

HOW MANY COLORADANS ARE UNINSURED?

A Guide to the Estimates

People who lack health insurance are more likely to experience diminished access to health care services and are at higher risks for adverse health outcomes.¹ Accurate estimates of the uninsured population are needed to make informed health policy decisions at the federal, state and local levels.

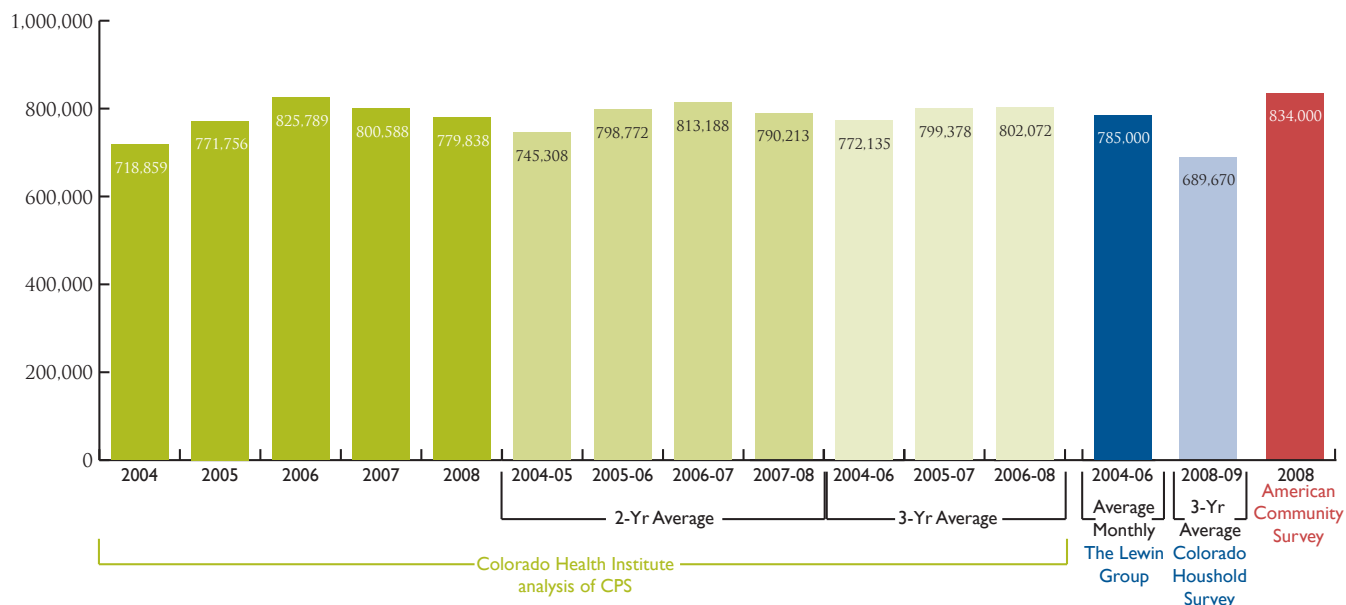
How many people are uninsured in Colorado? The answer to this question depends upon a number of factors, including the data source, how the data are interpreted and the methods and definitions used to arrive at an estimate. Graph 1 displays recent estimates of the number of uninsured in the state, and Graph 2 displays corresponding estimates of the percentage of people without health insurance.

What is the difference between these estimates? Which one is best to use? The Colorado Health Institute (CHI) developed this technical brief to provide an overview of the various sources of state-wide uninsured estimates and to help policymakers and other interested parties understand the issues related to developing and comparing these estimates.

Uninsured numbers vs. uninsured rates

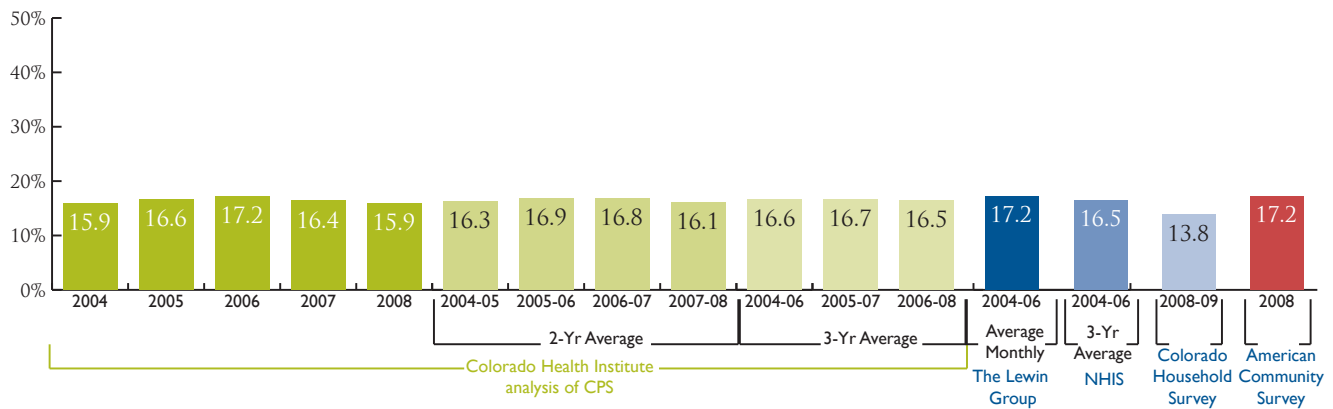
The two-year averages (based on the CPS) shown in Graphs 1 and 2 may seem to tell different stories at first glance. Graph 1 suggests that the number of uninsured people in Colorado has grown from 745,000 in 2004-05 to 790,000 in 2007-08, a difference of approximately 45,000 individuals. Graph 2

Graph 1. Recent estimates of the number of people without health insurance in Colorado, 2004-08²



SOURCES: CHI analysis of Current Population Survey, 2004-08; The Lewin Group (2007); 2008-09 Colorado Household Survey; U.S. Census Bureau, 2008 ACS.

Graph 2. Recent estimates of the percentage of people without health insurance in Colorado, 2004-08³



SOURCES: CHI analysis of Current Population Survey, 2004-08; The Lewin Group (2007); Cohen (2008); 2008-09 Colorado Household Survey; U.S. Census Bureau, 2008 ACS.

shows that the percentage of uninsured people (also commonly referred to as the “uninsurance rate”) in Colorado stayed relatively stable, hovering between 16 and 17 percent over the period from 2004-05 to 2007-08. Although the latest CPS data suggest that the proportion of Coloradans who are uninsured fell to 16.1 percent, the U.S. Census Bureau found no statistically significant difference between the proportion of Coloradans uninsured in 2005-06 and the proportion uninsured in 2007-08.⁴

Uninsurance rates and the numbers of uninsured are both important in understanding the magnitude and implications of being uninsured. For example, although the proportion of Colorado’s uninsured population has remained relatively stable, the data suggest that Colorado’s uninsured population has increased as the state’s population continues to grow (Table I). In other words, the uninsured rate is stable while the actual number of uninsured people is growing. Rates are important because they allow policymakers to assess the magnitude of an issue relative to the state’s population as well as subgroups

of the population (such as Latinos or rural residents). The number of uninsured is important for assessing the impact that increasing or decreasing numbers of uninsured may have on the capacity of the health care system to serve medically indigent patients.

From where do the estimates come?

The best way of estimating the health insurance status of the state’s population is by administering a survey to a random and representative sample of people living in Colorado. Understanding the data source from which uninsured estimates are derived is central to correctly interpreting the data. Organizations and agencies use different data sources and methods to estimate the number of uninsured. Some states conduct their own household surveys. A number of federal agencies also conduct surveys that ask a representative sample of U.S. residents about their health insurance status. These include the Medical Expenditure Panel Survey (MEPS), National Health Interview Survey (NHIS), the Survey of Income and Program Participation (SIPP) and the Current Population Survey (CPS). Not all of these federal surveys

Table I. Number and percent of uninsured Coloradans, two-year averages, 2001-08

	2001-02	2003-04	2005-06	2007-08
Uninsured population	667,176	731,866	798,772	790,213
State population	4,443,490	4,502,377	4,721,588	4,896,728
Percent uninsured	15.0%	16.3%	16.9%	16.1%

SOURCE: CHI analyses of Current Population Survey, 2001-08

have large enough sample sizes to produce reliable state-level estimates, however, Graph 3 displays national and available Colorado uninsured rates derived from these four surveys for the U.S. population under age 65 and for all ages in Colorado.

Among these federal surveys, the CPS is particularly noteworthy. The U.S. Census Bureau conducts this monthly employment and economic survey of the U.S. civilian, non-institutionalized population. Each March, the questionnaire includes health insurance questions. The CPS sample is considered large enough to provide reliable state-level health insurance estimates. Many agencies and organizations, including CHI, analyze the CPS public data files to describe the characteristics of the uninsured.

New sources of data estimating the uninsured

Recently, Colorado was introduced to three additional sources of insurance status data that address some shortcomings of the CPS, thus providing more reliable estimates of health insurance coverage.

The 2008-09 Colorado Household Survey

The Colorado Department of Health Care Policy and Financing (HCPF) recently released uninsured estimates using data from the 2008-09 Colorado Household Survey (COHS). The survey was funded by The Colorado Trust and administered by CHI. The survey sample included 10,000 Colorado households over the period covering November 2008 to March 2009. The random digit-dialing telephone survey focused on Coloradans' health insurance coverage, as well as access to health care, out-of-pocket health care expenditures and utilization of health care services. Basic demographic information about each household included family size and income, age of family members and employment characteristics of the adults in the household. The 2008-09 COHS includes these health insurance coverage and access data for 21 regions of the state.⁵

Graphs 1 and 2 display estimates from the 2008-09 COHS. CHI found that nearly 14 percent of all Coloradans (approximately 690,000 individuals) reported being uninsured at the time of the survey. Similar to some of the federal surveys discussed later

in this brief, the COHS provides estimates of the amount of time an individual has gone without health insurance. Approximately 10 percent of Coloradans indicated they were without insurance for the entire 12 months prior to being surveyed, while 19 percent were uninsured at some point in the 12 months prior to the survey. Of the 19 percent, the majority (81%) reported being uninsured for at least four months.⁶

Results from the COHS found somewhat lower uninsured estimates than the federal surveys. State-specific surveys such as the COHS often yield lower uninsured estimates than national surveys because of differences in survey methods and other factors discussed in this brief.⁷

The American Community Survey

The U.S. Census Bureau's American Community Survey (ACS) is an ongoing nationwide survey that replaces the long form for the 2010 U.S. Census. Annual estimates of demographic, housing, social and economic characteristics are available for all states and sub-state regions such as cities and counties with a population of 65,000 or more. After three to five years, the Bureau will release ACS-based estimates for small areas such as ZIP Codes, as well as population subgroups based on multi-year data. In 2008, the U.S. Census Bureau added health insurance questions to the ACS questionnaire for the first time and released state uninsured estimates in September 2009 (displayed in Graphs 1 and 2).

According to the ACS, an estimated 17 percent of Coloradans (approximately 834,000 individuals) reported being uninsured at the point at which they were surveyed in 2008, compared to the U.S. uninsured rate of 15 percent. Uninsured estimates for counties and municipalities with populations of 65,000 or more are also currently available from the U.S. Census Bureau.⁸ In the long term, the ACS will provide a consistent source of health insurance estimates for relatively small geographic areas that are not currently available.

Small Area Health Insurance Estimates

In August 2009, the U.S. Census Bureau released updated insurance coverage estimates for every county and state in the country from its Small Area

Health Insurance Estimates (SAHIE) program. These estimates were derived from statistical models based on a variety of data sources including the CPS, federal tax returns and administrative data from food stamps, Medicaid and the State Children’s Health Insurance Program. Both the county and state estimates are labeled as experimental and include estimates of people with and without health insurance by age, income, gender and race/ethnicity (for state estimates only). The latest estimates cover the year 2006, although the Census Bureau has expressed intent to update the estimates again in coming years.⁹

Why do the estimates differ?

Despite the prominence of the CPS, researchers and policy analysts have questioned exactly what the CPS says about the uninsured. CHI uses the CPS to illustrate three factors (methods, definitions and reporting period) that must be considered when interpreting data and comparing estimates across surveys.

I. Methods





The purpose and objectives for each survey largely determine the methods by which survey data are collected. Agencies that administer surveys differ on the population from which they draw their random sample, the methods by which they administer their survey and the design of the survey questionnaire. For example, the CPS surveys the non-institutionalized population, whereas the American Community Survey (ACS), another survey from the U.S. Census

Bureau, was recently expanded to include people living in group quarters such as dormitories, nursing homes and military bases (See Appendix A for further information about these surveys). Many state health insurance surveys, such as the 2008–09 COHS described on p. 3, typically calculate an uninsurance rate based on a sample comprising one randomly selected person per household, whereas uninsurance rates from national surveys such as the CPS typically include all members of the household when calculating the uninsurance rate. CHI is investigating the degree to which these two methods of calculating uninsurance rates account for the difference in estimates between state and national surveys.

2. Definitions

An important aspect of understanding survey findings is to identify how the terms “insured” and “uninsured” are defined. For example, is a person without health coverage at a particular point in time (that is, when the survey was administered) considered uninsured or rather must they report being uninsured for a full 12-month period? Each March, respondents to the CPS are asked a series of questions about whether they were covered by a range of insurance products such as private insurance, Medicare or Medicaid “at any point in the past calendar year.” If they responded that they were not covered by any of the mentioned sources at any time during the last calendar year, it is assumed they were uninsured during the entire calendar year. To confirm

Table 2. Simplified example of CPS health insurance questionnaire¹⁰

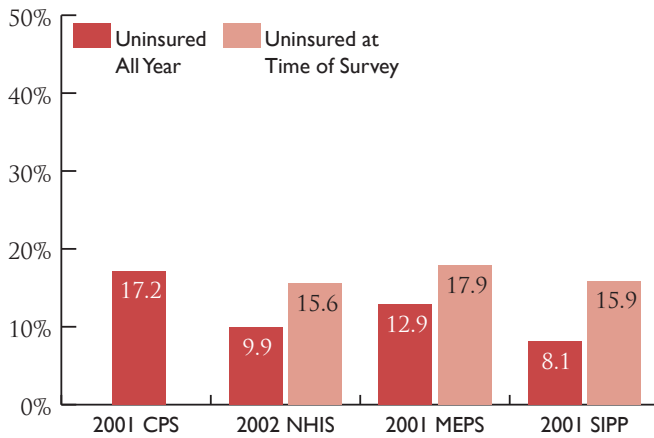
CPS Question	Response	Insured	Uninsured
At any time in 2008, were you covered by private health insurance?	Yes	Covered by private insurance	If respondent answers “No” on every item, then he or she receives a verification question: “You have indicated that you were not covered by a health plan at any time during 2008. Is this correct?” 
	No		
At any time in 2008, were you covered by Medicare?	Yes	Covered by Medicare	
	No		
At any time in 2008, were you covered by Medicaid? ...etc.	Yes	Covered by Medicaid	
	No		
Resulting definitions		If “yes” to any of the above, respondent is considered insured at some point in past calendar year.	If “yes” to the question above, respondent is considered uninsured for entire past calendar year.

this assumption, the respondents are asked to verify their uninsured status. Table 2 illustrates how the standard definitions of “insured” and “uninsured” are derived from the survey items on the CPS. A similar approach was used in the 2008-09 COHS.

Unlike the CPS, other national household surveys including the MEPS, NHIS and SIPP have the ability to measure respondents’ insurance status both at the point of survey administration as well as over the previous 12 months. When CPS uninsurance estimates are compared to full-year and point-in-time uninsured estimates from other surveys, they more closely approximate the *point-in-time* estimate than the *uninsured-all-year* estimate. For example, the 2001 CPS estimated uninsurance rate of 17 percent is statistically different from the 2001 MEPS full year estimate of 13 percent and closer to the MEPS point-in-time estimate of 18 percent (Graph 3).

Findings from a recent analysis suggest that these differences hold true when state-level estimates are derived from national surveys as well.¹¹ In 2004-06,

Graph 3. Estimates of U.S. uninsured rates among people ages 0-64 from four federal surveys, 2001-02

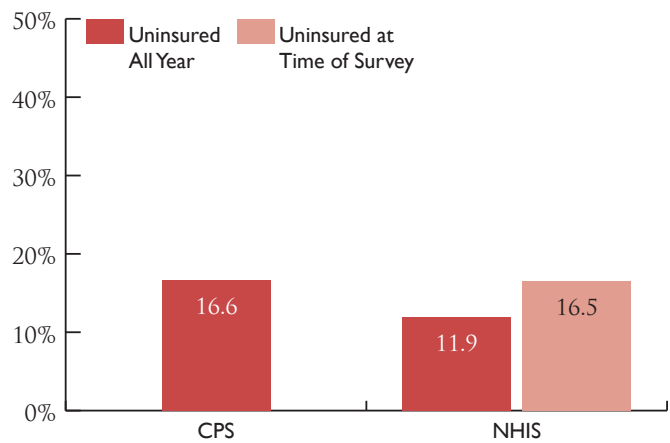


SOURCE: Davern, M. (2008).

the CPS estimate of the percentage of Colorado’s population that was uninsured was nearly 17 percent, compared with the 12 percent full-year and 16 percent point-in-time estimates from NHIS (Graph 4).¹²

Recent research has concluded that the CPS is a poor measure of full-year insurance status.¹³ This is

Graph 4. Estimates of Colorado uninsured rates among people of all ages from two federal surveys, 2004-06



SOURCE: Cohen, R., and D.M. Makuc. (2008).

likely due to a variety of factors, including differences in survey design, respondents’ inability to accurately recall their insurance status over the past year and respondents’ tendency to report their current insurance status at the time of the interview.

3. Reporting period

Related to full-year or point-in-time uninsurance estimates is the reporting period used to calculate the estimate. For example, is the estimate derived from a single year of survey data or from an average of multiple survey years? Researchers often take an average of multiple years of data to increase the overall survey sample size and thus reduce the margin of error. As Graphs 1 and 2 illustrate, a single-year estimate tends to fluctuate more than two- and three-year averages. (See the box on page 7 for more information about margins of error.)

Graph 5 displays the CPS-based uninsured estimates for 2006-08 accompanied by their respective margins of error. Note that the margins of error decrease in size as multiple years of CPS estimates are averaged.

Graph 5. Number of uninsured people in Colorado and margins of error for single year, two-year average and three-year average estimates, Current Population Survey, 2006-08

3-year average Year period Number uninsured +/- Margin of error (95% Confidence Interval)	2006-08 802,072 +/- 61,039		
	2006-07 813,188 +/- 73,770	2007-08 790,213 +/- 69,587	
2-year average			
Single year	2006 825,789 +/- 92,405	2007 800,588 +/- 87,276	2008 779,838 +/- 82,212

SOURCE: CHI analyses of the Current Population Survey

Some researchers have developed their own statistical models using the CPS or other data sources. In 2007, Colorado’s Blue Ribbon Commission on Health Care Reform contracted with The Lewin Group to evaluate state health care reform proposals. The Lewin Group utilized the company’s proprietary Health Benefits Simulation Model to estimate the number of uninsured Coloradans. As opposed to using only the March CPS supplement, The Lewin Group used an additional 33 months of CPS data to model Coloradans’ insurance coverage rates on a month-to-month basis. Subsequently, they estimated that an average of 785,000 Coloradans were uninsured in *any given month* in the period 2004-06.¹⁴

Methods, definitions and reporting periods are important considerations when using estimates derived from the CPS or other datasets. They are not, however, the only factors that should be considered. For example, research comparing data from the Centers for Medicare and Medicaid Services has suggested that the CPS consistently undercounts the number of people enrolled in Medicaid. The discrepancy between counts of enrollees from administrative records and those reported in survey data may be due to survey respondents misreporting their coverage, flaws with survey design, duplicative counting within administrative data or a combination of all of these. Undercounting the Medicaid population may have the effect of overestimating the privately insured and uninsured populations. CHI has developed methods

to statistically adjust CPS-based children’s uninsured estimates for Medicaid underreporting.¹⁵

So which uninsured estimate should I use?

There are advantages and disadvantages to using uninsurance estimates for each of the datasets discussed in this brief. For example, the 2008-09 COHS included a robust sample of the state’s population and was designed specifically for Colorado, but it lacks comparable data from previous years for trending purposes. The health insurance item found on the ACS questionnaire continues to be evaluated against the more comprehensive series of insurance items found on surveys such as the CPS and COHS. The CPS lacks an adequate sample size to calculate reliable sub-state estimates.

Despite its limitations, the CPS will likely continue to be used for national health insurance estimates as well as for comparison among all 50 states. Recently, the U.S. Census Bureau recommended using a three-year average when comparing CPS-based uninsured rates across states and two-year averages for assessing state-level uninsured trends over time.¹⁶ CHI has adopted these recommendations and recommends using a three-year average of CPS data for subpopulation analyses within a state, such as uninsured rates among Colorado’s children.

While averaging two years of data has the advantage of using the most current data, averaging three years provides additional sample size, thus reducing the

What is a margin of error?

Uninsured estimates are based on surveys of a sample of a population. A well-designed survey is administered to a representative random sample of a population and a margin of error quantifies the precision of an estimate derived from the sample. A margin of error is the range within which the true measure of the population is expected to fall 95% of the time if random samples of the same population were taken multiple times. This is also referred to as a 95% confidence interval.

For example, a margin of error of plus or minus 4% means that for 95 samples out of 100, the true measure for the population would fall somewhere between 4% below and 4% above the sample estimate. Tighter margins of error indicate that the sample estimate more closely approximates the true characteristic of a population, such as the number of uninsured individuals in Colorado at a point in time. A margin of error is often represented by a vertical line on a graph, a percent (plus or minus) or a range. Figure I displays three common ways of representing a margin of error, using an example of 35% with a margin of error of 4%.

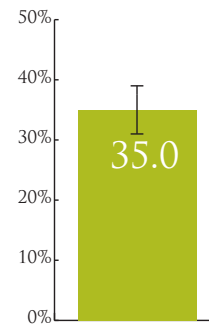
instability of the estimate. Using a two- or three-year average will result in different estimates of the total number of uninsured Coloradans. For example, the two-year average of 2007-08 data results in an estimate of 790,000 uninsured Coloradans, whereas a three-year average of 2006-08 results in an estimate of 802,000.

Other datasets may be more appropriate to use depending on the user's needs. Additional factors that may be considered when choosing a dataset include:

- Are the data available for smaller geographic areas such as cities, counties or census tracts?
- Is it possible to estimate rates for particular sub-populations of interest, such as children, Hispanics or people with disabilities?
- Are public use data files available for legitimate research purposes so that researchers can conduct their own analyses?

Figure I. Three ways of displaying a margin of error

1. Line on a bar chart



2. The estimate plus or minus the margin of error

35% ± 4%

3. A range that includes the estimate

31% to 39%

Note that CHI often reports 95% confidence intervals, although other organizations (such as the U.S. Census Bureau) may report 90% confidence intervals.

Appendix A is a resource to guide potential users through the various sources of available data on the uninsured.

Conclusions

Despite what may seem to be a confusing array of estimates and data sources available on the uninsured, CHI suggests that the underlying message is the same—hundreds of thousands of Coloradans reported having no health insurance during some portion, if not all, of any 12-month period of the past several years. This statistic is consistent across all available data sources. As CHI continues to produce uninsured estimates, the numbers have become more precise over time and have produced important trend data for state policymakers.

CHI responds to the health insurance information needs of policymakers and others by providing timely, reliable and trended insurance status data by which to evaluate health policy initiatives. It looks

forward to analyzing and reporting findings from each of these sources of insurance data to fulfill one of its three core functions which is to serve as the preeminent source of health and health care information for Colorado through its clearinghouse function.

For more information, please contact Jeff Bontrager, MSPH, Program Manager, Center for the Study of the Safety Net, at info@coloradohealthinstitute.org.

Appendix A. CHI’s recommendations for finding the appropriate source of uninsured estimates for Colorado

For additional information on these and many other datasets available through online query or upon request, visit CHI’s compendium of data sources, available at <http://datacenter.coloradohealthinstitute.org/data.jsp>. Click on “Data on your own” or “Data you can request.”

An online version of this chart and links to these data sources are available on CHI’s Web site at: <http://www.coloradohealthinstitute.org/UninsuredData>.

American Community Survey (ACS)	Behavioral Risk Factor Surveillance System (BRFSS)*	Colorado Child Health Survey (CHS)	2001 Colorado Household Survey	2008-09 Colorado Household Survey (COHS)
Data Collected By...				
U.S. Census Bureau	Joint project of Centers for Disease Control (CDC) & Prevention and Colorado Department of Public Health and Environment (CDPHE)	CDPHE	Colorado Governor’s Office (Data housed at CHI under agreement with Colorado Division of Insurance)	CHI, under contract with Colorado Department of Health Care Policy and Financing
Brief description of survey and health insurance item(s)				
Annual national survey that replaces the long form of decennial census. Includes series of yes/no questions about type(s) of health insurance currently covering each person in household.	Statewide telephone survey of adults’ (age 18 and over) health behaviors and risk factors. Includes single yes/no question about whether respondent has any health coverage.	Statewide telephone survey of parents of children ages 0-14 years about their child’s health and health care. Includes three questions about type and duration of child’s health coverage.	Statewide telephone survey conducted in 2001 of 10,000 households. Topics included health insurance, health care utilization, benefits and demographics.	Statewide telephone survey of 10,000 households collected Nov 2008 – March 2009. Topics include health insurance, affordability of health insurance, access to and utilization of health care services and demographics.
Latest year of health insurance data available				
First health insurance estimates were released in Sept 2009 and covered 2008	2008 (2007-08 currently available on COHID)	2008	2001	2008-09

Current Population Survey (CPS) Annual Social and Economic (ASEC) Supplement	The Lewin Group: 2007 Final Report to Colorado Blue Ribbon Commission for Health Care Reform	National Health Interview Survey (NHIS)	National Survey of Children's Health (NSCH)	Pregnancy Risk Assessment Monitoring System (PRAMS)	Small Area Health Insurance Estimates (SAHIE)
Data Collected By...					
U.S. Census Bureau for Bureau of Labor Statistics	Analysis uses The Lewin Group's Health Benefits Simulation (HBS) Model, which is based on secondary data sources (including CPS and MEPS)	CDC, National Center for Health Statistics (NCHS)	Sponsored by Maternal and Child Health Bureau of (HRSA) and NCHS	Joint project of CDC & CDPHE	U.S. Census Bureau insured and uninsured estimates for all states and counties
Brief description of survey and health insurance item(s)					
National survey of civilian non-institutional population. Topics include employment, worker characteristics, earnings and demographics. Annual Social and Economic Supplement contains series of yes/no questions about type(s) of health insurance covering each person in household over past calendar year.	In 2007, Colorado's Blue Ribbon Commission for Health Care Reform contracted with The Lewin Group to evaluate health reform proposals. The Lewin Group used its HBS model to establish baseline estimates of the uninsured in Colorado.	National household survey of civilian non-institutional population. Topics include health status and limitations, injuries, health care access and utilization. Health insurance duration includes currently uninsured, uninsured at some point over past year and uninsured for more than a year.	National survey that examines the physical and emotional health of children ages 0-17. Insurance items include type of coverage and duration of insurance.	Statewide mail and telephone survey of women who have recently given birth. Topics include health behaviors, prenatal care, and health care coverage during pregnancy and delivery.	SAHIE program uses a variety of secondary data sources, including the CPS, to produce insured and uninsured estimates.
Latest year of health insurance data available					
2009 (covering calendar year 2008)	2004-06 (average monthly uninsured)	2004-06	2007	2007 (2008 available soon or by request)	2006

* The BRFSS information in this table includes only what is publicly available through CDPHE's Colorado Health Information Dataset (COHID) system. Additional years of data, cross-tabulations and regions may be available by contacting the CDPHE Health Statistics Section. For more information, visit <http://www.cdphe.state.co.us/hs/>.

Where can I find...	...statewide uninsured estimates?	...uninsured estimates for a sub-population (e.g., age, race/ethnicity, etc.)?	...uninsured estimates for a small geographic region (city, county, etc.)?	...data that I can analyze myself?
American Community Survey (ACS)	U.S. Census Bureau's American Factfinder	Cross-tabulation for three age groups available through U.S. Census Bureau's American Factfinder..	Predefined summary tables for states and areas with population >65,000 available annually beginning in 2009. Areas with populations of 20,000-65,000 will be available every 3 years. Areas with < 20,000 population (down to Census tract) available every 5 years.	Predefined summary tables released according to schedule at left and public use microdata with health insurance variables for 2008 currently available from the U.S. Census Bureau
Behavioral Risk Factor Surveillance System (BRFSS)	Possible (for age 18 and over) using online Colorado Health Information Dataset (COHID) or CDC Web site	Cross-tabulation of health coverage by sex, age, race/ethnicity, income, education and marital status available through COHID or upon request to CDPHE Health Statistics Section	Tabulation of health coverage statistics for counties and regions available through COHID, CDPHE's Regional Health Profiles, or by request to CDPHE Health Statistics Section	Research requests must be reviewed by CDPHE staff. Contact CDPHE Health Statistics Section for information
Colorado Child Health Survey (CHS)	For ages 0-14 years, available for download in hard copy format on CDPHE Web site	Custom analyses may be available upon request to CDPHE Health Statistics Section	Contact CDPHE Health Statistics Section for information.	Research requests must be reviewed by CDPHE staff. Contact Health Statistics Section for information
2001 Colorado Household Survey	Interim Final Report (April 2002)	Interim Final Report contains many analyses by demographic characteristics. Custom analyses may be available upon request to CHI	Some analyses available in Interim Final Report. Custom analyses may be available upon request to CHI	Requests must be approved by Governor's Office for CHI to release record-level data. Contact CHI for more information
2008-09 Colorado Household Survey	First released in May 2009	Subpopulation analysis first released in May 2009; greater detail to be available later in 2009.	Limited data on health insurance coverage for 21 regions of the state first released in May 2009; more detail likely to be available in late 2009.	Public use data files will be available upon request. A full, unrestricted data file will be available to researchers who complete the application and review process.

NOTE: This table is limited only to health insurance data gathered from the surveys listed. Data on many other subjects, such as demographics, housing, income, medical home, health behaviors and health status, may be available for additional years and in other formats than what is listed here.

Where can I find...	...statewide uninsured estimates?	...uninsured estimates for a sub-population (e.g., age, race/ethnicity, etc.)?	...uninsured estimates for a small geographic region (city, county, etc.)?	...data that I can analyze myself?
Current Population Survey (CPS) <i>Annual Social and Economic (ASEC) Supplement</i>	U.S. Census Bureau and CHI	Available with CPS Table Creator [†] or by contacting CHI.	Few county/city identifiers available in public use data files; CHI does not use CPS for sub-state estimates.	Public use data files available. Contact CHI or U.S. Census Bureau.
The Lewin Group: 2007 Final Report to Colorado Blue Ribbon Commission for Health Care Reform	Available in Appendix A of Blue Ribbon Commission's Final Report to the Colorado General Assembly	Final Report Appendix A contains many analyses by demographic characteristics	Not available	HBS model not available for public use
National Health Interview Survey (NHIS)	Available in Cohen & Makuc (2008)	Report by Cohen & Makuc contains state insured and uninsured estimates by percent of poverty, type of insurance and duration of uninsurance	Not available	State identifiers not available on public use data. Approved researchers may access state identifiers at Research Data Center
National Survey of Children's Health (NSCH)	Available through online query tool	Online query tool enables cross-tabulation by age, sex, race/ethnicity, household income and insurance type	Metropolitan statistical area (MSA) identifiers available in public use data files	Public use data files available for download from National Center for Health Statistics
Pregnancy Risk Assessment Monitoring System (PRAMS)	Summary data include coverage information about infant, prenatal care, and labor and delivery	Cross-tabulation available through COHID or upon request to CDPHE Health Statistics Section	Tabulation of counties available through COHID, CDPHE's Regional Health Profiles, Maternal and Child Health Datasets or by request to CDPHE Health Statistics Section.	Research requests must be reviewed by CDPHE staff. Contact CDPHE Health Statistics Section for information
Small Area Health Insurance Estimates (SAHIE)	Available from SAHIE Web site	Estimates available by age, sex, income level, race/Hispanic origin	County insured and uninsured estimates available on SAHIE Web site.	No public use data file available. SAHIE Web site allows users to query interactive, pre-defined tables.

[†] The CPS Table Creator does not provide a way to estimate the margin of error around its queries. CHI recommends using this tool with caution.

NOTE: In general, only national and regional uninsured estimates are available from the Survey of Income and Program Participation and the Medical Expenditure Panel Survey—Household Component. For more information, see <http://www.census.gov/sipp/overview.html> and <http://www.meps.ahrq.gov/mepsweb/>.

Appendix B. Margins of error for estimates

This table displays the upper and lower bounds of the 95 percent confidence intervals for each estimate referenced in this Technical Brief. CHI included any 95 percent confidence intervals that were reported in source materials. Otherwise, CHI calculated confidence intervals based on its own CPS data analyses or based on standard error information contained in source materials. All CHI estimates have been rounded to the nearest thousand or the nearest percentage point; estimates from other sources are displayed as reported in source materials. See p. 7 in the Technical Brief for an explanation of confidence intervals and margins of error.

Year (Source)	Graphs and tables in report	Estimate	95% confidence interval (lower-upper bound)
American Community Survey (ACS)			
2008 (single year)			
Number	Graph 1	834,000	810,170-857,830
Percent	Graph 2	17.2%	16.7-17.7%
2008-09 Colorado Household Survey (COHS)			
2008-09 (uninsured at point of survey)			
Number	Graph 1	689,670	623,876-755,464
Percent	Graph 2	13.8%	12.5-15.0%
Current Population Survey (CPS)			
2001 (single year, U.S., ages 0-64)			
Percent	Graph 3	17.2%	16.9-17.5%
2004 (single year)			
Number	Graph 1	718,859	633,433-804,285
Percent	Graph 2	15.9%	14.1-17.7%
2005 (single year)			
Number	Graph 1, Graph 5	771,756	686,342-857,171
Percent	Graph 2	16.6%	15.4-19.0%
2006 (single year)			
Number	Graph 1, Graph 5	825,789	733,384-918,193
Percent	Graph 2	17.2%	15.4-19.0%
2007 (single year)			
Number	Graph 1, Graph 5	800,588	713,312-887,864
Percent	Graph 2	16.4%	14.7 – 18.2%
2008 (single year)			
Number	Graph 1, Graph 5	779,838	697,66-862,050
Percent	Graph 2	15.9%	14.2-17.9%
2001-02 (two-year average)			
Number	Table 1	667,176	600,358-733,995
Percent	Table 1	15.0%	13.5-16.5%

Year (Source)	Graphs and tables in report	Estimate	95% confidence interval (lower-upper bound)
2003-04 (two-year average)			
Number	Table I	731,866	663,311-800,422
Percent	Table I	16.3%	14.7-17.8%
2004-05 (two-year average)			
Number	Graph 1	745,308	675,181-815,435
Percent	Graph 2	16.3%	14.7-17.3%
2005-06 (two-year average)			
Number	Graph 1, Table I	798,772	725,753-871,792
Percent	Graph 2, Table I	16.9%	15.4 – 18.5%
2006-07 (two-year average)			
Number	Graph 1, Graph 5	813,188	739,418-886,958
Percent	Graph 2	16.8%	15.3-18.3%
2007-08 (three-year average)			
Number	Graph 1, Table I, Graph 5	790,213	720,626-859,800
Percent	Graph 2, Table I	16.1%	15.3-18.3%
2004-06 (three-year average)			
Number	Graph 1	772,135	710,930-833,339
Percent	Graph 2, Graph 4	16.6%	15.4-18.0%
2005-07 (three-year average)			
Number	Graph 1	799,378	737,401-861,354
Percent	Graph 2	16.7%	15.4-18.0%
2006-08 (three-year average)			
Number	Graph 1, Graph 5	802,072	741,032-863,354
Percent	Graph 2	16.5%	15.2-17.7%
The Lewin Group			
2004-06 average monthly uninsured			
Number	Graph 1	785,000	Not available
Percent	Graph 2	17.2%	
National Health Interview Survey			
2002 (U.S., ages 0-64)			
Percent uninsured all year	Graph 3	9.9%	9.5-10.2%
Percent uninsured at point of survey	Graph 3	15.6%	15.2-16.1%
2004-06 (3-year average, CO)			
Percent uninsured all year	Graph 4	11.9%	11.0-12.8%
Percent uninsured at point of survey	Graph 4	16.5%	14.3-18.7%

Year (Source)	Graphs and tables in report	Estimate	95% confidence interval (lower-upper bound)
Medical Expenditure Panel Survey (MEPS)			
2001 (U.S., ages 0-64)			
Percent uninsured all year	Graph 3	12.9%	12.2-13.6%
Percent uninsured at point of survey	Graph 3	17.9%	17.1-18.7%
Survey of Income and Program Participation (SIPP)			
2001 (U.S., ages 0-64)			
Percent uninsured all year	Graph 3	8.1%	7.8-8.4%
Percent uninsured at point of survey	Graph 3	15.9%	15.5-16.3%

List of sources with URL information

Colorado Department of Health Care Policy and Financing (2009). *Colorado Household Survey Issue Brief: A Profile of Colorado's Uninsured Population*. Available at: <http://www.coloradohealthinstitute.org/Global/Publications/2009/12/COHS-Uninsured-Brief.aspx>.

Colorado Health Institute (2009a). *Colorado children's health insurance: 2009 update*. Available at: <http://www.coloradohealthinstitute.org/Global/Publications/2009/03/Issue-Brief-Colorado-Childrens-Health-Insurance---2009-Update.aspx>.

Colorado Health Institute (2009b). *How do the U.S. Census Bureau's new uninsured numbers stack up against other estimates?* Available at: <http://www.coloradohealthinstitute.org/Global/Publications/2009/09/CPS-Brief.aspx>.

Cohen, R., and D.M. Makuc. (2008). "State, Regional and National Estimates of Health Insurance Coverage for People Under 65 Years of Age." National Health Interview Survey, 2004-06. *National Health Statistics Reports* (Number 1, June 19, 2008). Available at: <http://www.cdc.gov/nchs/pressroom/08newsreleases/uninsured.htm>.

Davern, M., et al. (2007). *A comparison of the health insurance coverage estimates from four national surveys and six state surveys: A discussion of measurement issues and policy implications*. University of Minnesota, State Health Access Data Assistance Center (SHADAC). See Davern, M. (2008) or contact SHADAC for the full paper.

Davern, M. (2008). *A comparison of the health insurance estimates from four national surveys*. Presentation to the Joint Statistical Meetings, Denver, CO, August 5, 2008. Available at: <http://www.shadac.org/publications/comparison-health-insurance-coverage-estimates-four-national-surveys>

DeNavas-Walt, C., et al. (2008). *Income, poverty, and health insurance coverage in the United States: 2007*. Available at <http://www.census.gov/prod/2008pubs/p60-235.pdf>.

Hoffman, C. and J. Holohan. (2005). *What is the Current Population Survey telling us about the number of uninsured?* Available from the Kaiser Family Foundation at <http://www.kff.org/uninsured/upload/7384.pdf>.

Institute of Medicine. (2002). *Care Without Coverage: Too Little, Too Late*. Washington, DC: National Academy Press. Available at: <http://www.iom.edu/en/Reports/2003/Care-Without-Coverage-Too-Little-Too-Late.aspx>.

The Lewin Group. (2007). *Cost and coverage impacts of five proposals to reform the Colorado health care system, Appendix A: Characteristics of the uninsured in Colorado*. Available at: <http://www.colorado.gov/cs/Satellite/BlueRibbon/RIBB/1201542097694>

State Health Data Assistance Center. (2007). *State health insurance coverage estimates: A fresh look at why state survey estimates differ from the CPS*. Available at: <http://www.shadac.org/files/IssueBrief12.pdf>.

U.S. Census Bureau (2009). "Number and percentage of people without health insurance coverage by state using 2- and 3-Year averages: 2005-06 and 2007-08". Table available at: <http://www.census.gov/hhes/www/hlthins/hlthin08/hlthtables08.html>.

End Notes

(Complete references with URLs are listed on the previous page)

¹ Institute of Medicine (2002). *Care Without Coverage: Too Little, Too Late*. Washington, DC: National Academy Press.

² Margins of error for the estimates reported in this paper (when available) may be found in Appendix B.

³ Ibid.

⁴ U.S. Census Bureau (2009).

⁵ The 21 regions are aggregations of counties and were developed by the Health Statistics Section of the Colorado Department of Public Health and Environment (CDPHE) using statistical and demographic criteria. More information on the 21 regions is available by contacting Alyson Shupe, Health Statistics section chief, at Alyson.Shupe@state.co.us.

⁶ Colorado Department of Health Care Policy and Financing (2009).

⁷ For a discussion of why uninsured estimates based on state survey data differ from federal surveys, see the State Health Data Assistance Center (2007).

⁸ For a comparison of county ACS and COHS uninsured rates, see CHI (2009b).

⁹ For more information on the Small Area Health Insurance Estimates (SAHIE), visit <http://www.census.gov/hhes/www/sahie/index.html>. The estimates are also posted on CHI's Web site, at <http://www.coloradohealthinstitute.org/Data.aspx>.

¹⁰ Note: CPS questions were simplified for illustration purposes. For full question wording, please see the 2008 Annual Social and Economic (ASEC) Supplement. Available for download at <http://www.census.gov/apsd/techdoc/cps/cpsmar09.pdf>.

¹¹ For a thorough comparison of CPS-based uninsured estimates and other federal and state surveys, see Davern, M., et al. (2007).

¹² To protect confidentiality, the National Center for Health Statistics (NCHS) does not release state identifiers in public use files of the National Health Interview Survey (NHIS). A researcher must submit a proposal and receive approval to access state-level NHIS data at an approved Research Data Center. Subsequently, NHIS is rarely used for state uninsured estimates. The NCHS, however, recently released a report that included percent uninsured estimates for 41 states (including Colorado). CHI will continue to monitor whether further releases of state

NHIS-based estimates are planned and the reliability of the estimates. For more information, see Cohen, R.A., and D.M. Makuc (2008).

¹³ Davern (2008).

¹⁴ The Lewin Group (2007).

¹⁵ For more information on these and other issues when using CPS uninsured estimates, see Hoffman, C., and J. Holahan (2005). To date, CHI's adjustment for Medicaid underreporting is limited to an analyses of the insurance status among Colorado children of uninsured children who are income eligible but not enrolled in Medicaid or the Child Health Plan Plus (CHP+). For a description of the adjustment, please see CHI (2009a). The estimates in this paper have not been adjusted for Medicaid underreporting.

¹⁶ DeNavas-Walt (2008).

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The Colorado Health Institute (CHI) serves as the primary source of independent data and analysis on health policy issues affecting Colorado. CHI's mission is to help improve the health of Coloradans by providing impartial and relevant data for informed decisionmaking.