SHADAC

STATE HEALTH ACCESS DATA ASSISTANCE CENTER

SHADAC Survey Guidelines Series

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Measuring Health Insurance Coverage in Surveys

Part of a technical assistance series prepared by SHADAC and state health policy analysts

Principal Author:
Kathleen Thiede Call, Ph.D.
Co-Principal Investigator
State Health Access Data Assistance Center
University of Minnesota School of Public Health
2221 University Avenue Suite 345
Minneapolis, MN 55414
callx001@umn.edu

Foreword

The State Health Access Data Assistance Center (SHADAC) at the University of Minnesota's School of Public Health, Division of Health Services Research and Policy, convened a group of state health policy analysts to discuss strategies used to collect quantitative data on the number and characteristics on uninsured individuals at the state and sub-state (e.g., region, county) levels.

This group of analysts, led by SHADAC researchers, presented their experiences across a range of issues, from questionnaire design to survey administration. This series of survey guidelines presents the best thinking of this group of researchers and analysts toward the goal of improving the quality of data collection, and ultimately moving state-level data collection activities toward methods that will allow greater capacity for cross-state comparability of data about health insurance coverage and access.

The first survey guideline, "Measuring Health Insurance Coverage," considers technical survey design issues across five principal topics: (1) unit of measurement, (2) reference period, (3) placement, structure and order of health insurance questions, (4) identifying public and private sources of coverage, and (5) other design features. We also acknowledge the invaluable contributions of members of the SHADAC State Health Insurance Survey Workgroup. The following members of this group attended the SHADAC State Health Insurance Survey Workshops held in 2001 and/or 2002.

Linda Bartnyska, *Maryland Health Care Commission*
Linda Bilheimer, *The Robert Wood Johnson Foundation*
E. Richard Brown, *UCLA Center for Health Policy Research, California*
Eleanor Cautley, *Wisconsin Department of Health and Family Services*
Rosemary Chaudry, *Office of Ohio Health Plans*
Bill S. Custer, *Department of Risk* Management and Insurance, *Georgia State University*
Dave Dorsky, *Ohio Department of Health*
Rex Gantenbein, *University of Wyoming*
Ray Goldsteen, *West Virginia Institute for Health Policy Research*
Karen Goldsteen, *Center for Health Services and Outcomes, Camcare, West Virginia*
Burke Grandjean, *University of Wyoming*
Lois Haggard, *Utah Department of Public Health*
Tracy L. Johnson Ph.D., *Health Policy Solutions, Inc, Colorado*
Scott Leitz, *Minnesota Department of Public Health*
Enrique Martinez-Vidal, *Maryland Health Care Commission*
Frank Mills, *University of the Virgin Islands*
Laura Morlock, *John Hopkins University*
Ed Naugle, *Pennsylvania Children's Health Insurance Program*
Kimberly Partain McNamara, *Utah Department of Health*
Joanne Pascale, *U.S. Census Bureau*
Colleen Porter, *University of Florida*
Dianne Rucinski, *University of Illinois-Chicago*
Mikhail Strakhov, *University of Wyoming*
April Todd-Malmlov, *Minnesota Department of Health*
Judith Witt, *Wisconsin Department of Health and Family Services*
Wei Yen, *UCLA Center for Health Policy Research, California*

Health Insurance Survey Practice Guidelines

Measuring Health Insurance Coverage

A Technical Assistance Series Prepared by SHADAC and State Analysts

Background on the Practice Guidelines Series

This brief is part of a series of practice guidelines for health insurance surveys. The creation of these reports is a joint project between the State Health Access Data Assistance Center (SHADAC) and a number of state-level analysts with expertise in collecting data on the uninsured, in an effort to improve the quality of data collection and encourage comparability across state-initiated data collection efforts.

Introduction to Measuring Health Insurance Coverage

What follows is a discussion of the considerations related to designing surveys to measure health insurance coverage, highlighting what is known from the literature, as well as lessons learned from state and federal surveys of insurance coverage. The discussion is divided into five principal topics important to consider when measuring health insurance coverage: (1) unit of measurement, (2) reference period, (3) placement and order of health insurance questions, (4) identifying public and private sources of coverage, and (5) other design features. Table 1 summarizes different approaches to these topics taken by a sample of national and state surveys.

Introduction

Constructing a household telephone survey to measure health insurance coverage and access at the state or sub-state level requires careful planning to ensure that the questionnaire design will yield information that can be readily translated to inform the work of public officials in developing and implementing health policy.

The following guideline outlines some aspects of survey design that are critical in designing a household survey questionnaire. For each of the following five topics, we present a definition, some key questions, and a detailed discussion of the methodological points, as well as some advantages and cautions of each.

- **Unit of Measurement** – Who is the target of the data collection? Or about whom are we collecting data?
- **Reference Period** – When or what timeframe are we collecting data about?
- **Question Structure and Placement** – How should questions be worded? Where and in what order should questions appear in the questionnaire?
- **Properly Identifying Public and Private Coverage** – How should respondents' answers be classified?
- **Design Features to Improve Quality** – How can we better design the instrument to collect the information we need?

Topic 1: Unit of Measurement

The unit of measurement is the level at which variables are measured (e.g., a randomly selected individual, everyone in the household). Note: this should not be confused with the unit of analysis, which is the entity of interest in the study. The planned analyses (e.g., person-level or household level) should dictate the selection of the unit of measurement.

Key Question

Do you want to collect information about of insurance coverage at the individual or across household level?

Various Units of Measurement

One of the first decisions to make in the design of a general population survey instrument is whether to collect health insurance data about an individual, a few individuals or family members, or everyone in the household. There is little research available to support firm recommendations for one approach over the others; however, the following methodological and substantive points of consideration should guide this decision.

(1) Partial Household – Random Individual or Household Sub-Sample Approach

Definition

Asks questions about a randomly selected individual or some subset of household members (e.g., the individual with the most recent birthday.) Another option is the sub-sample of individuals in the household (e.g., one adult and one child, the nuclear family, etc.).

Example

Ohio Family Health Survey

Advantages

Collecting data on some household members, rather than on the entire household, reduces respondent burden and is less expensive to administer. Cost and ease of administration led to Ohio's decision to collect insurance information for one randomly selected adult and child per household, with the adult providing proxy data for the child. (Personal communication, Dave Dorsky, May 2003.)

Cautions

Fragmentation of insurance coverage and insurance source is thought to lead to differential access and service use within families (Hanson, 1998, 2001). Consequently, examining coverage among household members is a growing area of policy interest. For the majority of households, *all* household members have the same insurance status and type of coverage (Hanson 1998, 2001; Davidoff et al., 2001). The level of concordance in insurance coverage varies from survey to survey. However, when focusing specifically on parents and children, in upwards of 11 percent of families, parents and children do not have the same insurance status or coverage (Hanson 2001; Davidoff et al., 2001).

The insurance information on a single household member is not necessarily representative of other household members. In fact, households with at least one uninsured individual are less likely to have uniform coverage for all members (Call, Bansiya, and Sommers, 2002). As individuals with insurance outnumber those without it, any variation in coverage within an insured member's household is likely to affect our understanding of insurance coverage for the population as a whole (Call, Bansiya, and Sommers, 2002).

Enumeration of household members, which is often required when selecting individuals at random, is difficult to do accurately, especially in complex households (e.g., multigenerational, multi-family, or households comprised of unrelated individuals) (Martin, 1999). In addition, members of complex

households are more likely to have different insurance status (insured or uninsured) and different types of insurance coverage (private or public). In general, gathering insurance information about all members from a household proxy (e.g., household informant) should be approached with caution (Call, Bansiya, and Sommers, 2002).

(2) Family Insurance Unit (FIU)

Definition

Technically a subset of the partial household category, the Family Insurance Unit (FIU) typically consists of household members that could be covered by a family health insurance policy (e.g., adults and dependents).

Example

Community Tracking Survey; Survey of Insurance Status of Massachusetts Residents; Utah Health Status Survey

Advantages

The family insurance unit (FIU) is a subset of household members who potentially share access to the same source of insurance coverage (e.g., adults and dependents) (Strouse, Carlson, and Hall, 2001). Establishing the FIU enables the identification of eligibility for family coverage and facilitates data collection on young adults.

The FIU approach explicitly categorizes individuals under 21 (or under 25 in some states) as either in the same or separate FIU, depending on their student status. Non-students between 19 and 21 (or 25) who live with their parents are considered a separate FIU because they are not eligible for coverage through their parents (Strouse, Carlson, and Hall, 2001). This approach is very useful given that young adults experience the highest rates of uninsurance (Census 2001).

Evaluating certain policy development areas will require data from all or most members of the household. For example, if policy goals include reaching uninsured parents of SCHIP enrollees, it will be important to collect information on age, relationship and health insurance coverage of either all members of the household or the "family insurance unit" (FIU). The FIU approach is efficient and attractive when the primary goal of the survey is to estimate insurance coverage and when policy solutions are likely to focus on adults and their dependents (private insurance expansions) or children and their parents (public program expansion.)

Data quality should be improved by grouping household members into smaller units and attempting to identify appropriate informants within each FIU (Strouse, Carlson, and Hall, 2001). At the very least, missing data for household members outside of the respondent's FIU is easier to comprehend and handle analytically.

The Massachusetts survey uses a screener to group household members into FIUs or declare them uninsured. They then randomly select one FIU and ask about sources of insurance coverage for this subgroup of household members via a person-level loop (Personal communication, Tony Roman, June 2002.) Utah, for example, does this by identifying one informant to serve as a proxy for others in the household, adjusting for the clustering of observations within sampled households in the analysis (Personal communication, Lois Haggard, May 2003.)

Cautions

Like the household approach, respondent burden is a concern with the FIU approach. However, the FIU approach helps to resolve some of the difficulty of collecting insurance information in complex households.

(3) Entire Household Approach

Definition

The entire household approach involves enumerating and collecting insurance coverage information for *all* members of the household. Obtaining insurance coverage data for each individual in the household can be difficult and burdensome. However, if the decision is made to ask about insurance coverage for all household members, two broad approaches to implementation are possible:

(1) *Person-level looping* is the method where insurance coverage questions (enrollment in Medicare, Medicaid, employer-based insurance, individually purchased policy, etc) are be asked of one person at a time for each member of the household in turn. Typically, one respondent acts as proxy (e.g., household informant) and provides information for all household members; and

(2) *Household-level screening*, on the other hand, asks about each source of coverage for "anyone in the household," and the household informant indicates who is covered by that source when an affirmative response is provided. Tracking those members of the household with various types of coverage is facilitated through the use of Computer-Assisted Telephone Interviewing (CATI) (Pascale, 1999).

Advantages

Although the research is limited, there is some indication that person-level-looping (i.e., asking the full set of insurance questions about each person in turn) is less cognitively demanding than household-level screening and may result in improved measurement (Hess et al., 2001; Pascale, 1999).

Cautions

As noted earlier, depending on the size and complexity of the household (e.g., multi-generational or multi-family units), enumeration of all members may be somewhat inaccurate (Martin, 1999). (Enumeration, or asking for a count, of people living in the household is needed for weighting purposes.) This method can be burdensome and tedious, particularly in larger households (four or more people). Thus, the increased specificity and reliability of the person-level design must be weighed against increased respondent and interviewer burden and the potential additional cost of a lengthier interview (Hess et al., 2001; Hess et al., 1998).

For larger households, the household-level screening approach is more efficient, less tedious, and may yield more complete data due to less refusal or non-response. In smaller households, however, either approach appears to be acceptable (Pascale, 1999).

The level of specificity must also be weighed against data quality issues, as the household-level approach seems to be associated with greater under-reporting of insurance coverage (Hess et al., 2001). This situation may be exacerbated when insurance status (insured vs. uninsured) and the source of coverage (e.g., public

vs. private) varies among household members (Capps et al., 2001).

(4) Combination Approach

Definition
Detailed coverage questions are administered to a randomly selected individual and abbreviated coverage questions are administered to the remaining household members. On example of the combination approach, the Minnesota Health Access Survey, bases estimates of insurance coverage on an exhaustive series of coverage questions for a *randomly selected individual.* The detailed series of coverage questions for the selected individual orients the respondent to what is defined as health insurance in the survey. This is followed by two questions about the coverage of *other household members* (i.e., is the person insured? If yes, what type of coverage does she/he have?) collected via person-level looping.

In addition to the coverage questions, data are collected about the relationship of each household member to the randomly selected respondent. Together, these data provide a description of the context in which the randomly selected individual lives and his/her potential access to insurance through other household members (i.e., allowing the analyst to group members into FIU).

Example
Minnesota Health Access Survey

Advantages
Although this combination approach has not been thoroughly evaluated, there are several potential advantages. Asking a longer series of coverage questions first of one individual in the household (defining what health insurance coverage is) allows an abbreviated set of coverage questions to be administered to all remaining household members. Thus, this approach yields insurance coverage information on all household members, takes advantage of the potentially greater accuracy of the person-level loop, and reduces respondent burden and survey administration costs at the same time.

As with all household-level designs, there is also the benefit of increasing sample size without increasing the number of households contacted. Analysis of the Minnesota data indicate that statewide estimates of uninsurance, as well as public, group, and individual insurance based on data from the randomly selected individual (n = 27,315) were similar to estimates based on data from all members of sampled households (n = 69,025) (Personal communication, April Todd-Malmlov, June 2002.)

Topic 2: Reference Period (Timeframe)

The reference period is the timeframe addressed by the survey questions. For surveys of insurance coverage, the time reference is closely linked to how insurance is defined. Estimated rates of uninsurance vary with the definitions of "uninsured" which, in turn, depend on the timeframe of the measurement.

Key Questions
Do you want to know how many people are currently uninsured in your state?

Do you want to know how many have ever been uninsured in the past year?

Or, do you need specific information on the length and number of times people have been uninsured?

Definitions of Insurance

Four general timeframes or referents are commonly used in defining and measuring health insurance coverage. The respondent is asked about his/her insurance status:

- Over an entire year or calendar year
- For a portion of the year or period of prior months
- At the time of the survey or point-in-time/current
- At the current moment and over past 12 months (current + annual look-back)

The point-in-time measurement is the most common, asking the respondent about his or her current coverage at the time of the interview. This approach reduces the concern about requiring a respondent to think back in time. The number of people who are uninsured at "any single point during the year" is going to be the largest, as it combines the full- and part-year uninsured, along with anyone who was uninsured for *any* length of time during the period covered by the survey.

(1) Calendar Year Time Reference

Example

U.S. Census Bureau's Current Population Survey (CPS)

The CPS asks about insurance coverage during the *previous calendar year*. Because the survey is administered in March, asking about the prior calendar year requires the respondent to ignore their current coverage and think back 15 months. This way of measuring coverage suggests a definition of uninsurance as "a lack of coverage for the entire previous calendar year." More specifically, the CPS asks about various sources of insurance coverage held at any time in the prior calendar year; those responding "yes" to one or more sources are categorized as insured.

Although it facilitates comparisons with the CPS, using the calendar year approach is not recommended. Researchers doubt that respondents can attend to this reference period and accurately recall their own coverage, let alone coverage for other members of the household, over such a long period of time (Sudman, Bradburn, and Schwarz, 1996). Furthermore, this definition of uninsurance is imprecise and prevents any estimation of the proportion of the population experiencing spells of uninsurance (Schwartz, 1986).

(2) Period of Prior Months Time Reference

Example

U.S. Census Bureau's Survey of Income and Program Participation (SIPP)

Other surveys ask about insurance coverage over a more limited period. For example, the Survey of Income and Program Participation (SIPP) asks current coverage and coverage over the *four prior months*, with questions focusing specifically on each month. Because the panel of SIPP respondents is followed for a two- to four-year period, annual coverage rates and spells of uninsurance can be described with less recall or measurement error than is perhaps true of the CPS. However, aggregating over the full year introduces other complexities

(e.g., seam bias) with implications for the validity of derived estimates (Schwartz, 1986; Bennefield, 1996; Ryscavage, 1993; Burkhead and Coder, 1985; Marquis and Moore, 1990; Martini, 1989).

(3) Current/Point-In-Time Reference

Example
California Health Insurance Survey

Most national and state surveys measure uninsurance at a "point in time" which California characterizes as "current caseload" in policy discussions (Personal communication, E. Richard Brown, May 2003.) Asking a person about the coverage he or she has at the time of the interview obviates the concern about cognitive burden, recall bias, and imprecision associated with other approaches. However, the increase in ease and accuracy of the current coverage approach are offset by the inability to gather data on instability or fluidity of insurance coverage over time.

Research indicates important substantive differences between those experiencing long and short spells of uninsurance. Being uninsured for a longer period of time is likely to have greater implications for utilization of health services. Long spells of uninsurance are associated with different socio-demographic factors and greater difficulty obtaining insurance than is true of the short term uninsured (Swartz, Marcotte, and McBride, 1993; Swartz, 1994; Swartz and McBride, 1990; Short and Freedman, 1998; Bennefield, 1996). Nonetheless, current coverage estimates can be produced quickly and repeated cross-sectional estimates are important for monitoring program or policy changes.

(4) Current + Annual Look-Back Time Reference

Example
Minnesota Health Access Survey

To account for the shortcomings of the cross-sectional current coverage approach, a number of state-specific surveys begin with current coverage and look back over a period of time to capture a rough sense of the dynamics of coverage experienced in the population. For example, asking a currently insured person "Have you had this coverage for the past 12 months?" If the answer is no, follow up with the question: "Have you been without insurance at any time in the past 12 months?" This simply identifies the "ever uninsured" as opposed to a calendar or life table approach that attempts to determine the duration of spells without insurance.

Another approach is to ask currently or recently uninsured (those lacking insurance during the past 12 months) how long they have been or were without coverage. This approach allows the analyst to distinguish between long and short spells without coverage.

Topic 3: Placement, Structure and Order of Health Insurance Questions

Question placement refers to the location within a survey of the series of questions related to health insurance coverage. Structure refers to the design of the health insurance component of the questionnaire. Order refers to the order in which questions about specific sources of

insurance (public or private policies) appear in the health insurance coverage question series.

Key Questions

Is your survey concerned with health insurance and its covariates only or is health insurance one component of a larger survey that covers a variety of topics?

How should questions about health insurance be structured?

In what order should questions about various types of insurance coverage appear?

Questionnaire Design Issues

- Placement of the questions within the context of the entire questionnaire
- Structure of the questions
- Order of questions within the insurance section

(1) Question Placement

Question placement involves the location of the insurance coverage section in the overall survey. Placement is determined by the overall focus or context of the survey – whether estimates of insurance coverage are the primary motivation for fielding the survey or whether coverage is one of many topics included in a larger omnibus survey.

The basic rule of thumb is to include critical question groupings closer to the beginning of the survey while the interviewer and respondent are sharp and alert, especially if the questionnaire is long. However, it is also important to keep in mind that questions about health insurance coverage can be complex and difficult for respondents to answer.

Therefore, if the primary focus of your survey is insurance coverage, you may want to begin your survey with a few questions that are less taxing on the respondent to ease them into the task and encourage participation (Dillman, 1978).

State surveys that focus specifically on health insurance coverage (e.g., Florida, Massachusetts, Minnesota, New Hampshire and Vermont) begin with questions about household composition and basic demographic characteristics, and then introduce questions assessing insurance coverage. For some state surveys, responses to coverage questions serve to sort respondents into specialized question sets (e.g., among those that are uninsured, questions about eligibility for and access to public or private insurance).

When conducting a large omnibus survey where insurance coverage is one of many topics, consideration must be given to where it makes the most sense to place the insurance questions. As respondents progress through a survey, they tend to draw on the content of preceding questions to interpret and answer successive questions (Clark, 1992; Schwarz, 1999).

For example, the CPS (the most common source of health insurance estimates at the federal and state levels) asks about health insurance toward the end of a questionnaire primarily oriented toward labor force participation. Therefore, the respondent might be focused on employer-sponsored insurance when answering the questions. Furthermore, because the questions appear at the end of the survey, both respondent and interviewer may be fatigued, so the information collected may be less

accurate than if it had been collected earlier in the survey. Interesting, in the CPS interview the health insurance component appears at the end and result in missing data for 10-15% of the sample. By contrast, some state surveys that include health insurance questions at the beginning of survey report less than 1% missing data for these questions.

(2) Question Structure

Abbreviated Structure

Example: *Behavioral Risk Factor Surveillance System 2002*

There are a few dominant structures to questions measuring health insurance coverage. An abbreviated structure such as the BRFSS 2002 single item approach asking "do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or any government plans such as Medicare?" (Note: Earlier versions of the BRFSS included an initial question whether or not the respondent has coverage, followed by a question asking about the type of coverage for those responding "yes".)

Multi-Item Approach

Example - *CPS, NSAF*

A more comprehensive multi-item structure, exemplified by the CPS, NSAF and many state specific surveys, goes directly into questions about various sources of private and public insurance coverage, listing each source in turn, rather than beginning with a question about whether or not the respondent has coverage.

Funneling Approach

Example: *Ohio Survey*

A third possible structure is what might be called a funneling approach (Personal communication, Joanne Pascale, September 2002). The first question(s) in the set ask whether or not the respondent is covered by insurance, defining insurance for the respondent. Each remaining question is contingent upon the response to the prior question. For example, those responding "no" to the root question(s) about coverage status would receive questions verifying the lack of any insurance coverage in the referenced time period. Those responding "yes" would be asked questions about type of coverage (private or public). Depending on the type of coverage they have, the respondent would either be asked about specific sources of private coverage (e.g., self-purchased or employer subsidized) or public coverage (e.g., Medicare, Medicaid, etc). Massachusetts takes this approach in their survey. They begin with three general questions determining whether or not household members have insurance, establishing that being enrolled in a public insurance program does constitute insurance in the survey. The three questions about insurance status are followed by questions about specific sources of coverage. This structure tested well in cognitive interviews (Roman, Hauser, Lischko, 2002). Ohio used a similar approach in their 1998 survey (Personal communication, Dave Dorsky, June 2002.)

Multiple Sources of Insurance Coverage

Another issue is whether respondents are able to identify more than one sources of coverage in the instrument (e.g., those with "dual" Medicare and Medicaid coverage or those who have a Medicaid buy-in with their private coverage). Most surveys allow respondents to "check all

that apply" requiring that protocols or decision rules be put in place to determine what constitutes "primary coverage" at the time of analysis. Thus, for the most part primary coverage is an analysts determined, as opposed to a respondent determined, construct.

(3) Question Order

In addition to the structure and placement of the health insurance questions within your survey, it is important to pay attention to how questions about specific sources of insurance coverage are sequenced because this can affect coverage estimates. The major national surveys (e.g., CPS, CTS and NSAF) begin with questions about private sources of insurance (employer-sponsored policies which are most prevalent, privately purchased insurance, and private coverage through someone outside the home), followed by questions about public policies (Medicare, Medicaid, etc), and a catch-all question about any other source of insurance. It is possible that the first coverage source in a series of insurance questions is more likely to be under-reported as the respondent may not have shifted cognitive gears over to this question domain. If this is the case, the impact on estimates of coverage will be more significant if the first in the series is a more prevalent source of coverage. For example, employer-based coverage is listed first in the CPS question series and is most likely to get picked up in the verification questions (discussed later) (Nelson and Mills, 2001).

Including a brief introduction to the health insurance series or asking a general question about coverage to prime the respondent (e.g., "are you covered by health insurance") prior to more detailed questions about sources of coverage may diminish under-reporting on the first coverage source in the series (Pascale, 2001).

Massachusetts and Minnesota ask about public programs prior to privately purchased and employer-provided plans. This question order was based the concern that people enrolled in Medicaid managed care (administered by commercial and private insurers) may be confused and respond to questions about private sources of insurance if they appear first (discussed more fully in the next section).

Topic 4: Correct Identification of Public vs. Private Sources of Coverage

The accuracy of estimates of coverage from particularly sources, e.g., Medicaid, private insurance, etc. can be jeopardized by confusion about the exact nature of a respondent's insurance coverage. Ensuring that the names of public and private sources of coverage are properly identified in a survey can help minimize errors that result from inaccurate or non-specific question wording.

Key Question

Are you interested in knowing whether people in your state are enrolled in specific public insurance programs and/or private sources of coverage?

(1) Importance of Name Recognition

At one time, federal surveys referred to programs by their federal name only (e.g., Medicaid). Acknowledging the importance of name recognition (Swartz, 1996), these same federal surveys and

many state administered surveys now refer to these programs by locally recognized names (e.g., MediCal in California, Medical Assistance in Minnesota, etc). Using state specific names for these federal programs should help reduce measurement error (Loomis, 2000).

(2) Commercial Coverage of Public Program Enrollees

Due to the increase in the number of public program enrollees being served by commercial health care organizations, researchers have increasingly voiced concern over respondents' ability to distinguish between private and public forms of health coverage. For example, Medicaid enrollees receiving care in a managed care organization may mistakenly report private coverage if this question appears before public program questions in the health insurance series. Taken with the evidence that general population surveys appear to underestimate Medicaid enrollment when compared to administrative enrollment records (Bennefield, 1996; Blumberg & Cynamon, 1999; Dubay & Kenney, 1996; Holahan et al., 1995; Lewis et al., 1998; Swartz & Purcell, 1989.) there has been concern that Medicaid enrollees are either misreporting their coverage as private or indicating they lack insurance altogether.

(3) False Reporting of Public Coverage

However, a recent survey of public program enrollees revealed that, in general, enrollees know whether or not they have insurance. Moreover, although they were less accurate in reporting the specific public program they were enrolled in, most seem to understand that they have public, not private, coverage (Call et al., 2002). Among the Medicaid enrollees responding to the telephone survey, 54% correctly indicated Medicaid coverage; 20% provided potentially legitimate responses (e.g., dual coverage); 16% indicated public coverage other than Medicaid; 6% reported private coverage and 4% said they were not ensured (Call et al., 2002).

Thus, only a relatively small portion provide responses that can lead to bias in estimates of private coverage or uninsurance, and their actual contribution to this bias is smaller than indicated above (for a detail explanation see Call et al., 2002). Other research has also shown that public program enrollees do not falsely report private coverage (Pascale, 2001; Lewis, Ellwood, and Czajka, 1998; Loomis, 2000).

(4) Improving Respondent Accuracy

Most surveys ask about coverage or participation among the primary sources of insurance, such as employer-based insurance, insurance purchased from private sources, Medicare, Medicaid, SCHIP, military plans (e.g., CHAMPUS, CHAMP-VA, Tri-Care), and the Indian Health Service (inquired about but not considered insurance in most surveys). Medicare and Medicaid sound similar enough that respondents become confused and may report incorrectly (Loomis, 2000).

<u>Brief Descriptors of Each Source of Coverage:</u> Including a short descriptor of each within the question stems or as an interviewer probe may reduce some measurement error. Participation in smaller state-initiated programs is measured by asking about each program one at a time by name, combining several

small programs in one question, or including a catch-all question asking about coverage in "any other" plan. Catch-all questions are often followed by an item that captures the type of coverage, back-coding responses to the appropriate source.

Exhaustive Listing of Sources of Coverage: There is some evidence in favor of providing a full listing of programs to trigger name recognition, as well as to make it clear to the respondent that the program they are enrolled in actually falls under the survey's definition of insurance. For example, Massachusetts found that the inclusion of a question specifically naming the four primary MassHealth HMO options, following a general question about MassHealth, improved the estimates of program participation (Roman, Hauser, Lischko, 2002). However, the decision to include a separate question for each state-specific program and/or commercial names for public programs must be weighed against the increased length of the survey, the interviewers' ability to read through a long list of programs, and the respondents' capacity to attend to this list of program names. Clearly, long lists of options are more amenable to mail than telephone or in-person modes of survey administration. Given that the uninsured are indeed a residual group of people who have neither public or private insurance, measurement of uninsurance is only as good as measures of public and private coverage (Short, 2001). In theory then, the more exhaustive the list of insurance sources, the less error in the estimate of uninsurance.

(5) Survey Responses vs. Administrative Data

It should be acknowledged that there is strong evidence of measurement error in estimates of public insurance program participation in general population surveys (Bennefield, 1996; Blumberg & Cynamon, 1999; Dubay & Kenney, 1996; Holahan et al, 1995; Lewis et al, 1998; Swartz & Purcell, 1989). It appears that enrollees of public programs usually know that they are insured and that they have public coverage, but they may not know which program they are enrolled in (Call et al., 2002; Loomis, 2000). Thus, survey estimates of participation in specific programs are unlikely to match administrative data. This suggests it may be prudent to report aggregate rather than individual public program estimates derived from survey data and to expect discrepancy between survey estimates and administrative data.

Depending on the quality of enrollment data, enrollment in specific public programs can be more accurately estimated using administrative records. However, population based surveys provide the only estimates of the proportion of the population with private insurance and those lacking any source of coverage. Thus, improving the method of measuring coverage is a worthwhile endeavor.

Topic 5: Other Design Features

For purposes of this brief, the term "design features" refers to the procedures and techniques used to systematically improve the quality of the estimates of insurance coverage rendered by a survey.

Key Question

What techniques or design features could be employed to improve the quality of the data collection?

(1)Verifying Lack of Insurance Coverage

Commonly, surveys that provide a list of potential sources of insurance include, at the end of that list, a question that directly asks whether a respondent responding "no" to all sources is, indeed, uninsured. This question is referred to as a "verification question." Until recently, the CPS did not include a verification question in its health insurance survey. Studies indicate that verification questions capture a significant number of people who would otherwise be erroneously labeled "uninsured" (Rajan, Zuckerman, and Brennan, 2000; Strouse, Carlson, and Hall, 2001; Census 2001).

It is recommended that surveys include a verification question, however, the extent to which the verification question changes the estimate of uninsurance varies from among studies. For example, Minnesota's verification question resulted in an insubstantial difference in coverage estimates. By contrast, using a similar instrument fielded in three states (Florida, Indiana and Kansas), the verification question led to a three percentage point drop in the unweighted estimate of uninsurance (Porter, Garvan, Duncan, 2002.)

Furthermore, it is advisable that states examine which subpopulations are "picked up" (identified as insured despite an initial report of being uninsured) by the verification question. State analysts should watch for evidence of over-reporting (social desirability) or classifying oneself as insured, despite having coverage that is not considered major medical insurance, such as individuals with single service plans (e.g., dental, optical) or those with policies that pay for only certain "dread diseases." Prompted by concerns among policy makers and consumer advocates several states (e.g., Georgia, Minnesota) have included questions in their surveys that distinguish between conventional health insurance policies and dread disease policies that alone are not considered health insurance. In Georgia, very few respondents reported having dread disease policies (representing approximately one tenth of one percent of Georgians), which had negligible impact on coverage estimates but satisfied their curiosity about the prevalence of these policies (Personal communication, William Custer, June 2003).

(2)Longitudinal Survey Design

Longitudinal surveys follow the same respondent or household over time, inquiring about insurance coverage over a period of time since the survey was last administered. An example of this is the Survey of Income and Program Participation (SIPP) which follows a panel over a three- to four-year period, administering the survey every four months, resulting in month-by-month accounts of insurance coverage, employment and program participation over several years.

The advantages are obvious as longitudinal data provide important and unparalleled information about the dynamics of insurance coverage (when and why people gain and lose coverage), correlates, predictors and the consequences of being without insurance (Swartz, 1994; Short, 2001). Disadvantages of the longitudinal

approach are the expense, sample attrition, seam bias, and problems of respondent recall from one survey administration to the next.

(3) Cross-Sectional Survey Design

Cross-sectional surveys are those administered to a sample at one point in time. The vast majority of surveys designed to estimate insurance coverage are cross-sectional due the ease of administration and lower cost.

(4) Repeated Cross-Sectional Surveys

Repeated cross-sectional surveys provide snapshots of insurance coverage over time, identifying trends in coverage and uninsurance rates, as well revealing trends in the characteristics of people with and without coverage at each wave of data collection. An example at the national level is the CPS. A number of states conduct surveys of their populations frequently enough to yield important trend data (e.g., Hawaii, Massachusetts, Minnesota, New Hampshire, Utah, Vermont, Wisconsin). Trend data are useful for many reasons, including that such data allow for the examination of changes in the uninsured population over time. Such data do not however, allow for causal statements about processes underlying change in rates or composition.

(5) Telephone Non-Coverage

Most state surveys of insurance coverage are administered by telephone, likely due to the expense of in-person interviews and low response rates associated with mail surveys. People in non-telephone households differ systematically from those living in households with phones in both rates of insurance coverage as well as type of coverage. As a result, estimates of coverage based on a telephone survey may be biased if they are not adjusted for the segment of populations lacking phones.

Past research indicates that people who experience telephone service interruptions, especially those whose service has been interrupted for a week or more, are similar to people lacking any phone service (Brick, Waksberg, and Keeter, 1996.) Therefore, one approach to reducing the bias inherent in telephone surveys is to make a telephone service interruption weighting adjustment. A recent study spanning several state surveys indicates that differences between the adjusted and unadjusted rates are small, however, making the adjustment is important in promoting the estimates' legitimacy and credibility (Davern, et al., 2002.)

Summary and Conclusions

Measuring health insurance coverage is a complex methodological issue involving multiple decisions and dimensions. The goal of this document is to summarize what is known to date about a number of important considerations in measuring health insurance coverage, as well as to share states' experiences in measuring health insurance coverage using surveys. We focus on five major dimensions: unit of measurement; reference period; placement, structure and order of questions; proper identification of public and private programs; and other miscellaneous design features.

Table 1-1 summarizes the approaches taken by a number of state and federal surveys.

General population surveys provide the only source of data on the number of people in a given population lacking health insurance coverage. If a survey's goal is to estimate coverage rates and to describe people with and without insurance, the questions about health insurance should appear early in the survey.

There is a need for research to test the efficacy of the various question structures: abbreviated, comprehensive and funneling approaches to measuring insurance status and source. The dominant structure is to provide a comprehensive list of various insurance sources, but the funneling approach has tested well in a few states and warrants fuller evaluation.

The order in which questions about the various sources of insurance appear has not been well researched. However, there is some indication that the first in the series may be more prone to "under-reporting" if the respondent has not yet shifted his stream of thought over to this content area (Nelson and Mills, 2001). Providing a careful introduction to the insurance question series may minimize potential under-reporting of insurance coverage, particularly with respect to the first source examined (Pascale, 2001).

Given that "uninsurance" is the absence of health insurance coverage, careful measurement of insurance coverage is critical. The use of locally relevant names for public programs (e.g., TennCare as distinguished from Medicaid) may diminish the likelihood of under-estimating coverage and overestimating uninsurance. Providing a complete list of various sources of insurance also may improve measurement through name recognition as well as by providing clear cues about what is considered insurance within the survey. However, the decisions to include an exhaustive list of coverage sources must be weighed against increased survey length, respondents' capacity to attend to an extensive list of coverage sources, and interviewers' ability to read a long list of response options. Verifying a lack of coverage for respondents who indicate no enrollment in the listed programs is recommended.

Reference Period

Most state and national surveys ask about insurance coverage at the time the survey is being conducted, which reduces the cognitive burden and recall bias inherent in asking respondents to report on past status or past events. Many states combine questions about current insurance status with a look-back period of 12 months to capture periods or spells with or without coverage. Research on such a look-back question has shown that that people with short spells of uninsurance are distinctly different from people who lack insurance for long periods of time (Bennefield 1996; Short and Freedman 1998; Swartz, Marcotte, and McBride 1993; Swartz 1994).

Deciding whether to collect data from a random individual within the household, a sub-sample of household members or all members of the household may be based on a mix of methodological and policy considerations. Selection of a random individual within a household represents a methodologically sound, easy and relatively inexpensive approach, but may be of limited utility in the current policy context of expanding insurance coverage to the parents of publicly insured children and concerns about contraction of dependent coverage in the

private insurance market. Therefore, a number of surveys collect information for all members of the sampled household or a on a sub-sample of household members.

A relatively new approach divides household members into "Family Iinsurance Units" (FIUs) and either collects information for all FIUs or for a randomly selected FIU. Another approach, labeled "the combination approach" collects detailed coverage information for one randomly selected person in the household, and administers an abbreviated set of insurance questions to remaining household members along with relationship information necessary to group individuals into FIUs for analysis purposes.

When collecting insurance coverage information on all household members, the researcher must decide whether to use a person-level loop or household screen approach. Available research in this area is somewhat limited. There is evidence, however, to suggest that person-level looping may result in greater accuracy, however, this advantage must be weighed against greater administrative costs and respondent burden. For larger households, the screening approach is more efficient and may result in more complete data (Hess,2001;Pascale, 1999).

Due to the ease of administration and lower costs, most surveys that provide estimates of insurance coverage are cross-sectional and administered by telephone. Repeated cross-sectional surveys provide states with an important tool for monitoring the dynamics of coverage and the characteristics of the uninsured as the economy, policies, and demographics change over time. Applying new statistical techniques to adjust for phone service interruption lends credibility to estimates derived from telephone only surveys.

In closing, although measuring health insurance coverage is quite complex, these data are important to local, state and federal policy making. Existing research in this area is limited, so this project has been undertaken to document existing reviews, outline advantages and disadvantages of various approaches, and provide examples from existing surveys.

Table 1-1. Summary of National and State Survey approaches to Measuring Health Insurance Coverage

Survey	Unit of measurement	Household screener or person-level loop	Reference period for insurance coverage	Placement of health insurance questions: Focus of the survey	Order of Sources: Public or private first	Verification question included	Longitudinal, cross-sectional, or repeated cross-sectional
National Surveys							
Current Population Survey (CPS)	All household members	Household	Calendar year	Omnibus	Private	Yes	Repeated cross-sectional
Behavioral Risk Factor Surveillance System (BRFSS)	Random adult		Current and look back	Health insurance and other health topics	Private	No	Repeated cross-sectional
Community Tracking Survey (CTS)	All household by family insurance unit	Household	Current and look back	Omnibus	Private	Yes	Repeated cross-sectional
National Survey of America's Families (NSAF)	1 adult and up to 2 children	Household	Current and look back	Omnibus	Private	Yes	Repeated cross-sectional
State Surveys							
California	Sub-sample		Current and look back	Health insurance and other health topics	Public	No	Cross-sectional
Florida	All household members	Household	Current and look back	Health insurance	Private	Yes	Cross-sectional
Massachusetts	Sub-sample by family insurance unit	Person	Current and look back	Health insurance	Public	Yes	Repeated cross-sectional
Minnesota	Combination	Person	Current and look back	Health insurance	Public	Yes	Repeated cross-sectional
New Hampshire	Sub-sample		Current and look back	Health insurance	Private	No	Repeated cross-sectional
Ohio	Sub-sample: 1 adult & 1 child	Household	Current and look back	Health insurance and other health topics	Private	Yes	Cross-sectional
Utah	All household members	Person	Current and look back	Health insurance and other health topics	Private	No	Repeated cross-sectional
Vermont	All household members	Household	Current and look back	Health insurance	Private	Yes	Repeated cross-sectional
Wisconsin	All household members	Household	Current and look back	Health insurance and other health topics	Public	Yes	Repeated cross-sectional

References: Guideline #1 Measuring Coverage

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