

## Applying Cognitive Psychological Principles to the Improvement of Survey Data: A Case Study from the National Survey on Drug Use and Health

Joel Kennet<sup>1</sup>, Dicy Painter<sup>1</sup>, Peggy Barker<sup>1</sup>, Jeremy Aldworth<sup>2</sup>, and Michael Vorburger<sup>2</sup>  
 Substance Abuse and Mental Health Services Administration<sup>1</sup>  
 RTI International<sup>2</sup>

### Abstract

The National Survey on Drug Use and Health (NSDUH) collects data on Medicare and Medicaid coverage as part of a general interview conducted after the core drug use measures have been administered. While the overall estimates derived from the NSDUH Medicare and Medicaid coverage questions have generally appeared credible, it became apparent that among people under 65 years old, Medicare coverage was over-reported and Medicaid coverage was underreported. Among people over age 65, Medicaid coverage appeared to be highly over-reported. These judgments were based on “eyeball” comparisons with estimates from the Survey of Income and Program Participation (SIPP) and Current Population Survey (CPS), both of which administered more detailed modules on health insurance coverage. Expert review of the NSDUH question wordings suggested that inadequate establishment of context (defining terms after using them in the questions), and other syntactic difficulties created excessive demands on working memory. Correction of these problems in the 2003 NSDUH resulted in age-group coverage estimates that more closely matched those obtained in the other surveys, which targeted this topic more specifically and in greater depth. These results are discussed within the context of Tourangeau, Rips & Rasinski’s (2000) Response Process Model.

### 1. Introduction

Over the last few decades, the notion that questionnaire design can be informed and improved by the application of principles of cognitive psychology has gained considerable ground (Presser, Couper, Lessler, Martin, Martin, Rothgeb & Singer, 2004). However, few opportunities have arisen to demonstrate the reparatory effectiveness of these applications (Forsyth, Rothgeb & Willis, 2004). Typically, when survey questions are subjected to cognitive testing and/or expert review, the questions are in early stages of development. Prior data from their use in the population of interest are most often not available. In the rare cases where previously-used questions do undergo review, there is seldom a “gold standard” against which their data can be compared. As a consequence, whatever putative improvements are introduced through the expert review and cognitive testing can not be examined for their effectiveness in a manner more rigorous than further cognitive testing, or in the case of expert review, agreement among the community of experts that the new solution “makes

sense” (Reitman, 1965). In this study, we were able to compare population estimates from two questions regarding Medicare and Medicaid coverage with concurrent “gold standard” estimates generated by more extensive and highly detailed interviews, both before and after the NSDUH questions were reviewed and revised by a team of survey experts.

### 1.1 Description of NSDUH

The National Survey on Drug Use and Health (NSDUH) is a household survey, using Computer Administered Personal Interviewing (CAPI) and Audio Computer Administered Self Interviewing (ACASI) modes, of approximately 67,500 persons annually. Its coverage includes the civilian, non-institutionalized population in all 50 states and the District of Columbia. The NSDUH is the federal government’s leading source of information on the prevalence of use of tobacco, alcohol and illicit substances. In addition to drug use estimates, the survey provides data on a variety of health- and healthcare-related topics. Those portions of the survey considered to be most sensitive, such as illicit substance use, are administered in ACASI mode; the remainder of the questions are read by the interviewer from the screen of a laptop computer. Most of these CAPI questions appear at the end of the survey and are mainly demographic items asking about household composition, education, employment, income and health insurance. Among the questions on income and health insurance are two that ask about Medicare and Medicaid coverage.

### 1.2 Problem Description

Problems with the NSDUH Medicare and Medicaid coverage questions were first noticed in the data obtained in years 1999 through 2001. While the overall coverage estimates seemed reasonable at around 18 percent on Medicare and about 8 percent on Medicaid, breakdowns by age group exhibited patterns that seemed inconsistent with the intended recipients of these programs. Medicare is a government-administered health insurance program principally for people aged 65 and older, and for certain persons under age 65 with disabilities. One would expect to find relatively low Medicare coverage among those under age 65, and much higher coverage after the age 65 break point. Medicaid, on the other hand, is a public assistance program that pays for medical care for people with low income and for disabled people. One would expect a more even distribution over the various age groups, with only slightly higher percentages

among the elderly, these resulting from some number of individuals having spent down their savings on healthcare for which they had no coverage, such as nursing home residency.

A look at the 1999 through 2001 data suggested that excessive numbers of people aged 65 and older reported Medicaid coverage, and a somewhat smaller excess of people under age 65 reported coverage by Medicare. For Medicaid, the discrepancy was rather large. Reported Medicaid coverage for those aged 65 and older in the NSDUH was on the order of 15 to 23 percent, while the CPS was reporting estimates of roughly half that. For Medicare, the problem appeared to be more subtle. While reported coverage among those aged 65 and older in the NSDUH appeared to be on par with estimates from other sources, reported coverage among 18 to 54 year-olds was running between about 2 and 4 percent, depending on the specific age group, while the CPS was reporting a range of estimates for the same age groups between about one half percent and about 3 percent. Tables 1 and 2 provide a comparison of NSDUH and CPS age group estimates of Medicare and Medicaid coverage in years 1999 through 2001.

These findings raised a bit of alarm, and the initial reaction among NSDUH staff was to run a thorough check of the coding, editing, weighting and imputation procedures employed with respect to these particular variables. Finding no problems with any of these algorithms, the focus moved to the questions themselves.

### 1.3 Medicare and Medicaid Questions, 1999–2002

The questions on Medicare and Medicaid, as mentioned earlier, appeared in a CAPI module that asked for the types of health insurance coverage the respondent maintained. The module began with an introduction that read,

“The next questions are about your health insurance coverage and the kinds and amounts of income that you and other people in your family receive.”

This introduction was followed by an optional sentence, which was to be read in the event the respondent queried the purpose of the inquiry. This optional sentence read,

“This information will help in planning health care services and finding ways to lower costs of care.”

On the next screen, the following text appeared:

“Several government programs provide medical care or help pay medical bills. Are you covered by Medicare? Medicare is a

health insurance program for persons 65 and older and for certain disabled persons.”

The next screen contained the Medicaid question, which read,

“Are you currently covered by Medicaid or Medical Assistance? Medicaid or Medical Assistance is a public assistance program that pays for medical care. The [STATE FILL] Medicaid or Medical Assistance program is also called [STATE PROGRAM NAME FILL].”

An interviewer note appeared on this screen as well, which read,

“Medicaid refers to a medical assistance program that provides health care coverage to low income and disabled persons. Most states refer to Medicaid as Medical Assistance.”

## 1.4 Response Process Framework

Staff on the NSDUH instrumentation team decided to subject the Medicare and Medicaid questions to an expert review, using Tourangeau, Rips & Rasinski's (2000) Response Process Model as a framework for the evaluation. Tourangeau, et al's model posits four processes involved in answering survey questions: comprehension, retrieval, judgment and response. Comprehension involves attending to the questions and instructions as they are presented, and creating a representation in working memory that reflects, more or less, the meaning and intent of the question as well as the meanings of the words within the question. Retrieval involves generating a strategy for memory search, actually retrieving (or not) the specific memories being sought, and filling in any details that are missing from memory. The judgment component involves determining the completeness, accuracy and relevance of whatever memories are retrieved, and making an estimate of the correct answer on that basis. Finally, the response component of the model involves mapping whatever judgment was derived onto a response category, and editing the response on the basis of whatever demand characteristics are present.

## 2. Method

### 2.1 Expert Review Process

Three reviewers independently critiqued the questions. Two were survey methodologists having extensive experience with the content and fielding of the NSDUH. The third reviewer was a cognitive psychologist who was new to the project. The review team met several times over the course of a few days to compare comments and draft a revised pair of items.

The expert review focused mainly on the comprehension and retrieval phases of the response process. Comprehension is a process that is heavily dependent upon parsimonious presentation of questions and response options. Brevity and simple sentence structure are very important, due to limitations of working memory (Nairne, 1996). Expert review of the questions above revealed an excessively complex structure, beginning with the transitional sentences. Transitional sentences should be designed simply as a means of moving the respondent's focus from the previous topic and introducing the ensuing one in a general fashion. The transition into the module provided excessive detail about the upcoming questions, which – "... are about your health insurance coverage and the kinds and amounts of income that you and other people in your family receive." It is not necessary to mention "*kinds and amounts of income*", or "*you and other people in your family*", as these phrases distract the reader from determining the gist of the sentence by overloading working memory. However, the review team did not make any changes to the transition, primarily because it was read from a screen that appeared prior to the presentation of the actual Medicare question, which was intended to establish context for the entire module. It was desirable to make as few changes as possible in order to minimize context effects on the income items and to be able to assess the effects of the few changes that were made to the items in question.

Moving into the questions themselves, the review team found potential comprehension problems that they considered more important than those they spotted in the transition. In order to assure comprehension, specific words within questions should be readily recognizable and uniformly understood by all respondents, even at the lowest educational levels within the sample (Fowler, 1995). If definitions of terms that appear in the question are required, they must be presented and understood by the respondent prior to the presentation of the question itself. Otherwise, respondents must interrupt their parsing of the question in order to hear and comprehend the definition, and then go back to the question and attempt to insert the definition into the position allotted for the novel term. This process practically implies that whatever information they have gathered in working memory thus far has decayed considerably, if not completely. Thus, in the best case scenario, the respondent has to hear the question over again. In the worst case, the respondent plows through without bothering with the definition at all and answers the question without fully comprehending it. In both of the questions above, the definitions of the key terms, Medicare and Medicaid are provided *after* the questions have already been asked. The review team was quick to decide that this should be fixed in the revised version of the questions.

The review team also considered the definitions themselves. In particular, the definition of Medicaid appeared overly complex, because in actuality, three names are presented for it. "The [STATE FILL] Medicaid or Medical Assistance program is also called [STATE PROGRAM NAME FILL]." The review team decided that dropping the "medical assistance" pronoun would probably not hinder, and perhaps even enhance comprehension of this definition.

Expert review does not, and should not, occur in a vacuum. As mentioned earlier, two of the reviewers had extensive experience with the fielding of the NSDUH. These individuals have pounded the pavement with many field interviewers on the project and observed their behavior in respondents' homes. In fact, NSDUH staff carries out field observations on a regular, ongoing basis in order to monitor interviewers' compliance with protocol and to seek out potential problems with all aspects of the survey's instrumentation. It was on one of these field observations that one of the expert reviewers noticed an interviewer who appeared to read either Medicare or Medicaid somewhat randomly in the presentation of these questions. While such seemingly dyslexic behavior was not observed among any other interviewers, this observation led the review team to speculate that *respondents* might not be paying attention to the particular terms being read. In fact, since the definitions of the two public assistance programs contained some overlap regarding disabled persons, it was possible that the terms were also being confused by some respondents, thus leading them toward incorrect retrieval strategies. The review team elected to take advantage of boldface type, which is used in other places in the survey to indicate that the interviewer should emphasize the text being read. The boldface type was applied to the final syllable of the program names, and to key elements of their definitions.

## 2.2 Revised Medicare and Medicaid Questions, 2003

As mentioned earlier, the review team met several times in order to revise the questions. The final versions were not completed in time to include them in the cognitive testing that is typically carried out on new items in the NSDUH. At any rate, the transition into the module was left unchanged, and the following revised questions appeared in the 2003 survey.

"Several government programs provide medical care or help pay medical bills. **Medicare** is a health insurance program **for persons aged 65 and older** and for certain disabled persons. Are you covered by **Medicare**?"

This new Medicare item was followed by a check item, which appeared if the respondent was under age 65 and

provided a “yes” response to the item above. The check item read as follows:

“You have indicated that you are covered by Medicare, which is a health insurance program **for persons aged 65 and older** and for certain disabled persons. Is this correct?”

The new Medicaid item was then presented, which read:

“**Medicaid** is a public assistance program that pays for medical care **for low income and disabled persons**. The Medicaid program in [STATE FILL] is also called [STATE PROGRAM NAME FILL]. Are you covered by **Medicaid**?”

Similar to Medicare, the new Medicaid item was followed by a check item that appeared if the respondent was 65 or older and responded positively to the Medicaid item. The check item read as follows:

“You have indicated that you are covered by Medicaid, which is a public assistance program that pays for medical care **for low income and disabled persons**. Is this correct?”

### 3. Results

Data from survey years 2002 and 2003 were compared among the NSDUH, the Current Population Survey (CPS), and the Survey of Income and Program Participation (SIPP). Because the NSDUH underwent major design changes between survey years 2001 and 2002, data from prior years are not presented, as they may not be comparable. Estimates of Medicare and Medicaid coverage were broken down by age groups in order to determine where major discrepancies exist between those obtained by the NSDUH and the other surveys.

Table 3 contains the 2002 and 2003 estimates for Medicare, by age, for each of the three surveys in question. In 2002, the overall estimates for the three surveys were close in range. For those aged 18 and older, the NSDUH reported an estimate of 18.3 percent, closely tracking the CPS and SIPP estimates of 18 and 17.4 percent, respectively. When looking at specific age groups, the NSDUH estimates for those aged 65 and older also resembled those of CPS and SIPP. This shows that the NSDUH successfully captured Medicare information from the age group that received the majority of the benefits. The salience of the topic among this age group likely aided in the comprehension and retrieval stages of the response process.

When looking at the 18 to 54 age group, however, a discrepancy is evident. In 2002, CPS and SIPP

produced Medicare estimates ranging from 0.4 to 3.4 percent for those aged 18 to 54. The NSDUH, on the other hand, had estimates ranging from 1.3 to 4.9 percent, indicating a slight overestimate for this age group. Figure 1 illustrates the difference in the estimates between the three surveys for 2002. The graph shows that the largest discrepancies lie in the age groups of 18 to 24 and 45 to 54. For those aged 18 to 24, the NSDUH estimate is approximately 85 percent higher than CPS and 225 percent higher than SIPP. The NSDUH estimate for ages 45 to 54 is nearly 45 percent higher than that of the other two surveys.

Figure 2 depicts the changes in the NSDUH estimates following the questionnaire modifications introduced in 2003 for those aged 18 to 64. Each age group within the range showed a decrease in the estimate in 2003. The age groups that showed the largest disparity in 2002, 18 to 24 and 45 to 54, each showed a statistically significant decrease in the estimate in 2003. Figure 3 shows how the 2003 NSDUH estimates compare to those of CPS and SIPP. Compared to 2002, the 2003 NSDUH estimates more closely resemble those of the other two surveys.

Table 4 shows the 2002 estimates for Medicaid, by age, for each of the three surveys. Again, the 2002 NSDUH overall estimate of 7.9 percent for those 18 and older seems credible, as it closely matches those of the other two surveys (7.2 percent for CPS and 7.6 percent for SIPP). The estimates for those aged 18 to 64 also seem reasonable when compared to the CPS and SIPP estimates. For those aged 65 and older, however, the NSDUH estimates are clearly higher than those of the other two surveys. Figure 4 shows the 2002 Medicaid estimates for those 65 and older for the three surveys. The 2002 NSDUH estimate for those aged 65 to 74 is nearly 20 percent higher than that of CPS. For 75 to 84 year-olds, the NSDUH estimate exceeds the SIPP estimate by 40 percent.

Figure 5 illustrates the changes in the NSDUH estimates between 2002 and 2003 for ages 18 to 64. Once more, there was a decrease in the estimates for each age group within the range. The impact of the questionnaire changes was most evident in the age groups of 65 to 74 and 75 to 84, which showed statistically significant declines in 2003. Figure 6 compares the 2003 NSDUH estimate to those of the other two surveys. Whereas the 2002 NSDUH estimates for these age groups were higher than those of CPS and SIPP, the 2003 estimates based on the new question wording appear to be slightly lower than the other two surveys.

The check items, administered to respondents who were under age 65 and indicated Medicare coverage and those who were over age 65 and indicated Medicaid coverage, received very few administrations over the 2003 survey year. When respondents were asked to confirm this coverage, the majority indicated

that the initial response was correct. Therefore, the new check items had very little impact on the changes in the 2003 NSDUH Medicare estimates.

#### 4. Discussion

Wording questions in a way that accurately reflects the researcher's intent to all respondents is a difficult task. Moreover, asking questions in such a way that respondents are able to respond accurately is similarly difficult. Focus groups, cognitive testing, expert review and field testing have all been utilized extensively toward these ends. However, statistical evidence in favor of (or against) the use of these techniques has been somewhat lacking. In this paper, we whittled away at this shortfall by tracking the results of an expert review on just two questions, as they were answered by respondents in two consecutive years, one before and one after their revision.

It is fairly clear from the results that the review and revision did indeed improve the comprehensibility of the questions. Coverage estimates for nearly every age group more closely approximated the estimates considered to be the "gold standard". However, this conclusion inevitably leads one to question the veracity of the gold standard, because it too comes from survey data and hence is subject to the same sources of error and bias. The best response to this criticism would be to obtain data from the Medicare and Medicaid programs themselves. While this might be time-consuming, it is a potential area for future research. The other response to the "gold standard" criticism is that the CPS and SIPP are specifically designed to accurately measure participation in programs of this sort. The CPS presents the Medicare and Medicaid questions within a detailed module asking about private and group coverage for each household member, as well as sources of premiums. The SIPP goes so far as to ask respondents for their Medicare cards in order to verify responses. In addition, the estimates generated by these two surveys were pretty strongly in agreement with each other. Thus, we feel that they were an acceptable proxy for the purposes of this study.

Another potential criticism of this study, although a more minor one, lies in its design. Data were simply compared over two time-points, which does not allow for adequate control. In other words, any effects observed may be attributable to random fluctuation over time, or any of a variety of secular trends. Thus, it might have been advisable to run a split sample experiment in 2003, administering the old and new versions of the questions to random halves of the sample (Fowler, 2004). This technique would have provided better evidence for or against the effectiveness of the changes that were made. However, experiments of this type are somewhat costly, and hindsight is always 20/20. In addition, the bi-directionality of the differences that were observed, i.e., the lowering of under-age-55 Medicare estimates

and over-age-65 Medicaid estimates in the absence of simultaneous reductions in the other age groups, leads us to have greater faith in the notion that the question revisions were responsible for these data improvements.

One result that was not emphasized earlier was that the overall population estimates from the NSDUH Medicare and Medicaid questions were quite plausible before the expert review was carried out. It was only after examining the estimates by specific age groups that a problem was discovered. This illustrates one of the values of cognitive testing and other questionnaire improvement methods as tools for continuous improvement of surveys. Simply obtaining estimates from a given question that "make sense", i.e., fit well with expectations or prior trends, does not imply that the question is doing what it was designed to do. In this case, and in many others, the data are used for purposes other than estimating prevalence. Analyses are carried out at the individual level, such as those relating program coverage to current and prior drug use, and these analyses are likely to be negatively affected when individual respondents in particular age groups answer incorrectly. Questionnaire developers would do well to periodically implement a variety of methods to detect situations that might lead particular subgroups, whether based on age, race, educational level or anything else, to answer in ways that are not expected.

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**Table 1 Medicare Coverage among Persons Aged 18 or Older, by Age Group: Percentages, 1999 through 2001**

AGE GROUP	1999		2000		2001	
	NSDUH	CPS	NSDUH	CPS	NSDUH	CPS
18-24	2.37	0.57	2.13	0.57	1.69	0.6
25-34	2.02	1.1	2.12	0.86	2.13	1.13
35-44	3.17	1.67	3.57	1.91	2.73	1.82
45-54	4.10	3.23	4.14	3.07	4.67	3.47
55-64	10.98	8.8	8.17	8.66	9.07	8.65
65-74	91.27	94.39	89.54	93.76	92.92	94.75
75-84	94.51	98.02	94.04	97.98	93.88	97.96
85 or Older	93.34	97.4	93.23	98.57	95.65	98.02

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 1999, 2000, and 2001.  
Source: Bureau of Labor Statistics and U.S. Census Bureau, Demographics Survey Division, Current Population Survey, 1999, 2000, and 2001 March Supplements.

**Table 2 Medicaid Coverage among Persons Aged 18 or Older, by Age Group: Percentages, 1999 through 2001**

AGE GROUP	1999		2000		2001	
	NSDUH	CPS	NSDUH	CPS	NSDUH	CPS
18-24	9.62	9.77	9.16	9.96	9.56	8.69
25-34	6.53	6.44	6.82	6.2	7.16	6.29
35-44	6.05	5.76	5.61	5.22	5.09	5.36
45-54	4.32	4.57	5.03	4.62	5.73	4.91
55-64	7.49	6.18	6.61	6.3	5.82	6.79
65-74	19.84	9.1	16.06	8.54	14.8	9.51
75-84	20.14	8.65	15.86	8.52	15.29	9.66
85 or Older	21.71	11.24	21.9	12.8	24.43	13.71

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 1999, 2000, and 2001.  
Source: Bureau of Labor Statistics and U.S. Census Bureau, Demographics Survey Division, Current Population Survey, 1999, 2000, and 2001 March Supplements.

**Table 3 Medicare Coverage among Persons Aged 18 or Older, by Age Group: Percentages, 2002 and 2003**

AGE GROUP	2002			2003		
	NSDUH	CPS	SIPP	NSDUH	CPS	SIPP
<b>TOTAL</b>	18.3	18.0	17.4	17.7	17.8	17.4
18-24	1.3 <sup>b</sup>	0.7	0.4	0.6	0.7	0.3
25-34	1.4	1.3	0.8	1.1	1.2	0.8
35-44	2.6	1.9	1.8	2.1	2.0	2.0
45-54	4.9 <sup>a</sup>	3.4	3.4	3.5	3.4	3.5
55-64	8.5	8.9	9.2	7.6	8.7	8.3
65-74	93.8	94.6	93.4	94.9	93.3	92.9
75-84	96.9	97.9	95.8	96.0	97.5	95.6
85 or Older	97.7	--	96.3	97.6	--	96.8

\*Low precision; no estimate reported.

-- Not available.

<sup>a</sup>Difference between NSDUH estimate and 2003 NSDUH estimate is statistically significant at the 0.05 level.

<sup>b</sup>Difference between NSDUH estimate and 2003 NSDUH estimate is statistically significant at the 0.01 level.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2002 and 2003.

Source: Bureau of Labor Statistics and U.S. Census Bureau, Demographics Survey Division, Current Population Survey, 2002 and 2003 March Supplements.

Source: U.S. Census Bureau, Demographics Survey Division, Survey of Income and Program Participation, 2002 and 2003.

**Table 4 Medicaid Coverage among Persons Aged 18 or Older, by Age Group: Percentages, 2002 and 2003**

AGE GROUP	2002			2003		
	NSDUH	CPS	SIPP	NSDUH	CPS	SIPP
<b>TOTAL</b>	7.9	7.2	7.6	7.5	7.4	7.7
18-24	11.4	10.4	10.3	11.9	10.6	10.8
25-34	8.0	6.7	7.8	8.0	7.1	7.8
35-44	7.0	5.7	6.4	7.1	6.2	6.8
45-54	4.8	5.2	5.8	5.0	5.5	5.7
55-64	5.5	7.0	6.7	5.9	6.5	6.7
65-74	11.1 <sup>a</sup>	9.3	9.2	8.0	9.3	9.2
75-84	12.5 <sup>a</sup>	10.1	8.9	8.5	9.9	9.7
85 or Older	11.3	--	11.0	10.8	--	10.8

\*Low precision; no estimate reported.

-- Not available.

<sup>a</sup>Difference between NSDUH estimate and 2003 NSDUH estimate is statistically significant at the 0.05 level.

<sup>b</sup>Difference between NSDUH estimate and 2003 NSDUH estimate is statistically significant at the 0.01 level.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2002 and 2003.

Source: Bureau of Labor Statistics and U.S. Census Bureau, Demographics Survey Division, Current Population Survey, 2002 and 2003 March Supplements.

Source: U.S. Census Bureau, Demographics Survey Division, Survey of Income and Program Participation, 2002 and 2003.



Figure 1: Medicare Coverage among Persons Ages 18 to 64, by Age Group, 2002

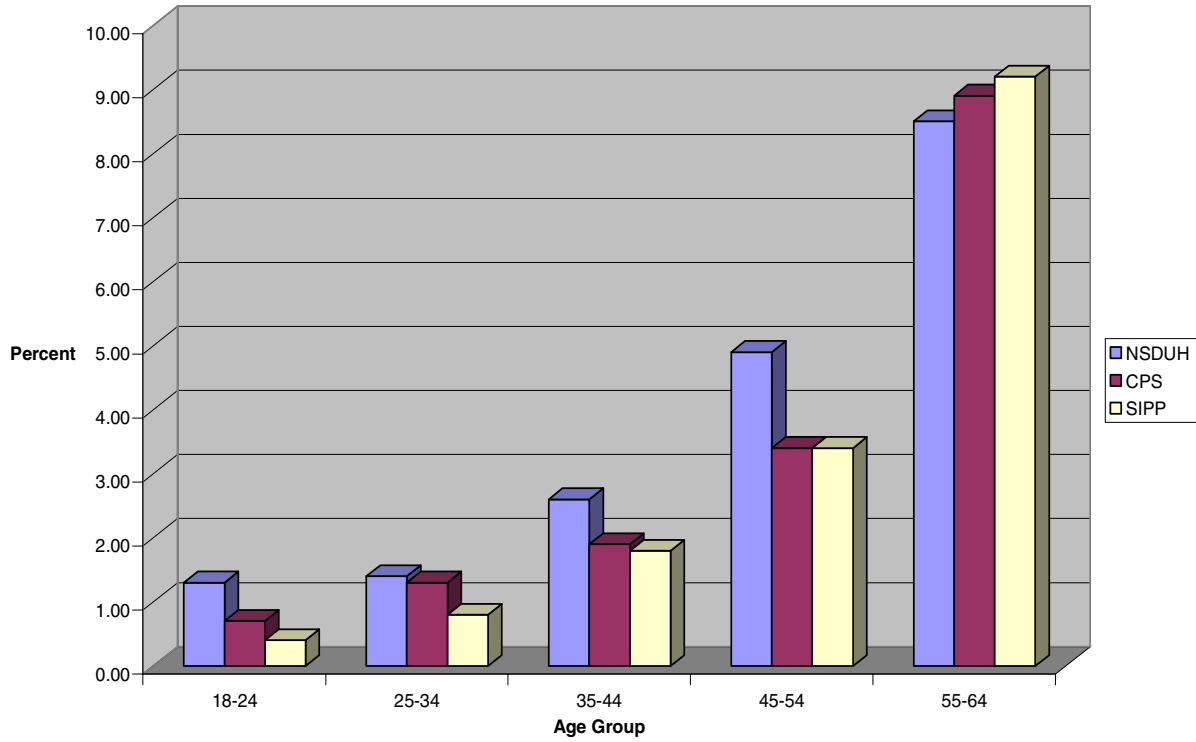
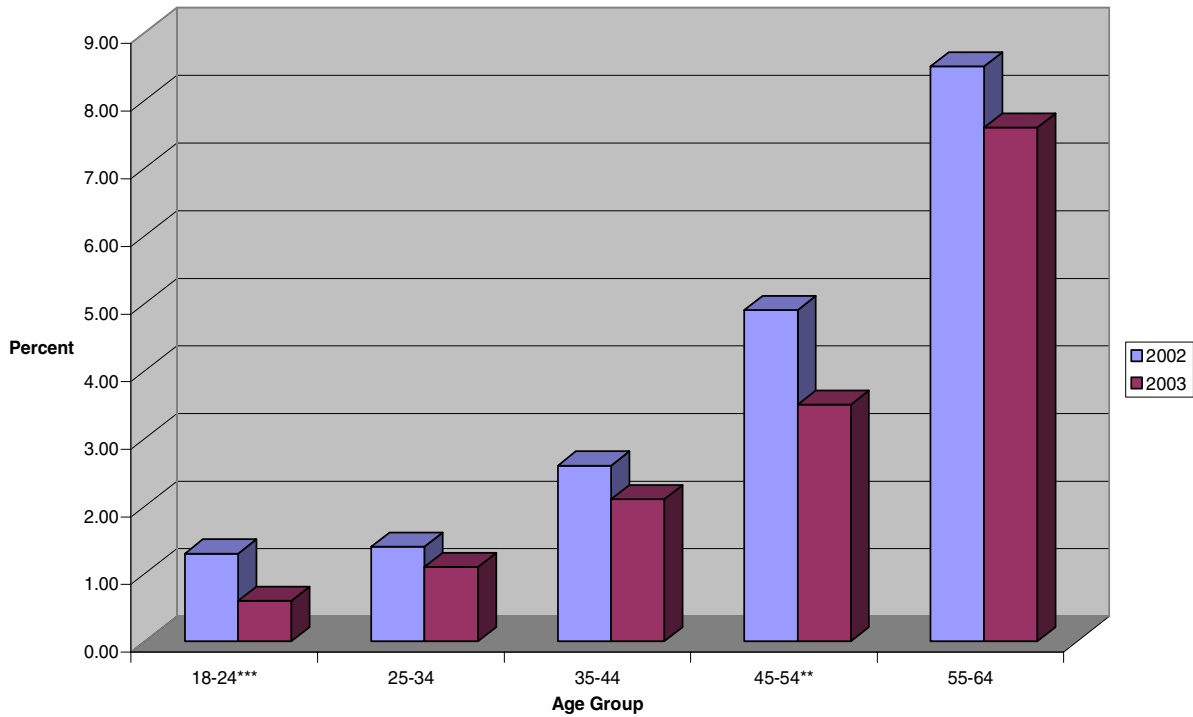


Figure 2: NSDUH Medicare Coverage among Persons Ages 18 to 64, by Age Group, 2002 and 2003



\*\*Difference between 2002 estimate and 2003 estimate is statistically significant at the .05 level.

\*\*\*Difference between 2002 estimate and 2003 estimate is statistically significant at the .01 level.

Figure 3: Medicare Coverage among Persons Aged 18 to 64, by Age Group, 2003

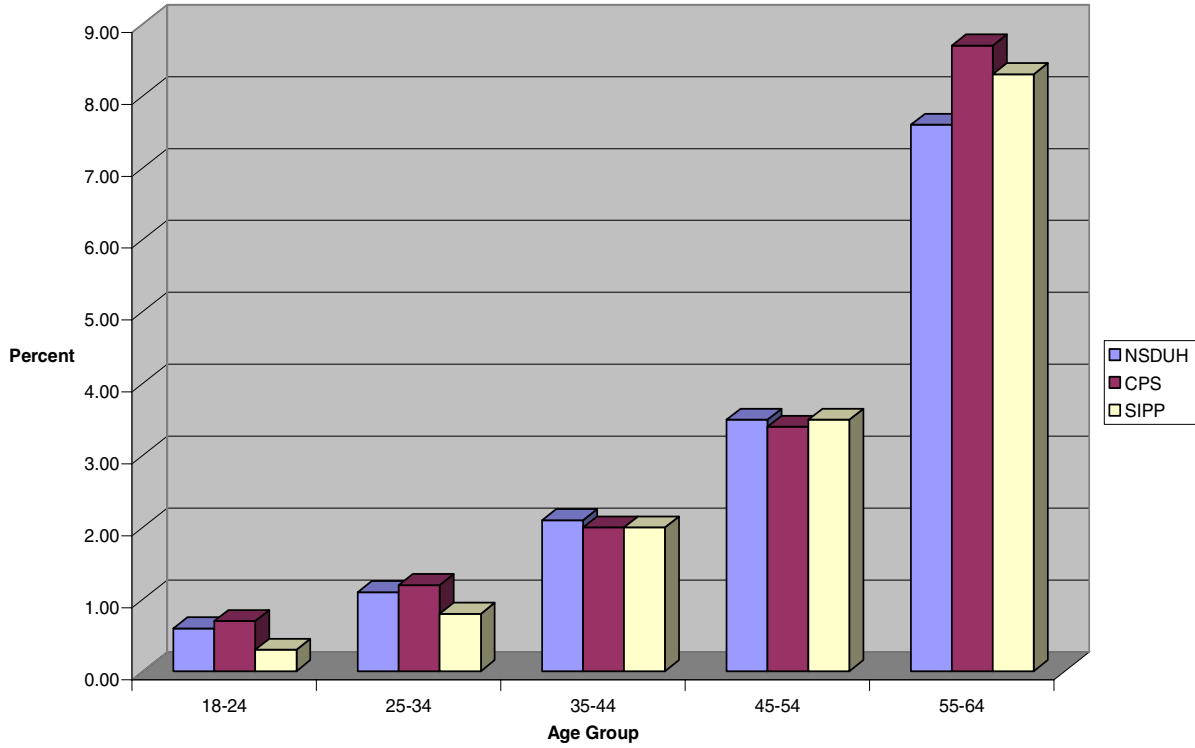
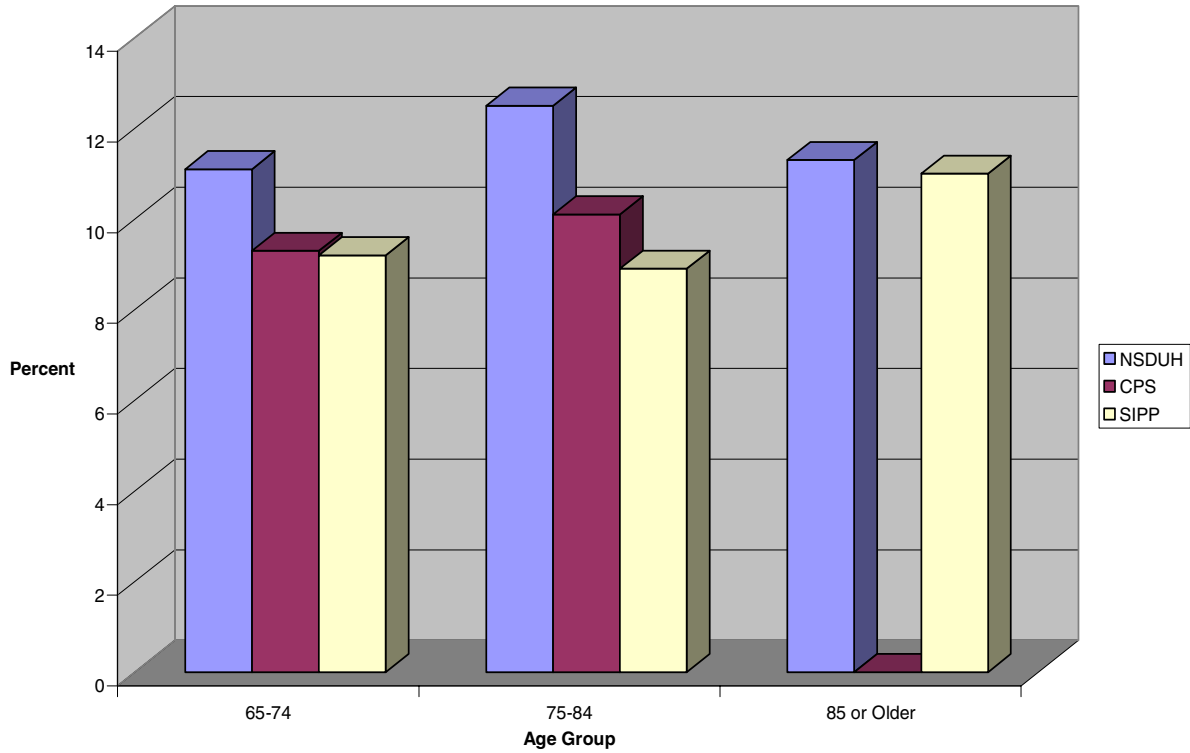
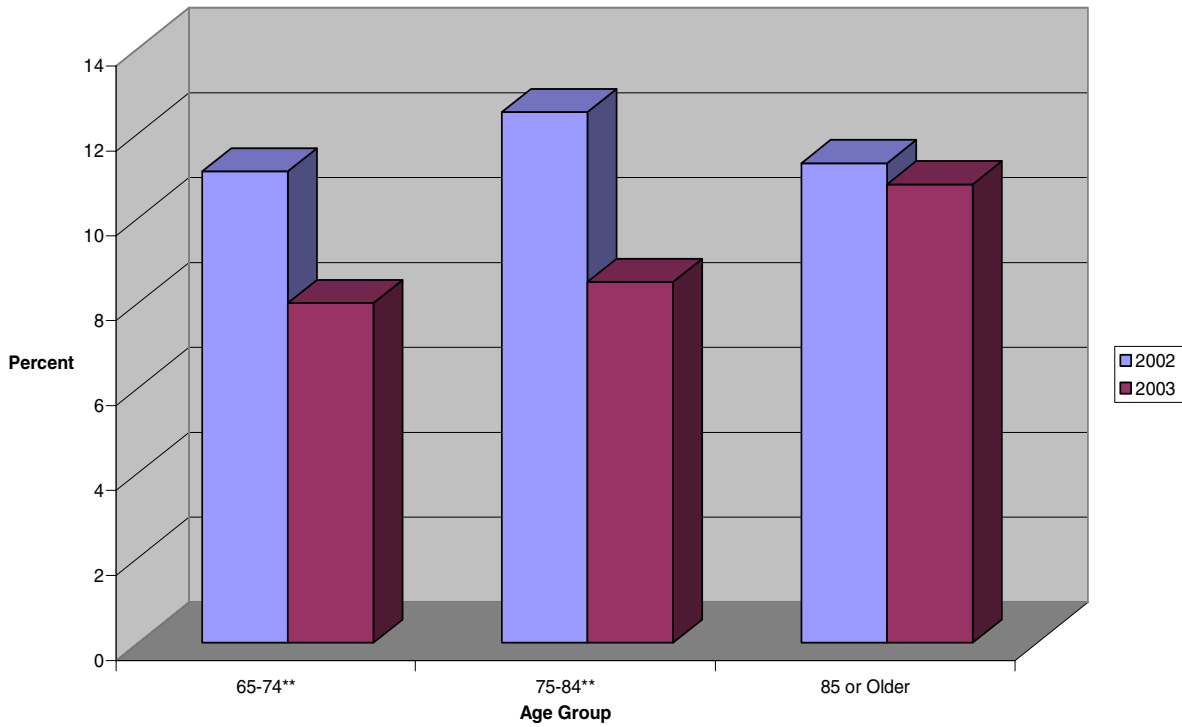


Figure 4: Medicaid Coverage among Persons Ages 65 or Older, by Age Group, 2002



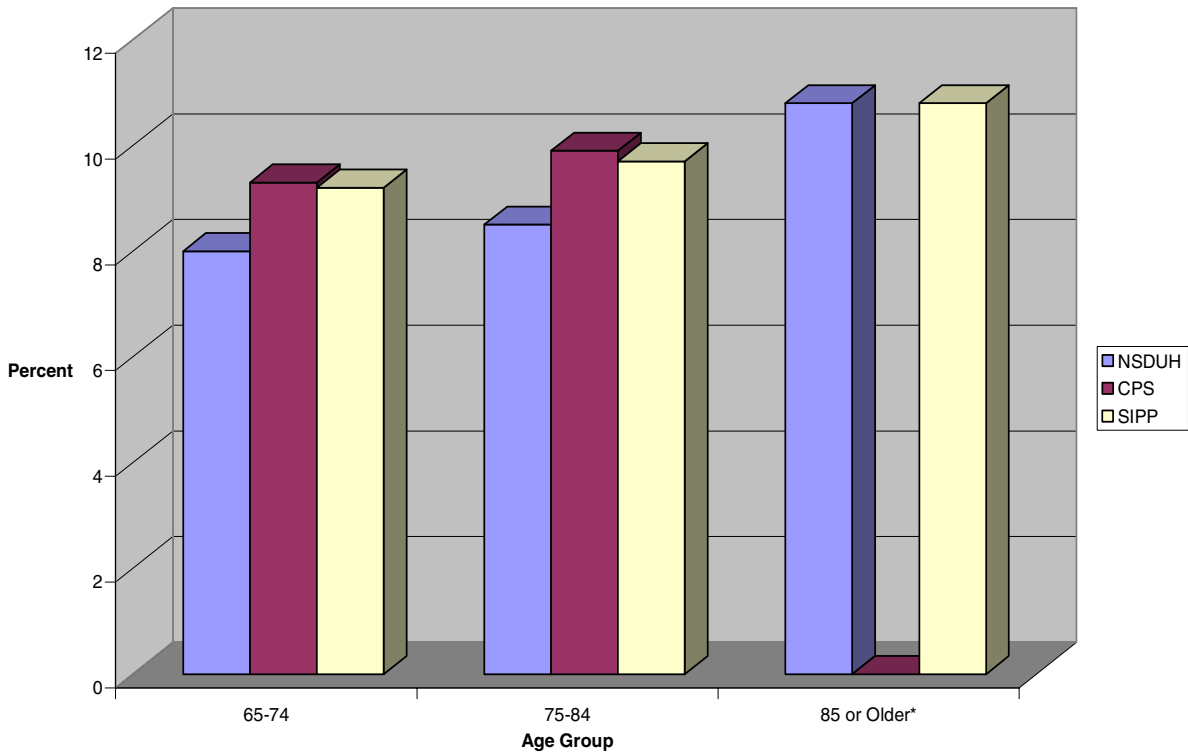
\*CPS estimate not available

**Figure 5: NSDUH Medicaid Coverage among Persons Ages 65 or Older, by Age Group, 2002 and 2003**



\*\*Difference between 2002 estimate and 2003 estimate is statistically significant at the .05 level.

**Figure 6: Medicaid Coverage among Persons Ages 65 or Older, by Age Group, 2003**



\*CPS estimate not available