained. The question was added to the AAU section and is preceded by questions on health insurance. Because no questions were asked about blood donations prior to the HIV testing question, the wording of the question was the same for all respondents. They were instructed to exclude tests they may have had as part of blood donations before they were asked if they had ever been tested for HIV. The AAU section is the last section fielded in the Sample Adult Core questionnaire, and the HIV testing question is the last question in the AAU section. Differences observed in estimates based on the 2010 and earlier NHIS and the 2011 and later NHIS may be partially attributable to this change in placement of the HIV testing question on the NHIS questionnaire.

Early Release of NHIS Estimates

The NCHS Early Release Program updates and releases timely estimates by means of three Early Release reports. This Early Release of Selected Estimates (16) and a separate health insurance report (1) are released about 6 months after NHIS data collection has been completed for each quarter—in about March, June, September, and December. A third report on wireless substitution (2) is released in about May and December. New measures may be added as work continues and in response to changing data needs. Feedback on the Early Release mechanism and on the estimates is welcome (**e-mail**).

Announcements about Early Releases, other new data releases, publications, or corrections related to NHIS will be sent to members of the HISUSERS listserv. To join, visit the **CDC website**.

Previous releases. A list of previous Early Release Program reports can be found at **Early Releases of Selected Estimates From the National Health Interview Survey**.

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