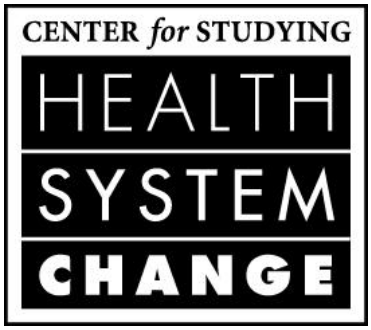
Technical Publication

Community Tracking Study

Followback Survey Methodology Report (Round One)



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This is one of a series of technical documents which are part of the Community Tracking Study, conducted by the Center for Studying Health Sysem Change. The Community Tracking Study is a longitudinal study of changes in health care delivery at the national and community level to determine the effects of these changes on people.

The Center welcomes your comments on this document. Write to us at 600 Maryland Avenue, SW, Suite 550, Washington, DC 20024-2512 or visit our web site at www.hschange.org.

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Community Tracking Study Health Insurance Followback Survey Technical Report on Data Collection Operations and Final Data Files

Final Report

March 2001

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I. OVERVIEW OF DATA COLLECTION PROCEDURES FOR THE FOLLOWBACK SURVEY

A. BACKGROUND

The Community Tracking Study (CTS) is the primary research effort of the Center for Studying Health System Change (HSC). HSC is a non-partisan research organization that provides timely analyses about the effects of health system change to inform the thinking and decisions of policy makers in government and industry. HSC, which is funded by The Robert Wood Johnson Foundation, is affiliated with Mathematica Policy Research, Inc.

The CTS collects data from several sources, including site visits to local communities, surveys of households (including an insurance Followback Survey), and surveys of physicians and employers. The first round of data collection spanned 1996-1997, Round II took place during 1998-1999, and Round III is being conducted during 2000-2001. A description of HSC's activities and publications can be found on its web site (www.hschange.org).

This report describes the results of the first round of the Followback Survey, in which privately financed health insurance policies covering Household Survey respondents are "followed back" to the organization that administers the policy. The purpose of the Followback Survey is to obtain more detailed and accurate information about those policies than could be provided by the Household Survey respondents. In the Household Survey, respondents were asked to identify and describe the private health insurance policy or policies under which they received health care services. Based on the names of health insurance plans and employers that were provided by Household Survey respondents, supplemented by information available from published directories, we contacted health plans and other organizations for the Followback Survey. The survey was designed by MPR and HSC staff and data collection was conducted by MPR.

Data were collected by telephone interview and a faxed, self-administered follow-up form. The information obtained from Followback Survey respondents about health insurance characteristics includes product type, in-network and out-of-network coverage, provider payment methods and consumer cost sharing.

For the first round of the CTS Followback, we were able to link 52.5 percent (11,651) of the 22,211 eligible private policies reported in the Household Survey to a unique insurance product.[1] For 19.4 percent (4,318) of the policies, we were able to link the policy to an insurer or other entity, such as an employer, with information about the policy, but not to a specific product. For those policies, we used statistical matching procedures to assign a product to the policy from among multiple products identifier by the insurer or other entity. We could not link 28.1 percent (6,242) of the policies to an insuring entity; they were accounted for in the survey weighting procedures.

B. RATIONALE FOR THE FOLLOWBACK SURVEY

To compensate for limitations in Household Survey respondents' knowledge, researchers sometimes use surveys that "link" household respondents with other data sources, including employers, health plan organizations, and medical providers, to obtain a richer range of data for studying health care.[2] We conducted the Followback Survey because of concerns that respondents in household surveys are often unable to provide accurate information on some

[1]Subsequently, we determined that 453 cases among the 22,211 (including three polices linked to a unique insurance product and 450 policies that could not be linked to an insuring entity) were not eligible private policies. See Chapter VI for an explanation of how these cases were treated in the analysis file.

[2]See Andrew Bindman and Marsha Gold, "Measuring Access to Care Through Population-Based Surveys in a Managed Care Environment," A Special Supplement to *Health Services Research*, vol. 33, no. 3, August 1998, part II, pp. 693-698.

topics that are crucial to understanding the impact of health system change on people. Various studies have shown that many people lack a basic understanding of key managed care concepts, and they also have difficulty identifying whether or not their own health plan is a managed care plan.[3] For example, Nelson (2000) showed that while individuals could accurately report whether they have health insurance, self reported data on source of insurance, length of time insured, and type of insurance are suspect. In a forthcoming paper based on data from the first round of the CTS Followback and Household Surveys, Cunningham et al,[4] showed that many household survey respondents were unable to report network and gatekeeping restrictions.

In planning the CTS Followback, we reviewed related efforts conducted for the National Medical Expenditures Survey (NMES) and its successor, the Medical Expenditures Panel Survey (MEPS). Emmons and Hill (1991)[5] describe the design of the Health Insurance Plans Survey for the 1987 NMES, which verified health insurance status and collected detailed supplementary information about the private health insurance coverage of the civilian noninstitutionalized population. For that survey, household survey respondent were asked to provide signed

---

[3]D.E. Nelson et al., "What People Really Know About Their Health Insurance: A Comparison of Information Obtained from Individuals and Their Insurers," *American Journal of Public Health* 90, no. 6 (2000): 924-928; D.W. Garnick et al., "How Well Do Americans Understand Their Health Coverage?" *Health Affairs* 12 (Fall, 1993): 204-212; D. Mechanic, et al., "Choosing Among Health Insurance Options: A Study of New Employees," *Inquiry* 27 (Spring, 1990): 14-23; S.L. Isaacs, "Consumers' Information Needs: Results of A National Survey *Health Affairs* 15 (Winter, 1996): 31-41; and J.H. Hibbard et al., "Can Medicare Beneficiaries Make Informed Choices?" *Health Affairs* 17 (November/December, 1998): 181-193.

[4]P. Cunningham, C. Denk and M. Sinclair, "Do Consumers Know How Their Health Plans Work," draft paper expected to be published in 2001.

[5]C. Emmons and C. Hill, "Questionnaires and Data Collection Methods for the Health Insurance Plans Survey," *National Medical Expenditure Survey*, Methods 5, AHCPR Publication Number 94-0016, 1991.

permission forms for employer based or individually purchased insurance plans, and employers (or insurers) were contacted by a combination of mail, telephone, and personal visits to obtain interviews and copies of insurance booklets. The response rate for that survey was 82 percent of the employers, unions, and insurance companies for which interviews were actually attempted. However, the survey results exclude organizations for which interviews could not be attempted because of nonresponse to the NMES household survey, or because the household survey respondent was unable to adequately identify the an employer, union, or insurer. Also, unions and insurance companies for whom no signed permission form was obtained were excluded. Thus, the report does not show the percentage of individuals covered by private insurance for whom data were collected.

More recently, the 1996 MEPS included a Health Insurance Plan Abstraction study, where policy booklets were obtained directly from household survey respondents, who were offered a $15 incentive to return them. The response rate, conditional on being eligible for the study, was 55 percent, prior to imputations. In a separate survey that attempted to interview employers of persons who completed household interviews, the response rate was less than 40 percent, suggesting a significant decline in employer cooperation.[6]

In planning the CTS Followback Survey, we believed that following back to the employer or obtaining policy booklets was not feasible for four reasons. First, the features of health insurance policies measured in the Followback Survey included basic managed care variables, such as network size and provider payment methods, that were more likely to be obtained from health plan organizations than from employers. Second, we believed it would be more efficient for data

[6] Information on response rates provided by e-mail communication from Jessica Banthin, Agency for Health Care Research and Quality, April 2000.

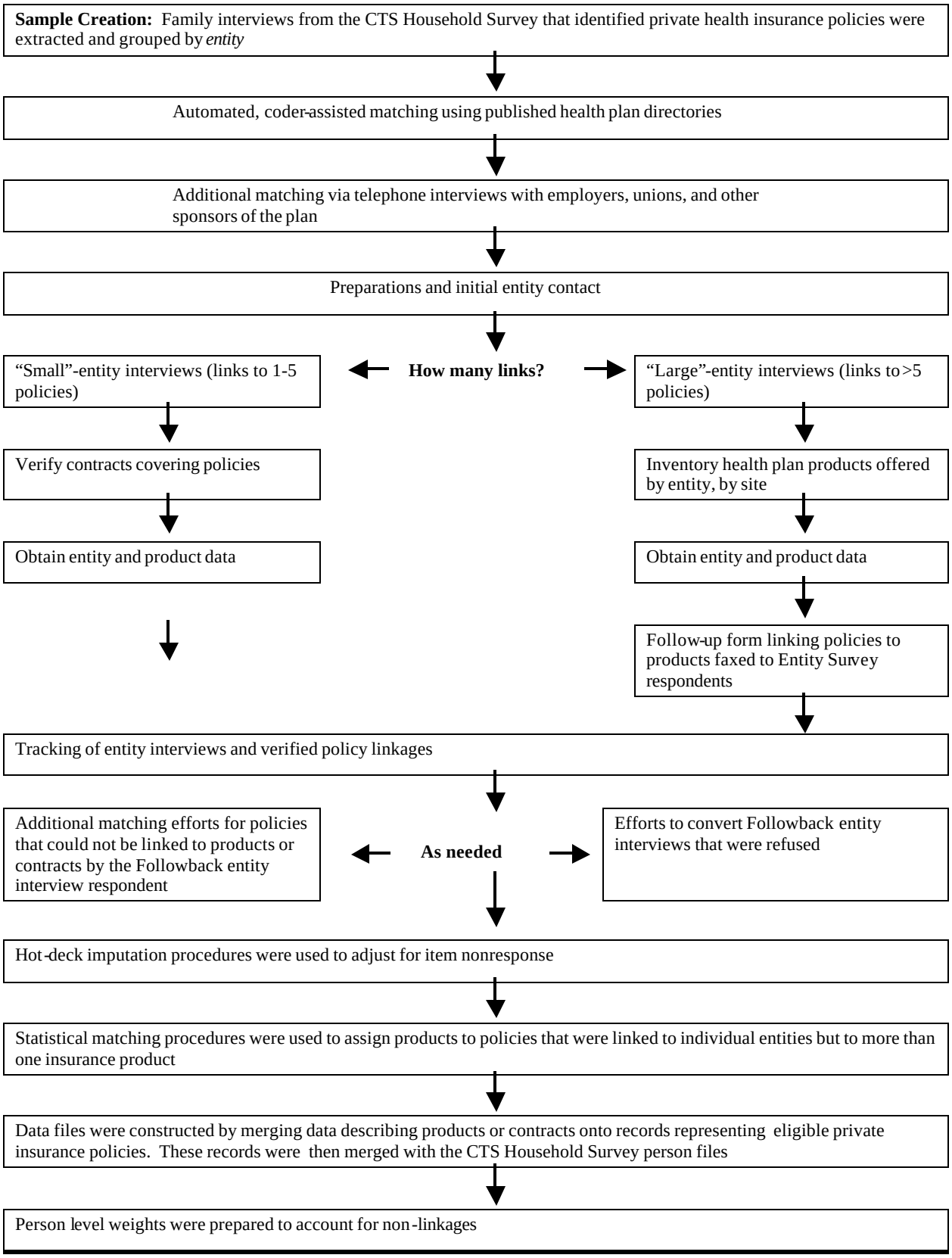
collection to group survey respondents by health plan rather than by employer. The intent of this decision was to reduce both the number of interviews required and the burden involved in retrieving the information we requested. Third, it was not feasible to obtain policy booklets from CTS Household Survey respondents. Unlike the NMES and MEPS surveys, which were conducted in-person, the CTS Household Survey was conducted by telephone. It was unlikely that many respondents to a telephone survey would return a copy of their plan booklets. Finally, we felt that the high cost and low response rates to many employer surveys made that approach problematical.

C. ORGANIZATION OF THE FOLLOWBACK SURVEY

The process used to link household-reported plans to the appropriate entities and to obtain interviews from them was complex. An overview of the steps required to collect and process data for the Followback Survey is presented in Figure I.1 and summarized below.

- Family interviews from the CTS Household Survey identified as many as three private health insurance *policies* providing health care services to family members. Based on descriptions of health plans provided by Household Survey respondents, we grouped these policies by e*ntities* that became the initial reporting units for the Follow-Back Survey. When asked to describe their health plans, most survey respondents mentioned insurers, HMOs, PPOs, and other health plan providers, but some described employers, unions, or third party administrators (TPA's).
- Automated, coder-assisted programs were used to match entities reported on the Household Survey against health plan directories to identify reporting units for the Followback Survey. We used several industry directories to identify appropriate organizational units of health plan organizations including (1) the A.M. Best Life and Health standard name and address file, augmented with the Group Accident and Health Schedule H; (2) the 1995-1996 American Association of health Plans (AAHP) HMO and PPO directories; and (3) the 1996 member directory of the Society for Professional Benefits Third Party Administrators.

FIGURE I.1
TASKS WITHIN THE FOLLOW-BACK SURVEY



- When reporting units could not be identified from these sources, we contacted employers, unions, and other organizations that might be suitable Followback interview informants.

- We created questionnaires for "small" and "large" entities. Small entity interviews were defined as those linked to from one to five policies and large entity interviews were linked to more than five policies. For small entities, we verified that a *contract* existed for each policy and obtained information on the characteristics of the policy holder's *insurance product.* A contract between the insuring entity and employer, union, other organization, or individual generally defines eligibility and benefits for all enrollees. For our purposes, we defined an insurance product as a group of contracts that are similar in the way that health services are accessed and provided. Contracts that are similar in this way, but differ only in copayments, deductibles, coinsurance rates, or supplemental benefits, such as drugs or dental care, are treated as the same product. The organization of large entity interviews was slightly different. First, we obtained an inventory of products offered by the entity and then asked for information about the characteristics of each product. Then we faxed a follow-up form to the Followback Survey respondent, in which we asked the respondent to link policies, identified by plan name and employer reported in the Household Survey, to the appropriate insurance product.

- Many respondents to the Followback Survey were unable to link policies to specific products. In those cases, we made additional efforts to obtain data on key questions by contacting employers, unions, or other entities cited by Household Survey respondents.

- Data files were constructed by merging data on product characteristics with CTS Household Survey files representing families and persons.

- Statistical matching procedures were used to assign products to policies that were linked to individual entities but to more than one insurance product. We used weights to adjust for policies that could not be linked to entities or where there were no products associated with the entity. Hot-deck imputation procedures were used to adjust for nonresponse to individual items.

Sample preparation for the Follow-Back Survey began in June 1997. Interviewing of employers and entities was conducted from October 1997 through August 1998. File preparation, including editing, imputation, and statistical matching, was completed in May 1999.

In the remainder of this report, we describe the Followback sample design and data management procedures, approach to instrumentation, survey operations, data editing and file processing methods, and imputation and weighting methods. The survey instruments, coding conventions, and a detailed discussion of the imputation and weighting methods are appended to the report.

II. INSTRUMENTATION FOR FOLLOWBACK ENTITY INTERVIEWS

A. BACKGROUND

This section provides an overview of the organization of the Followback Survey instrumentation. The remaining sections discuss item selection, testing procedures and results, and the organization and administration of the instruments and interview process. The full instruments are included in Appendices A-C.

1. Item Selection and Structure

The primary purpose of the Followback Survey is to obtain additional information about the characteristics of insurance products providing services to Household Survey participants. In addition, we asked a similar set of questions about network and gatekeeping attributes in both the Household and Followback Surveys (Exhibit A). As noted above, Cunningham, et al, (forthcoming) are analyzing reporting differences between informants for the two surveys.

In addition, the Followback Survey obtained information that was not included on the Household Survey:

- Typical copyments, coinsurance rates, and deductibles
- For network products, the size of physician and hospital networks
- Payment arrangements for primary care physicians, specialists, and hospitals (for example, fee-for-service, capitation, hospital service per diem)

The major conceptual and operational challenge for the Followback entity interview was to devise efficient mechanisms to link these items to individual policies.

EXHIBIT A

HEALTH PLAN ATTRIBUTES ASKED IN BOTH THE HOUSEHOLD AND FOLLOWBACK SURVEYS

Plan Attribute	**Question in the Household Survey**	**Question in the Followback Survey[a]**
Network attributes		
Network	Is there a book, directory, or list of doctors associated with the plan?	Is there a book, directory or list of doctors associated with this product?
Out-of-network coverage	If you do not have a referral, will your plan pay for any of the costs of visits to doctors who are not associated with the plan?	If enrollees do not have a referral and go to out-of-network doctors, does the plan cover any of the costs for these visits?
Gatekeeping attributes		
PCP requirement	Does your plan require you to sign up with a certain primary care doctor, group of doctors or clinic, which you must go to for all of your routine care?	Does product require members to have a primary care doctor, group of doctors, or clinic for all routine care?
Specialty care referral	In order to see a specialist under your plan, do you need to get a referral, that is, approval or permission, from your doctor or health plan?	If enrollees do not have a referral and go to in-network specialists, does the plan cover any of the costs for these visits?

[a] The interviewer also specifies the name of the employer (or direct purchase), product and site to the Followback Survey respondent.

The first challenge arose from the wide variation in the size of the health plan entities to which policies were linked. The majority of the entities we identified and interviewed operated in only one study site and had relatively small market shares. As a result, very few--and often only one--policy was linked to them. Conversely, a small number of large entities operated health plans in many study sites or had large market shares in those sites, and thus could be linked to dozens or even hundreds of individual policies. Asking an entity to describe each individual contract represented by a policy would clearly be too burdensome. We therefore developed different instrumentation strategies for the two groups. The "small"-entity instrument (one to five policies) asked entity respondents to describe each linked policy individually. The "large"-entity instrument (more than five policies) grouped policies into *products* with similar attributes.

We had to define and inventory a large entity's products in a way that was operationally feasible as well as consistent with the objectives of the study. Testing suggested that the concept of "product" might be interpreted differently across organizations. Our solution was to ask entity respondents to volunteer their own list of products, but to explicitly use the four network and gatekeeping attributes to guide product formation. Most responses were based upon the traditional product typology (HMO, PPO, fee-for-service, and so on). However, the network and gatekeeping questions enabled us to differentiate product variants, such as open-ended HMOs and point-of-service (POS) plans, that might otherwise have been omitted.

Thus, the design of the Followback Survey implies a hierarchical structure--from entities, to study sites, to products, to policies. The instrumentation had to reflect and manage the relationships among those units clearly and efficiently. Although many entities had operational control over and thus reporting responsibility for plans offered in multiple study sites, they did not necessarily offer the same array of products in each site. In addition, we wanted to obtain

site-level estimates for many product characteristics (for example, the size and inclusiveness of the physician network, average copayment rates, and the providers' method of payment). Our approach was to compile a roster of study sites (based on linkages to individual polices from the Household Survey) and then to ask about inventoried products and product characteristics one site at a time. Figure II.1 illustrates the hierarchical relationship among entities, sites, products, and policies and the way they are linked in the instrumentation for large entities.

The measurement scheme for the network and gatekeeping attributes was guided by a second objective of the Followback Survey. Respondents to the Household Survey had been asked these items. Consequently, we worded the items in the Followback entity interview as closely to the household version as possible.

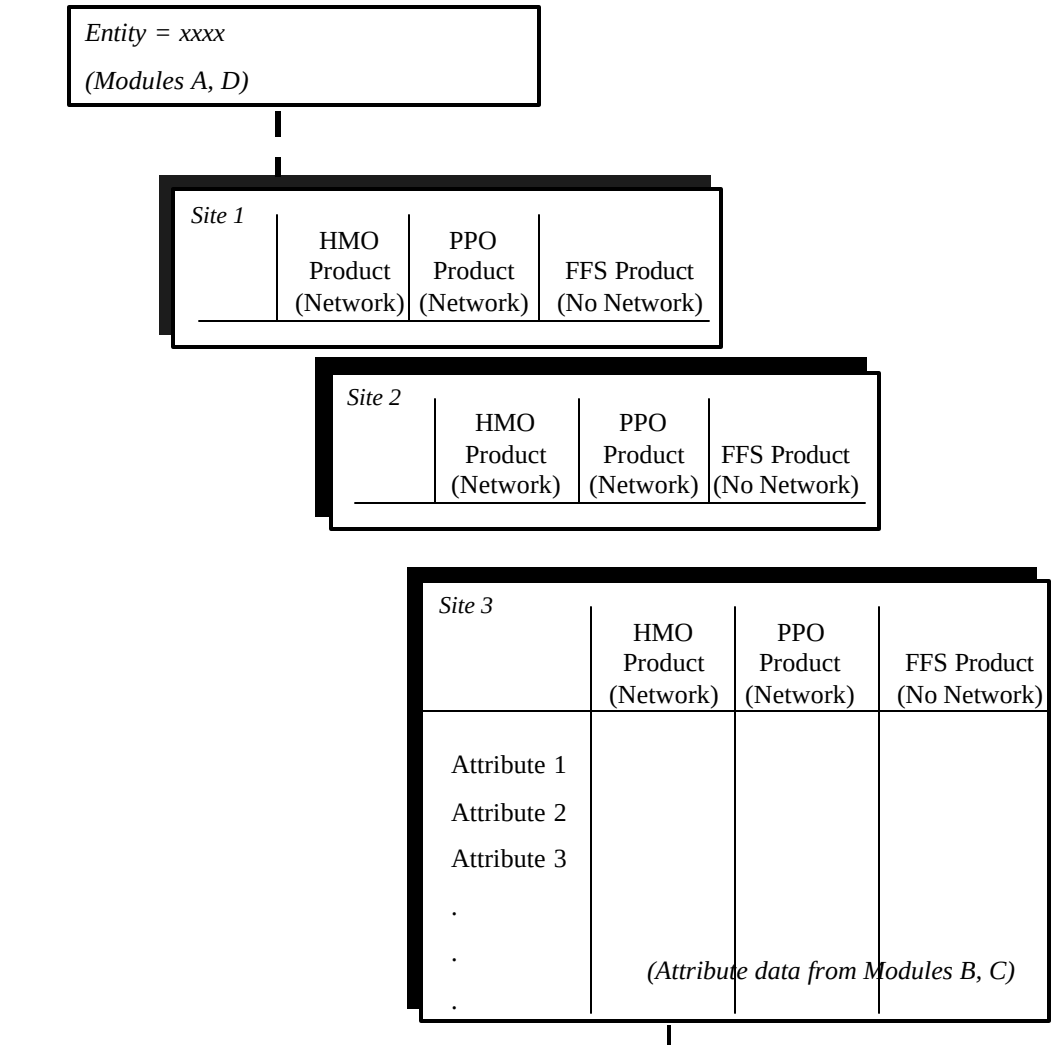
The feasibility of capturing additional information of health plan characteristics in entity interviews depended upon the information we thought Followback Survey respondents could provide. Verifying the linkage between a policy and specific product might require reference to contract files that identified employers and other purchasers. Therefore, we generally conducted our interviews with knowledgeable respondents in marketing departments.

B. FEASIBILITY AND INSTRUMENT TESTING

During the winter of 1995-1996, we tested the Followback Survey in a pilot feasibility study. The results of the pilot study indicated that we could link policies (identified as health plan/employer names reported by Household Survey informants) to insuring entities, and that entity respondents could provide the product and linkage information desired, with an acceptable level of item nonresponse.

FIGURE II.1

LEVELS OF ANALYSIS WITHIN THE FOLLOW-BACK INTERVIEW



Fax Form, Entity=xxxx		Product		
Policy ID	Site	HMO	PPO	FFS
00017	3	x		
00026	3		x	
00035	3	x		
00044	3		x	

FFS = fee-for-service

After developing the instrumentation, we conducted a round of cognitive testing in July 1997. We used concurrent and retrospective think-aloud techniques to probe the effectiveness of contact and respondent screening procedures, the effectiveness of techniques to obtain product inventory information, and general issues of logic structure and item wording. The results of interviews with 10 insurers of various size indicated that several areas required additional work:

- The insurers we contacted had different levels of responsibility for product design and network management. Entities that "rented" networks or otherwise administered plans for diverse service delivery units were a particular concern. We addressed this issue by creating advance letters and screening scripts to improve access to informants who would have the information we needed.
- Our product categorization, which was based on network and gatekeeping attributes, was not always the most natural product organizational method for the entities. For example, some entities organized products by geographic area or purchaser. In addition, the industry did not always use standard terminology and definitions for products and attributes. We dropped *exclusive provider organization* as a descriptive category because it generally was not recognized, or was interpreted in diverse ways. We also revised the structure of questions on product information and product characteristics.
- Respondents' understanding of questions on network and gatekeeping characteristics depended on the order and wording of the items. The order in the final instrument (existence of network, out-of-network coverage, in-network self-referral, and PCP requirement) was best approach for comprehension of each successive item. Respondents were also sensitive to how each item specified *levels* of coverage (that is, full and partial coverage), especially for the self-referral and PCP items.
- Emergency coverage, utilization review, and drug benefits were not always consistently organized across contracts and networks, and marketing respondents often did not have the information we needed. Therefore, we dropped these items. Several respondents could not provide data on network size, but we decided to keep this item.

As part of the test, about half of the respondents received fax forms on which they were asked to link policies to products. None of the respondents had problems with the form, and it was retained (see Exhibit B).

EXHIBIT B: FAX COVER SHEET AND INSTRUCTIONS

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Princeton Office
Tel #: 800-263-3909
Fax #: 609-275-6858

FROM **Mathematica**	***TO*** **Mathematica**
DATE: **TO**: **COMPANY**: **FAX #**: **FROM**: **# OF PAGES** (incl. cover sheet): **ENTITY ID NUMBER:**	**DATE**: **TO**: Joel Brosse **COMPANY**: Mathematica Policy Research **FAX #**: 609-275-6858 **FROM**: **# OF PAGES** (incl. cover sheet):

Thanks so much for your time on the phone. This fax is the final phase of the survey--matching employer contracts and direct purchase contracts to the products we identified in our interview. Please:

* Complete the attached form titled "Module X Fax Sheet," or send it along to another department for completion.

***** As compensation for completing the Module X Fax Sheet, we'd like to send you or your organization a check for $_____. Please complete the bottom of this page, indicating the person or organization to whom the check for should be made, and the address to which it should be sent.

* Complete the top right of this page under "*TO* Mathematica" and fax all forms back to:

MATHEMATICA FAX: 609-275-6858

Thanks again for all your help on behalf of Mathematica Policy Research and the Robert Wood Johnson Foundation.

Please indicate the name and address to which a check should be mailed:

Check in name of: _____

Social Security Number: _____

Care Of (Optional): _____

Street Address or POB: _____

Street Address (addl.): _____

City, State and Zip Code_____

Thanks for agreeing to complete this important task. As we mentioned during the telephone interview, we have identified a number of families from a previous survey who we believe receive health care coverage through your organization. During the interview we asked you about your products in one or more geographic areas. Now we'd like you to indicate which product each family is enrolled in.

Here is a sample of the form. We've provided all the information in the white portions. Each row on the form corresponds to one family insurance unit. Please note that we are not asking you about individual families, but only products as available through employers or direct purchase. The columns on the right list the health plan products you told us about during the telephone interview. Please note that we may have combined some products in the same column for convenience, or noted where some products are different in different areas.

Identifiers			Data from Family Interviews			Indicate Product(s)								
Ignore all but the site.			*This is exactly what the families told us:*			*We've listed the products you told us about in the interview. We may have combined some in the same column for convenience.*								No Match
			Plan name	Employer	Plan/Group #									
sample			PPO plus	state gov't		*You* **T** *here in appropriate column*(s) ...								

Please consult your account records or with your staff to do two things:

- First, verify that the employer listed for each family had a contract with your organization during the period of the initial survey, from July 1996 through July 1997. If the family indicated that the plan was purchased directly, please verify that the product they cite is actually available for individual purchase in that area. If you cannot verify either of these facts, please check the "No Match" column, at the very right, for that family listing.

- Second, based on the employer contract and the plan name provided by the family, please indicate with a check mark **which product the family is enrolled in.** If the employer offers multiple plans and the name reported by the family is not specific enough to decide which, **check all products that the family might be enrolled in** given what you see.

That's all we need for each individual family. You can help us out greatly with two types of problem:

- If you find that we have mistakenly identified some plans as related to your organization and you can tell us the correct organization, please attach a separate sheet to let us know.

- Also, in the cases of families you could **not** verify as covered by your organization, if you happen to know who does cover that employer, please let us know that.

Thanks very much for your effort. We'll begin processing your payment when you return the form to us. If you have any questions or problems, please feel free to call Joel Brosse of Mathematica Policy Research at 800-263-3909.

As a final test of the quality of ongoing data collection, an interim file was constructed in March 1998. The main focus of this assessment was the completeness of linkages. The interim file represented 363 entities offering 695 products, linked to 2,464 policies. From analysis of that file, we projected that we would attain reasonably high levels of linkage for eligible policies.

C. INSTRUMENT ORGANIZATION AND ADMINISTRATION DETAILS

We created three versions of the Followback entity instrument:

- A ***main instrument*** for a large entity's "primary" site
- A ***supplemental instrument*** for a large entity's additional sites
- *A* ***small-entity instrument***

Each instrument contained six components:

- Entity-level ***screener*** and site coverage
- Product inventory ***and*** description, including "core" attributes
- Typical copayment/coinsurance and deductibles
- Site-specific product characteristics
- Entity-level ***organizational*** data
- Verification of linkages ***between*** policies and products/contracts

In this section, we describe the organization of the instruments and their relationship to sample and interview management procedures. The complete instruments are shown in Appendices A through C.

1. Entity-Level Screener and Site Coverage

The geographic sites that each entity covered were identified from polices reported on the Household Survey and linked to the Followback. We obtained information used to locate potential respondents from industry directories (described in Chapter III) or from employers listed in the Household Survey.

The screening portion of Module A of the "main" large-entity instrument (Appendix A) and the small-entity instrument (Appendix C) verified whether the entity we contacted was the administrative unit for plans in those sites; if it was not, we obtained a referral to the correct office:

A1. To begin, does your organization offer or administer basic medical health care plans?

PROBE: Exclude specialty-only health plans (such as cancer-only), workers' compensation, supplemental and pharmacy only plans, military facilities, free clinics and individual providers' offices.

1	YES	ÿ	**GO TO A2**
2	NO		
8	DK		**GO TO A1a**
9	REF		

Because we were mainly interested in verifying contracts and collecting data on network and gatekeeping attributes, the entity did not have to be the insurer or service provider. This screening process had many outcomes, including referrals to regional offices or to another entity that had acquired the entity we were attempting to locate. A question on organizational structure helped to clarify the function of the entity:

A3. Please tell me which of the following categories *best* describes your organization . . .

PROBE: Overall, which category comes *closest* to describing your organization.

INTERVIEWER**:** IF AFTER USING ABOVE PROBE, THE RESPONDENT STILL CANNOT CHOOSE A *SINGLE* BEST CATEGORY, CIRCLE THE RESPONDENT'S ANSWER WITH THE LOWEST NUMBER

1 A Blue Cross/Blue Shield Plan
2 A licensed insurer or HMO
3 A PPO or other managed care organization
4 A TPA (Third Party Administrator)
5 A provider organization
6 An employer, union or trust plan
7 An employer
8 Or something else (SPECIFY) _____
88 DK
98 REF

In some cases, we were not aware that we had selected an inappropriate entity until later in the interview, which resulted in additional calls.

For entities linked to policies in multiple sites, we chose one site as the "main" or primary site, usually on the basis of contact location or the largest number of linked policies. The screening process also determined whether one informant could answer questions for all the sites, or whether we had to contact additional respondents in the other sites. Data for additional sites were recorded in a "supplemental" instrument, generally completed during the same interview, that omitted repetition of the entity-specific data in Modules A and D (see Appendix B). Module A of the supplemental instrument was used to determine which products from the primary site to repeat for this site.

2. Product Inventory and "Core" Attributes

We used different approaches to capture plan attributes for entities with very few policy linkages and for larger entities. We reasoned that respondents could more easily provide information about individual contracts if they only had to answer a few of them. However, a different process was required to obtain data from entities providing coverage for many policies.

The differences in the instrument for large entities (linked to more than five policies) and small entities (linked to five or fewer policies) are described in the following sections.

a. Larger Entities (More than Five Policies)

For larger entities, we prompted the entity informant by listing all product lines. Figure II.2 displays a reproduction of the questions used in developing an inventory of products. Then we prompted the informant by mentioning all plans name given by Household Survey respondents that the entity informant had not explicitly mentioned in the initial listing. An informant could list multiple products with the same core attributes (for example, two HMOs) if they were considered distinct because they were offered to different types of purchasers. Medicare and Medicaid products were excluded from the inventory because the Followback Survey was limited to private plans.

The final step in completing the product inventory was accomplished during the collection of information on network and gatekeeping attributes. Determination of the existence of a network was a two-step process. First, if the entity informant characterized the product cited in question B2 as an HMO, POS, or PPO, network status was assigned as "yes" automatically. If the answer was FFS or "other," the interviewer asked a follow-up question (B5) to determine network status. The other three attributes (out-of-network coverage without referral, PCP requirement, and coverage of self-referral to in-network specialists) were then determined for each network product:

B6. Under the [PRODUCT] in [SITE] if enrollees do not have a referral and go to *out-of-network* doctors, does the plan cover *any* of the costs for these visits?

PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES
2 NO
8 DK
9 REF

FIGURE II.2

REPRODUCTION OF MAIN INSTRUMENT PRODUCT INVENTORY SECTION

MODULE B: Product Attributes SITE_____

In this interview I'll be asking about your organization's "products" in (SITE). By "product" I mean groups of plans or contracts that are similar regarding out-of-network coverage, referrals and primary care physicians. If products are similar in these ways but differ on copays, deductibles, coinsurance rates, or supplemental benefits such as prescription drugs or dental care, consider them the same product. Examples are open-ended HMOs, PPOs without a primary care physician, and traditional indemnity plans.

B1. First, what are the complete names of the health care products your organization offers or administers in (SITE)?

ENTER PRODUCT NAME(S) IN GRID COLUMNS

PROBE: Exclude specialty-only health plans (such as cancer-only), workers' compensation, supplemental and pharmacy only plans, military facilities, free clinics, individual providers' offices.

B2. **VERIFY IF KNOWN OR ASK:**

First/Next, [PRODUCT NAME]. Do you think of that type of product as an . . .

INTERVIEWER: IF HMO, POS or PPO, CIRCLE "NET" IN HEADER
PROBE: SEE PRODUCT DEFINITIONS BELOW
INTERVIEWER: CODE "PPO/INDEMNITY HYBRID" PLANS AS PPOs; CODE "HMO/INDEMNITY HYBRID" PLANS AS HMOs

1	HMO (Health Maintenance Organization)	**GO TO B2a**
2	Point of Service Plan	**GO TO B2a**
3	PPO (Preferred Provider Organization)	**GO TO NEXT**
4	FFS (Traditional Fee For Service)	**GO TO NEXT**
5	Or something else? (SPECIFY)	**GO TO NEXT**
8	DK	**GO TO NEXT**
9	REF	**GO TO NEXT**

B2a. **IF HMO OR POS:** Which of the following best characterizes the network model? Is it a . . .

1	Staff or group model	**GO TO NEXT**
2	Network or IPA model	**GO TO NEXT**
3	Mixed model	**GO TO NEXT**
4	Or something else (SPECIFY)	**GO TO NEXT**
8	DK	**GO TO NEXT**
9	REF	**GO TO NEXT**

B3. Does your organization offer or administer any other products in (SITE)?
PROBE: If products have the same basic features and only vary by copays, deductibles, or supplementary benefits such as dental or pharmaceutical coverage, consider them the same product.

YES ÿ RECORD PRODUCT NAME IN NEXT AVAILABLE COLUMN IN HEADER

B4. **INTERVIEWER:** USE PRODUCT NAMES FROM PREVIEW REPORT BELOW AS PROBES IF THEY WERE NOT MENTIONED BY THE RESPONDENT DURING PRODUCT ENUMERATION IN B1.

1:_____ 5:_____

2:_____ 6:_____

3:_____ 7:_____

4:_____ 8:_____

B8. Under the [PRODUCT] in [SITE] if erollees do not have a referral and go to *in-network* specialists, does the plan cover *any* of the costs for these visits?

PROBE: Specialists include such doctors as surgeons, allergists, orthopedists, cardiologists and dermatologists. Exclude mental health providers and OB/GYNs.

PROBE: If enrollees go to specialists who then get referrals from primary care providers "on-the-spot" or after the visit, consider this a requirement to get a referral.

PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES
2 NO
8 DK
9 REF

B10. Does [PRODUCT] in [SITE] require members to have a primary care doctor, group of doctors, or clinic for all routine care?

PROBE: By "require" I mean that enrollees must sign up with a primary care doctor, group of doctors, or clinic in order to receive maximum coverage.

1 YES
2 NO
8 DK
9 REF

Each attribute was followed by an item determining whether it was the same "for all members and contracts under that product." The interviewer asked each follow-up item after receiving a response to each item on core attributes. If the informant responded that an attribute was *not* uniform for all contracts, the interviewer "split" the product in question into two products. For example, after B6:

B7. Does that answer apply to all contracts and enrollees in this product?

1 YES → **GO TO B8**
2 NO
8 DK → **GO TO B7a**
9 REF

B7a. For our purposes, we'd like to separate this product into two groups: contracts and enrollees that have some out-of-network coverage and those that don't. Is there a name, or can you suggest a label, for the this other group of contracts and enrollees?

1 YES → RECORD SPLIT PRODUCT IN NEXT AVAILABLE COLUMN; COMPLETE B2-B2a FOR THIS NEW PRODUCT NOW, THEN RESUME QUESTIONS FOR THE CURRENT PRODUCT
2 NO/CAN'T DIFFERENTIATE PRODUCTS BASED ON THIS ATTRIBUTE
8 DK
9 REF

We followed this procedure to inventory all products in the primary site. The entity informant completed the entire primary site instrument, before beginning any supplemental sites. The informant completed a new supplemental instrument for each additional site, starting with Module A, which reviewed the inventory from the primary site to prompt a new inventory. Linkages between products across sites (that is, in separate booklets) were recorded at this time. The interviewer also asked the informant whether the entity offered or administered any new products in a site that had not been mentioned for the previous sites (A2).

If the informant indicated that a product had the same core attributes as reported for a product in a previous site, the product was flagged as a "duplicate," (for later data processing) and network and gatekeeping attribute items were not repeated. Questions other than network and gatekeeping were asked for each product.

b. Small Entities (1-5 Policies)

Rather than inventory all products offered by an entity, each policy was described in the small-entity instrument individually, at the contract level. Neither the site roster (and use of multiple booklets) nor the product-split procedure was necessary. Otherwise, the product-level items were identical to those in the large-entity instruments.

3. Policy Product Verification

The most important goal of the Followback Survey was to link policies reported by Household Survey respondents with products reported in the Followback Survey. This task was completed by (1) entity verification that a contract existed for the policy reported on the Household Survey (identified by plan and employer name), and (2) identification of the specific product by the entity respondent. In the case of small entities, only step 1 was required, as the contracts were enumerated individually. Larger entities completed a self-administered form,

which we mailed or faxed after the respondent completed the telephone interview, to verify contracts and to link products. That form was assembled after the product inventory was completed.

Our goal was to link policies reported in the Household Survey to a single product; we refer to this as a "hard" linkage. In some cases, however, the employer contracted for more than one product from the same entity, and the policy that the Household Survey respondent provided was not specific enough to determine the product in which the policyholder was enrolled. In this "soft"-linkage situation, we asked the entity respondent to identify *all* products under contract with the policyholder's employer. One of these candidate linkages was later linked to a specific product, using statistical matching procedures described in Chapter VI. The soft-linkage outcome could apply to either small- or large-entity questionnaires. Soft linkages occurred because confidentiality promises to Household Survey respondents prevented us from giving the entity the name of the policyholder.

Different instruments were used to record product linkages for small entities and for large entities. For small entities, the sample tracking system printed the *Module X form*, which was inserted into the interview booklet and used during the interview. For large entities, the names of the products were entered into the tracking system after the interview was completed. A *fax form* was then immediately printed for fax transmission, with product names filled in under the column headings. In both forms, a grid was generated by listing the policy information in the following rows: study site, plan name, and sponsoring employer. For policies that were purchased directly by the enrollee, rather than sponsored by an employer, product linkages were considered verified if that product was offered for direct purchase in the site. A sample fax form and accompanying instructions are included in Exhibit B. The Module X insert pages, which collect similar information, are included in Appendix A.

III. SAMPLE DESIGN AND MANAGEMENT

A. LINKAGE TO THE HOUSEHOLD SURVEY SAMPLE

The Followback sample is derived from private health insurance policies reported in the CTS Household Survey. For that survey,[1] we asked the informant for each family[2] to provide information about the health insurance coverage of family members. We obtained plan and employer names (for employed based coverage) for up to three private health insurance *policies* covering family members. For the Followback Survey, we linked these policies to a *health plan entity* (that is, a health insurer, health plan, third-party administrator, or other administrator of the plan), and the linked entities became the reporting units for Followback interviews. We excluded Medicaid and other publicly funded health insurance programs for low-income people, military plans (for example, CHAMPUS), "Medigap" supplemental policies, other private supplemental plans that were not comprehensive medical plans, specialty plans (for example, dental coverage), and plans reported in family interviews that were not health plans (for example, disability plans).

Originally, 21,176 policies were included in the Followback sample. Some of these policies were subsequently excluded because they were not private policies or were linked to families

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[1]The methods used to conduct the Household Survey are discussed in Strouse, et al, "CTS Household Survey: Survey Methodology Report, Round One, Technical Publication #15, November 1998 (see www.hschange.org).

[2]The family, or family insurance unit (FIU), has based on groupings of people typically used by insurance carriers. The FIU includes an adult household member, spouse, and dependent children up to age 18 (or up to age 22 if the child was in school). Thus, each family informant provided information on insurance coverage only for close family members.

outside of the 60 study sites. Other policies, which had been omitted from the original sample, were added near the end of the survey. Altogether, efforts were made to link policies to entities for 22,211 private policies reported on the Household Survey. The results of these efforts are described below in Chapter IV. In the remainder of this chapter, we describe procedures to match policies to entities.

B. MATCHING POLICIES TO ENTITIES

Prior to interviewing, we attempted to match each insurance policy to a reporting unit that was most likely to be able to provide information about products offered in study sites, and to confirm the existence of contracts for products with individual employers cited by the survey respondent as the source of the plan. We used several industry directories to identify organizational units of health plan corporations that were likely to meet those criteria, including (1) the 1995 A.M. Best Life and Health standard name and address file, augmented with the Group Accident and Health Schedule H; (2) the 1995-1996 American Association of Health Plans (AAHP) HMO and PPO directories; and (3) the 1996 member directory of the Society for Professional Benefits.

Large corporations with multiple listings in the various directories had to be "un-duplicated" so that one listing could be designated as the target entity for the attempted interview. For example, in Florida, the AAHP HMO directory contained several listings for Aetna (one for each of its HMO offices located throughout the state); the PPO directory contained several Aetna listings throughout the state; and the A.M. Best directory contained a listing for Aetna in Florida. In general, we consolidated such multiple listings into a single reporting unit for each state, often encompassing several study sites. This consolidation process used business names, names of corporate parents, addresses, and telephone numbers to identify duplicate entities. In many

cases, of course, directory listings were single-site organizations without duplicate listings, and a few others represented only one unique operating office for the nation.

1. Pre-Interview Matching

The process of matching health plans cited in the Household Survey with industry directories required several steps. First, we cleaned and coded text reported in the Household Survey in order to standardize misspellings and partial entity names. For example, policies with verbatim names such as "Blu Cross," "Bleu Croos," and "Blue Cross/Blue Shie" were coded as "BC/BS." Entity names were similarly standardized to create parallel keywords in the industry directories.

The coded plan name data were then passed through a coder-assisted computer program for matching against the industry directories. The computer matched the policy's coded keywords against names of entities listed as serving the Household Survey respondent's state of residence. It made several passes, each using progressively weaker match criteria for policies that had remained unmatched prior to that pass. If, in any pass, a policy was uniquely linked to one entity, the match was accepted without coder intervention. Approximately 10 percent were verified manually as a quality control measure. If no match occurred, the policy advanced to the next pass. If the computer algorithm found multiple matches, the coder selected a single match based on manual inspection of the respondent's verbatim plan nomination, entity name, and geography.

2. Interview-Based Matching

Next, we called employers, unions, and other insurance sponsors when policies could not be matched against the directories. To maximize our chance of linking all relevant policies to an entity before its interview was conducted, we began this phase before conducting entity

interviewing. The unmatched cases were generally policies for which a Household Survey respondent had provided partial information or no information on the plan name (for example, an employer name but no plan name). Interviewers called employers and unions to determine the name of the entity providing health coverage to employees and union members, and if possible, the name of a specific product (see Exhibit C for this script).

There were three possible outcomes for interview-based matching of each policy record: (1) it was matched to an entity already existing in the current sample, (2) it was matched to a listed or unlisted entity that had to be added to the sample, or (3) it was assigned a final status as unmatchable because the householder or employer supplied no information to support a match. The results of efforts to match policies to insuring entities and products is discussed in Chapter IV.

3. Entity-Level Sample

The "sample" of entities for the Followback Survey consisted of all entities matched to at least one policy from the Household Survey. An initial sample of 602 entities was developed from the coder-assisted matching, described above. We subsequently augmented this number with matches made during interviews and then reduced it by deleting entity-level disqualifications (see Section IV.A.1). At the end of data collection, 1,127 entities had policies matched to them, of which 1,035 were completed. (Production statistics are described below in Chapter IV.)

EXHIBIT C

INTERVIEWER SCRIPT FOR SEARCHING ON UNMATCHED POLICIES, FIRST PASS

INTERVIEWER: BEGIN BY ASKING FOR THE BENEFITS MANAGER, OR SOMEONE IN PERSONNEL OR HUMAN RESOURCES WHO COULD ANSWER QUESTIONS ABOUT THE COMPANY'S HEALTH BENEFITS.

Hello, my name is _____, calling on behalf of the Robert Wood Johnson Foundation. We are conducting a nationwide study of health plans and organizations to track the rapid changes that are going on in the health care system in particular communities. Earlier this year we spoke to individual residents of your area, and one or more of them reported that they obtained health care coverage through your organization. We'd like to be able to get more information about the plan they said they were enrolled in, but we were unable to determine the company that administered the plan from what they told us. Is there someone there who could tell me about the health plans your organization offers to its employees?

A[nother] local resident said they were enrolled in PLAN NAME through you as employer. [They even gave the group number FILL NUMBER.] Can you tell me the name of the health plan and specific product in which this person is enrolled?

IF NEEDED: We're not asking you about any specific employees, and we won't ask the health plan about individual enrollees. We're just interested in the types of plans you offer employees, and the names of the local or state organizations that administer them.

IV. SURVEY OPERATIONS

We conducted interviewing of entities and employers for the Followback Survey from October 1997 through August 1998. In this chapter, we discuss operational issues associated with interviewing, including contact procedures and materials, training, sample and interview management issues, and survey response outcomes.

A. CONTACT PROCEDURES AND MATERIALS

In this section, we describe our methods for securing interviews with health plan entity informants. We also discuss the advance materials and introductory materials essential to securing their cooperation.

1. Identifying the Most Appropriate Office and Respondent for Interview

Prior to the start of interviewing, interviewers made advance calls to entities to investigate corporate structures of the national health insurance corporations, and linkages among entities that had merged with or had been acquired by other entities. The purpose of this effort was to determine whether the interview should be conducted with local- or state-level administrative offices in each site, or whether the entity organized its product and client information at a regional or national level. Many informants for entity interviews were identified. However, for some cases, interviewers could not determine which office was most appropriate until they actually spoke with prospective respondents.

Mergers and acquisitions among entities complicated identification of appropriate respondents. Several sampled entities were purchased by other entities, but the extent of integration between the two entities' product and client records was not always clear. In these cases, we began the interview with a respondent in what we believed to be the most appropriate

office and asked to be referred to another office only if the respondent could not answer questions about product attributes for a given site.

The target respondent within each entity was the marketing director. We attempted to contact marketing directors of entities that were listed in the directories. If the directories did not provide contact information, interviewers would ask to speak to the marketing director, explain the purpose of the survey, and ask the receptionist for the name of the appropriate person. Although interviewers usually were connected to a mid- or high-level marketing staff person, the target respondent occasionally was someone from product development or research.

2. Advance Letter and Survey Introduction

We faxed a two-page advance letter to target respondents, on MPR letterhead (see Exhibit D). The letter was generally sent after an initial contact was identified and the interview scheduled. The introduction and follow-up statement script that interviewers used to contact the respondents are shown in Exhibit E.

3. Respondent Incentives

As an incentive to participate, all respondents were told they would receive a report on the survey results.[1] The reports, which provided data or such characteristics as the prevalence of managed care attributes, prevalence of physician payment arrangements, and typical member cost-sharing levels, allow an insurer to compare its own enrollee data with market-level or regional data.

[1]The reports were mailed prior to the second round of the Followback Survey, which was conducted in 1999-2000.

EXHIBIT D: ADVANCE LETTER

December 30, 1997

Dear Respondent:

The U.S. health care system is undergoing change at an unprecedented pace, and new forms of managed care are emerging as it serves a growing portion of the population. However, little systematic information is available to understand the nature and extent of health system change and its impact on the local marketplace. In response to this information gap, the Robert Wood Johnson Foundation is sponsoring the "Community Tracking Study"--a major multi-year study to track changes in the health care system at the community level. The study involves gathering information from community residents, insurers, health plans, physicians, and other organizations that make up the health care system in 60 randomly-selected communities across the country. Data are being gathered on a recurring basis, permitting tracking of health system change in these communities. Some of the individual surveys for this larger study have already been completed, and we are now asking for your participation in the survey of health plans and insurance companies. Some of the questions you may have about this survey are answered below:

How was my organization selected to be part of the survey?

The first phase of the Community Tracking Study--a survey of residents in these 60 communities--has just been completed. In the residential survey we gathered basic identifying information about residents' health care plans (such as the plan name and the name of the employer providing the coverage), and we are now conducting a survey of the health plans and insurance companies cited by these residents.

Why are you doing this survey?

In the residential survey we also gathered basic information on the general characteristics about the plan, such as the type of plan (HMO, PPO, etc.), and whether a primary care physician is required. Because individual policyholders frequently do not know about or understand the details of their coverage, we'd like to validate the health plan information obtained from these community residents and gather supplemental information about those plans. Please note we are **not** seeking information on individual enrollees (e.g., claims experience), only general descriptive information about health care products your company offers.

What are you offering me in return for my participation?

When we've completed the study, we'd like to send your organization a summary report that can help your staff understand how your local market compares to others in the industry. The report will include aggregate statistics on the characteristics of residents' plans, such as the percentage of all plans that include out-of-network coverage, the percentage that require referrals for specialists, and typical copays and deductibles.

Exhibit D (*continued)*

Will the data be confidential?

Yes. All the information you provide will be kept strictly confidential. Our reports and analyses will group individual enrollees by type of health plan (e.g., HMO, POS, PPO, indemnity); at no time will individual health plans or insurers be identified by name.

How do I participate, and how much time with this take?

An interviewer from Mathematica Policy Research, an independent survey research organization, will be contacting you soon by phone. The interview will take only about 15-20 minutes. We can schedule an appointment for anytime that's convenient for you, and we can break up the interview into several shorter sessions.

Who is sponsoring the survey?

The survey is being sponsored by the Robert Wood Johnson Foundation, a non-profit organization based in Princeton, New Jersey, whose sole mission is to improve health care. Some of the other projects sponsored by the foundation include:

- Medicaid Managed Care Program: Aimed at helping states, managed care organizations, providers, and consumers take advantage of the unique opportunities presented by managed care to meet the needs of Medicaid recipients.
- Service Credit Banking in Managed Care: Intended to help HMOs and other prepaid delivery systems respond to growing numbers of enrollees in need of informal care by developing and implementing volunteer caregiver programs for their elderly members.
- Addressing Tobacco in Managed Care: Designed to help managed care providers help people avoid harm caused by tobacco and promote exemplary tobacco intervention practices.

Who can I call to get more information about the survey?

For more information about the study or to schedule an interview appointment, please call Joel Brosse at 800-263-3909. Thank you in advance for your help.

Sincerely,

Joanne Pascale

EXHIBIT E: SURVEY INTRODUCTION

INTRODUCTION

Hello. My name is _____, calling on behalf of the Robert Wood Johnson Foundation. We are conducting a nationwide study of health plans and organizations, and we'd like your organization to participate in a brief survey. The purpose of the study is to track the local-level rapid changes that are going on in the health care industry. We know how busy you are, and we would like to send you our final report in appreciation for your help with the study.

Would you be able to help me with this? → **GO TO MODULE A**

IF NEEDED

HOW WAS MY ORGANIZATION SELECTED?

- Your organization was selected for the survey because earlier this year, we spoke with residents across the country and asked them about their source of health coverage. Several people told us they are covered by a product offered through your organization. Now I'd like to verify that your organization offers these products and ask some basic questions about the coverage.

WHY ARE YOU DOING THIS STUDY?

- In the residential survey we gathered basic information on the general characteristics about the plan, such as the type of plan (HMO, PPO, etc.), and whether a primary care physician is required. Because individual policyholders frequently do not know about or understand the details of their coverage, we'd like to validate the health plan information obtained from these community residents and gather supplemental information about those plans.

- The U.S. health care system is undergoing change at an unprecedented pace. However, little systematic information is available to understand the nature and extent of health system change and its impact on the local marketplace. In response to this information gap, the Robert Wood Johnson Foundation is sponsoring the "Community Tracking --a major multi-year study to track changes in the health care system at the community level.

WHO IS SPONSORING THE SURVEY?

- The survey is sponsored by the Robert Wood Johnson Foundation, a non-profit organization based in Princeton, New Jersey, whose sole mission is to improve health care. Some of the other projects sponsored by the foundation include:

- *Medicaid Managed Care* Program: Aimed at helping states, managed care organizations, providers, and consumers take advantage of the unique opportunities presented by managed care to meet the needs of Medicaid recipients.

- *Service Credit Banking in Managed Care:* Intended to help HMOs and other prepaid delivery systems respond to growing numbers of enrollees in need of informal care by developing and implementing volunteer caregiver programs for their elderly members.

- *Addressing Tobacco in Managed Care:* Designed to help managed care providers help people avoid harm caused by tobacco and promote exemplary tobacco intervention practices.

WHO IS CONDUCTING THE SURVEY?

- This survey is being conducted by Mathematica Policy Research, an independent survey research organization.

WHO CAN I CALL TO GET MORE INFORMATION ABOUT THE SURVEY?

- For more information about the study, or to schedule an interview appointment, you can call Joel Brosse of Mathematica Policy Research at 800-263-3909.

HOW LONG WILL THE SURVEY TAKE?

- The interview will take only about 20-30 minutes. We can schedule an appointment for anytime that's convenient for you, and we can break up the interview into several shorter sessions.

WILL THE DATA BE CONFIDENTIAL?

- All the information you provide will be kept strictly confidential. Our reports and analyses will group individual enrollees by type of health plan (e.g., HMO, POS, PPO, indemnity); at no time will individual health plans or insurers be identified by name.

Our cognitive tests documented that many types of health plan entities lack access to these market-level data, which they consider quite valuable. We provided separate reports for each high-intensity site. Reports for low-intensity sites were aggregated by region.

In addition, entities that completed fax forms were offered monetary compensation for the effort involved in checking contract files. The rate of compensation was proportional to the number of policies to be processed: a flat $25 for 10 policies or fewer, $50 for 11 to 25 policies, and $2 per policy for 26 policies or more. Compensation was paid to individual respondents or their entities, as they requested. Of 373 interviews for which monetary compensation was offered, 188 respondents (50 percent) accepted payment for themselves or their organizations, and 12 others directed payment to a charity they had designated.

B. INTERVIEWER SELECTION, TRAINING, AND SKILL LEVELS

MPR employed 22 experienced executive interviewers to conduct the entity interviews. Executive interviewers were individuals who had demonstrated an ability to work on surveys involving organizations, professionals, and/or "gatekeepers." Most also had experience with the CTS Household Survey or the Followback Pilot Survey. In addition, MPR recruited eight individuals who had substantial work experience in the health care industry to concentrate on the largest entities. We believed that their knowledge of managed care organizations and other insuring entities would be helpful in interviewing managers responsible for many insurance products spread across multiple sites. In practice, we found that experienced executive interviewers could handle this task as well as industry specialists.

Interviewers received 12 hours of classroom training and a minimum of 4 hours of paired role playing. The classroom training covered the project background, health care terminology (including product definitions and attributes), a question-by-question review of the questionnaire, and an overview of the sample tracking system. (See Exhibit F for the training agenda.) Mock

EXHIBIT F: INTERVIEWER TRAINING AGENDA

Day 1 (Morning)

I. Introductions all around

II. Background

D. RWJF, HSC, and the Community Tracking Study
E. The HSC Household Survey
F. The Followback Pilot Study
G. The Main Followback Survey

III. Product Definitions and Attributes

A. A Brief Introduction to the Health Insurance Industry; Transition to Managed Care

1. Consumer's terms:

   a. Enrollee
   b. Policy holder (direct enrollee)
   c. Premium
   d. Deductible, family and individual
   e. Copayment; coinsurance rate
   f. Usual and customary charges, fee schedules, and balance billing

2. Financial arrangements between health plans and purchasers

   a. Direct purchase
   b. Employer sponsored/purchased
   c. Employer/union/trust plan
   d. Self-insurance; ERISA; stop-loss policies; employee premiums
   e. Third-party administrator (TPA); ASO contracts

3. Attributes of managed care plans

   a. Provider network
   b. Preferred provider
   c. Prepayment plans = HMOs
   d. Gatekeeper/primary care physician/PCP
   e. Specialists: referrals and self-referrals
   f. Point-of-service plans

4. Financial arrangements between health plans and providers

   a. Staff, group practice, network and IPA; mixed model
   b. Incentives and financial risk for providers
   c. Fee for service (FFS)
   d. Capitation
   e. Credentialing

B. Features of Traditional and Managed Care Health Plans (Handout)

EXHIBIT A: Guideline of Typical Products and Their Attributes

IV. The Questionnaire

A. Overview

LUNCH BREAK

Day 1 (Afternoon)

B. Module B Demonstration (with October Trainees)
C. Module C Demonstration
D. Module D Demonstration

Day 2 (Morning)

V. Sample Management and Contact Procedures

A. Sample Source: Family-Plan Matching Process, Sites, and Types of Entities

Relationships Among Conceptual Units

EXHIBIT A1: List of CTS Sites

B. Preparing for the Interview; Contact Procedures, Scheduling and Advance Letter/Fax

EXHIBIT C1: Interview Check List

EXHIBIT C2: Entity Cover Sheet
EXHIBIT C3: Preview Report
EXHIBIT C4: Advance Letter

C. Module A Screener

EXHIBIT D1: County List

LUNCH BREAK

Day 2 (Afternoon)

VI. Module-by-Module Question-by-Question Review--Mock Interviews and Role-Plays (with October Trainees)

Module A--Screener
Module B--Product Attributes
Module C--Network Size and Physician Payment Arrangements
Module D--Organizational Information

Day 3 (Morning)

VII. Sample Management and SSS Interview Tracking System

A. Sample Management: Preview of SSS Interview Tracking System

EXHIBIT B1: Summary Reports of Matched and Unmatched Families, by Site Interview Priorities and Screening Calls

B. Sample Management and Tracking Procedures in Detail

1. Expected quality of original family-entity matches
2. Interview sequencing within each site
3. Responsibilities of supervisor and interviewers

C. Small- and Large-Entity Interviews

1. Threshold: Five or fewer FIU plans = small-entity interview; more than five FIU plans = large-entity interview
2. Contract-versus product-level enumeration
3. Module X versus fax back form

D. Module X Demonstration

E. Postinterview Tasks: Fax Form and Followup; Verification; Mop-up

EXHIBIT F1: Fax Form

VIII. Followback Tracking System

A. General Concepts: Databases, Forms, Queries, and Reports

1. Organization of functions
2. Sites as criteria: pick-lists

3. Families printed and verified

B. Site-Level Sample Management and Progress Reporting

1. Create standard reports ... matched families ... all entities, by site
2. Standard reports ... matched families ... summary of site, by interviewers

C. Unmatched Family Screening Candidates

1. Standard reports ... unmatched families ... summary
2. Standard reports ... unmatched families ... summary plus family detail report

D. Entity Cover Sheet and Precontact Information

1. Create booklet components ... entity cover sheet
2. Standard reports ... matched families ... preview of Module X/fax form

E. Interviewer Tasks After the Interview

1. Update entity ... family/entity links
2. Update entity ... family verification

F. Adapting to New Information

1. Browsing
2. Update entity ... entity info ... product lines
3. Update entity ... entity info ... states served
4. Add entity

LUNCH BREAK

Day 3 (Afternoon)

IX. Demonstration: Two Interview Sequences

X. Screening Script for Unmatched Families

XI. Faxing, Filing, etc.

XII. Module X Mock Interviews

respondent scripts were used to control the flow of interviewing practice sessions. If necessary, interviewers were given two to four hours of additional unscripted practice before beginning interviewing.

A separate staff of nine interviewers, drawn from the pool of experienced MPR staff with a background in interviewing institutional respondents, interviewed employers.

C. OPERATIONAL MANAGEMENT

In this section, we begin by describing our procedures for managing the entity sample. We then describe procedures for maintaining linkages between entities and policies after interviewing began and for converting entity-level refusals.

1. Sample Management

A customized sample management and tracking system was programmed in MSAccess97 to perform the following interview support functions:

- Control release and track disposition of sample entities
- Update links between entities and policies
- Produce interview-specific forms, such as site rosters and fax forms
- Produce reports

Because policies were often reassigned from one entity to another, interviewers used the tracking system to check the current count and site location of policies associated with an entity immediately before each interview attempt. For small entity cases, no further followup to the telephone interview was required. For larger entities, a fax form was generated from the tracking system and faxed, with an instruction page (see Exhibit B), to respondents. Within one hour,

interviewers called to confirm receipt of the fax form and to answer any questions respondents may have had. Interviewers then followed up every few days to check on the respondents' progress in completing the fax form. Return times typically ranged from several days to three weeks. After receiving a completed fax form, we logged policies that had been matched to individual products into the tracking system as "verified." These policies were then considered complete.

2. Followup on "Abandoned" Policies

Respondents often returned incomplete fax forms; either they did not indicate the product to which the policy should be linked or they checked the "no match" column. These were known as "abandoned policies." The no-match response might have indicated that the match between the policy and entity was erroneous, but other explanations were possible. In these cases, interviewers called back the respondent, probing the reasons for the missing data, and attempting to identify the product or other entity with which the policy might have been associated. Probing identified several problems that might have prevented the respondent from verifying a correct match: (1) the respondent's records did not go back enough; (2) the respondent had access only to a subset of accounts within the entity (for example, "small" and "large" group accounts but not national accounts) and could not identify another respondent to verify the outstanding policies; (3) the householder's employer was not listed in the r
because the employer was covered through an intermediary entity, such as a third-party account or parent company; and (4) the entity had merged with another entity, but records from the two entities had not been centralized.

For policies that could not be linked to insurance products, interviewers called employers in an attempt to identify a product. Using a pre-printed list of products offered by the entity and a script (Exhibit G), interviewers asked employers whether they offered a health plan through the

EXHIBIT G

INTERVIEWER SCRIPT FOR SEARCHING ON UNMATCHED POLICIES, SECOND PASS

INTERVIEWER: BEGIN BY ASKING FOR THE BENEFITS MANAGER, OR SOMEONE IN PERSONNEL OR HUMAN RESOURCES WHO COULD ANSWER QUESTIONS ABOUT THE COMPANY'S HEALTH BENEFITS:

Hello, my name is _____, calling on behalf of the Robert Wood Johnson Foundation. We are conducting a nationwide study of health plans and organizations to track the rapid changes that are going on in the health care system in particular communities. Last year we spoke to individual residents of your area, and one or more of them reported that they obtained health care coverage from **[ENTITY NAME]** through your organization. Now we'd simply like to verify that information, and determine more specifically which product the family is enrolled in. The family reported that their plan name is **[PLAN NAME]** and when we spoke with **[ENTITY]** they told us they offer the following products: **[PRODUCT 1, PRODUCT 2, ETC.].** Could you tell me in which product or products this family could be enrolled?

entity cited by the householder and, if so, whether the employer could identify a particular product offered to employees. If the employer answered both questions positively, the policy was classified as verified.

3. Refusal Conversion

Refusals occurred at two stages: (1) at the time of the telephone portion of the survey (the "core interview"), and (2) at the time the fax form had to be completed. We faxed a letter on Robert Wood Johnson Foundation letterhead, signed by Dr. Steven Schroeder, the Foundation's president, to the target respondents of entities refusing to participate in the survey (see Exhibit H). Foundation and MPR staff then made follow-up calls. In the case of Blue Cross/Blue Shield entities that refused, we mailed a separate letter prepared by the executive vice president of the Blue Cross/Blue Shield Association.

It was particularly important to obtain network and gatekeeping attributes for products owned by large entities that represented a significant share of the market. For each product, these attributes include whether it was a network of providers, whether out-of-network services are covered without referral, whether self-referrals to in-network specialists are covered, and whether a primary care provider is required. We designated any entity that accounted for more than ten percent of policy linkages within a site as a critical case for refusal conversion. For non-responding entities with large market share in a site, we contacted employers cited by Household Survey respondents to obtain responses to questions on networking and gatekeeping characteristics.

In some cases, an entity completed the core interview or the core interview was constructed from employer reports, but we did not receive the fax form that linked policies to products. In these cases, we contacted employers (if survey respondents had provided employers' names) to link the policy to the insurance product.

EXHIBIT H: REFUSAL CONVERSION LETTER

Dear [fill respondent name]:

Recently an interviewer from Mathematica Policy Research called on behalf of The Robert Wood Johnson Foundation to ask your organization to participate in a major nationwide health care study (attached is a letter, faxed earlier, explaining the study). The foundation regards this study as one of the most important research projects on health care ever undertaken. While there is an abundance of anecdotal information on health care today, little systematic information is available on the nature of health care products in specific markets and how those products are changing over time. We need your participation to make the study a success.

We understand you may have concerns about the confidentiality of the information you provide. The Robert Wood Johnson Foundation and Mathematica Policy Research take their pledge of confidentiality very seriously. All information gathered from individuals and organizations will be aggregated and reported only in terms of broad categories; no individual, organization or employer will ever be identified by name. Furthermore, no marketing lists will be produced from this study.

In exchange for your participation we'd like to send you a report, which will include aggregate statistics on the characteristics of community residents' plans. The report will focus on managed care attributes and network characteristics, such as the percentage of persons whose plans include out-of-network coverage, the percentage that require referrals for specialists, and typical copays and deductibles in specific markets. We believe this report will be extremely valuable to your company for the following reasons:

- It will be based on a representative sample of community residents and the health plans in which they are actually enrolled;
- It will provide a detailed picture of product lines and plan features in local markets across the country;
- Future reports will track changes in these product lines and features over time; and
- Only organizations that participate in the survey will receive the report.

Finally, to reimburse your organization for the staff time involved in completing the survey, we will send a check commensurate with the survey task.

A staff member from the foundation or Mathematica Policy Research will be calling you soon to see if you have any other questions or concerns about the study. You may also call the foundation at 800-719-9419 and ask for Maureen Michael. If you prefer to make an appointment to complete the survey, please call Joel Brosse of Mathematica Policy Research at 800-263-3909.

Thank you in advance for your help. Your participation is crucial for this innovative study to provide the most up-to-date, accurate portrait of local health care markets and how they're changing over time.

Sincerely,

Steven A. Schroeder, M.D.
President
The Robert Wood Johnson Foundation

4. Entity Callbacks for Newly Added Policies

We attempted to link policies obtained from the Household Survey to an entity prior to the entity interview. However, some policies were found to be associated with an entity after its interview was completed and the fax form had been received. This happened when an insurer indicated that policies on its fax form might belong to another insurer. In these cases, we called the entity respondent back to verify the product for these newly added policies and, if necessary, generated another fax form.

D. SURVEY OUTCOMES

1. Final Survey Production Statistics

Table IV.1 summarizes interview completion statistics, computed at the entity level, for small- and large-entity interviews. The *unweighted* completion rate includes entities that completed interviews or that had interview data constructed from employer reports; the base is all entities with any policies linked to them. We completed entity interviews with 1,035 (91.8%) of the 1,127 entities that were attempted, with completion rates over 90% for both large and small entities. Large entities represented 36.6 percent of the completed interviews, but 93 percent of the linked insurance policies. A small number of large entities (n=35) represented three percent of the entity sample, but 42 percent of the policies included in the sample.

This distribution illustrates a key methodological challenge of the Followback Survey design. On the one hand, we had to devote considerable effort to contacting entities representing a relatively small but fragmented portion of the health insurance market. However, the interviews themselves were relatively simple, as each called for description of only a few contracts. On the other hand, a small number of entities accounted for a relatively large market share in each study site, allowing us to capture significant economies of data collection.

TABLE IV.1

ENTITY INTERVIEW PRODUCTION STATISTICS

Interview Type	Entities with Linked Policies	Complete Entity Interviews	Unweighted Completion Rate	Percentage of Completed Interviews By Type	Verified Hard and Soft Policy Linkages	Percentage of Linked Policies Completed, by Type
Small Entity	729	656	90.0%	63.4%	1,114	7.0%
Large Entity[a]	398	379	95.2%	36.6%	14,855	93.0%
All Interviews	**1,127**	**1,035**	**91.8%**	**100.0%**	**15,969**	**100.0%**

[a]Thirty-five large entities included 42 percent of the linked policies.

Table IV.2 reports policy-level completion statistics, by study site. The definitions of columns for this table are:

- ***Total Policies***. Policies extracted from the CTS Household Survey
- ***Total Eligible Policies***. Excludes policies outside of the 60 sites and policies within the 60 sites that were determined to be ineligible, that is, they were identified as not being private health insurance policies.
- ***Hard and Soft Linked Policies***. Sum of policies linked to specific insurance products (hard linked) or only to an insurer (soft linked).
- ***Percent Linked***. Percentage of eligible policies that were hard or soft linked.
- ***Total Hard Links***. Total number of policies that were linked to insurance products.
- ***Total Soft Links***. Total number of policies that were linked to an insurer, but not to a specific insurance product.
- ***Total Not Linked***. Total number of policies that could not be linked to an insurer. These could be either eligible or ineligible policies; ineligible policies are any policies that are not comprehensive private health insurance policies.
- ***Percent Eligible Policies that were Hard Linked***. This is a key statistic showing the percentage of eligible policies that were linked to a single insurance product.
- ***Percent Linked Policies that were Hard Linked***. This is the percentage of the 15,969 linked policies that were hard linked (11,651).

The overall hard linkage rate is 52.5 percent, with high intensity sites varying from a low of 45.1 percent (Orange County) to a high of 75.3 percent (Syracuse). There was more variation among low intensity sites, with hard linkage rates range from 34.6 percent (Atlanta) to 72.9 percent (Rochester). We believe the high variation was primarily a function of the unevenness in the level of detail on insurance products provided by households, a problem we hope to address in subsequent rounds.[1]

[1]For rounds two and three, we will be developing a database of insurers and insurance products to aide respondents' recall of their policies. We also will contact employers to obtain the names of insurance products for survey respondents who cannot provide this information during the interview.

TABLE IV.2

POLICY LINKAGES TO INSURANCE PRODUCTS

Site ID	Site Name	Total Policies Identified from CTS	Total Eligible Policies Identified from CTS*	Hard and Soft Linked Policies	Percent Linked	Total Hard Links	Total Soft Links	Total Not Linked	Percent Eligible Policies that were Hard Linked	Percent Linked Policies that were Hard Linked
	TOTAL	23,666	22,211	15,969	71.9%	11,651	4,318	6,242	52.5%	73.0%
0	National Supp	1,367	NA							
1	Boston MA	856	850	677	79.6%	462	215	173	54.4%	68.2%
2	Cleveland OH	894	890	692	77.8%	443	249	198	49.8%	64.0%
3	Greenville SC	1,026	1,020	756	74.1%	659	97	264	64.6%	87.2%
4	Indianapolis	1,042	1,032	783	75.9%	545	238	249	52.8%	69.6%
5	Lansing MI	960	959	807	84.2%	472	335	152	49.2%	58.5%
6	Little Rock	1,071	1,067	842	78.9%	710	132	225	66.5%	84.3%
7	Miami FL	702	701	518	73.9%	367	151	183	52.4%	70.8%
8	Newark NJ	980	973	749	77.0%	490	259	224	50.4%	65.4%
9	Orange County	882	880	627	71.3%	397	230	253	45.1%	63.3%
10	Phoenix AZ	847	846	626	74.0%	418	208	220	49.4%	66.8%
11	Seattle WA	973	969	753	77.7%	545	208	216	56.2%	72.4%
12	Syracuse NY	935	929	755	81.3%	700	55	174	75.3%	92.7%
13	Atlanta GA	266	266	167	62.8%	92	75	99	34.6%	55.1%
14	Augusta GA	208	205	129	62.9%	104	25	76	50.7%	80.6%
15	Baltimore MD	227	227	162	71.4%	110	52	65	48.5%	67.9%
16	Bridgeport CT	227	226	136	60.2%	87	49	90	38.5%	64.0%
17	Chicago IL	319	319	184	57.7%	97	87	135	30.4%	52.7%
18	Columbus OH	257	256	171	66.8%	103	68	85	40.2%	60.2%
19	Denver CO	274	274	173	63.1%	125	48	101	45.6%	72.3%
20	Detroit MI	255	253	203	80.2%	87	116	50	34.4%	42.9%
21	Greensboro NC	238	238	138	58.0%	106	32	100	44.5%	76.8%
22	Houston TX	240	240	141	58.8%	83	58	99	34.6%	58.9%
23	Huntington WV	200	200	115	57.5%	82	33	85	41.0%	71.3%
24	Killeen TX	178	178	115	64.6%	108	7	63	60.7%	93.9%
25	Knoxville TN	239	238	134	56.3%	98	36	104	41.2%	73.1%
26	Las Vegas NV	188	188	110	58.5%	87	23	78	46.3%	79.1%
27	Los Angeles CA	239	238	165	69.3%	114	51	73	47.9%	69.1%
28	Middlesex NJ	260	258	189	73.3%	129	60	69	50.0%	68.3%
29	Milwaukee WI	248	248	154	62.1%	119	35	94	48.0%	77.3%
30	Minneapolis MN	309	308	203	65.9%	148	55	105	48.1%	72.9%
31	Modesto CA	204	203	144	70.9%	125	19	59	61.6%	86.8%
32	Nassau NY	281	280	207	73.9%	171	36	73	61.1%	82.6%
33	New York City	203	201	149	74.1%	119	30	52	59.2%	79.9%
34	Philadelphia	263	263	156	59.3%	111	45	107	42.2%	71.2%
35	Pittsburg PA	208	208	148	71.2%	99	49	60	47.6%	66.9%
36	Portland OR	251	250	175	70.0%	121	54	75	48.4%	69.1%
37	Riverside CA	191	189	131	69.3%	104	27	58	55.0%	79.4%
38	Rochester NY	291	291	250	85.9%	212	38	41	72.9%	84.8%
39	San Antonio	221	219	140	63.9%	90	50	79	41.1%	64.3%
40	San Francisco	213	213	165	77.5%	125	40	48	58.7%	75.8%
41	Santa Rosa	214	213	163	76.5%	126	37	50	59.2%	77.3%
42	Shreveport LA	204	204	111	54.4%	90	21	93	44.1%	81.1%
43	St. Louis MO	272	271	177	65.3%	135	42	94	49.8%	76.3%
44	Tampa FL	207	206	154	74.8%	112	42	52	54.4%	72.7%

TABLE IV.2 (*continued)*

Site ID	Site Name	Total Policies Identified from CTS	Total Eligible Policies Identified from CTS*	Hard and Soft Linked Policies	Percent Linked	Total Hard Links	Total Soft Links	Total Not Linked	Percent Eligible Policies that were Hard Linked	Percent Linked Policies that were Hard Linked
45	Tulsa OK	205	204	124	60.8%	101	23	80	49.5%	81.5%
46	Washington DC	294	294	199	67.7%	137	62	95	46.6%	68.8%
47	W Palm Beach	164	163	110	67.5%	61	49	53	37.4%	55.5%
48	Worchester	242	242	174	71.9%	137	37	68	56.6%	78.7%
49	Dothan AL	186	184	126	68.5%	122	4	58	66.3%	96.8%
50	Terre Haute	198	198	157	79.3%	126	31	41	63.6%	80.3%
51	Wilmington NC	198	198	114	57.6%	75	39	84	37.9%	65.8%
52	W-Cen Alabama	231	230	147	63.9%	123	24	83	53.5%	83.7%
53	Cen Arkansas	255	255	188	73.7%	165	23	67	64.7%	87.8%
54	N Georgia	202	202	100	49.5%	76	24	102	37.6%	76.0%
55	NE Illinois	220	218	127	58.3%	104	23	91	47.7%	81.9%
56	NE Indiana	223	222	148	66.7%	108	40	74	48.6%	73.0%
57	E Maine	224	223	147	65.9%	125	22	76	56.1%	85.0%
58	E North Car	221	219	121	55.3%	81	40	98	37.0%	66.9%
59	N Utah	270	269	197	73.2%	171	26	72	63.6%	86.8%
60	NW Washington	203	203	146	71.9%	112	34	57	55.2%	76.7%

*Excludes policies outside of the 60 sites and ineligible policies within the 60 sites. Of the 22,211 policies (which are limited to the 60 study sites and that are part of the national supplement included within those sites), we subsequently discovered that 453 policies were not eligible, including 3 hard-linked and 450 not-linked policies. Procedures for dealing with these cases in sample weights are described below in VI.C.

V. DATA EDITING AND FILE PROCESSING

Data elements from the Followback Survey represent three units of analysis (health plan entities, products, and enrolled policies). Efficient cleaning and editing of these data elements and assembly of intermediate and final analysis files called for a structured, relational database which we maintained primarily in MSAccess97. This organization enabled us to create a series of analysis files (exported to SAS). In the following sections, we describe data validation procedures and analysis files.

A. VALIDATION OF FINAL RECORDS

The use of linked, hard-copy documents called for special validation efforts for final data processing of policy-product linkages. We used the interview tracking system and the final policy-product linkage file to validate each other. Our goal was to assess the completeness of files, and to minimize the impact of errors that might have arisen from interview tracking tasks, coding, data entry keypunching, and other data processing steps. We used the following criteria before accepting a linked record for a policy as valid:

- The tracking record indicated that the linked policy was verified.
- Both tracking and linkage records identified the same entity.
- The linkage record pointed to an existing product.

In applying these tests, we discovered and corrected errors in identifiers and tracking status flags, removed duplicate records, and identified some document batches that required reentry. Some

validation problems were too difficult to diagnose and correct individually, and the linkage records involved (347 policies) became non-matches.

B. ANALYSIS FILES

We prepared a total of five files for the data analysis (see Table V.1). The first file FB1.PROD provides the product information for each of the 4,663 entity and product combinations identified and for which data was collected during the Followback Survey. The product file contains information collected via the main, supplemental, and small-entity instruments. The variable TYPE distinguishes the instruments, using codes 1, 2, and 3, respectively. For policy records, FTYPE distinguishes small entity (=3), and fax form (=4) as the source for linkage information. Records mistakenly omitted from the interview sample that were part of the field sample were coded with FTYPE=5 (a total of 1,494 policies).

The second file (POLICYID) is a linking file that allows the product data to be merged with the corresponding FIU- or person-level CTS household survey data, based on CSID and PLAN_NUM. The third, fourth, and fifth files contain the person-level weights that are to be used when making estimates based on the Followback Survey data, along with linking variables (CSID, PID, and PLAN_NUM). There are three person-level weights provided: (1) FBWTPER2 is for making national estimates using the site sample; (2) FBWTPER1 is for making site-specific estimates using the augmented site sample; and (3) FBWTPER5 is for making national estimates using the augmented site sample.[1]

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[1]Weight variable FBWTPER5 (in file FBWT2PR5) was adjusted to correct for three ineligible policies (associated with seven people) that had incorrectly been classified as eligible nonmatches during the nonresponse adjustment. The other two weight variables (FBWTPER1 and FBWTPER2) were not adjusted at the time they were delivered. Subsequently, HSC made a correction to these two weights, described in VI.C.

TABLE V.1

PRIMARY ANALYSIS FILES

File	Unit of Analysis	Primary Identifiers	Analysis Variables
(1) FB1_PROD (n = 4,663 product offerings)	Product offered, by entity in site	ENTITY, SITE, PROD_ID	Modules B,C as reported for product Modules A,D spread from entity to all products offered by that entity, in all sites
(2) POLICYID (n = 22,211 policies)	Policy Linkage, Policy in CTS Round 1 Household Survey linked to Product Data and Weight Files	CSID, ENTITY, LINKLOC, PROD_ID, PLAN_NUM	N.A - Used for Linking Files for Analysis
(3) NATFBWTS (n = 60,446 persons)	Person in CTS Round 1 Household Survey	CSID, PID, PLAN_NUM	Followback weight for National estimates using the site sample (FBWTPER2)
(4) SITFBWTS (n = 56,798 persons)	Person in CTS Round 1 Household Survey	CSID, PID, PLAN_NUM	Followback weight for site-specific estimates using the augmented site sample (FBWTPER1)
(5) FBWT2PR5 (n = 60,446 persons)	Person in CTS Round 1 Household Survey	CSID, PID, PLAN_NUM	Follwback weight for National estimates using the augmented site sample (FBWTPER5)

VI. IMPUTATION AND WEIGHTING METHODS

After producing product and policy-level files, we developed procedures to adjust for missing data. For some household sample members, however, a linkage could not be established between household members' policies and the product information. Some entities could not verify that they had a contract with the employer cited by the Household Survey respondent. Others were unsure whether the plan name mentioned by Household Survey respondents was for one of their products. For some household sample members, the linkage between an entity and the household members was established, but we could not identify the specific product that covered the members. In addition, some insuring entities were unable to provide data on product characteristics for all products offered.

Given these aspects of the linkage and reporting process, the Followback Survey had three types of missing data:

1. Incomplete product characteristic data from a reporting entity
2. Partial, or "soft," linkage to a product, that is, a policy was linked to more than one product associated with a reporting entity
3. No linkage between an entity and the household policy, or nonresponse by the linked entity

We conducted separate procedures to resolve each of these issues. First, we imputed the values for selected items with missing data in the product records. Second, we statistically matched a product to the household members that had a soft linkage. Finally, we compensated for the "no linkage" cases by a nonresponse adjustment to linked policies. This chapter provides a brief summary for each of these three techniques. Additional information on methodological and computational procedures are discussed in Appendix E.

Overall, the household survey respondents reported 22,211 private family-specific health care policies. We define a "policy" as the enrollment of a family unit or individual members of a family unite (subunit) in a private health insurance plan. For example, two families covered by the same plan represent two separate policies. We attempted to obtain information about the characteristics of a product linked to a policy from an insurer or other entity, such as an employer, third party administrator or union. If we could not obtain any information about a policy, we treated it as a nonlinkage case.

Ultimately, we successfully linked 11,651 household-reported policies to product data. For another 4,318 policies, we linked the policy to an entity, but not to a specific product (these cases were the soft linkages). For these soft linkages, the policy was tentatively linked to two or more of an entity's products, one of which we chose as the final linkage. The remaining 6,242 policies (28.1 percent) could not be linked to any entity or product. To compensate for these policies, which lacked product data, we adjusted the survey weights. In particular, we adjusted the person weights associated with the persons matched to the 15,969 policies, using a model-based nonresponse adjustment procedure, followed by postratification to the original CTS Household Survey population distribution, to create the final analysis database.

A. PRODUCT IMPUTATION

The Followback Survey collected data from 1,035 entities for 4,663 unique products. Product data could be missing, either because the entity respondent did not provide the data or because of unresolved inconsistencies. Because much of the planned analysis focused on the specific product attributes included in Modules B and C of the instrument, HSC staff decided to limit imputation to the data items in these modules. Subsequently, a few data items in Module C were excluded from the imputation process because of high missing data rates. Table VI.1 lists

TABLE VI.1

PRODUCT DATA IMPUTED FOR EACH QUESTIONNAIRE ITEM

Data Item	Description	Number Imputed
B2	Entity-reported product line	27
B2A	If HMO or POS, type of HMO model	110
B6	Does plan cover out-of-network physician costs?	8
B8	Does plan cover out-of-network specialty costs without referral?	33
B10	Does plan require a primary care physician (PCP) for all routine care?	19
B12_11	Which type of provider can serve as a PCP generalist?	65
B12_12	OBGYN ok as PCP	65
B12_13	Other specialists as PCP	65
B13	Copayment/coinsurance percentage or amount	419
B13AMT	Copayment amount	419
B13PER	Coinsurance percentage	419
B14AMT	Individual deductible	651
C4	What is typical method of payment for PCPs?	552
C4A_11	What other services are included in capitated payments? Specialists?	609
C4A_12	Hospitals?	609
C4A_13	Other services?	609
C5	What is typical method of payment for specialists?	596
C6	What is typical method of payment for hospitals?	850

the data items in Modules B and C selected for imputation and the number of products for which the response was imputed.

To impute the missing responses, we used a weighted sequential hot deck procedure. This process selects a "donor" respondent from among those with nonmissing values on the item in question and uses the donor respondent's response to complete the value on the missing respondent's record. The procedure can be controlled by restricting the "donor pool" to products that have the same or similar responses to variables that are related either to the data item being imputed or to the item's likelihood of being missing. The potential donors and the recipients are then interwoven according to their sampling weights. Over repeated imputations, the expected values of the distributional characteristics using both imputed and actual data will equal those using only the reported data. We used the square root of the number of policies successfully linked to each product as the sampling weight for each product in the execution of the weighted sequential hot-link imputation procedures.

B. STATISTICAL MATCHING OF SOFT LINKAGES

As described above, a soft linkage is defined as a policy that would be linked to an entity, but not to one of the entity's products. Of the 22,211 private policies identified in the Household Survey, 11,651 policies (52.5 percent) were hard linked to products and 4,318 (19.4 percent) were soft linked. For 72 percent of the 4,318 soft linkages, policies were tentatively linked to a subset of the entity's products, based on the sponsoring employer's contract. For 28 percent, of the soft linkages, policies were tentatively linked to all the entity's products due to entity nonresponse or post-data collection coding. The objective was to select one of the possible product linkages to best represent the policy. To select the final link among the soft linkages, we developed a statistical matching process to predict which linkage best "fit" the household's reported policy information. We selected the linkage with the highest predicted probability of a match as the final link.

For the statistical matching process, the hard-linked data served as the guide to the best use of the policy information reported in the household survey. By examining these data, we were able to identify the relationships that existed among the entity-reported characteristics of the policy and the household-reported characteristics of the policy. We modeled these relationships and applied the models to the soft-linked cases to select a final policy from among the alternatives recorded.

Statistical matching required several steps to prepare the data for analysis, develop the data models, and evaluate the procedures. Each of these steps is summarized below:

- First, we prepared a set of policy-level variables from the Household Survey to summarize the policy holder's demographic, socioeconomic, family structure, and health plan characteristics that may relate to product choice.
- Second, we prepared a weighting class adjustment for the hard-linked cases so that the weighted distribution of the study site and self-reported HMO membership for these cases would mimic that of the hard and soft cases combined. This was done because the hard-linked cases potentially represented a skewed sample of the policy holders represented by the hard- and soft-linked cases.
- Third, we identified nine entity-reported product attributes that seem to best describe the differences among the products offered. These items were selected on the basis of their ability to predict the entity-reported product-type classification and whether the items appeared to be related to the policy-level information reported in the CTS household survey.
- Fourth, we developed a logistic regression model, to predict each of the nine product attributes using the household-reported policy-level information from the hard-linked cases.

  During this step, we also generated two mock sets, both of which contained actual linked and artificial soft-linked records from the hard-linked policy data. These mock sets served as test data sets for studying the accuracy of different matching procedures. Final accuracy rates were evaluated using the second of these two mock files containing 6,068 policies.

  As a final matching technique, we used a second logistic regression model to predict the probability of a correct linkage based on the difference (or "gaps") between the predicted values for the product attributes and the product attributes for the possible choices.

- Fifth, we used the policy-level information from the soft matches in the nine attribute models developed in step four to obtain predicted values for the nine product attributes. For each of the nine attributes, we then used the predicted values to compute a measure of the difference between the predicted values and actual attribute values among the product choices.
- Finally, we used both the measured differences between the predicted values and the actual attribute values among the soft-linked choices and the modeling results on the mock file in step 4 to compute an estimated probability of a match for each choice. The product with the highest probability of a match was selected as the final match. If the highest probability of a match was the same for two or more products, we chose one at random.[1]

The mock data set prepared in step four enabled us to estimate the accuracy rates in the final statistical matching process selected (shown in Table VI.2). We estimate that the linkage process picked the correct identical product linkage 64 percent of the time. Given that each policy had an average of 3.7 products from which to choose, we would expect in a random selection process that 27 percent would be correctly linked. This match rate represents a 50 percent improvement over purely random selection.[2] In addition, the procedure was able to establish a linkage with a product of the same type[3] as the correct match (HMO, POS, preferred provider organization [PPO], or fee-for-service [FFS]) 67 percent of the time. If one limits the evaluation to a group

[1]This occurred in only 75 of the 4,318 linkages.

[2]In a random selection process, we would expect that 1/3.7 products = 27 percent to be linked correctly. To get a 50 percent improvement for the overall exact match, we take (.64-.27)/(1-.27) = .50, or 50 percent. This rate reflects the percentage of the "gap" between what would be assigned in an error-free assignment from that in a random assignment that the methodology picks correctly.

[3]To clarify the difference between a correct **identical** product linkage and linkage of the **same type** consider the following example. Suppose an entity has two HMO products and one FFS product, if we picked the correct HMO among the two, it is considered an identical match, if we picked the wrong HMO, it is considered a match of the same type. Obviously, if we picked the FFS product when it should have been one of the HMOs, this is considered a non-match.

TABLE VI.2

ESTIMATED RATES OF CORRECT LINKAGE
AMONG THE MOCK SOFT-LINKED POLICIES
(In Percents)

Group	Match Rate, Identical Linkage	Percentage Improvement in Identical Match Rate Over Random Selection	Match Rate, Same Product Type
All Cases	64	50	67
Correct Match Was HMO	72	61	76
Correct Match Was POS	52	34	55
Correct Match Was PPO	67	55	71
Correct Match Was FFS	42	18	44
Correct Match was HMO or POS	68	55	83
Correct Match was PPO or FFS	59	44	78

of linkages that have a given correct product type classification, the probabilities of a correct identical linkage are greatest among the HMO products (72 percent), followed by the PPO products (67 percent). Correct linkage rates for POS and FFS products are somewhat weaker (52 and 42 percent, respectively).

C. REWEIGHTING TO ADJUST FOR NON-LINKAGE

In addition to actual one-to-one ("hard") matches and multiple ("soft") matches between the CTS Household and Followback Surveys at the policy level, 6,242 policies had no corresponding linkage to a product in the Followback Survey.[4] We decided to use a weight adjustment for these unlinked policies, rather than perform a probabilistic matching process with the Followback data. The weighting adjustment is based on the inverse of the modeled probability of a match.

We first examined all household survey variables that we thought might be related to the likelihood of a successful Followback linkage. Any variables that showed substantially different linkage rates for different values were candidates for the model-building process that followed. We then tried to develop the best model to predict a successful linkage, both for national estimates and site-specific estimates. The analytic unit for these weighting models was the policy.

The predicted probability of a linkage resulting from each model was used to adjust the appropriate person-level weight from the CTS Household Survey. These adjustment factors were merged onto the person-level file, by policy. The Followback weights for respondents whose

[4]Of the 22,211 policies in the POLICYID file, we subsequently determined that 3 hard-linked and 450 un-linked cases were not eligible private insurance policies. We made adjustments to the weights for the three hard linked policies (seven persons). A value of zero was assigned to the Followback weights for the seven persons covered by these three policies, who turned out to be ineligible. The Followback weight was inflated proportionally for the remaining persons covered by hard linked policies, so that the sum of the weights for the eligible hard linked persons was unchanged. Weights for the 450 un-linked policies, which had initially been set to zero, remained unchanged.

policies were either hard or soft matches were set equal to their final CTS Household Survey person-level weights, multiplied by the inverse of the probability of a match from the models. These weights were set to zero for nonmatching policies.

The next steps involved poststratifying and trimming outliers for these adjusted person-level weights. We used an iterative raking procedure to poststratify the weights. After trimming the outlier weights, we iteratively re-poststratified as necessary, so that all distributions were within 0.1 percentage points of the original person-level weight (that is, the weight prior to the Followback adjustment).

APPENDIX A:

LARGE-ENTITY "MAIN" INSTRUMENT

MATHEMATICA
Policy Research, Inc.

HSC FOLLOWBACK SURVEY

MAIN QUESTIONNAIRE FOR LARGE ENTITIES

8418-202

Main Site Name:____	**Main Site Number: _**
Entity Name:	**Entity ID Number:__**
Supplemental Site Name:__	**Supplemental Site Number:**
Supplemental Site Name:__	**Supplemental Site Number:**
Supplemental Site Name:__	**Supplemental Site Number:**
Supplemental Site Name:__	**Supplemental Site Number:**
Supplemental Site Name:__	**Supplemental Site Number:**

HSC FOLLOWBACK SURVEY

MAIN QUESTIONNAIRE FOR LARGE ENTITIES

INTRODUCTIONS

Hello. My name is _____, calling on behalf of the Robert Wood Johnson Foundation. We are conducting a nationwide study of health plans and organizations, and we'd like your organization to participate in a brief survey. The purpose of the study is to track the local-level rapid changes that are going on in the health care industry. We know how busy you are, and we would like send you our final report in appreciation for your help with the study.

Would you be able to help me with this? **GO TO MODULE A**

IF NEEDED

HOW WAS MY ORGANIZATION SELECTED?

- Your organization was selected for the survey because earlier this year, we spoke with residents across the country and asked them about their source of health coverage. Several people told us they are covered by a product offered through your organization. Now I'd like to verify that your organization offers these products and ask some basic questions about the coverage.

WHY ARE YOU DOING THIS STUDY?

- In the residential survey we gathered basic information on the general characteristics about the plan, such as the type of plan (HMO, PPO, etc.), and whether a primary care physician is required. Because individual policyholders frequently do not know about or understand the details of their coverage, we'd like to validate the health plan information obtained from these community residents and gather supplemental information about those plans.

- The U.S. health care system is undergoing change at an unprecedented pace. However, little systematic information is available to understand the nature and extent of health system change and its impact on the local marketplace. In response to this information gap, the Robert Wood Johnson Foundation is sponsoring the "Community Tracking Study"--a major multi-year study to track changes in the health care system at the community level.

WHO IS SPONSORING THE SURVEY?

- The survey is sponsored by the Robert Wood Johnson Foundation, a non-profit organization based in Princeton, New Jersey, whose sole mission is to improve health care. Some of the other projects sponsored by the foundation include:

  - *Medicaid Managed Care Program:* Aimed at helping states, managed care organizations, providers, and consumers take advantage of the unique opportunities presented by managed care to meet the needs of Medicaid recipients.

  - *Service Credit Banking in Managed Care:* Intended to help HMOs and other prepaid delivery systems respond to growing numbers of enrollees in need of informal care by developing and implementing volunteer caregiver programs for their elderly members.

  - *Addressing Tobacco in Managed Care:* Designed to help managed care providers help people avoid harm caused by tobacco and promote exemplary tobacco intervention practices.

WHO IS CONDUCTING THE SURVEY?

- This survey is being conducted by Mathematica Policy Research, an independent survey research organization.

WHO CAN I CALL TO GET MORE INFORMATION ABOUT THE SURVEY?

- For more information about the study, or to schedule an interview appointment, you can call Joel Brosse of Mathematica Policy Research at 800-263-3909.

HOW LONG WILL THE SURVEY TAKE?

- The interview will take only about 20-30 minutes. We can schedule an appointment for anytime that's convenient for you, and we can break up the interview into several shorter sessions.

WILL THE DATA BE CONFIDENTIAL?

- All the information you provide will be kept strictly confidential. Our reports and analyses will group individual enrollees by type of health plan (e.g., HMO, POS, PPO, indemnity); at no time will individual health plans or insurers be identified by name.

MODULE A: Site and Entity Screener

During the course of this interview, I will be asking you questions about your organization's products and services in the following areas: [SITE 1], [SITE 2]... At the end of this interview, I'll fax you a list with information we gathered from residents in these areas and ask you to in dicate the product in which they are enrolled. In most cases, the fax will include the employer through which the resident obtained the coverage, and in some cases a group number will also be included.

INTERVIEWER: SEE ENTITY COVER SHEET FOR LIST OF SITES AND NUMBER OF FIU PLANS PER SITE. IF NECESSARY, READ COUNTIES INCLUDED IN SITE (SEE GREEN COUNTY LISTS)

PROBE: Of course, we'd like to compensate you for the time this takes by sending a check to you personally, or to your organization. The payment will be based on the number of residents' plans contained in the fax.

A1. To begin, does your organization offer or administer basic medical health care plans?

PROBE: Exclude specialty-only health plans (such as cancer-only), workers' compensation, supplemental and pharmacy only plans, military facilities, free clinics and individual providers' offices.

1 YES **ÿ GO TO A2**
2 NO
8 DK **ÿ GO TO A1a**
9 REF

A1a. I see. Is your organization affiliated with another organization that does provide or administer basic medical health care plans?

1 YES **ÿ** RECORD ALL AVAILABLE CONTACT INFORMATION IN GRID (NEXT PAGE)
2 NO
8 DK **ÿ END; SEE SUPERVISOR**
9 REF

A2. Are you able to answer questions about your organization's products, contracts and services in these sites?

PROBE: If there's a different office that handles accounts in [SITE], could you tell me the city, state and name of a contact person in that office?

PROBE: If you don't have time now to answer questions for all sites, we can proceed with only one high-priority site, and I'll call you back at a later time for the others.

PROBE: If your organization does not offer or administer basic medical health care plans in [SITE], but you do offer plans in a neighboring site, may I have the name of that city, town or region?

COMPLETE GRID (NEXT PAGE)

A3. Please tell me which of the following categories *best* describes your organization . . .

PROBE: Overall, which category comes *closest* to describing your organization.

INTERVIEWER: IF AFTER USING ABOVE PROBE, THE RESPONDENT STILL CANNOT CHOOSE A *SINGLE* BEST CATEGORY, CIRCLE THE RESPONDENT'S ANSWER WITH THE LOWEST NUMBER

1 A Blue Cross/Blue Shield Plan
2 A licensed insurer or HMO
3 A PPO or other managed care organization
4 A TPA (Third Party Administrator)
5 A provider organization
6 An employer, union or trust plan
7 An employer
8 Or something else (SPECIFY) _____
88 DK
98 REF

SITE *(RECORD ONE PER ROW)*	STATUS *(CIRCLE ONE PER ROW)*	CONTACT AND NEIGHBORING SITE INFORMATION
___________________________	1 Site covered during THIS interview 2 Site deferred until later 3 Site referred to another office for interview 4 Entity does not offer basic medical health care plans in this site or any neighboring site 9 Respondent refused to participate for this site	ENTITY:______________________________________ CITY/STATE:__________________________________ CONTACT:____________________________________ TITLE:_______________________________________ PHONE:______________________________________ NEIGHBORING SITE:__________________________
___________________________	1 Site covered during THIS interview 2 Site deferred until later 3 Site referred to another office for interview 4 Entity does not offer basic medical health care plans in this site or any neighboring site 9 Respondent refused to participate for this site	ENTITY:______________________________________ CITY/STATE:__________________________________ CONTACT:____________________________________ TITLE:_______________________________________ PHONE:______________________________________ NEIGHBORING SITE:__________________________
___________________________	1 Site covered during THIS interview 2 Site deferred until later 3 Site referred to another office for interview 4 Entity does not offer basic medical health care plans in this site or any neighboring site 9 Respondent refused to participate for this site	ENTITY:______________________________________ CITY/STATE:__________________________________ CONTACT:____________________________________ TITLE:_______________________________________ PHONE:______________________________________ NEIGHBORING SITE:__________________________
___________________________	1 Site covered during THIS interview 2 Site deferred until later 3 Site referred to another office for interview 4 Entity does not offer basic medical health care plans in this site or any neighboring site 9 Respondent refused to participate for this site	ENTITY:______________________________________ CITY/STATE:__________________________________ CONTACT:____________________________________ TITLE:_______________________________________ PHONE:______________________________________ NEIGHBORING SITE:__________________________
___________________________	1 Site covered during THIS interview 2 Site deferred until later 3 Site referred to another office for interview 4 Entity does not offer basic medical health care plans in this site or any neighboring site 9 Respondent refused to participate for this site	ENTITY:______________________________________ CITY/STATE:__________________________________ CONTACT:____________________________________ TITLE:_______________________________________ PHONE:______________________________________ NEIGHBORING SITE:__________________________
___________________________	1 Site covered during THIS interview 2 Site deferred until later 3 Site referred to another office for interview 4 Entity does not offer basic medical health care plans in this site or any neighboring site 9 Respondent refused to participate for this site	ENTITY:______________________________________ CITY/STATE:__________________________________ CONTACT:____________________________________ TITLE:_______________________________________ PHONE:______________________________________ NEIGHBORING SITE:__________________________

MODULE B: Product Attributes SITE_____

In this interview I'll be asking about your organization's "products" in (SITE). By "product" I mean groups of plans or contracts that are similar regarding out-of-network coverage, referrals and primary care physicians. If products are similar in these ways but differ on copays, deductibles, coinsurance rates, or supplemental benefits such as prescription drugs or dental care, consider them the same product. Examples are open-ended HMOs, PPOs without a primary care physician, and traditional indemnity plans.

B1. First, what are the complete names of the health care products your organization offers or administers in (SITE)?

ENTER PRODUCT NAME(S) IN GRID COLUMNS

PROBE: Exclude specialty-only health plans (such as cancer-only), workers' compensation, supplemental and pharmacy only plans, military facilities, free clinics, individual providers' offices.

B2. **VERIFY IF KNOWN OR ASK:**

First/Next, [PRODUCT NAME]. Do you think of that type of product as an . . .

INTERVIEWER: IF HMO, POS or PPO, CIRCLE "NET" IN HEADER
PROBE: SEE PRODUCT DEFINITIONS BELOW
INTERVIEWER: CODE "PPO/INDEMNITY HYBRID" PLANS AS PPOs; CODE "HMO/INDEMNITY HYBRID" PLANS AS HMOs

1	HMO (Health Maintenance Organization)	**GO TO B2a**
2	Point of Service Plan	**GO TO B2a**
3	PPO (Preferred Provider Organization)	**GO TO B2a**
4	FFS (Traditional Fee For Service)	**GO TO NEXT**
5	Or something else? (SPECIFY)	**GO TO NEXT**
8	DK	**GO TO NEXT**
9	REF	**GO TO NEXT**

B2a. **IF HMO OR POS:** Which of the following best characterizes the network model? Is it a . . .

1	Staff or group model	**GO TO NEXT**
2	Network or IPA model	**GO TO NEXT**
3	Mixed model	**GO TO NEXT**
4	Or something else (SPECIFY)	**GO TO NEXT**
8	DK	**GO TO NEXT**
9	REF	**GO TO NEXT**

B3. Does your organization offer or administer any other products in (SITE)?
PROBE: If products have the same basic features and only vary by copays, deductibles, or supplementary benefits such as dental or pharmaceutical coverage, consider them the same product.

YES ÿ RECORD PRODUCT NAME IN NEXT AVAILABLE COLUMN IN HEADER

B4. **INTERVIEWER:** USE PRODUCT NAMES FROM PREVIEW REPORT BELOW AS PROBES IF THEY WERE NOT MENTIONED BY THE RESPONDENT DURING PRODUCT ENUMERATION IN B1.

1:_____ 5:_____

2:_____ 6:_____

3:_____ 7:_____

4:_____ 8:_____

PRODUCT DEFINITIONS:

HMO: A product in which enrolled individuals are provided health care services by a network of affiliated providers. Services provided to enrollees outside the network are generally not covered, other than for some specialized services or in emergencies.

POS: A product in which enrollees may select in-network or out-of-network physicians at the "point-of-service" usually with significant differences in coinsurance or deductibles. Some POS products are also referred to as an "open-ended" HMOs or "triple option" plans.

PPO: A product in which enrollees are given a financial incentive to use a "preferred" network of providers, usually through differences in coinsurance or deductibles.

FFS: A traditional indemnity product in which enrollees may select any provider and referrals are not necessary for most procedures.

MODEL DEFINITIONS:

Staff/Group Model HMO: Delivers health services either through a salaried physician group that is employed by the HMO unit, or through one independent group practice that is contracted to provide health care services.

Network/IPA Model HMO: Delivers health services either by contracting with two or more independent group practices, or by contracting directly with physicians in independent practices to provide health services.

Mixed Model HMO: Delivers health services through both of the arrangements described above.

1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO 4 FFS 5 Other 8 DK 9 REF GO TO NEXT
1 2 3 4 8 9 GO TO NEXT	1 2 3 4 8 9 GO TO NEXT	1 2 3 4 8 9 GO TO NEXT	1 2 3 4 8 9 GO TO NEXT	1 2 3 4 8 9 GO TO NEXT	1 2 3 4 8 9 GO TO NEXT	1 2 3 4 8 9 GO TO NEXT	1 2 3 4 8 9 GO TO NEXT

Next I have some questions about the basic features of these products.

INTERVIEWER: IF FFS OR OTHER IN B2 ASK:

B5. Is there a book, directory or list of doctors associated with [PRODUCT] in [SITE]?

PROBE: Is there a network composed of salaried or contracted primary care physicians, specialists and other professionals.

1 YES ÿ **CIRCLE "NET" IN HEADER**
2 NO
8 DK
9 REF → **GO TO B13**

NETWORK PRODUCTS ONLY:

B6. Under the [PRODUCT] in [SITE] if enrollees do not have a referral and go to *out-of-network* doctors, does the plan cover *any* of the costs for these visits?

PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES ……..
2 NO ……..
8 DK ……..
9 REF ……..

B7. Does that answer apply to all contracts and enrollees in this product?

1 YES ÿ **GO TO B8** ……..
2 NO ……
8 DK ÿ **GO TO B7a** ……
9 REF ……..

B7a. For our purposes, we'd like to separate this product into two groups: contracts and enrollees that have some out-of-network coverage and those that don't. Is there a name, or can you suggest a label, for the this other group of contracts and enrollees?

1 YES ÿ RECORD SPLIT PRODUCT IN NEXT AVAILABLE COLUMN; COMPLETE B2-B2a FOR THIS NEW PRODUCT NOW, THEN RESUME QUESTIONS FOR THE CURRENT PRODUCT……
2 NO/CAN'T DIFFERENTIATE PRODUCTS BASED ON THIS ATTRIBUTE……..
8 DK……..
9 REF ……

B8. Under the [PRODUCT] in [SITE] if enrollees do not have a referral and go to *in-network* specialists, does the plan cover *any* of the costs for these visits?

PROBE: Specialists include such doctors as surgeons, allergists, orthopedists, cardiologists and dermatologists. Exclude mental health providers and OB/GYNs.
PROBE: If enrollees go to specialists who then get referrals from primary care providers "on-the-spot" or after the visit, consider this a requirement to get a referral.
PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES……
2 NO……...
8 DK……...
9 REF……...

B9. Does that answer apply to all contracts and enrollees in this product?

1 YES ÿ **GO TO B10** ……..
2 NO ……..
8 DK ÿ **GO TO B9a** ……..
9 REF ……...

B9a. For our purposes, we'd like to separate these products into two groups: contracts and enrollees that have some coverage for self-referrals and those that don't. Is there a name, or can you suggest a label, for this other group of contracts and enrollees?

1 YES ÿ RECORD SPLIT PRODUCT IN NEXT AVAILABLE COLUMN; COMPLETE B2-B2a FOR THIS NEW PRODUCT NOW, THEN RESUME QUESTIONS FOR THE CURRENT PRODUCT……...
2 NO/CAN'T DIFFERENTIATE PRODUCTS BASED ON THIS ATTRIBUTE……
8 DK……
9 REF……

1 2 8 9 ÿ GO TO B13	1 2 8 9 ÿ GO TO B13	1 2 8 9 ÿ GO TO B13	1 2 8 9 ÿ GO TO B13	1 2 8 9 ÿ GO TO B13	1 2 8 9 ÿ GO TO B13	1 2 8 9 ÿ GO TO B13	1 2 8 9 ÿ GO TO B13
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9

NETWORK PRODUCTS ONLY:

B10. Does [PRODUCT] in [SITE] require members to have a primary care doctor, group of doctors, or clinic for all routine care?

PROBE: By "require" I mean that enrollees must sign up with a primary care doctor, group of doctors, or clinic in order to receive maximum coverage.

1 YES ……..
2 NO……
8 DK……
9 REF……..

B11. Does that answer apply to all contracts and enrollees in this product?

1 YES ÿ **GO TO B12 (IF B10=YES) OR B13 (IF B10=NO, DK, REF)**……
2 NO ……..
8 DK ▶ **GO TO B11a** ……..
9 REF ……..

B11a. For our purposes, we'd like to separate these products into two groups: contracts and enrollees that have *do* require enrollees to have a primary care physician, group or clinic, and those that don't. Is there a name, or can you suggest a label, for this other group of contracts and enrollees?

1 YES ÿ RECORD SPLIT PRODUCT IN NEXT AVAILABLE COLUMN; COMPLETE B2 -B2a FOR THIS NEW PRODUCT NOW, THEN RESUME QUESTIONS FOR THE CURRENT PRODUCT……
2 NO/CAN'T DIFFERENTIATE PRODUCTS BASED ON THIS ATTRIBUTE……..
8 DK……..…
9 REF..……..…

B12. **IF B10=YES:** Which types of providers can serve as primary care physicians for enrollees in this product? **CHECK ALL THAT APPLY**

PROBE: Exclude non-major medical services such as dental, vision and mental health care.

1 Generalists, such as an internists, pediatricians or family practitioners……
2 OB/GYNs or……..
3 Other specialists……
8 DK……..
9 REF ……..

ALL PRODUCTS

B13. Under [PRODUCT] in [SITE], what is the copayment or coinsurance rate [NETWORK PRODUCTS: for in-network office visits]?

PROBE: The coinsurance rate is the percentage for which the enrollee is responsible.
PROBE: If there are different copays for sick versus well visits, please tell me the copay for sick visits.
PROBE: Your best estimate is fine. Please tell me what is *typical* for this product in [SITE].

1 COPAYMENT (ENTER DOLLAR AMOUNT) ……..
2 COINSURANCE RATE (ENTER PERCENTAGE)…….
8 DK……...
9 REF ……

B14. Under [PRODUCT] in [SITE], what is the dollar amount of the *individual deductible* [NETWORK PRODUCTS: that applies to in-network office visits]?

PROBE: Your best estimate is fine. Please tell me what is *typical* for this product in [SITE].

1 ENTER NUMBER……..
8 DK……..
9 REF…….

NETWORK PRODUCTS							
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 ÿ GO TO B11a
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
IF B10=YES 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9
ALL PRODUCTS							
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9

MODULE C: Network Size, Physician Payment Arrangements

NETWORK PRODUCTS:

Next I have a few questions about the network associated with (this/these) product(s).

IF NEEDED, REPEAT COUNTY INFORMATION

C1. Approximately what percentage of all physicians in [SITE] are associated with the [PRODUCT]?

PROBE: If you can't provide a percentage, a number is fine.
PROBE: Include both primary care physicians and specialists.
PROBE: Your best estimate is fine.

1 ENTER PERCENT……
2 ENTER NUMBER……
8 DK……..
9 REF..……..

C2. Approximately how many hospitals in [SITE] are associated with t he [PRODUCT]?

PROBE: If you can't provide a number, a percentage is fine.
PROBE: Your best estimate is fine.

1 ENTER NUMBER……..
2 ENTER PERCENT…….
8 DK……...
9 REF……..

ALL PRODUCTS:

C3. Approximately what proportion of your organization's enrollees in [SITE] are enrolled in each product?

PROBE: Your best estimate is fine.

1 ENTER PERCENT……..
8 DK……
9 REF……..

NETWORK PRODUCTS							
1289	1289	1289	1289	1289	1289	1289	1289
1289	1289	1289	1289	1289	1289	1289	1289
ALL PRODUCTS:							
189	189	189	189	189	189	189	189

Next, I have some questions about payment arrangements for primary care physicians, specialists and hospitals in [SITE]. Since this may vary somewhat Depending on the provider, I just want to know what is *typical* for th providers who serve a majority of enrollees in each product.

C4. In the [PRODUCT] in [SITE], what is the typical method of payment that your organization uses for primary care providers? Is it…

PROBE: By that I mean the method *your* organization uses to pay individuals or other entities for primary care services in [SITE].
PROBE: Capitation is a fixed payment per enrollee per year for a class of services.

1. Fee For Service (For example, Usual and Customary Rates)……
2. Discounted Fee For Service (for example, a Fixed Fee Schedule or Relative Value Units)……..
3. Salaried by your organization, or……...
4. Capitation or a combined "professional" or "global" capitation **Go To C4a**……...
5. OTHER (SPECIFY)……...
8. DK……..
9. REF……

C4a. What *other* services are included in this capitated payment? CHECK ALL THAT APPLY

1. Referrals to specialists **SKIP C5**……..
2. Hospitalization **SKIP C6**……..
3. Other services, or……...
4. None of these……..
8. DK……..
9. REF……

C5. In the [PRODUCT] in [SITE], what is the typical method of payment that your organization uses for specialists? Is it…

PROBE: By that I mean the method *your* organization uses to pay individuals or other entities for specialists services in [SITE].
PROBE: Exclude mental health providers and specialists acting as primary care physicians.

1. Fee For Service (For example, Usual and Customary Rates)……
2. Discounted Fee For Service (for example, a Fixed Fee Schedule or Relative Value Units)……..
3. Salaried by your organization, or……...
4. Capitation ……...
5. OTHER (SPECIFY)……...
8. DK……..
9. REF……

C6. In the [PRODUCT] in [SITE], what is the typical method of payment for hospital services?

1. Per diem……
2. According to DRG or per stay……...
3. Capitation……...
4. Billed charges or discounted billed charges, or……..
5. Something else (SPECIFY)……...
7. NOT APPLICABLE; HOSPITALS OWNED BY ORGANIZATION……..
8. DK……..
9. REF……

1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ____________ 8 9
1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9
If C4a not 1 1 2 3 4 5 ____________ 8 9	**If C4a not 1** 1 2 3 4 5 ____________ 8 9	**If C4a not 1** 1 2 3 4 5 ____________ 8 9	**If C4a not 1** 1 2 3 4 5 ____________ 8 9	**If C4a not 1** 1 2 3 4 5 ____________ 8 9	**If C4a not 1** 1 2 3 4 5 ____________ 8 9	**If C4a not 1** 1 2 3 4 5 ____________ 8 9	**If C4a not 1** 1 2 3 4 5 ____________ 8 9
If C4a not 2 1 2 3 4 5 ____________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ____________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ____________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ____________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ____________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ____________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ____________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ____________ 7 8 9

C7. Does the [PRODUCT] in [SITE] ever include any mental health and/or substance abuse services?

PROBE: Include chemical dependency services.
PROBE: I'm interested in whether the employer contracts directly with your organization for mental health and/or substance abuse services. If the employer provides these services but does not go through your organization, consider t he answer "no."

1 YES **ÿ GO TO C7a** ……
2 NO ……
8 DK **ÿ GO TO NEXT** ……
9 REF ……

C7a. Are mental health and/or substance abuse services ever provided or managed separately by a specialty managed behavioral health organization?

1 YES **ÿ GO TO C7b** ……
2 NO ……
8 DK **ÿ GO TO NEXT** ……
9 REF ……

C7b. What is the name and location of this specialty managed behavioral health organization? **REFER TO LIST A**

NAME OR CODE (IF AVAILABLE FROM LIST) _____ **GO TO NEXT**

CITY AND STATE (IF NOT LISTED) _____

INTERVIEWER: FOR SUPPLEMENTAL SITES TO BE COVERED DURING THIS INTERVIEW WITH THIS RESPONDENT, GO TO A SUPPLEMENTAL BOOKLET (WHITE COVER). IF THERE ARE NO SUPPLEMENTAL SITES, OR IF ALL SUPPLEMENTAL SITES ARE DEFERRED UNTIL LATER, GO TO MODULE D.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9
1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9
Use Column 1 line below to record code/name and location	**Use Column 2 line below to record code/name and location**	**Use Column 3 line below to record code/name and location**	**Use Column 4 line below to record code/name and location**	**Use Column 5 line below to record code/name and location**	**Use Column 6 line below to record code/name and location**	**Use Column 7 line below to record code/name and location**	**Use Column 8 line below to record code/name and location**

Column 1: ____

Column 2: ____

Column 3: ____

Column 4: ____

Column 5: ____

Column 6: ____

Column 7: ____

Column 8: ____

MODULE D: Organizational Information

Finally, I have some basic questions to ask about your organization.

D1. What is your organization's tax status? Is it . . . **CHECK ONE**

INTERVIEWER: CODE ORGANIZATIONS WITH A 501(C)3 OR 501(C)4 TAX STATUS AS NON-PROFIT

1 For-profit, privately held
2 For-profit, publicly held, or
3 Nonprofit
4 OTHER (SPECIFY) _____
8 DK
9 REF

D2. Is your organization a division or subsidiary of another health plan organization?

1 YES ÿ **GO TO D2A**
2 NO ÿ **GO TO D3**
8 DK
9 REF

D2a. Is this parent company a national or multi-state organization?

1 YES
2 NO
8 DK
9 REF

D2b. What is the name of that parent company? **REFER TO LIST B**

CODE (IF AVAILABLE FROM LIST) OR NAME: _____

D2c. In what city and state is this parent company located?

CITY: _____

STATE: _____ ▶ **GO TO D4**

D3. Is your organization a national or multi-state organization?

1 YES
2 NO
8 DK
9 REF

D4. **IF ANY PRODUCT COVERS MENTAL HEALTH SERVICES:** Finally, may I have the name and phone number of the person within your organization who could answer questions about mental health and/or substance abuse benefits?

PROBE: I'd like the name of someone within your organization, not at the managed behavioral health organization.

NAME: _____

PHONE NUMBER: _____

ORGANIZATION: _____

D5. Finally, in order to send you our report on this study, may I have your name, title and mailing address?

NAME: _____

TITLE AND ORGANIZATION: _____

STREET ADDRESS OR POB: _____

CITY, STATE, ZIP: _____

D6. Thank you very much. This concludes the telephone part of this interview, and I'd like to ask you to do one more related task. As I mentioned earlier, in a previous study we spoke with _____ residents [FILL FROM COVER PAGE] in the geographic sites we discussed who identified your organization as their source of health coverage. We'd like to fax you a form with the plan name each one reported and their location and employer, and ask you to indicate in which of the products you've identified they are actually enrolled. We know that this may take some time to reference files, and to compensate you for the time that would take, we'll send a check to you personally, or to your organization, for $_____ for completing that task. Would that be acceptable to you?

Size:	*Payment amount:*
6-10	*$25*
11-25	*$50*
26-more	*cite amount which is $2 times number of FIUs*

[REFER ANY NEGOTIATION TO JOEL OR JOANNE]

Okay, we'll fax this form as soon as possible. It will have instructions, a return fax number, and a form to tell us how to make out the check. In the meantime, you can call our research group and ask for me at 800-263-3909 if you have any questions. Thanks.

INTERVIEWER: RECORD FINAL AMOUNT OFFERED HERE: $_____

1 NET	1 NET	1 NET	1 NET	1 NET	1 NET	1 NET	1 NET

For production this page should be legal-size, placed with header extending above other pages.

APPENDIX B:

LARGE-ENTITY SUPPLEMENT INSTRUMENT

MATHEMATICA
Policy Research, Inc.

HSC FOLLOWBACK SURVEY

SUPPLEMENTAL QUESTIONNAIRE FOR LARGE ENTITIES

8418-202

Supplemental Site Name: _____	**Supplemental Site Number:** _____
Entity Name: _____	**Entity ID Number:** _____
Main Site Name: _____	**Main Site Number:** _____

HSC FOLLOWBACK SURVEY

SUPPLEMENTAL QUESTIONNAIRE FOR LARGE ENTITIES

Module A: Product Screener for This Site:_____

Next, for [THIS SITE], I'd like to determine which of the products you just told me about is also offered in *this* site, and whether they have the same features regarding out-of-network coverage, referrals and primary care physicians. If they're different or you're not sure, we'll run through those questions again quickly.

A1. **INTERVIEWER:** FILL PRODUCT NAMES FROM MAIN (AND SUPPLEMENTAL) INTERVIEW BOOKLETS

First/Next, does your organization offer or administer [PRODUCT NAME] in [THIS SITE]?

1 YES ÿ **RECORD PRODUCT NAME IN GRID COLUMN ÿ GO TO A1a**……
2 NO ÿ **GO TO NEXT** ……
8 DK
9 REF ▶

A1a. And are the features of this product in [THIS SITE] the same as the features of the product in [MAIN OR SUPPLEMENTAL SITE]?

1 YES ÿ **CIRCLE "DUP" IN HEADER; IF NET WAS CIRCLED IN MAIN BOOKLET, CIRCLE "NET" IN HEADER; RECORD SITE # OF BOOKLET AND COLUMN # OF PRODUCT FOR WHICH THIS PRODUCT IS A DUP** ▶ **GO TO NEXT**
2 NO ……
8 DK
9 REF ▶ **END: GO BACK TO MODULE A IN MAIN INTERVIEW BOOKLET; GET NEW CONTACT INFORMATION**

A2. What other products does your organization offer or administer in [THIS SITE]?

INTERVIEWER: RECORD PRODUCT NAMES IN GRID COLUMNS

INTERVIEWER: FOR ANY PRODUCTS NOT MARKED "DUP" IN HEADER, GO TO QUESTION B2. FOR PRODUCTS THAT ARE MARKED "DUP" IN HEADER, GO TO QUESTION B13.

Site #_____ Column #_____	Site #_____ Column #_____	Site #_____ Column #_____	Site #_____ Column #_____	Site #_____ Column #_____	Site #_____ Column #_____	Site #_____ Column #_____	Site #_____ Column #_____

MODULE B: Product Attributes

B2. **VERIFY IF KNOWN OR ASK:**

First/Next, [PRODUCT NAME]. Do you think of that type of product as an . . .

INTERVIEWER: IF HMO, POS or PPO, CIRCLE "NET" IN HEADER
PROBE: SEE PRODUCT DEFINITIONS BELOW
INTERVIEWER: CODE "PPO/INDEMNITY HYBRID" PLANS AS PPOs; CODE "HMO/INDEMNITY HYBRID" PLANS AS HMOs

1	HMO (Health Maintenance Organization)	**GO TO B2a**
2	Point of Service Plan	**GO TO B2a**
3	PPO (Preferred Provider Organization)	**GO TO B2a**
4	FFS (Traditional Fee For Service)	**GO TO NEXT**
5	Or something else? (SPECIFY)	**GO TO NEXT**
8	DK	**GO TO NEXT**
9	REF	**GO TO NEXT**

B2a. **IF HMO OR POS:** Which of the following best characterizes the network model? Is it a . . .

1	Staff or group model	**GO TO NEXT**
2	Network or IPA model	**GO TO NEXT**
3	Mixed model	**GO TO NEXT**
4	Or something else (SPECIFY)	**GO TO NEXT**
8	DK	**GO TO NEXT**
9	REF	**GO TO NEXT**

PRODUCT DEFINITIONS:

HMO: A product in which enrolled individuals are provided health care services by a network of affiliated providers. Services provided to enrollees outside the network are generally not covered, other than for some specialized services or in emergencies.

POS: A product in which enrollees may select in-network or out-of-network physicians at the "point-of-service" usually with significant differences in coinsurance or deductibles. Some POS products are also referred to as an "open-ended" HMOs or "triple option" plans.

PPO: A product in which enrollees are given a financial incentive to use a "preferred" network of providers, usually through differences in coinsurance or deductibles.

FFS: A traditional indemnity product in which enrollees may select any provider and referrals are not necessary for most procedures.

MODEL DEFINITIONS:

Staff/Group Model HMO: Delivers health services either through a salaried physician group that is employed by the HMO unit, or through one independent group practice that is contracted to provide health care services.

Network/IPA Model HMO: Delivers health services either by contracting with two or more independent group practices, or by contracting directly with physicians in independent practices to provide health services.

Mixed Model HMO: Delivers health services through both of the arrangements described above.

1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**	1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**	1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**	1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**	1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**	1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**	1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**	1 HMO 2 POS 3 PPO **GO TO B2a** 4 FFS 5 Other 8 DK 9 REF **GO TO NEXT**
1 2 3 4 8 9 **GO TO NEXT** ___________	1 2 3 4 8 9 **GO TO NEXT** ___________	1 2 3 4 8 9 **GO TO NEXT** ___________	1 2 3 4 8 9 **GO TO NEXT** ___________	1 2 3 4 8 9 **GO TO NEXT** ___________	1 2 3 4 8 9 **GO TO NEXT** ___________	1 2 3 4 8 9 **GO TO NEXT** ___________	1 2 3 4 8 9 **GO TO NEXT** ___________

Next I have some questions about the basic features of these products.

INTERVIEWER: IF FFS OR OTHER IN B2 ASK:

B5. Is there a book, directory or list of doctors associated with [PRODUCT] in [SITE]?

PROBE: Is there a network composed of salaried or contracted primary care physicians, specialists and other professionals.

1 YES ÿ **CIRCLE "NET" IN HEADER**
2 NO
8 DK
9 REF

→ **GO TO B13**

NETWORK PRODUCTS ONLY:

B6. Under the [PRODUCT] in [SITE] if enrollees do not have a referral and go to *out-of-network* doctors, does the plan cover *any* of the costs for these visits?

PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES ……
2 NO ……
8 DK ……
9 REF ……

B7. Does that answer apply to all contracts and enrollees in this product?

1 YES ÿ **GO TO B8** ……
2 NO ……
8 DK ÿ **GO TO B7a** ……
9 REF ……

B7a. For our purposes, we'd like to separate this product into two groups: contracts and enrollees that have some out-of-network coverage and those that don't. Is there a name, or can you suggest a label, for this other group of contracts and enrollees?

1 YES ÿ RECORD SPLIT PRODUCT IN NEXT AVAILABLE COLUMN; COMPLETE B2-B2a FOR THIS NEW PRODUCT NOW, THEN RESUME QUESTIONS FOR THE CURRENT PRODUCT……..
2 NO/CAN'T DIFFERENTIATE PRODUCT S BASED ON THIS ATTRIBUTE……..
8 DK……..
9 REF……

B8. Under the [PRODUCT] in [SITE] if enrollees do not have a referral and go to *in-network* specialists, does the plan cover *any* of the costs for these visits?

PROBE: Specialists include such doctors as surgeons, allergists, orthopedists, cardiologists and dermatologists. Exclude mental health providers and OB/GYNs.
PROBE: If enrollees go to specialists who then get referrals from primary care providers "on-the-spot" or after the visit, consider this a requirement to get a referral.
PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES ……..
2 NO ……..
8 DK ……..
9 REF ……

B9. Does that answer apply to all contracts and enrollees in this product?

1 YES ÿ **GO TO B10** ……..
2 NO ……..
8 DK ÿ **GO TO B9a** ……..
9 REF ……..

B9a. For our purposes, we'd like to separate these products into two groups: contracts and enrollees that have some coverage for self-referrals and those that don't. Is there a name, or can you suggest a label, for this other group of contracts and enrollees?

1 YES ÿ RECORD SPLIT PRODUCT IN NEXT AVAILABLE COLUMN; COMPLETE B2-B2a FOR THIS NEW PRODUCT NOW, THEN RESUME QUESTIONS FOR THE CURRENT PRODUCT……
2 NO/CAN'T DIFFERENTIATE PRODUCTS BASED ON THIS ATTRIBUTE……..
8 DK……
9 REF……..

1 2 8 9 GO TO B13	1 2 8 9 GO TO B13	1 2 8 9 GO TO B13	1 2 8 9 GO TO B13	1 2 8 9 GO TO B13	1 2 8 9 GO TO B13	1 2 8 9 GO TO B13	1 2 8 9 GO TO B13
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a	1 ÿ GO TO B8 2 8 9 ÿ GO TO B7a
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a	1 ÿ GO TO B10 2 8 9 ÿ GO TO B9a
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9

NETWORK PRODUCTS ONLY:

B10. Does [PRODUCT] in [SITE] require members to have a primary care doctor, group of doctors, or clinic for all routine care?

PROBE: By "require" I mean that enrollees must sign up with a primary care doctor, group of doctors, or clinic in order to receive maximum coverage.

1 YES ……..
2 NO…….
8 DK……….
9 REF……...

B11. Does that answer apply to all contracts and enrollees in this product?

1 YES **GO TO B12 (IF B10=YES) OR B13 (IF B10=NO, DK, REF)**………………………………………………….
2 NO ………………………………………………………………………………
8 DK ÿ **GO TO B11a** ………………………………………………………………………………
9 REF ………………………………………………………………………………...

B11a. For our purposes, we'd like to separate these products into two groups: contracts and enrollees that have *do* require enrollees to have a primary care physician, group or clinic, and those that don't. Is there a name, or can you suggest a label, for this other group of contracts and enrollees?

1 YES ÿ RECORD SPLIT PRODUCT IN NEXT AVAILABLE COLUMN; COMPLETE B2 -B2a FOR THIS NEW PRODUCT NOW,

2 NO/CAN'T DIFFERENTIATE PRODUCTS BASED ON THIS ATTRIBUTE……………………………………………………….
8 DK……..
9 REF………

B12. **IF B10=YES:** Which types of providers can serve as primary care physicians for enrollees in this product? **CHECK ALL THAT APPLY**

PROBE: Exclude non-major medical services such as dental, vision and mental health care.

1 Generalists, such as an internists, pediatricians or family practitioners……………………………………………
2 OB/GYNs or………
3 Other specialists…………………………………………………………………………………………………...
8 DK……
9 REF………..

ALL PRODUCTS

B13. Under [PRODUCT] in [SITE], what is the copayment or coinsurance rate for [NETWORK PRODUCTS: in-network] office visits?

PROBE: The coinsurance rate is the percentage for which the enrollee is responsible.
PROBE: If there are different copays for sick versus well visits, please tell me the copay for sick visits.
PROBE: Your best estimate is fine. Please tell me what is *typical* for this product in [SITE].

1 COPAYMENT (ENTER DOLLAR AMOUNT) …………………………………………………………………...
2 COINSURANCE RATE (ENTER PERCENTAGE)………………………………………………………………..
8 DK……
9 REF………..

B14. Under [PRODUCT] in [SITE], what is the dollar amount of the *individual deductible* that applies to [NETWORK PRODUCTS: in-network] office visits?

PROBE: Your best estimate is fine. Please tell me what is *typical* for this product in [SITE].

1 ENTER NUMBER……………………………………………………………………………………………...
8 DK……
9 REF………..

NETWORK PRODUCTS							
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a	1 ÿ GO TO B12 or B13 2 8 9 → GO TO B11a
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
IF B10=YES	**IF B10=YES**	**IF B10=YES**	**IF B10=YES**	**IF B10=YES**	**IF B10=YES**	**IF B10=YES**	**IF B10=YES**
1 2 3 8 9	1 2 3 8 9	1 2 3 8 9	1 2 3 8 9	1 2 3 8 9	1 2 3 8 9	1 2 3 8 9	1 2 3 8 9
ALL PRODUCTS							
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9

MODULE C: Network Size, Physician Payment Arrangements

NETWORK PRODUCTS:

Next I have a few questions about the network associated with (this/these) product(s).

IF NEEDED, REPEAT COUNTY INFORMATION

C1. Approximately what percentage of all physicians in [SITE] are associated with the [PRODUCT]?

PROBE: If you can't provide a percentage, a number is fine.
PROBE: Include both primary care physicians and specialists.
PROBE: Your best estimate is fine.

1 ENTER PERCENT……
2 ENTER NUMBER……..
8 DK……...
9 REF……

C2. Approximately how many hospitals in [SITE] are associated with the [PRODUCT]?

PROBE: If you can't provide a number, a percentage is fine.
PROBE: Your best estimate is fine.

1 ENTER NUMBER……..
2 ENTER PERCENT……
8 DK……...
9 REF……

ALL PRODUCTS:

C3. Approximately what proportion of your organization's enrollees in [SITE] are enrolled in each product?

PROBE: Your best estimate is fine.

1 ENTER PERCENT……
8 DK……
9 REF……

NETWORK PRODUCTS							
1289	1289	1289	1289	1289	1289	1289	1289
1289	1289	1289	1289	1289	1289	1289	1289
ALL PRODUCTS:							
189	189	189	189	189	189	189	189

Next, I have some questions about payment arrangements for primary care physicians, specialists and hospitals in [SITE]. Since this may vary somewhat depending on the provider, I just want to know what is *typical* for the providers who serve a majority of enrollees in each product.

C4. In the [PRODUCT] in [SITE], what is the typical method of payment that your organization uses for primary care providers? Is it . . .

PROBE: I understand that this may vary depending on the provider. Please tell me the payment method that is used most often for the providers who handle most of the patient volume.
PROBE: By that I mean the method *your* organization uses to pay individuals or other entities for primary care services in [SITE].
PROBE: Capitation is a fixed payment per enrollee per year for a class of services.

1 Fee For Service (for example, Usual and Customary Rates)……
2 Discounted Fee For Service (for example, a Fixed Fee Schedule or Relative Value Units) ……..
3 Salaried by your organization, or ……
4 Capitation or a combined "professional" or "global" capitation ÿ **GO TO C4a**……..
5 OTHER (SPECIFY)……
8 DK……
9 REF……..

C4a. What *other* services are included in this capitated payment? **CHECK ALL THAT APPLY**

1 Specialist visits ÿ **SKIP C5**……
2 Hospitalizations ÿ **SKIP C6**……
3 Other services, or……
4 None of these……..
8 DK……..
9 REF……..

C5. In the [PRODUCT] in [SITE], what is the typical method of payment that your organization uses for specialists? Is it . . .

PROBE: I understand that this may vary depending on the provider. Please tell me the payment method that is used most often for the providers who handle most of the patient volume.
PROBE: By that I mean the method *your* organization uses to pay individuals or other entities for specialist services in [SITE].
PROBE: Exclude mental health providers and specialists acting as primary care physicians.

1 Fee For Service (for example, Usual and Customary Rates)……...
2 Discounted Fee-for-Service (for example, a Fixed Fee Schedule or Relative Value Units)……...
3 Salaried by your organization, or ……
4 Capitation ……
5 OTHER (SPECIFY)……
8 DK……
9 REF……..

C6. In the [PRODUCT] in [SITE], what is the typical method of payment for hospital services?

PROBE: I understand that this may vary depending on the provider. Please tell me the payment method that is used most often for the providers who handle most of the patient volume.

1 Per diem……...
2 According to DRG or per stay……
3 Capitation……
4 Billed charges or discounted billed charges, or……...
5 Something else (SPECIFY)……
7 NOT APPLICABLE; HOSPITALS OWNED BY ORGANIZATION……..
8 DK……
9 REF……..

1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 __________ 8 9
1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9
If C4a not 1 1 2 3 4 5 __________ 8 9	**If C4a not 1** 1 2 3 4 5 __________ 8 9	**If C4a not 1** 1 2 3 4 5 __________ 8 9	**If C4a not 1** 1 2 3 4 5 __________ 8 9	**If C4a not 1** 1 2 3 4 5 __________ 8 9	**If C4a not 1** 1 2 3 4 5 __________ 8 9	**If C4a not 1** 1 2 3 4 5 __________ 8 9	**If C4a not 1** 1 2 3 4 5 __________ 8 9
If C4a not 2 1 2 3 4 5 __________ 7 8 9	**If C4a not 2** 1 2 3 4 5 __________ 7 8 9	**If C4a not 2** 1 2 3 4 5 __________ 7 8 9	**If C4a not 2** 1 2 3 4 5 __________ 7 8 9	**If C4a not 2** 1 2 3 4 5 __________ 7 8 9	**If C4a not 2** 1 2 3 4 5 __________ 7 8 9	**If C4a not 2** 1 2 3 4 5 __________ 7 8 9	**If C4a not 2** 1 2 3 4 5 __________ 7 8 9

C7. Does the [PRODUCT] in [SITE] ever include any mental health and/or substance abuse services?

PROBE: Include chemical dependency services.
PROBE: I'm interested in whether the employer contracts directly with your organization for mental health and/or substance abuse services. If

1 YES **ÿ GO TO C7a** ……..
2 NO ……..
8 DK **ÿ GO TO NEXT** ……..
9 REF ……

C7a. Are mental health and/or substance abuse services *ever* provided or managed separately by a specialty managed behavioral health organization?

1 YES **ÿ GO TO C7b** ……..
2 NO ……..
8 DK **ÿ GO TO NEXT** ……
9 REF ……..

C7b. What is the name and location of this specialty managed behavioral health organization? **REFER TO LIST A**

NAME OR CODE (IF AVAILABLE FROM LIST) _____

CITY AND STATE (IF NOT LISTED) _____

GO TO NEXT

INTERVIEWER: GO TO NEXT SUPPLEMENTAL BOOKLET FOR ADDITIONAL SITES. IF ALL SITES ARE COMPLETE, GO TO MODULE D IN MAIN BOOKLET.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9
1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9
Use Column 1 line below to record code/name and location	**Use Column 2 line below to record code/name and location**	**Use Column 3 line below to record code/name and location**	**Use Column 4 line below to record code/name and location**	**Use Column 5 line below to record code/name and location**	**Use Column 6 line below to record code/name and location**	**Use Column 7 line below to record code/name and location**	**Use Column 8 line below to record code/name and location**

Column 1: ____

Column 2: ____

Column 3: ____

Column 4: ____

Column 5: ____

Column 6: ____

Column 7: ____

Column 8: ____

0 …….DUP 1 …….NET	0 …….DUP 1 …….NET	0 …….DUP 1 …….NET	0 …….DUP 1 …….NET	0 …….DUP 1 …….NET	0 …….DUP 1 …….NET	0 …….DUP 1 …….NET	0 …….DUP 1 …….NET
Column Number of Product on Fax Back Form: _____	Column Number of Product on Fax Back Form: _____	Column Number of Product on Fax Back Form: _____	Column Number of Product on Fax Back Form: _____	Column Number of Product on Fax Back Form: _____	Column Number of Product on Fax Back Form: _____	Column Number of Product on Fax Back Form: _____	Column Number of Product on Fax Back Form: _____

For production this page should be legal-size, placed with header extending above other pages.

APPENDIX C:

SMALL-ENTITY INSTRUMENT

MATHEMATICA
Policy Research, Inc.

HSC FOLLOWBACK SURVEY

QUESTIONNAIRE FOR SMALL ENTITIES

8418-202

Site Name:_____	**Site Number:** _____
Entity Name:_____	**Entity ID Number:**_____

HSC FOLLOWBACK SURVEY

QUESTIONNAIRE FOR SMALL ENTITIES

INTRODUCTIONS

A. For Health Plans, Insurance Companies and TPAs

Hello. My name is _____, calling on behalf of the Robert Wood Johnson Foundation. We are conducting a nationwide study of health plans and organizations, and we'd like your organization to participate in a brief survey. The purpose of the study is to track the local-level rapid changes that are going on in the health care industry. We know how busy you are, and we would like send you our final report in appreciation for your help with the study.

Would you be able to help me with this? **GO TO MODULE A**

B. For Employers

INTERVIEWER: BEGIN BY ASKING FOR THE BENEFITS MANAGER, OR SOMEONE IN PERSONNEL OR HUMAN RESOURCES WHO COULD ANSWER QUESTIONS ABOUT THE COMPANY'S HEALTH BENEFITS.

Hello, my name is _____, calling on behalf of the Robert Wood Johnson Foundation. We are conducting a nationwide study of health plans and organizations to track the rapid changes that are going on in the health care system in particular communities. Earlier this year we spoke to individual residents of your area, and one or more of them reported that they obtained health care coverage through your organization. We'd like to be able to get more information about the plan they said they were enrolled in, but we were unable to determine the company that administered the plan from what they told us. Is there someone there who could tell me about the health plans your organization offers to its employees?

A[nother] local resident said they were enrolled in PLAN NAME through you as employer. [They even gave the group number FILL NUMBER]. Can you tell me the name of the health plan and specific product in which this person is enrolled?

IF NEEDED: We're not asking you about any specific employees, and we won't ask the health plan about individual enrollees. We're just interested in the types of plans you offer employees, and the names of the local or state organizations that administer them.

INTERVIEWER ÿ RECORD THE NAME OF HEALTH PLAN ENTITY(IES) ON THE CALL RECORD SHEET AND ATTACH TO THE UNMATCHED FAMILY DETAIL REPORT. ON THE UNMATCHED FAMILY DETAIL REPORT, RECORD ANY NOTES ABOUT THE POSSIBLE MATCH BETWEEN THE RESIDENT'S PLAN AND HEALTH PLAN ENTITY(IES).

IF NEEDED

HOW WAS MY ORGANIZATION SELECTED?

• Your organization was selected for the survey because earlier this year, we spoke with residents across the country and asked them about their source of health coverage. Several people told us they are covered by a product offered through your organization. Now I'd like to verify that your organization offers these products and ask some basic questions about the coverage.

WHY ARE YOU DOING THIS STUDY?

• In the residential survey we gathered basic information on the general characteristics about the plan, such as the type of plan (HMO, PPO, etc.), and whether a primary care physician is required. Because individual policyholders frequently do not know about or understand the details of their coverage, we'd like to validate the health plan information obtained from these community residents and gather supplemental information about those plans.

• The U.S. health care system is undergoing change at an unprecedented pace. However, little systematic information is available to understand the nature and extent of health system change and its impact on the local marketplace. In response to this information gap, the Robert Wood Johnson Foundation is sponsoring the "Community Tracking Study"--a major multi-year study to track changes in the health care system at the community level.

WHO IS SPONSORING THE SURVEY?

• The survey is sponsored by the Robert Wood Johnson Foundation, a non-profit organization based in Princeton, New Jersey, whose sole mission is to improve health care. Some of the other projects sponsored by the foundation include:

• *Medicaid Managed Care Program:* Aimed at helping states, managed care organizations, providers, and consumers take advantage of the unique opportunities presented by managed care to meet the needs of Medicaid recipients.

• *Service Credit Banking in Managed Care:* Intended to help HMOs and other prepaid delivery systems respond to growing numbers of enrollees in need of informal care by developing and implementing volunteer caregiver programs for their elderly members.

• *Addressing Tobacco in Managed Care:* Designed to help managed care providers help people avoid harm caused by tobacco and promote exemplary tobacco intervention practices.

WHO IS CONDUCTING THE SURVEY?

• This survey is being conducted by Mathematica Policy Research, an independent survey research organization.

WHO CAN I CALL TO GET MORE INFORMATION ABOUT THE SURVEY?

• For more information about the study, or to schedule an interview appointment, you can call Joel Brosse of Mathematica Policy Research at 800-263-3909.

HOW LONG WILL THE SURVEY TAKE?

• The interview will take only about 20-30 minutes. We can schedule an appointment for anytime that's convenient for you, and we can break up the interview into several shorter sessions.

WILL THE DATA BE CONFIDENTIAL?

• All the information you provide will be kept strictly confidential. Our reports and analyses will group individual enrollees by type of health plan (e.g., HMO, POS, PPO, indemnity); at no time will individual health plans or insurers be identified by name.

MODULE A: Screener

During the course of this interview, I will be asking you questions about your organization's products and services in the following area(s): [SITE 1], [SITE 2] . . .

INTERVIEWER: SEE ENTITY COVER SHEET FOR LIST OF SITES. IF NECESSARY, READ COUNTIES INCLUDED IN SITE.

A1. To begin, does your organization offer or administer basic medical health care coverage to employers or individuals in [SITE], [SITE] . . .?

PROBE: Exclude specialty-only health plans (such as cancer-only), workers' compensation, supplemental and pharmacy only plans, military facilities, free clinics and individual providers' offices.

1 YES **ÿ GO TO A3**
2 NO
8 DK **ÿ GO TO A1a**
9 REF

A1a. I see. Is your organization affiliated with another organization that does provide or administer basic medical health care coverage in [SITE], [SITE] . . .?

1 YES RECORD ENTITY NAME AND ALL AVAILABLE CONTACT INFORMATION **SEE SUPERVISOR**
2 NO
8 DK **GO TO A1b**
9 REF

A1b. Does your organization offer or administer basic medical health care coverage to employers or individuals in an area neighboring [SITE], [SITE] . . .?

1 YES **ÿ GO TO A1c**
2 NO
8 DK **ÿ END SEE SUPERVISOR**
9 REF

A1c. The rest of this interview will be about that area. How do you refer to that city, town or area?

_____ **ÿ GO TO A3**

A3. Please tell me which of the following categories *best* describes your organization . . .

PROBE: Overall, which category comes *closest* to describing your organization.

1 A Blue Cross/Blue Shield Plan
2 A licensed insurer or HMO
3 A PPO or other managed care organization
4 A TPA (Third Party Administrator)
5 A provider organization
6 An employer, union or trust plan
7 An employer
8 Or something else (SPECIFY)_____
88 DK
98 REF

MODULE X: Residential Plan/Product Matching

(Attach Module X Table with Sites and Number of Family Plans)

(Attach Module X List of Family Plans)

CODING INSTRUCTIONS FOR INTERVIEWERS

1 This code indicates a definite match between the resident's plan and a particular product. The match should be considered definite if the respondent checks records and/or seems very confident of the following:

EMPLOYER-BASED PLANS: The employer is a client and:

* has a contract for the product described by the resident **OR**
* has a contract for only one product **OR**
* the entity offers only one product

DIRECTLY-PURCHASED PLANS:

* the respondent's organization offers a product for direct purchase described by the resident **OR**
* the respondent's organization offers only one product for direct purchase

HOW TO CODE: Circle code 1 in the grid next to the resident's plan, below the particular product. When code 1 is used it should be circled ONLY ONCE per resident's plan.

2 This code indicates a definite match between the resident's plan and the entity, but the particular product could not be matched to the resident's plan due to insufficient information. The match between the resident's plan and the entity should be considered definite if the respondent checks records and/or seems very confident of the following:

EMPLOYER-BASED PLANS: the employer is a client and has a contract for multiple products

DIRECTLY-PURCHASED PLANS: the respondent's organization offers multiple products for direct purchase

HOW TO CODE: Determine the names of all products that **could** match to the resident's plan and record these product names in the header columns. Circle code 2 in the grid next to the resident's plan, below **each** particular product that **could** match to that resident's plan. When code 2 is used, it should be circled TWO OR MORE TIMES per resident's plan (depending on how many possible product matches there are).

7 This code indicates that the match between the resident's plan and the entity is uncertain, but that the respondent provided the name of a different respondent or entity that may be able to answer questions about the resident's plan.

HOW TO CODE: Circle code 7 next to the resident's plan. Under "Family Plan Notes" record all available contact information for the new respondent or organization, and record any relevant information about possible matches between the resident's plan and product. Move resident's plan in tracking and filing system.

8 This code indicates that the respondent does not recognize the resident's plan and provides no additional contact information.

HOW TO CODE: Circle code 8 next to the resident's plan. Under "Family Plan Notes" record all relevant information about why the respondent could not match this plan. Move resident's plan in tracking and filing system.

9 This code indicates that the respondent refused to verify resident-product information.

HOW TO CODE: Circle code 9 next to the resident's plan. For any resident's plan that the respondent did verify, go to Module B. If the respondent refuses for all residents' plans, skip to Module D. Under "Family Plan Notes" record all relevant information about why the respondent refused to verify the resident's plan. Move resident's plan in tracking and filing system.

1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products
1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products
1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products
1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products
1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products	1 Definite product 2 Multiple products

FAMILY PLAN NOTES:

X1: ______________________________

____

X2: ______________________________

____

X3: ______________________________

____

X4: ______________________________

____

X5: ______________________________

____

MODULE B: Product Attributes

Next I have some questions about the basic features of (this/these) resident's plans. INTERVIEWER: FOR ALL QUESTIONS IN MODULES B AND C, IF RESPONDENT CANNOT ANSWER FOR PARTICULAR EMPLOYER CONTRACT, ASK QUESTION FOR PRODUCT IN GENERAL.

B2. **VERIFY IF KNOWN OR ASK:**
First/Next, the [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE]. Do you think of that type of product as an . . .

INTERVIEWER: IF HMO, POS or PPO, CIRCLE "NET" IN HEADER

PROBE: SEE PRODUCT DEFINITIONS BELOW

INTERVIEWER: CODE "PPO/INDEMNITY HYBRID" PLANS AS PPOs; CODE "HMO/INDEMNITY HYBRID" PLANS AS HMOs

1	HMO (Health Maintenance Organization)	**GO TO B2a**
2	Point of Service Plan	
3	PPO (Preferred Provider Organization)	**GO TO NEXT**
4	FFS (Traditional Fee For Service)	
5	Or something else? (SPECIFY)	**GO TO B5**
8	DK	
9	REF	

B2a. **IF HMO OR POS:** Which of the following best characterizes the network model? Is it a . . .

1	Staff or group model	
2	Network or IPA model	
3	Mixed model	
4	Or something else (SPECIFY)	
8	DK	
9	REF	

→ **GO TO NEXT**

INTERVIEWER: IF FFS OR OTHER ASK:

B5. Is there a book, directory or list of doctors associated with [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE]?

PROBE: Is there a network composed of salaried or contracted primary care physicians, specialists and other professionals.

1	YES	ÿ **CIRCLE "NET" IN HEADER**
2	NO	
8	DK	
9	REF	

→ **GO TO NEXT**

PRODUCT DEFINITIONS:

HMO: A product in which enrolled individuals are provided health care services by a network of affiliated providers. Services provided to enrollees outside the network are generally not covered, other than for some specialized services or in emergencies.

POS: A product in which enrollees may select in-network or out-of-network physicians at the "point-of-service" usually with significant differences in coinsurance or deductibles. Some POS products are also referred to as an "open-ended" HMOs or "triple option" plans.

PPO: A product in which enrollees are given a financial incentive to use a "preferred" network of providers, usually through differences in coinsurance or deductibles.

FFS: A traditional indemnity product in which enrollees may select any provider and referrals are not necessary for most procedures.

MODEL DEFINITIONS:

Staff/Group Model HMO: Delivers health services either through a salaried physician group that is employed by the HMO unit, or through one independent group practice that is contracted to provide health care services.

Network/IPA Model HMO: Delivers health services either by contracting with two or more independent group practices, or by contracting directly with physicians in independent practices to provide health services.

Mixed Model HMO: Delivers health services through both of the arrangements described above.

1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Othe ÿ ____ 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Other ÿ ____ 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Other ÿ ____ 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Other ÿ ____ 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Other ÿ ____ 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Other ÿ ____ 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Other ÿ ____ 8 DK 9 REF GO TO NEXT	1 HMO 2 POS GO TO B2a 3 PPO ÿ GO TO NEXT 4 FFS 5 Other ÿ ____ 8 DK 9 REF GO TO NEXT
1 2 3 4 8 9 GO TO NEXT ÿ ____	1 2 3 4 8 9 GO TO NEXT ÿ ____	1 2 3 4 8 9 GO TO NEXT ÿ ____	1 2 3 4 8 9 GO TO NEXT ÿ ____	1 2 3 4 8 9 GO TO NEXT ÿ ____	1 2 3 4 8 9 GO TO NEXT ÿ ____	1 2 3 4 8 9 GO TO NEXT ÿ ____	1 2 3 4 8 9 GO TO NEXT ÿ ____
1 2 8 9 ÿ GO TO NEXT	1 2 8 9 ÿ GO TO NEXT	1 2 8 9 ÿ GO TO NEXT	1 2 8 9 ÿ GO TO NEXT	1 2 8 9 ÿ GO TO NEXT	1 2 8 9 ÿ GO TO NEXT	1 2 8 9 ÿ GO TO NEXT	1 2 8 9 ÿ GO TO NEXT

NETWORK PRODUCTS:

B6. Under the [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE] if enrollees do not have a referral and go to *out-of-network* doctors, does the plan cover *any* of the costs for these visits?

PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES ……
2 NO……
8 DK……
9 REF……

B8. Under the [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE] if enrollees do not have a referral and go to *in-network* specialists, does the plan cover *any* of the costs for these visits?

PROBE: Specialists include such doctors as surgeons, allergists, orthopedists, cardiologists and dermatologists. Exclude mental health providers and OB/GYNs.
PROBE: If enrollees go to specialists who then get referrals from primary care providers "on-the-spot" or after the visit, consider this a requirement to get a referral.
PROBE: Exclude emergency care and non-major medical services such as dental and vision care.

1 YES……
2 NO……
8 DK……
9 REF……

B10. Does [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE] require members to have a primary care doctor, group of doctors, or clinic for all routine care?

PROBE: By "require" I mean that enrollees must sign up with a primary care doctor, group of doctors, or clinic in order to receive maximum coverage.

1 YES ÿ **GO TO B12** ……
2 NO ……
8 DK ÿ **GO TO B13** ……
9 REF ……

B12. **IF B10=YES:** Which types of providers can serve as primary care physicians for enrollees in this product? **CHECK ALL THAT APPLY**

PROBE: Exclude non-major medical services such as dental, vision and mental health care.

1 Generalists, such as an internists, pediatricians or family practitioners……
2 OB/GYNs or……
3 Other specialists……
8 DK……
9 REF……

ALL PRODUCTS

B13. Under [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE], what is the copayment or coinsurance rate [NETWORK PRODUCTS: for in-network office visits]?

PROBE: The coinsurance rate is the percentage for which the enrollee is responsible.
PROBE: If there are different copays for sick versus well visits, please tell me the copay for sick visits.
PROBE: Your best estimate is fine. If you can't provide an estimate for this particular contract, please tell me what is *typical* for this product in [SITE].

1 COPAYMENT (ENTER DOLLAR AMOUNT) ……
2 COINSURANCE RATE (ENTER PERCENTAGE)……
8 DK……
9 REF……

B14. Under [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE], what is the dollar amount of the *individual deductible* [NETWORK PRODUCTS: that applies to in-network office visits]?

PROBE: Your best estimate is fine. If you can't provide an estimate for this particular contract, please tell me what is *typical* for this product in [SITE].

1 ENTER NUMBER……
8 DK……
9 REF……

NETWORK PRODUCTS							
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9	1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9	1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9	1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9	1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9	1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9	1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9	1 **ÿ GO TO B12** 2 8 **ÿ GO TO B13** 9
IF B10=YES 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9	**IF B10=YES** 1 2 3 8 9
1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9	1 2 8 9
1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9	1 8 9

MODULE C: Network Size, Physician Payment Arrangements

NETWORK PRODUCTS:

Next I have a few questions about the network associated with (this/these) product(s).

IF NEEDED, REPEAT COUNTY INFORMATION

C1. Approximately what percentage of all physicians in [SITE] are associated with the [EMPLOYER/DIRECT PURCHASE] [PRODUCT]?

PROBE: If you can't provide a percentage, a number is fine.
PROBE: Include both primary care physicians and specialists.
PROBE: Your best estimate is fine.

1 ENTER PERCENT……
2 ENTER NUMBER……..
8 DK……..
9 REF……

C2. Approximately how many hospitals in [SITE] are associated with the [EMPLOYER/DIRECT PURCHASE] [PRODUCT]?

PROBE: If you can't provide a number, a percentage is fine.
PROBE: Your best estimate is fine.

1 ENTER NUMBER……..
2 ENTER PERCENT……
8 DK……..
9 REF……

NETWORK PRODUCTS							
1289	1289	1289	1289	1289	1289	1289	1289
1289	1289	1289	1289	1289	1289	1289	1289

Next, I have some questions about payment arrangements for primary care physicians, specialists and hospitals in [SITE]. Since this may vary somewhat depending on the provider, I just want to know what is *typical* for the providers who serve a majority of enrollees in each contract.

C4. In the [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE], what is the typical method of payment that your organization uses for primary care providers? Is it . . .

PROBE: By that I mean the method *your* organization uses to pay individuals or other entit ies for primary care services in [SITE].
PROBE: Capitation is a fixed payment per enrollee per year for a class of services.

1 Fee For Service (for example, Usual and Customary Rates)……
2 Discounted Fee For Service (for example, a Fixed Fee Schedule or Relative Value Units) ……...
3 Salaried by your organization, or ……
4 Capitation or a combined "professional" or "global" capitation ÿ **GO TO C4a**……...
5 OTHER (SPECIFY)……
8 DK……
9 REF……...

C4a. What *other* services are included in this capitated payment? **CHECK ALL THAT APPLY**

1 Referrals to specialists ÿ **SKIP C5**……..
2 Hospitalizations ÿ **SKIP C6**……
3 Other services, or……
4 None of these……..
8 DK……....
9 REF……

C5. In the [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE], what is the typical method of payment that your organization uses for specialists? Is it . . .

PROBE: By that I mean the method *your* organization uses to pay individuals or other entities for specialist services in [SITE].
PROBE: Exclude mental health providers and specialists acting as primary care physicians.

1 Fee For Service (for example, Usual and Customary Rates) ……..
2 Discounted Fee-for-Service (for example, a Fixed Fee Schedule or Relative Value Units) ……...
3 Salaried by your organization, or……..
4 Capitation……..
5 OTHER (SPECIFY) ……
8 DK……
9 REF……..

C6. In the [EMPLOYER/DIRECT PURCHASE] [PRODUCT] in [SITE], what is the typical method of payment for hospital services?

1 Per diem……
2 According to DRG or per stay……..
3 Capitation……..
4 Billed charges or discounted billed charges, or……
5 Something else (SPECIFY) ……
7 NOT APPLICABLE; HOSPITALS OWNED BY ORGANIZATION……
8 DK……
9 REF……...

1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9	1 2 3 4 **ÿGO TO C4a** 5 ___________ 8 9
1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9	1 **ÿ SKIP C5** 2 **ÿ SKIP C6** 3 4 8 9
If C4a not 1 1 2 3 4 5 ___________ 8 9	**If C4a not 1** 1 2 3 4 5 ___________ 8 9	**If C4a not 1** 1 2 3 4 5 ___________ 8 9	**If C4a not 1** 1 2 3 4 5 ___________ 8 9	**If C4a not 1** 1 2 3 4 5 ___________ 8 9	**If C4a not 1** 1 2 3 4 5 ___________ 8 9	**If C4a not 1** 1 2 3 4 5 ___________ 8 9	**If C4a not 1** 1 2 3 4 5 ___________ 8 9
If C4a not 2 1 2 3 4 5 ___________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ___________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ___________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ___________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ___________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ___________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ___________ 7 8 9	**If C4a not 2** 1 2 3 4 5 ___________ 7 8 9

C7. Does the [PRODUCT] in [SITE] ever include any mental health and/or substance abuse services?

PROBE: Include chemical dependency services.
PROBE: I'm interested in whether the employer contracts directly with your organization for mental health and/or substance abuse services. If the employer provides these services but does not go through your organization, consider the answer "no."

1 YES **ÿ GO TO C7a** ……..
2 NO ……..
8 DK **ÿ GO TO NEXT** ……..
9 REF ……

C7a. Are mental health and/or substance abuse services *ever* provided or managed separately by a specialty managed behavioral health organization?

1 YES **ÿ GO TO C7b** ……..
2 NO ……..
8 DK **ÿ GO TO NEXT** ……
9 REF ……..

C7b. What is the name and location of this specialty managed behavioral health organization? **REFER TO LIST A**

NAME OR CODE (IF AVAILABLE FROM LIST) _____

CITY AND STATE (IF NOT LISTED) _____ → **GO TO NEXT**

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7a** 2 8 ÿ **GO TO NEXT** 9
1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9	1 ÿ **GO TO C7b** 2 8 ÿ **GO TO NEXT** 9
Use Column 1 line below to record code/name and location	**Use Column 2 line below to record code/name and location**	**Use Column 3 line below to record code/name and location**	**Use Column 4 line below to record code/name and location**	**Use Column 5 line below to record code/name and location**	**Use Column 6 line below to record code/name and location**	**Use Column 7 line below to record code/name and location**	**Use Column 8 line below to record code/name and location**

Column 1: ____

Column 2: ____

Column 3: ____

Column 4: ____

Column 5: ____

Column 6: ____

Column 7: ____

Column 8: ____

MODULE D: Organizational Information

Finally, I have some basic questions to ask about your organization.

D1. What is your organization's tax status? Is it . . . **CHECK ONE**

INTERVIEWER: CODE ORGANIZATIONS WITH A 501(C)3 OR 501(C)4 TAX STATUS AS NON-PROFIT

1 For-profit, privately held
2 For-profit, publicly held, or
3 Nonprofit
4 OTHER (SPECIFY) _____
8 DK
9 REF

D2. Is your organization a division or subsidiary of another health plan organization?

1 YES ÿ **GO TO D2A**
2 NO ÿ **GO TO D3**
8 DK
9 REF

D2a. Is this parent company a national or multi-state organization?

1 YES
2 NO
8 DK
9 REF

D2b. What is the name of that parent company? **REFER TO LIST B**

CODE (IF AVAILABLE FROM LIST) OR NAME: _____

D2c. In what city and state is this parent company located?

CITY: _____

STATE: _____

D3. Is your organization a national or multi-state organization?

1 YES
2 NO
8 DK
9 REF

D4. **IF ANY PRODUCT COVERS MENTAL HEALTH SERVICES:** Finally, may I have the name and phone number of the person within your organization who could answer questions about mental health and/or substance abuse benefits?

PROBE: I'd like the name of someone within your organization, not at the managed behavioral health organization.

NAME: _____

PHONE NUMBER: _____

ORGANIZATION: _____

D5. Finally, in order to send you our report on this study, may I have your name, title and mailing address?

NAME: _____

TITLE AND ORGANIZATION: _____

STREET ADDRESS OR POB: _____

CITY, STATE, ZIP: _____

D6. Thank you very much for your time. I may have a couple of follow-up questions at a later date; I hope you wont' mind if I call back. Thanks again For all your help.

1 ……...NET	1 ……...NET	1 ……...NET	1 ……...NET	1 ……...NET	1 ……...NET	1 ……...NET	1 ……...NET

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APPENDIX D:

CODING CONVENTIONS AND EDITING SPECIFICATIONS

APPENDIX D: CODING CONVENTIONS AND EDITING SPECIFICATIONS

1. Coding Conventions and Formats

Codes. In general, codes are the same as used in the instruments, except as noted below. Note that in Followback instruments yes/no variables are usually coded 1/2, whereas in household instruments (and such items included in these files) they are coded 1/0. In general, all missing values have been specified as "system missing" values. Logical skips are coded "-1."

Fills. For multiple selection items B12 and C4a, "don't knows" have been filled into all subordinate items. Network specific items B6, B8 and B10 have *not* been filled for non-network products to their implied values; they are coded -1 for skip.

Quantities. Items specifying quantities (i.e., B13, B14, C1, C2) have an initial item specifying the units, and then component items containing the numeric percentage or amount. B13 has been recoded to specify zero when the amount is zero in either metric. The component quantity variables are non-zero for the metric used and the other is skipped (-1). All component items are missing if there is no data.

Initial Item	Quantities Used	SAS Format for Initial Item
b13	0=none 1=copay $ 2=coinsure %	amt_per.
b14	1=$ [only]	amt_per.
c1	1=percent 2=number	per_amt.
c2	1=number 2=percent	amt_per.
c3	1=% [only]	per_amt.

Constructed Variables. There is one constructed variable — NAT_PLAN — combining D2, D2a and D3. The items D2, D2a, D3 are not individually cleaned. We have not included constructed product line variables.

2. Final Edit Specifications for Product Variables.

Final data processing and editing decisions are documented below.

Global edits, product data.

Variable	*Skip (-1) If*	*Edits*
b2[a]	*None*	*leave as self-reports, unedited*
b2a[a]	b2 not in (1,2)	*leave as self-reports, unedited*
b5	*None*	*leave as self-reports, unedited*
b6,b8, b10	net=0	*none*
b12_1{1,2,3}[a]	b10 in (-1,2)	*none*
b13	*None*	b13=0 if b13 is in (1,2) and both b13amt and b13per is specified as 0
b13amt	b13 in (0,2)	if b13amt>50, set to '.'
b13per	b13 in (0,1)	if b13per in (51..100), set to (100-b13per)
b14amt	*None*	if b14amt<50 or >5000, set to '.'
c1	net=0	if no non-zero amount specified, set to '.'
c1per	net=0, c1=2	set 0 to '.'
c1amt	net=0, c1=1	set 0 to '.'
c2	net=0	if no non-zero amount specified, set to '.'
c2amt	net=0, c2=2	set 0 to '.'
c2per	net=0, c2=1	set 0 to '.'
c4[b]	*None*	if net=0 and c4 in (3,4), set c4 to '.'
c4a_1{1,2,3,4}[b]	c4 <> 4	*none*
c5[b]	c4a_1=1	if net=0 and c5 in (3,4), set c5 to '.'
c6[b]	c4a_2=1	if net=0 and c6=3, set c6 to '.'

[a]Subsequent edits were conducted as described in Appendix E, Section I.D.
[b]Subsequent edits were conducted during imputation as described in Table E.2.

Individual Case Edit Rules for Missing Entity Data, by Variable.

Variable	Treatment
A3	**Back-code** from A3OTH, especially noting references to employers (reset to code 7), unions (6), TPAs (4) and insurers (2). Created category for government agencies not obviously employers (11). **Look-ups**: entity was listed in either AAHP HMO (2) or PPO (3) directory. **Logical imputes:** Products offered suggested HMO (2) or PPO.(3) **Recommended recode:** Collapse into 1,2,3+5,4,6+7+11
D1	**Back-code** from D1OTH, especially noting references to mutual companies (D1=2). **Look-ups**: entity was listed in either AAHP directory as non-profit (3) or for profit (created category 12, since could not distinguish 1/2). Entities that were subsidiaries of national companies with other entities represented were coded to match those. **Logical imputes:** If A3 in (4,6,7,11), reset to *skip*.
National affiliation	**Coding:** "yes" if d2a=1 or d3=1, "no" if d2a=2 or d3=2. **Look-ups:** from HSC staff or comparison with related (by name) entities **Logical imputes:** If A3 in (4,6,7,11), reset to *skip*. **Remaining missing:** coding indeterminate, external data negative, d2bcd and d2bnm blank, and no name matches

APPENDIX E:

IMPUTATION AND WEIGHING METHODS

APPENDIX E: IMPUTATION AND WEIGHTING METHODS

Imputation and weighting methods were described in Chapter VI of the report. Here, we describe the methodology in more detail.

I. PRODUCT IMPUTATIONS

Based on consultations with staff at The Center for Studying Health System Change (HSC), we conducted a series of data imputation steps to assign values to selected items that had missing values after the data editing process had been completed. Section A presents an overview of the data items considered for imputation and the missing data. We used a probability-based, or stochastic, procedure to assign values for the missing data. In this procedure, the data are used as "donors" for cases with missing data. (These procedures are discussed in Sections B and C.) We also used a second round of logical edits to assign the remaining values. In Section D, we describe the logical imputations as they were conducted during the imputation process.

A. Selecting Questionnaire Items for Imputation

The candidate variables for the imputation process were restricted to items in Modules B and C, which collected information on how an entity classifies a product, the product's restrictions on obtaining care, coinsurance and deductible amounts, and the methods the plan uses to pay health care providers. We excluded items in Modules B and C that were used only to control the flow of the interview about each specific product offered at a given site (that is, item B3, B4, B9, B9a, B11, and B11a).

Table E.1 presents a list of the items initially considered for imputation. The table indicates, for each item, the percentage of nonskipped or applicable responses that were missing. In developing these counts, we considered a response to be *applicable* if:

- The response to the question was not dependent on other responses, or
- The response was dependent on one or more other questionnaire items, and
    - The responses to the appropriate other items were nonmissing and indicated that a respondent should have answered the question, or
    - One or more of the responses to the appropriate other items were also missing, so that it was not possible to determine whether the question should have been answered.

A response is considered a "skipped" response only if the other responses that affect whether the item should have been answered are nonmissing and indicate that the item should not have been asked. Note that these definitions count a response as missing if other responses that affect whether the item should have been asked are also missing. In many cases, after the other responses were imputed, the subsequent missing data could be set to a "skipped" response. In most cases, the applicable and skipped definitions are based on "prior" responses. Since some respondents answered C5 and C6, but not C4A, we let the answers to C5 and C6 determine in part the outcome of C4A. The total number of applicable responses for C4A is also approximate given the joint relationships in C4, C4A, C5 and C6.

After reviewing the data and the percentage of missing values, we excluded several data items in Table E.1 from the imputation activity. The responses to items B2 and B5 were used to create the values for the variable NET, which indicates whether a plan is associated with a network of physicians. Because this variable was resolved during the editing procedures (but item B2 was not), HSC decided not to conduct a separate editing or imputation procedure on item B5.

TABLE E.1

RATES OF MISSING DATA ANALYTIC DATA ITEMS
(4,663 PRODUCT-LEVEL RECORDS)

Data Item	Description	Cases with Missing Data (Number)	Total Applicable Responses (Number)[a]	Missing Applicable Responses (Percent)
B2	Entity-reported product line	87[b]	4,663	1.8
B2A	If HMO or POS, type of HMO model	129[c]	1,779	7.3
B5	Is there a list of physicians associated with product?	1	1,085	0.0
NET	Network plan identifier	0	4,663	0.0
B6	Does plan cover out-of-network physician costs?	8	3,658	0.2
B8	Does plan cover out-of-network specialty costs without referral?	33	3,658	0.9
B10	Does plan require a primary care physician (PCP) for all routine care?	19	3,658	0.5
B12_11	Which type of provider can serve as a PCP generalist?	67[d]	1,644	4.0
B12_12	OBGYN ok as PCP	67	1,644	4.0
B12_13	Other specialists as PCP	67	1,644	4.0
B13	Copayment/coinsurance percentage or amount	419	4,663	9.0
B13AMT	Copayment amount	419	1,838	22.8
B13PER	Coinsurance percentage	419	3,019	13.9
B14AMT	Individual deductible	651	4,663	14.0
C1	How many (percentage/number) physicians associated with product?	1,898	3,658	51.9
C1AMT	Count of physicians	1,898	2,335	81.3
C1PER	Percentage of physicians	1,898	3,221	58.9
C2_1	How many (percentage/number) hospitals associated with product?	1,672	3,658	45.7
C2AMT	Count of hospitals	1,672	2,716	61.6
C2PER	Percentage of hospitals	1,672	2,614	64.0
C3PER	What percentage of enrollees are in this product?	2,785	4,663	59.7
C4	What is typical method of payment for PCPs?	549[e]	4,663	11.8
C4A_11	What other services are included in capitated payments? Specialists?	609	1,197	50.9[f]
C4A_12	Hospitals?	609	1,197	50.9[f]
C4A_13	Other services?	609	1,197	50.9[f]
C5	What is typical method of payment for specialists?	596	4,389	13.6
C6	What is typical method of payment for hospitals?	850	4,502	18.9
C7	Does product include any mental health services?	235	4,663	5.0
C7A	Are mental health services ever provided by a specialty managed behavioral health organization?	355	4,504	7.9

[a]Excludes cases that were legitimately skipped for each item.
[b]Sixty additional products were assigned a value using logical edits.
[c]Nineteen products were assigned a value using logical edits.
[d]Two products were assigned a value using logical edits.
[e]We also set 3 other specify responses to missing so that 552 were ultimately imputed.
[f]The majority of missing responses is due to the 549 missing responses on C4. Only 60 respondents did not answer C4A_, among the 648 that responded to the appropriate C4 category (C4 = capitation or combined professional or global capitation).

We also decided not to impute values for three data items, the percentage of an entity's (1) physician members associated with the product, (2) hospitals associated with the product, and (3) enrollees associated with the product (items C1, C2, and C3, respectively). We made this decision because the items had high rates of missing data responses. In addition, research staff determined that the items on mental health coverage (items C7 and C7A) were not needed in the analysis.

B. Methodology: Sequential Hot Deck Imputation

Sequential hot deck imputation procedures are designed to use responses from another respondent for assignment to a respondent with missing data. Respondents with nonmissing responses for an item are referred to as "donors," and those with missing data are "recipients." This type of imputation procedure selects a donor for each recipient whose response to a question has a value that is closest to the recipient's unknown, but most likely or expected, response. One of the strengths of this approach is that both categorical variables and continuous variables can be used to assist in selecting a donor.

In sequential hot deck imputation, the set of potential donors is restricted to those who have the same responses as the recipient to a group of data items or variables, called "classing variables." Traditionally, classing variables are chosen so that each donor pool has a sufficient count of donors. Donors and recipients having the same values to the classing variables are then sorted by a set of "sorting variables," which may be continuous or categorical in nature. The sort is conducted in a card-like deck fashion so that donors and recipients with similar values are in proximity to each other. The donor who immediately precedes the recipient is then selected to provide the replacement value. This sequential card-like deck sort and selection process gives the method its name.

We required the resulting weighted imputed product data to have the same distributional properties on each imputed item as the weighted distribution reflected in the cases with nonmissing data. To best meet this requirement, we conducted a weighted sequential hot deck imputation process (Cox 1980).[1] Repeated applications of this method produce, on average, weighted estimates (using reported and imputed data) that match the weighted estimates using only cases with nonmissing data.

Weighted and standard sequential hot deck procedures differ in their selection processes. A weighted sequential hot deck imputation process uses a selection process that is similar to the methods used in probability proportionate to size sampling. First, the donors and recipients with the same responses to a classing variable are grouped, and each group is sorted on the sorting variables. Next, the selection procedure uses a random mechanism that interweaves respondents and nonrespondents to divide the donors into subgroups, where the number of subgroups is equal to the number of recipients in the group. Within a subgroup, the donors are selected based on the relative sizes of their survey weights. With this approach, in repeated applications of the selection process, the weighted imputed data will have the same distributional properties as the weighted data for the non-missing cases. The other benefit of this approach is that it limits the number of times an individual donor can be used. In contrast, in traditional sequential hot deck imputation schemes, a series of missing cases occurring together could receive the same donor. We used the square root of the number of policies successfully linked to each product as the

[1] Cox, Brenda G., "The Weighted Sequential Hot Deck Imputation Procedure," Proceedings of the American Statistical Association Survey Research Section, 1980, pages 721-726.

sampling weight for each product in the execution of the weighted sequential hot-deck imputation procedures.

C. Implementation and Results

Our first task was to select a group of data items and variables as the classing and sorting variables. We based our choices on two criteria. First, we wanted the variables to be good predictors of the item to be imputed, so that a donor with the same value as the recipient would have an assignment value similar to the recipient's expected value. Second, we wanted to include variables that predicted the missing status of the data item. Because cases with missing values may be confined to a small segment of the population, donors should be confined to the same demographic or product profile segment. In reality, the set of predictors of the data item value and the set of predictors of missing status often identified the same variables, but using the union of the two sets was expected to improve the accuracy of the imputation process. We conducted a variety of cross-tabulations to identify these relationships, using the item being imputed, as well as other items and external variables, such as site. We then reviewed this potential set of variables with HSC to develop a final list of classing and sorting variables.

Some of the combinations of possible values among classing variables contained few, if any, possible donors. We therefore often used the classing variables in a stepwise manner. As a general rule, we considered the donor pool to be too limited to conduct the imputations if the number of donors represented less than 75 percent of all the respondents in a cell. For the first step in the imputation process, we used the imputation cells based on the most restrictive set of classing variables to impute cases that could be imputed. For each subsequent step in the process, we imputed the remaining cases by either deleting the classing variable that appeared to have the weakest relationship to the item being imputed or collapsing the categories. In general, we performed only a small number of steps of this type; most of the imputations were completed in one or two steps. In defining the donors, we required all donors to have a reported

nonimputed value for the item imputed. However, to increase the size of the donor pool, we allowed cases with an imputed value for a classing variable to serve as donors.

Data items in the instrument were arrayed in order from general to specific information. We therefore conducted the imputations in that order. As a result, we first imputed the self-reported product type (item B2), which was used as one of the primary classing variables throughout the imputations.

The stepwise process of using a different set of classing variables to impute a missing value for an item also helped us to impute some variables jointly. By jointly imputing some items, we greatly reduced the likelihood of generating a series of imputed item responses or imputed and reported question responses that were not actually *observed in the data.* For example, in the imputation of items B6, B8, and B10, we imputed values for B6 for respondents who had valid values on items B8 and B10. In this step, items B8 and B10 were used as the classing variables. Likewise, in the next step, we used items B6 and B10 as part of the classing variable list to impute values for B8 for respondents who had nonmissing values for B6 and B10. We continued this process until we had imputed all values for these items, using only respondents who gave valid data in this series as donors.

Table E.2 presents a list of the final items for imputation and the number of imputation steps conducted on each. (This is the same set of variables included in the main report, Table VI.1.) Table E.2 also presents the classing variables that were used in each step of the imputation process and the number of imputations conducted at each step. As the table indicates, after an imputed value was assigned, it was possible to logically assign a value for a subsequent variable based on the skip pattern (see item C4A, for example). We replaced these missing values as a result of imputing another item, so they were flagged in the data file as imputed values.

TABLE E.2

VARIABLE IMPUTATIONS AND CLASSING AND SORTING VARIABLES USED IN EACH STEP
(4,663 PRODUCTS)

Data Item Imputed	Products with Imputed Values	Sorting Variables[a]	List of Classing Variables Used for Each Step	Number of Values Imputed for Each Classing Variable Set
B2	27[b]	B2, percentage of products classified as FFS	1. Net, B6, Gatekeeper,[c] C4 2. Net, B6, Gatekeeper + 60 cases imputed logically	1. 24 2. 3
B2A	110[d]	B2a, percentage of HMO products that use a mixed-model type of network model	1. B2, C4, and C5 2. B2 + 19 cases imputed logically	1. 75 2. 35
B6, B8, B10 Imputed jointly	8 33 19	Percentage B6, B8, or B10, depending on the imputed variables	1. B6 from B2, B8, B10 2. B8 from B2, B6, B10 3. B10 from B2, B6, B8 4. B6 and B8 from B2, and B10	1. 4 2. 29 3. 19 4. 4
B12_11 B12_12 B12_13 Imputed jointly	65[e] 65	Percentage OBGYN and specialists on site	1. From B2/B2A (nine categories)[f] and B10 + two cases imputed logically	1. 65
B13	419	Percentage B13 of cases answering in terms of a percent	1. B2/B2A (nine categories) and C4 2. B2/B2A (nine categories)	1. 342 2. 77
B14AMT	651	Mean B14AMT	1. B2/B2a (six categories)[g] and B13	1. 651
B13AMT	419	B13 and mean of B13AMT	1. B2/B2A (six categories), B13, and B14 (four classes) 2. B2/B2A (six categories) and B13	1. 408 2. 11
B13PER	419	B13 and mean of B13PER	1. B2/B2A (six categories), B13, and B14 (four classes) 2. B2/B2A (six categories) and B13	1. 408 2. 11
C4	552	Percentage capitated	Pre: Set C4, C5, and C6 = missing if each has value of 5 1. B2/B2A (nine categories) Gatekeeper, and Net 2. B2/B2A (nine categories) and Net 3. Net only	Pre: C4: 3 C5: 2 C6: 17 1. 446 2. 69 3. 37

TABLE E.2 (*continued*)

Data Item Imputed	Products with Imputed Values	Sorting Variables	List of Classing Variables Used for Each Step	Number of Values Imputed for Each Classing Variable Set
C4A_11 C4A_12 C4A_13 Imputed jointly	609 on each	Percentage of hospitalization included in capitated payment	1. Set C4A_ = 1 if C4 = 1,2,3 2. Set C4A_11 = 0 if C5 = 1,2,3,4 3. Set C4A_12 = 0 if C6 = 1,2,3,4 4. B2/B2A (nine categories), Gatekeeper, C4 5. B2/B2A (nine categories), C4	1. 399 (all 3) 2. 37 C4A_11 3. 38 C4A_12 4. 148 C4A_11 146 C4A_12 184 C4A_13 5. 25 C4A_11 26 C4A_12 26 C4A_13
C5	596	Percentage with capitation for specialist	1. Set C5 = 1 if C4A_11 = 1 2. B2/B2A (nine categories), Gatekeeper, IC4, IC4A_11 3. B2, C4, C4A_11	1. 87 2. 415 3. 94
C6	850	Percentage with capitation as typical payment for hospital services	1. Set C6 = 1 if C4A_12 = 1 2. B2/B2A (nine categories), Gatekeeper, C4, C4A_12 3. B2, C4, C4A_12	1. 47 2. 665 3. 138

[a]The sorting variables consisted of the site specific mean product value or the percentage of products by site having the trait indicated.

[b]Sixty additional products were assigned a value using logical edits.

[c]We coded gatekeeper to a value of 1 if question B8 was answered as "No", no in-network coverage without a referral, or if B10 was answered "yes", required to sign up with a PCP for routine care.

[d]Nineteen products were assigned a value using logical edits.

[e]Two products were assigned a value using logical edits.

[f]These nine categories represented the combination of the outcomes on questions B2 and B2a (as applicable) as follows:

1. HMO – Staff or group model
2. HMO – Network or IPA model
3. HMO – Mixed model
4. POS – Staff of group model
5. POS – Network or IPA model
6. POS – Mixed model
7. PPO
8. FFS
9. Other

[g]These six categories represented a collapsed version of the combination of outcomes on questions B2 and B2A as follows:

1. HMO/POS – Staff or group model
2. HMO/POS – Network or IPA model
3. HMO/POS – Mixed model
4. PPO
5. FFS
6. Other

D. Logical Edits

During the imputation procedures, 60 values for item B2, 19 values for item B2A, and 2 values for the B12 series were logically determined after the editing process had been completed. The logical edits consisted of two major types. In some cases, we were able to determine the response to item B2 or B2A on the basis of either the response provided in the "other specify" category or the name of the plan provided. Specifically, we determined values for 20 products for item B2 and for 19 products for item B2A in this fashion. The 40 remaining logical imputations for item B2 were products that failed the edit rules. All 40 products had a self-reported product type in item B2 of preferred provider organization (PPO) but did not indicate that a network was used. These cases were logically imputed as fee-for-service (FFS) products. For the item about providers serving as primary care physicians (item B12), data were missing for all provider categories for two products. For these two products, we assumed that a generalist could serve as a primary care physician. The imputation flags in the data file were assigned a value of one if the value was imputed stochastically and a value of two if the value was imputed logically, according to the edit rules.

II. STATISTICAL MATCHING OF SOFT LINKAGES

A. Overview

The second component of missing data in the Followback Survey resulted from the linkage process between products identified by health insurance entities (or by the employer associated with a policy) and persons covered by a product or identified by the CTS Household Survey respondent. Persons within a family insurance unit (FIU) associated with a specific health insurance product were defined as a "policy" unit. An FIU could have more than one policy and a person in an FIU could be associated with more than one policy.

As described in Table IV.2 (main report), of the 22,211 eligible policies, 4,318 were soft-linked, that is, we could identify the entity (insurer or employer) with which the policy unit was associated, but we were unable to determine which of the products the entity offered covered the policy unit. As a start, we linked all the associated products the entity offered in the site to each of the 4,318 policies. This step generated 11,040 product–policy linkages. We then designed the statistical matching procedures to select the "best" linkage from among these possible product–policy linkages.

The solution to a record linkage problem depends on the data available for linking purposes. In the basic setup, a primary set of data (denoted as file A) must be linked to another set of data (denoted as file B). In our case, file A contains the data from the Household Survey interviews and file B contains the health plan product information from the entity interviews. Traditionally, in record linkage problems, a set of variables common to each file, such as a person's name, address, or other unique identifying information, facilitates the linkage process. Therefore, a researcher can simply develop an algorithm to compare the data in these common fields across the two files and then, based on the degree of similarity in the fields, select a final match.

For the Followback, we had few, if any, common data items to facilitate the matching process. Although both the household respondent and entity reported on five basic characteristics of the health plan, our current analysis of the exact matches showed that the consistency among these items was low. As a result, we could not rely completely on these variables to select the best linkage. Therefore, we adopted a modeling-based procedure suggested by Singh et al.[2]

This method uses an auxiliary data file of known linkages to develop a statistical matching procedure for assigning linkages to another set of files. Because our hard-linked cases provide the appropriate data for modeling the linkage process, this procedure was ideally suited for our needs. We developed the approach in four stages. First, we selected a key set of attributes from file B (that is, the product file) that appeared to most accurately describe the differences among the records on that file. Second, from the auxiliary file, which contains a set of file A and file B linked data, we developed a series of standard regression or logistic regression models to predict each of the selected items on file B from the items on file A.[3] Third, we used the models based on the auxiliary file to obtain predicted values for the selected file B items for each of the unlinked file A records. Fourth, we compared the predicted values for each file A record with the values on the file B records. The file B record with the closest set of values was selected as the final link. The data from the linked file B record replaced all the missing product information on the file A record.

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[2]Singh A.C., H.J. Mantel, M.D. Kinack, and G. Rowe. "Statistical Matching: Use of Auxiliary Information as an Alternative to the Conditional Independence Assumption." *Survey Methodology*, vol. 19, 1993, pp. 59-79.

[3]File A consists of household or family characteristics.

As a first step in the statistical matching process, we combined the Household Survey person- and family-level data into a policy-based file. Recall that a policy is defined as consisting of a unique relationship between a private health plan and the set of household members it covers. (We describe this aggregation process in Section B of this chapter.) We then selected a set of the product attributes that appeared to have the greatest discriminatory power among the four self-reported product types. These product types are (1) health maintenance organization (HMO), (2) point-of-service (POS), (3) preferred provider organization (PPO), and (4) fee-for-service (FFS). We describe this selection process in Section C. We used the hard-linked data to develop a logistic regression model for each product attribute to predict each attribute from the policy-level CTS data. We discuss the results of these modeling procedures in Section D. We used the resulting models to obtain predicted values for the attributes for the soft-linked policies. We compared the predicted values with the actual values to select one of the products as the final link. Finally, as a refinement step and a validation step, we prepared two "mock" soft-linked sets of records from the hard-linked cases to simulate the matching process. The linkage procedure and the preparation of the mock files are discussed in Section E and Section F, respectively.

B. Creation of Policy-Level CTS Data

To create a policy-based set of data from the Household Survey person- and FIU-level data, we first had to identify the Household Survey families that had one or more private insurance policies. We based the identification of the families on both the data originally provided in the Household Survey and any new information collected during the Followback Survey. We linked the Followback Survey information to the Household Survey records to obtain a final status for each person and family. To aggregate the person- and family-level data to the policy level, we used a policyholder's demographic and employment characteristics as a summary measure of these characteristics for the policy members. For health status and plan

utilization, we used the maximum value reported by the members of a policy as the summary measure for the plan. (Health status was coded from 1 to 5, with 5 corresponding to poor health.) In this way, the summary measure indicated the level of use for the person who used the plan services the most, or in terms of health status, the health level of the person in the poorest health.

C. Selection of Product Attributes to Use in Match

The accuracy of Singh's matching procedure relies on two assumptions: (1) the variables selected from file B to serve as the primary matching variables fully capture the differences among these records, and (2) the primary matching variables can be predicted accurately from the file A information. We therefore selected a set of the product variables that would best meet these criteria.

We selected nine product attributes to use in the statistical matching process (see Table E.3). We chose the entity self-reported product type as the first attribute because the household data enabled us to predict with reasonable accuracy whether a product was an HMO. Before using the entity-reported product type in the matching procedure, we collapsed it into two categories: (1) HMO, and (2) other. We based selection of the remaining items primarily on a variable's ability to describe the differences among the entity product records (described by the entity self-reported product type) and also considered how well we could predict the variables from the Household Survey information. First, we cross-tabulated the entity responses between each questionnaire item and the self-reported product type. The Household Survey items that

TABLE E.3

FINAL LIST OF MATCHING VARIABLES AND *R*-SQUARE VALUES ASSOCIATED WITH THEIR PREDICTION FROM THE HOUSEHOLD DATA

Matching Variable	*R*-Square Value (Based on Household Data from Hard-Linked Cases)
1. HMO Status	.30
2. B6, Covers Out-of-Network Physicians	.17
3. B8, Covers Specialists Without Referral	.09
4. B10, Plan Requires PCP	.31
5. B13, Coinsurance or Copayment	.14
6. C4, Payment of PCP Is FFS	.11
7. C4, Payment of PCP Is Discounted FFS	.10
8. C4, Payment of PCP Is Capitation	.22
9. Network Status	.12

had differential response patterns across the product types became candidates for the matching variables. To support these findings, we conducted two unweighted stepwise discriminate analysis procedures to identify the entity-reported variables that together best predicted the entity self-reported product type. Table E.4 presents the partial *R*-square values for the variable selected at each step in the stepwise discriminant analysis procedure.[4]

We conducted the discriminant analysis procedure on the 4,663 product interviews, using the self-reported product type (four categories) as the dependent variable. For this task, we converted the continuous data items associated with the level of coinsurance or copayment (item B13) and the deductible (item B14) into series of range indicators. We also transformed the response categories on payment methods for primary care physicians (item C4) into three categorical indicators. We conducted the first model using range indicators for the level of the copayment and coinsurance. The second model was a simplified version of the first, which identified only whether a coinsurance percentage or a copayment amount was reported by the plan.

The results shown in Table E.4 suggested that Household Survey items B6, B10, and C4 and the values in B13 could best describe the entity self-reported product type. We therefore included items B6, B10, and C4 among the list of matching variables. For item C4, which contained a categorical response, we converted the item to three indicators associated with the

[4]In Table E.4, the product attributes are listed in order of their inclusion in the model. The partial *R*-square values reflect the squared partial correlation for predicting the self-reported product type from the product attributes, controlling for the effects of the attributes listed previously in the table.

TABLE E.4

RELATIVE PREDICTIVE POWER OF THE PRODUCT ATTRIBUTES
TO DESCRIBE SELF-REPORTED PRODUCT TYPE

Variable[a]		Description	Order Entered	Partial *R*-Square
Model with Ranges for Coinsurance and Copayment				
VB6	B6	Cover Out Net Docs 1Y/0N	1	0.7338
VB10	B10	Require PCP 1Y/0N	2	0.6580
B13P_2	B13	Coinsurance % 11-20%	3	0.2405
C4_1	C4	Payment of PCP is FFS	4	0.1651
VB8	B8	Self Refer in Net 1Y/0N	5	0.0796
B14D_1	B14	Deductible $0	6	0.0673
C4_2	C4	Disc FFS	7	0.0552
B13D_1	B13	Copayment $0-$10	8	0.0285
B13P_1	B13	Coinsurance % 0-10%	9	0.0093
B13D_2	B13	Copayment $10-$15	10	0.0123
B14D_3	B14	$100-$300	11	0.0054
B14D_2	B14	$0-$100	12	0.0023
C4_3	C4	Capitated	13	0.0022
Model with Coinsurance vs Copayment Status Only				
VB6	B6	Cover Out Net Docs 1Y/0N	1	0.7338
VB10	B10	Require PCP 1Y/0N	2	0.6580
C4_1	C4	Payment Method PCP=FFS	3	0.2105
VB13	B13	Coinsurance/copayment 1=Dollar 0=%	4	0.1738
VB8	B8	Self Refer in Net 1Y/0N	5	0.0852
_2	C4	Disc FFS	6	0.0637
B14D_1	B14	Deductible $0	7	0.0437
B14D_3	B14	$100-$300	8	0.0069
C4_3	C4	Capitated	9	0.0024
B14D_2	B14	$0-$100	10	0.0015

[a]Listed in order of entry.

presence or absence of a response for a payment based on FFS, discounted FFS, and capitation, respectively.[5]

A review of the first and second model indicated that the single variable for coinsurance/ copayment status, B13, seemed to capture the majority of the explanatory power in the copayment and coinsurance levels. Therefore, to limit the matching variables to a manageable number, we used only the coinsurance/copayment status variable. Because item B8 also showed some predictive power, we included this item. Although the variable for deductible level (item B14) showed some predictive ability, we could not accurately predict the deductible level from the CTS policy-level information; hence, we excluded this variable from the matching list.

As a final step in preparing our list of matching variables, we examined the constructed variable that indicated whether the product had a network. This variable (NET) had been coded from the self-reported product type (B2) and from whether a list or directory of physicians was associated with the product (item B5). We therefore did not include it in the stepwise discriminate analysis procedures, because it would have distorted the results for other variables. However, we did include it among the matching variables because the item is a direct by-product of the self-reported product type.

Table E.3 lists the final set of matching variables. In Section d, we examine the modeling procedures used to predict each variable from the Household Survey policy-level data. The *r*-square values from these models are also listed in Table E.3.

[5]Discounted FFS is a fixed fee schedule negotiated between plans and providers.

D. Modeling the Product Attributes for the Hard-Linked Cases

We prepared a series of weighted logistic regression models to predict each of the nine matching product variables, using the Household Survey policy-level variables for the hard-linked policies. We could then use these models to obtain predicted values for the matching variables on soft-linked policies. As the first step in the modeling process, we prepared a set of weights to apply to the hard-linked data during the modeling process. The relationships between the matching variables and the Household Survey policy-level variables could differ between the hard-linked and soft-linked policies. Therefore, we used the weights to compensate for the fact that only the hard-linked policy data were used in preparing the models.

Reviews of the hard- and soft-linked data showed that the rate of soft linkages varied by site. Furthermore, the percentage of policies reported to be an HMO in the Household Survey differed in the hard- and soft-linked cases. Other demographic and socioeconomic factors seemed to have little impact. Therefore, we computed a nonresponse adjustment to the survey weights for the hard linkages based on 120 weighting cells defined by site of residence (60 sites), in combination with the household reported HMO membership. In each cell, we computed a weight adjustment equal to the sum of the weighted sum for the hard-linked cases and soft-linked cases combined divided by the sum of the weights for the hard-linked cases. We multiplied the family weight by these adjustments for each hard-linked case to create an adjusted weight for the hard-linked cases. This adjusted weight was used in the modeling process. These adjustments "balanced" the hard linkages to resemble the population of families and policies represented by both the hard linkages and soft linkages.

Next, we reduced the set of Household Survey policy variables to those that appeared to have some influence on the entity self-reported product type. We generated frequency distributions for each policy variable by the self-reported product type and eliminated variables from the list that showed similar patterns among all four product categories (HMO, POS, PPO,

and FFS). Furthermore, we excluded primary analysis variables from the modeling process because we did not want them to directly impact the outcome of the other matching variables.

We prepare a weighted logistic regression model for each matching attribute using the household policy variables as the predictors. These models were developed using a combination of stepwise and non-stepwise procedures. In these models, we set the significance level for the model selection process liberally at 0.15 to ensure that all potential predictors were included in the model. In most cases, we started with a full model. After reviewing the output from the full model and the stepwise procedures, we eliminated variables that were not significant when a chi-square test of significance was performed. Table E.5 presents the list of variables that were used as the final predictors in each model. Table E.5 also provides the final values of the coefficients associated with these variables.

E. Selecting the Linkages

For each of the 4,318 soft-linked cases, the data collection and editing process appended from two to nine potential products to each policy to yield 11,040 potential soft-linked products. Table E.6 shows a frequency distribution of the number of potential products linked to each policy. The majority (63.8 percent) of the policies had only two choices. We selected one of the soft-linked products as the final product for a policy.

As described previously, we computed predicted values for each of the nine product attributes for the 4,318 soft-linked policies, using the coefficients listed in Table E.5. The

Table E-5

LOGISTIC REGRESSION RESULTS TO PREDICT EACH PRODUCT ATTRIBUTE FROM THE HOUSEHOLD SURVEY POLICY DATA

Variable	Description	HMO	B6	B8	B10	B13	C4_1	C4_2	C4_4	NET
R-Square		0.2969	0.1652	0.0897	0.3051	0.1439	0.1134	0.1015	0.2169	0.124
HL Test (p-value)		22.804 (0.0036)	59.068 (0.0001)	22.877 (0.0035)	34.699 (0.0001)	20.613 (0.0083)	61.31 (0.0001)	36.265 (0.0001)	20.029 (0.0102)	25.192 (0.0014)
Pearson (p-value)		11044.3 (0.0001)	9862.6 (0.0092)	8519.6 (0.0001)	11061.9 (0.0001)	9913.3 (0.0019)	10815.8 (0.0300)	8774.1 (0.0002)	10502.7 (0.0016)	9142.5 (0.0001)
Variable										
INTERCPT		-1.0775****	0.0927	1.1178****	-2.6544****	-0.6728****	-0.8146****	0.5300****	-3.0503****	1.9302****
N_MULCOV	*Number of Persons with mult coverage	-0.2305****	0.0852****	0.0605**	-0.1666****	0.1224****	0.1219****			-0.1536****
PHMOYR	*b901 b911:HMOYRS,HMOYRB:Yrs enr in HMO		-0.0163****	0.0099***	-0.0248****		-0.0110**	-0.0128****		
MPHMOYR		-0.4688****		0.1940****	-0.3969****				-0.1872****	-0.2048****
NKID	HF1:Number of children in family	0.1022****				-0.0570***	-0.0406**			
inccat1	Income $0-10,000 Yr	-0.2645***		-0.2543****		0.1883**	0.3427****	-0.1932***		-0.5482****
inccat2	Income $10,000-22,500 Yr	-0.1025*				0.2127****			-0.0877	-0.1686**
inccat3	Income $22,500-35,000 Yr		-0.0616***	-0.1207****	0.0791***	0.0986****	0.0949****	-0.1087****	0.0595**	-0.1290****
inccat4	Income $35,000-50,000 Yr				-0.1011**	0.2382****	0.1885****	-0.1365****		-0.2300****
Pchoice	*b951:MCHOICE: Pref more choice									
Prisk	*e521:TAKRISK:More likely to take risk	-0.0241*	0.0295***						-0.0291**	
Smklvl	*E612:SMKNUM Max # of Cigarettes Smoked									
msmklvl	Smoking Level is Missing or NA				0.1045**					
Phcrepl1	*d111:Usctype= 0 No place of Care	-0.2071***			-0.3408****	0.3399****		0.2137****		
Phcrepl2	*d111:Usctype= 1 Doctor's Off	-0.1993****		-0.2376****		0.1236***	0.0786*	0.1115***		
Phcrepl3	*d111:Usctype= 2 HMO	0.9729****	-1.1119****	-0.3275****	0.1747**	-0.8986****	-1.1820****	-0.7608****	0.1617***	0.9613****
Phcrepl4	*d111:Usctype= 3 Hosp Outpatient	0.3290****	-0.5272****		-0.3002****			-0.2368***		
Phcrepl5	*d111:Usctype= 4 Oth Hlth center		-0.1687***	-0.1255*						
Phcrepl6	*d111:Usctype= 5 Hosp Emrg Room		-0.3737**		0.3833*					
Phstaff1	*d121:Uscprof = 1: Doctor				-0.1770**					-0.1521**
Phstaff2	*d121:Uscprof = 2: Nurse				-0.5167****				-0.4670***	
Csame	*d131:USCSAME:Usual source,same provider				0.2445****				0.1806****	
ftype1	*FAMTYPE=1 Single Person									
ftype2	*FAMTYPE=2 Married, No Kids									
ftype3	*FAMTYPE=4,6,8 Single with Kids			0.1203*						
Hhtype1	*CV:HHTYPE=1 w HH head and Single FIU		-0.1209****	-0.4511***			-0.4216***			-0.2103****
Hhtype2	*CV:HHTYPE=2 with other related FIUs			-0.3711***			-0.5229****	0.1101***		
Hhtype3	*CV:HHTYPE=3 with other Unrelated FIUs			-0.5371****	0.1938***		-0.6040****		0.2268****	
kds_hosp	*C111:Fam has children <18 been hsptalzd	0.2520**	-0.3642****	-0.2510***	0.2049*					
Mkdshosp	Number of Children in Hospital			-0.1322****					-0.1581****	-0.2770****
kids_1yr	*Family has children (1 year or younger)	0.1820**						-0.1312*		
phemtyp1	*f201: Emtype = 1 Private Spon	-0.1841****	0.2730****		0.3103****		-0.1472***	0.1942****		0.1964***
phemtyp2	*f201: Emtype = 2 Fed Gov Spon				0.2789***		0.3610****	-0.2741***		1.2190****
phemtyp3	*f201: Emtype = 3 St. Gov Spon				0.3755****		-0.4929****	0.3230****		0.4539****
phemtyp4	*f201: Emtype = 4 Loc Gov Spon		0.1703***				-0.4856****	0.3434****		0.3740****
phemtyp5	*f201: Emtype = 5 Self Empl									
phfrmsz1	*CV: Firmsiz = 1 : One					0.6055****	0.3700*			
phfrmsz2	*CV: Firmsiz =2,3 : <10	-0.2133**	0.1886**	0.2795****				0.3716****	-0.3168***	0.5206****
phfrmsz3	*CV: Firmsiz =4,5 :10-49			0.1878***	-0.1588**			0.1730***	-0.1500**	0.2388***
phfrmsz4	*CV: Firmsiz =6 : 50-99									
phfrmsz5	*CV: Firmsiz =7 : 100-249			0.2470****		-0.2424***	-0.2862****	0.2962****		0.3140***
phfrmsz6	*CV: Firmsiz =8 : 250-499			0.3689****		-0.3459****		0.1898***		0.2639**
phfrmsz7	*CV: Firmsiz =9,10: 500+		-0.2265****		0.1256**				0.1439****	

Table E-5

LOGISTIC REGRESSION RESULTS TO PREDICT EACH PRODUCT ATTRIBUTE FROM THE HOUSEHOLD SURVEY POLICY DATA

Variable	Description	HMO	B6	B8	B10	B13	C4_1	C4_2	C4_4	NET
phgrad2	*a601:Higrad = 2 1-3 yrs			-1.2768**					1.1383*	
phgrad3	*a601:Higrad = 3 4-6 yrs				-0.6201**		-0.6422*			
phgrad4	*a601:Higrad = 4 7-12 yrs	-0.1413****			-0.2716****	0.1497****	0.1752****		-0.2557****	-0.1812****
phgrad5	*a601:Higrad = 5 13-17 yrs									
phgrad6	*a601:Higrad = 6 17 yrs +	-0.1955***	0.1512**			0.1849***				
Phsex	*a401: SEX:Policyholder's Gender 0:F,1:M	-0.1579****	0.1045***		-0.1209****	0.0788*	0.1818****		-0.0912**	-0.1006*
phrace2	*CV: Race = 2 Af. American	0.2298****		-0.2420****		-0.1963***	0.1806***	-0.2140****	0.1361**	
phrace3	*CV: Race = 3 Nat American								0.7282****	
phrace4	*CV: Race = 4 Asian/Pacf	0.3199**	-0.2929**	-0.4159****			-0.6072****			
phrace5	*CV: Race = 5 Others								0.2098*	
phrace6	*CV: Race = 6 Hispanic	0.5959****	-0.2337****			-0.2129**	-0.2101**	-0.2622****	0.1779***	0.3421***
phage2	*a301: Age = 2 < 30-39	-0.1335***				0.2127****				-0.1777***
phage3	*a301: Age = 3 < 40-49				0.1273***	0.1256***	-0.0905**		0.1333***	
phage4	*a301: Age = 4 < 50-59	0.2549****	-0.1679****	-0.1047**	0.2234****			-0.1175***	0.2144****	
phage5	*a301: Age = 5 < 60 & above			0.1494**						
Phempd	*f111:WRKPAY,f101:HAVEBUS: Empl Status					-0.2583****		-0.1178*		
pprein1	*b851: Preins = 0: No coverage		-0.1905**		0.1783*					
pprein2	*b851: Preins = 1: Private				0.3633****					
pprein3	*b851: Preins = 2: Medicaid	-0.8219***	0.6893***	0.7311***			1.3093****	-0.9194****		
pprein4	*b851: Preins = 3: State Plan							2.4506*		
pprein5	*b851: Preins = 4: Military Plan	-0.6923*	1.0021***	0.7159**						
mpprein1		-0.1742****				0.3016****		0.1289***	-0.2497****	
Prihmo	*b871: PREHMO: Prior Plan was HMO	-0.3174****			-0.3679****	0.3481****		0.1708**	-0.2078***	
pb33	*b33:PRVSIGi: Plan req. sign up w Doctor	0.4273****			0.9963****	-0.5602****	-0.4762****		0.8300****	0.9794****
pb34	*b34:PRVREFi: Plan required referral	0.7117****	-0.4741****	-0.4033****	0.9101****	-0.2342****	-0.0910*	-0.4720****	0.7911****	
pb35	*b35:PRVLSTi: Plan w List of Doctor		0.6226****	0.4476****	0.1556***	-0.7026****	-0.2709***		0.6651****	0.8552****
pb36	*b36:PRVHMOi: Plan is an HMO	1.0376****	-0.9265****	-0.6845****	0.8327****	-0.7840****	-0.1585***	-0.6381****	0.8358****	
pb37	*b37:PRVPAYi: Plan pays w/o referral	-0.7463****	0.7009****	0.4608****	-0.4807****	0.2962****	0.4594****	0.2687****	-0.4695****	-0.3537****
mpb37		-0.3489****		-0.4755****			0.8571****	-0.6554****	0.4698****	-0.6787****
sitemsa1	High Intensity Site=1	0.3246****		-0.1748****	1.0019****	0.4133****	0.1521***			
sitemsa2	Low Int Site 200+ =1	0.4884****	-0.1800****		1.0573****			-0.4976****	0.6657****	0.1752***
sitemsa4	Non Metro Site=1	-0.5396****	0.3846****	0.2623****		0.5343****	0.4251****		-0.3264****	-0.2500****
*=p<0.15										
**=p<0.10										
***=p<0.05										
****=p<0.01										

TABLE E.6

DISTRIBUTION OF THE NUMBER OF POTENTIAL LINKS
ASSOCIATED WITH EACH SOFT-LINKED POLICY

Number of Potential Links	Records (Number)	Cases (Number)
2	5,510	2,755
3	2,946	982
4	1,532	383
5	775	155
6	210	35
7	0	0
8	40	5
9	27	3
	11,040	4,318

predicted values were computed using the general formula given in equation (1)

$$(1) \quad \hat{A}_j = \frac{\exp\left(\sum_{i=1}^{k} b_i \times x_{ij}\right)}{1+\exp\left(\sum_{i=1}^{k} b_i \times x_{ij}\right)}$$

where b_i denotes the coefficient associated with a Household Survey policy-level variable, i as estimated from the logistic regression procedures, and $x_{i,j}$ denotes the value of that characteristic for policy j. The procedures in equation (1) produced a predicted value for each of the nine attributes that represented the estimated probability that the policy had the associated trait.

We then compared the predicted values of the nine attributes with the actual values among the linked products. For each possible link, we computed the absolute difference between

the predicted and actual value. This computation produced nine "gap" measures for each potential product link. Because the predicted value was the estimated probability of having the trait, the gap measures had the form of either (1) the absolute difference between a value of zero (not having the trait) and the predicted probability, or (2) the absolute difference between a value of one (having the trait) and the predicted probability. We then applied a similar logistic regression approach to a modified version of the hard-linked data to build a model that would convert the gap measures into an estimated probability of a match (see Section F).

To test the statistical matching procedures and to estimate the accuracy of the process, we created two simulated versions, or "mock" files, of the soft-linkages that were based only on the hard-linked data. The mock soft-link file analysis produced a logistic regression model that predicted the probability of a match on the basis of the nine absolute gap measures. We then used a similar computational approach, as outlined in equation (1), where $x_{i,j}$ denotes the gaps and b_i denotes coefficients associated with the gaps, to compute the probability of a match for each soft-linked product associated with a given policy. Finally, we selected as the link the product that had the highest estimated probability of a match. For 75 of the 4,318 soft-linked policies, the predicted probability of a match was the same for two or more of the choices with the highest probabilities of a match. For these cases, we selected one of the products at random.[6]

[6] Of the 75 cases, 65 had two choices with identical probabilities of a match, 8 had three choices, and 2 had four choices.

F. Validation of the Techniques

We prepared two files containing known linkages and artificial soft-linkages to best design the matching procedures and to estimate the accuracy in the final approach selected. We wanted one of the mock files to mimic the distribution of choice patterns on the file of potential soft links. In particular, we wanted this mock file to meet the following two objectives: (1) to have the same distribution of the number of choices for each policy, and (2) to have the same distribution of entity-reported product-type combinations. We also created a second file that simply represented the mix of known linkages and artificial soft-linkages before the file was adjusted to mimic the properties of the soft-linked file. We refer to the second mock file as the initial mock file because the final mock file was created from this file after a series of adjustment steps.

We developed a set of artificial soft-linkages based on the same process that generated the soft-linked choices. A choice of products is available for each soft-linked policy because entities offered multiple products in the sites. We therefore were able to generate a similar set of choices for each hard-linked policy by creating, for each hard-linked policy, a list of the products the entity offered at the site. We identified one or more additional product offerings for 10,058 of the 11,651 hard-linked policies, creating 36,694 potential links.

These 10,058 hard-linked policies contained a higher proportion of self-reported HMO and POS plans than did the full set of 11,651 hard-linked policies. Because they represented a slightly skewed set of the hard-linked cases, we selected a sample of the HMO and POS policies for removal from the list. This step created a final set of policies that had the same proportion of policies in each of the four product types as in the original set of 11,651. After the reduction, the mock file contained 8,941 hard-linked policies with 32,616 potential (and actual) links. This file became the initial mock file.

To meet the first criteria in preparing the final mock file, we compared the distribution of

the number of choices on the soft-linked cases with the distribution in the mock file containing 32,616 linkages. Initially, we simplified the process by eliminating 67 policies from the soft-linked file that had more than six choices. The initial mock file contained a substantially larger proportion of policies with three or more choices than did the soft-linked file. To correct this disparity, we used a combination two sampling procedures on the initial mock file: (1) deleting a random selection of policies and all the linkages associated with these policies, and (2) deleting one or more potential product links from each policy.[7] In general, we attempted to strike a balance between the two approaches by using a combination of both sampling methods. After this step, the revised mock file contained 6,068 policies with a total of 15,425 choices.

To achieve the second objective for the final mock file (to mimic the product type combination distribution), we conducted a weighting class adjustment on the mock file to correct for differences in the choice patterns between the revised mock file and the actual soft-linked file. To compute the weights, we tabulated the proportion of cases on the actual file with a given number of choices that had a particular set of choice combinations based on the self-reported product type, B2 (for example, one each of HMO, POS, and PPO). Similarly, we computed the corresponding proportions for the mock file. We used these two values to compute a weighting class adjustment equal to the ratio of the proportion in the soft file divided by the proportion in the mock file. For example, of the cases with two choices, the mock file showed that 21.3 percent of the policies had an HMO and a POS product. The soft file showed that the percentage was higher (29.3 percent). Hence, the mock file cases in this cell were given a weight equal to .293/.213 = 1.38.

[7] We could have deleted a sufficient number of choices from each policy to meet the distributional requirements, but we believed that deleting several choices from some policies would distort the pattern of choices.

For both the initial and final mock files, we developed three matching procedures on each to create a total of six matching techniques. In the first of the three matching procedures, referred to as a scoring method, we computed a matching score for each product choice on the basis of the weighted average of the absolute gaps. We designed the "gap" weights to represent the relative ability of each gap measure to identify the correct linkage. To measure this ability, we used a logistic regression analysis to model the actual match status as a function of the gap measure. From the analysis, we obtained the Wald chi-square test statistics for testing the influence of each gap measure on the prediction. We could then normalize the test statistics to generate a set of weights that summed to one, and that reflected the relative contribution of each gap measure in identifying a correct match. As the final step in this approach, we selected the policy with the smallest score value.

The second procedure was based on the same logistic regression model analysis but used the information obtained from the model slightly differently. In this approach, the unstandardized model coefficients were applied to the gaps, using equation (1) to provide an estimated probability of a match. We then selected the product with the highest estimated probability. For the third procedure, we used the standardized coefficients in place of the unstandardized values.

As indicated, we developed the three matching procedures using the data from each of the two mock files. We developed a weighted logistic regression model, using the weighting class adjusted weights to predict match status on the final mock file containing 6,068 policies. We also prepared a second unweighted model, using the initial mock file containing the 8,491 hard-linked policies. Given that the initial mock file represents a soft-linked version of the hard-linked cases, and the final mock file a simulation of the corresponding structure for the soft-linked cases, running both models gave us a sense of the differences in the model coefficients between the hard- and soft-linked policies. Table E.7 lists the model coefficients for each of the

two models.

To recap, we had six computational techniques based on three computational procedures (scoring method, probability of a match method using unstandardized coefficients, and probability of a match method using standardized model coefficients) that were developed from two different data files (initial and final mock files).

We applied each of the six computational techniques to the final mock file and selected the case with the smallest score or the largest probability as the link. We then determined the proportion of policies on the final mock file for which the method selected the correct link. Overall, the results were similar. However, among the cases in which the correct link was an FFS policy, the methods based on the initial hard-linked mock file model produced an average gain of about four percent in the percentage of cases correctly assigned. The predicted probability method using the unstandardized coefficients produced a slightly higher rate of correct linkages across product types. Consequently, for our final strategy, we used the unstandardized coefficients from the initial hard-linked data model to predict a probability of a match.

Table E.8 presents the accuracy rates for the selected statistical matching procedure as measured from the final mock file. Different estimates of accuracy rates are produced for three grouping of the records:

TABLE E.7

RESULTS OF THE LOGISTIC REGRESSION ANALYSIS TO PREDICT LINK STATUS USING HARD-LINKED AND SIMULATED SOFT-LINKED RECORDS

	Hard-Linked Records (Initial Mock File)			Simulated Soft Records (Final Mock File)		
Gap Measure	Estimated Coefficient	Wald Chi-Square	Normalized Statistic (Score Weight)	Estimated Coefficient	Wald Chi-Square	Normalized Statistic (Score Weight)
Intercept	1.5326	620.48		2.1626	640.67	
HMO Status	1.0844	223.47	0.1739	0.8091	72.77	0.1290
B6	2.2476	450.42	0.2469	2.2416	249.70	0.2390
B8	1.1188	86.47	0.1082	0.9866	35.34	0.0899
B10	1.9837	1,192.36	0.4017	1.6603	456.48	0.3231
B13	0.3831	30.52	0.0643	0.0536	32.59	0.0863
C4 (FFS)	0.4442	49.19	0.0816	0.3731	18.14	0.0644
C4 (Disc FFS)	0.8406	86.89	0.1084	0.8776	51.65	0.1087
C4 (Capitation)	0.2802	16.11	0.0467	0.2305	5.74	0.0362
Network Status	0.5086	45.00	0.0780	0.6806	46.53	0.1032

TABLE E.8

ESTIMATED ACCURACY RATES[a] IN THE STATISTICAL LINKING PROCEDURES

Average Number of Choices	Exact Match		Same Type	
	Link Rate	Percentage Greater than Random	Link Rate	Percentage Greater than Random
3.671	0.64	50	0.67	55

Plan Type Rates

Self-Reported Product Type	Average Number of Choices	Exact Match		Same Type	
		Link Rate	Percentage Greater than Random	Link Rate	Percentage Greater than Random
HMO	3.60	0.72	61	0.76	66
POS	3.64	0.52	34	0.55	38
PPO	3.89	0.67	55	0.71	62
FFS	3.38	0.42	18	0.44	21

Plan HMO + POS or PPO + FFS

Type Class	Average Number of Choices	Exact Match		Same Class	
		Link Rate	Percentage Greater than Random	Link Rate	Percentage Greater than Random
HMO or POS	3.60	0.68	55	0.83	77
PPO or FFS	3.74	0.59	44	0.78	70

[a]Among mock 6,068 policy records.

1. The entire file, which reflects the overall rates

2. The records limited to each of the four entity self-reported product type categories (as classified on the basis of the product category associated with the correct linkage among the choices), which reflects the accuracy rate within each product type

3. The records limited to two classes consisting of a self-reported product type as given by the correct match of either HMO and POS or PPO and FFS

The table shows as many as three types of accuracy rate estimates, depending on the group. The first rate indicates the percentage of cases in which the correct linking record was selected from among the choices (referred to as an exact match). The second indicates the percentage of cases in which the selected choice was of the same product type as the correct link. The third indicates the percentage of cases in which the choice selected was in the same product type class (HMO and POS combined and PPO and FFS combined) as the correct choice (computed for the overall sample and for the two classes). For each type of accuracy rate, we also computed the corresponding percentage improvement in the link rate relative to a random selection based on the average number of choices in each group.

The results in Table E.8 show that the statistical linking procedures obtained a 64 percent overall exact match rate and 67 percent match rate with a product of the same type. These rates reflect respective percentage improvements of 50, and 55 percent relative to a random selection methodology.[8] Within each product type, the HMO products had the highest exact match rate

[8] Given that each policy had an average of 3.7 products from which to choose, we would expect in a random selection process 1/3.7 = 27 percent to be linked correctly. To get a 50 percent improvement for the overall exact match, we take (.64 - .27)/(1-.27) = .50, or 50 percent. This rate reflects the percentage of the gap between what would be assigned (from an error-free assignment) to a random assignment that the methodology picks correctly.

(72 percent), and FFS products had the lowest rate (42 percent). Within the HMO-POS combined class, the linking procedures selected a choice of the same class 83 percent of the time.

III. WEIGHTING ADJUSTMENT FOR FOLLOWBACK SURVEY NONMATCHES

We have described the "hard linkages" between the CTS Followback Survey and the CTS Household Survey. In addition, we have described how we selected one linkage among the multiple "soft linkages" between the two surveys, using statistical matching. In this section, we discuss how we accounted for policies that we did not link between the two surveys. In part A, we describe the general weighting methodology used to account for these non-linkages. In part B, we discuss our methods of selecting one plan to be part of this weighting methodology in cases in which a person was covered by multiple plans. We then describe different aspects of the modeling process used to determine the weighting adjustment factor, including the selection of independent variables (part C) and the modeling results (part D). In part e, we describe the way the weighting adjustment was applied and, in part f, we summarize the weighting process.

A. General Methodology

Some policies that Household Survey respondents described did not have a corresponding record in the Followback Survey.[9] We decided to adjust for these non-linkages in the weights, rather than perform probabilistic matching with the Followback data, as was conducted for the soft matches. The weighting adjustment is based on the inverse of the modeled probability of a link.

B. Dealing with Persons Covered by Multiple Plans

Because we were going to adjust person-level weights for non-linked policies, we had to select one plan for persons who were covered by multiple plans. We developed the following

[9] These policies do not include those reported by Household Survey respondents who were outside the boundaries of the 60 sites. These households were not part of the Followback effort.

hierarchy to choose among multiple plans: (1) status as a policyholder took precedence over whether the policy was hard- or soft-linked to a product, (2) coverage by a policy that was a hard link took precedence over a policy that was a soft link and non-links, and (3) soft links took precedence over non-links. If policyholder status and link status were insufficient to narrow the choices to one policy, we chose the policy the respondent had mentioned first.

C. Selection of Independent Variables

For the modeling, we had to determine which variables in the Household Survey would be good predictors of a link. For this purpose, we considered matches to be Household Survey-reported policies that were either hard and soft matches. All other policies (within the boundaries of the 60 sites) were considered nonmatches. We examined Household Survey variables that we thought might be related to the likelihood of a match, using unweighted cross-tabulations of each variable with the dichotomous match variable. Any variables with substantially different match rates for different values were candidates for the model-building process that followed.

We then developed a model that we believed would best predict a match for national and site-specific estimates. The policy was the analytic unit for these models, which were based on various weights. The weight was based on the final family insurance unit (FIU)-level weight for estimates based on the augmented site sample, and then normalized so that the sum of the weights was equal to the unweighted sample size. For national estimates, we multiplied this site-specific weight by the inverse of the probability of selection of the site, and by an adjustment factor that accounted for whether the site was a high- or low-intensity site. The dependent variable for these logistic regression models was always the dichotomous match variable.

D. Summary of Modeling Results

After several attempts to achieve acceptable predictive models, we arrived at a single model for adjusting weights for national estimates (based on the augmented site sample). Information about this model can be found in Table E.10, including the independent variables, a brief description of each, their coefficients, and their levels of statistical significance.

For site-specific weights, we were unable to develop acceptable models to be used for computing the weight adjustments, even for the high-intensity sites, due to small sample sizes. We therefore developed models within 20 "health service area" groups (see Table E.9). These groups reflect clusters of sites that could be considered a single health market area. We used these groups because we expected that the likelihood of a match was related to the plans available in a service area, and because they gave us more observations for our models.

For each site group, we derived the model, using a stepwise technique, starting with the variables in the final national model. We also allowed for interaction terms between the *SITEi* variables and the other variables in the model to account more explicitly for site-specific differentials. For any policy missing a value for any FIU- or policy-level independent variable, we assigned the policy the mean value of the probability of a match for that site group. The results of the site group modeling are also shown in Table E.10.

E. Weighting Adjustments

We used the predicted probability of a link that each model produced to adjust the appropriate person-level weight from the Household Survey. The predicted probability of a match can be thought of as a response propensity score. These 21 adjustment factors (1 national and 20 site group) were merged onto the person-level file, by policy. If the person was covered by more than one policy, the person-level file already had an indicator for his or her selected policy.

TABLE E.9

IMPUTATION AND WEIGHTING METHODS

Health Service Area Group	Sites Included	
	Site Number	Site Name
1	1	Boston, MA Portion
	48	Worcester-Fitchburg, MA Portion
	57	Eastern Maine
2	2	Cleveland-Lorain-Elyria, OH PMSA
	18	Columbus, OH MSA
	23	Huntington-Ashland, WV-KY-OH MSA
3	3	Greenville-Spartanburg-Anderson, SC MSA
	21	Greensboro--Winston Salem--High Point, NC MSA
	51	Wilmington, NC MSA
	58	Eastern North Carolina
4	4	Indianapolis, IN MSA
	50	Terre Haute, IN MSA
	56	Northeast Indiana
5	5	Lansing-East Lansing, MI MSA
	20	Detroit, MI PMSA
6	6	Little Rock-North Little Rock, AR MSA
	42	Shreveport-Bossier City, LA MSA
	53	Central Arkansas
7	7	Miami, FL PMSA
	44	Tampa-St Petersburg-Clearwater, FL MSA
	47	West Palm Beach-Boca Raton, FL MSA
8	8	Newark, NJ PMSA
	28	Middlesex-Trenton, NJ PMSA
9	9	Orange County, CA PMSA
	27	Los Angeles-Long Beach, CA PMSA
	37	Riverside-San Bernardino, CA PMSA
10	10	Phoenix-Mesa, AZ MSA
	19	Denver-Boulder-Greeley, CO PMSA
	26	Las Vegas, NV-AZ MSA
	59	Northern Utah
11	11	Seattle-Bellevue-Everett, WA PMSA
	36	Portland-Salem, OR-WA PMSA
	60	Northwest Washington
12	12	Syracuse, NY MSA
	38	Rochester, NY MSA
13	16	Bridgeport-Danbury-Stamford, CT Portion
	32	Nassau-Suffolk, NY PMSA
	33	New York City, NY PMSA
14	13	Atlanta, GA MSA
	14	Augusta-Aiken, GA-SC MSA
	25	Knoxville, TN MSA
	49	Dothan, AL MSA
	52	West-Central Alabama
	54	Northern Georgia

TABLE E.9 (*continued*)

Health Service Area Group	Sites Included	
	Site Number	Site Name
15	17	Chicago-Kenosha-Kankakee, IL-WI PMSA
	43	St Louis, MO-IL MSA
	55	Northeast Illinois
16	22	Houston-Galveston-Brazoria, TX PMSA
	24	Killeen-Temple, TX MSA
	39	San Antonio, TX MSA
	45	Tulsa, OK MSA
17	15	Baltimore, MD PMSA
	46	Washington-Hagerstown, DC-MD-VA-WV PMSA
18	29	Milwaukee-Racine, WI PMSA
	30	Minneapolis-St Paul, MN-WI MSA
19	31	Modesto, CA MSA
	40	San Francisco, CA PMSA
	41	Santa Rosa, CA PMSA
20	34	Philadelphia, PA-NJ PMSA
	35	Pittsburgh, PA MSA

Table E.10
SUMMARY OF MODELING RESULTS

R-Square		0.1061	0.049	0.0432	0.0355	0.0147	0.0761	0.0234	0.066	0.0468	0.1386	0.074	0.0366	0.0307
Pearson (p -value)		5987.8 (0.0001)	45.3053 (0.5012)	18.8426 (0.9917)	10.9224 (0.9998)	0.8633 (0.9298)	27.2745 (0.0266)	4.6589 (0.9128)	54.9358 (0.0868)	43.0980 (0.2623)	177.7 (0.0001)	63.5389 (0.1756)	13.5088 (0.2614)	1.9098 (0.7523)
		NATIONAL					HEALTH SERVICE AREA GROUPS							
Variable	Description	(augmented sam	1	2	3	4	5	6	7	8	9	10	11	12
INTERCPT	Intercept	4.8924***	0.0135	0.29352	-0.3846	-0.3149	1.3324***	0.0365	0.2975	-0.9819	-0.1255	0.5233	0.4838	0.6611***
PLAN_NUM	Order in which policy was reported (1,2,3)	-0.4000***												
EMPSPON	Policy is employer sponsored (1=yes, 0=no)	-4.9495***		-0.5406	-0.1483	0.8569***	-1.3072***	1.1663***	-0.2898		-0.7818***	0.923	-0.6406**	
_EMPSPON	Responses to EMPSPON was missing (1=yes, 0=no)	-5.3905***												
PB33	Plan requires signing up with a PCP (1=yes, 0=no)	0.0968***												
PB34	PCP approval/referral for specialists required (1=yes, 0=no)	0.0948***												
PB35	A list of physicians is associated with plan (1=yes, 0=no)	0.3877***	0.7722***	0.2866	0.6750***	0.4280**		0.2715	0.6241***	0.5577***	0.7309***	-0.1959	0.7237***	0.8733***
PB36	Plan is an HMO (1=yes, 0=no)	0.2082***												
PRVMOR	Employer offers more than one plan (1=yes, 0=no)	0.4674***	0.1285	0.6128***	0.4345***		1.5851***		0.6266***	0.9639***	0.8588***	0.8071***	0.2484	0.9783***
_PRVMOR	Response to PRVMOR was missing (1=yes, 0=no)	-4.7427***												
INCCAT1	Respondent's annual income more/less than $12,000	-0.4041***	-0.7977***		-0.6393***		-0.7999***	-0.7983***	0.4013	0.5003	-0.4356**	-0.5460***		-1.2797***
LARGFIRM	Respondent's/Policyholder's employer had 50+ employee s	0.4164***	0.4236	0.677***	0.4781***	0.5898***				0.3116*				
PHASE1	Site included in the initial wave of followback data collectio n	0.0932***									-0.0965	0.5922***	0.4276***	
HSGRAD	Respondent was a high school graduate (1=yes, 0=no)	0.3956***												
SITE1	Indicator variable for site 1	0.3326***	0.00395	-0.199			0.5737		0.2881	0.8342	0.7360***			
SITE2	Indicator variable for site 2	0.3977***	0.4018*											
SITE3	Indicator variable for site 3	0.3792***		0.202										
SITE4	Indicator variable for site 4	0.3588***			0.2484									
SITE5	Indicator variable for site 5	0.7825***					-1.2375							
SITE6	Indicator variable for site 6	0.5224v												
SITE7	Indicator variable for site 7	0.2290*						-0.5589						
SITE8	Indicator variable for site 8	0.3472***							0.5218					
SITE9	Indicator variable for site 9									-0.2184				
SITE10	Indicator variable for site 10	0.1343									-0.8691*			
SITE11	Indicator variable for site 11	0.3560***										0.1376		
SITE12	Indicator variable for site 12	0.6590***												
SITE13	Indicator variable for site 13	-0.3393***												
SITE16	Indicator variable for site 16	-0.4062***												
SITE17	Indicator variable for site 17	-0.4956***												
SITE18	Indicator variable for site 18													
SITE19	Indicator variable for site 19	-0.3127***		-0.8761										
SITE20	Indicator variable for site 20	0.4847***										-0.6124*		
SITE21	Indicator variable for site 21	-0.3768***												
SITE22	Indicator variable for site 22	-0.4737***												
SITE25	Indicator variable for site 25	-0.4587***												
SITE26	Indicator variable for site 26	-0.5070***												
SITE27	Indicator variable for site 27													
SITE29	Indicator variable for site 29	-0.3018***												
SITE32	Indicator variable for site 32	0.1946												
SITE33	Indicator variable for site 33													
SITE34	Indicator variable for site 34	-0.4786***												
SITE35	Indicator variable for site 35													
SITE38	Indicator variable for site 38	0.7289***												
SITE40	Indicator variable for site 40	0.1948												
SITE41	Indicator variable for site 41	0.1874												
SITE42	Indicator variable for site 42	-0.6117***						-1.8957***						
SITE43	Indicator variable for site 43													
SITE44	Indicator variable for site 44	0.2511**												
SITE45	Indicator variable for site 45	-0.3755***												
SITE46	Indicator variab le for site 46	-0.1981**												
SITE47	Indicator variable for site 47								-2.5762***					
SITE50	Indicator variable for site 50	0.6701***												
SITE51	Indicator variable for site 51	-0.2658***												
SITE53	Indicator variable for site 53	0.4753***												
SITE54	Indicator variable for site 54	-0.7401***												
SITE55	Indicator variable for site 55	-0.2658***												
SITE58	Indicator variable for site 58	-0.3406***												
Interaction terms:														
EMPSO3	EMPSON*SITE3				0.5786									
EMPSO5	EMPSON*SITE5						1.7607							
EMPSO7	EMPSON*SITE7								0.8118**					
EMPSO17	EMPSON*SITE17													
EMPSO18	EMPSON*SITE18			0										
EMPSO19	EMPSON*SITE19											0		
EMPSO25	EMPSON*SITE25													
PB35_10	PB35*SITE10											1.4335***		

TABLE E.10 (*continued…*)

		NATIONAL					HEALTH SERVICE AREA GROUPS							
Variable	Description	(augmented sam	1	2	3	4	5	6	7	8	9	10	11	12
PB35_17	PB35*SITE17													
PB35_18	PB35*SITE18			0.9802***										
PB35_33	PB35*SITE33													
PB35_35	PB35*SITE35													
PB35_42	PB35*SITE42							1.1215**						
PB35_46	PB35*SITE46													
PB35_47	PB35*SITE47								1.1487***					
PRVMOR1	PRVMOR*SITE1		0.1995											
PRVMOR10	PRVMOR*SITE10											-0.7046**		
PRVMOR11	PRVMOR*SITE11												0.4112	
PRVMOR18	PRVMOR*SITE18			-0.6450**										
PRVMOR19	PRVMOR*SITE19											0.3851		
PRVMOR22	PRVMOR*SITE22													
PRVMOR25	PRVMOR*SITE25										-0.8731***			
PRVMOR27	PRVMOR*SITE27													
PRVMOR33	PRVMOR*SITE33													
PRVMOR35	PRVMOR*SITE35								-1.1155***					
PRVMOR43	PRVMOR*SITE43									-1.0207*				
INCCT7	INCCAT1*SITE7													
INCCT8	INCCAT1*SITE8										-0.7002***			
INCCT25	INCCAT1*SITE25													
INCCT27	INCCAT1*SITE27										0.4877***			
INCCT35	INCCAT1*SITE35											-0.5143		
LAGFR9	LARGEFIRM*SITE9													
LAGFR26	LARGEFIRM*SITE26													
LAGFR33	LARGEFIRM*SITE33													
LAGFR43	LARGEFIRM*SITE43													
LAGFR46	LARGEFIRM*SITE46													
LAGFR54	LARGEFIRM*SITE54													
HSGRAD2	HSGRAD*SITE2			0.6362										
HSGRAD8	HSGRAD*SITE8									-0.0794				
HSGRAD18	HSGRAD*SITE18			0.8434										
HSGRAD27	HSGRAD*SITE27										0.8312***			
HSGRAD32	HSGRAD*SITE32													
HSGRAD43	HSGRAD*SITE43								1.2852**					
HSGRAD47	HSGRAD*SITE47													
***p<01														
***p<05														
**p<10														
*p<15														
NOTE: The following parameters have been set to 0:														
HSA group 2 EMPSPO18= 1* SITE18														
HSA group 10 EMPSPO19= 1* SITE19														
HSA group 14 SITE25= 1* EMPSPO25														

TABLE E.10 (*continued…*)

R-Square		0.1679	0.0737	0.1294	0.071	0.2756	0.0644	0.0523	0.2056
Pearson (p -value)		50.6292 (0.0018)	57.3156 (0.1030)	32.7787 (0.2045)	98.3048 (0.0001)	60.0385 (0.0001)	29.2041 (0.0001)	2.83[-]-18(.)	63.8325 (0.0001)
Variable	Description	13	14	15	16	17	18	19	20
INTERCPT	Intercept	-0.8804***	-0.1091	-1.0725	-1.3437***	0.9713***	0.347	1.9959***	0.2623
PLAN_NUM	Order in which policy was reported (1,2,3)								
EMPSPON	Policy is employer sponsored (1=yes, 0=no)		0.0445	0.1273	0.6573*	-0.5730***	0.4563**	-1.6548***	-0.5929***
_EMPSPON	Responses to EMPSPON was missing (1=yes, 0=no)								
PB33	Plan requires signing up with a PCP (1=yes, 0=no)								
PB34	PCP approval/referral for specialists required (1=yes, 0=no)								
PB35	A list of phys icians is associated with plan (1=yes, 0=no)	0.5273***	0.3018***	0.6025***	0.4003***	0.5233***	0.3936***		0.4067***
PB36	Plan is an HMO (1=yes, 0=no)								
PRVMOR	Employer offers more than one plan (1=yes, 0=no)	0.6449***	0.4458***	0.4081***	0.8260***	1.3562***	0.6348***	1.1818***	-0.0562
_PRVMOR	Response to PRVMOR was missing (1=yes, 0=no)								
INCCAT1	Respondent's annual income more/less than $12,000		-0.5938***		-0.5188***				-0.5553***
LARGFIRM	Respondent's/Policyholder's employer had 50+ employees	0.5082***	0.3854***	0.2136**	0.2608**	-0.0121			0.6623***
PHASE1	Site included in the initial wave of followback data collection								
HSGRAD	Respondent was a high school graduate (1=yes, 0=no)	0.2841		0.7152***	0.5270***	-0.7022***	-0.7769**		
SITE1	Indicator variable for site 1								
SITE2	Indicator variable for site 2								
SITE3	Indicator variable for site 3								
SITE4	Indicator variable for site 4								
SITE5	Indicator variable for site 5								
SITE6	Indicator variable for site 6								
SITE7	Indicator variable for site 7								
SITE8	Indicator variable for site 8								
SITE9	Indicator variable for site 9								
SITE10	Indicator variable for site 10								
SITE11	Indicator variable for site 11								
SITE12	Indicator variable for site 12								
SITE13	Indicator variable for site 13								
SITE16	Indicator variable for site 16								
SITE17	Indicator variable for site 17			-0.1421					
SITE18	Indicator variable for site 18								
SITE19	Indicator variable for site 19								
SITE20	Indicator variable for site 20								
SITE21	Indicator variable for site 21								
SITE22	Indicator variable for site 22				0.00426				
SITE25	Indicator variable for site 25		0						
SITE26	Indicator variable for site 26								
SITE27	Indicator variable for site 27								
SITE29	Indicator variable for site 29								
SITE32	Indicator variable for site 32	-0.8038							
SITE33	Indicator variable for site 33	0.2407							
SITE34	Indicator variable for site 34								
SITE35	Indicator variable for site 35								0.0988
SITE38	Indicator variable for site 38								
SITE40	Indicator variable for site 40								
SITE41	Indicator variable for site 41								
SITE42	Indicator variable for site 42								
SITE43	Indicato r variable for site 43			0.0293					
SITE44	Indicator variable for site 44								
SITE45	Indicator variable for site 45								
SITE46	Indicator variable for site 46					0.1037			
SITE47	Indicator variable for site 47								
SITE50	Indicator variable for site 50								
SITE51	Indicator variable for site 51								
SITE53	Indicator variable for site 53								
SITE54	Indicator variable for site 54		-1.0077***						
SITE55	Indicator variable for site 55								
SITE58	Indicator variable for site 58								
Interaction terms:									
EMPSO3	EMPSON*SITE3								
EMPSO5	EMPSON*SITE5								
EMPSO7	EMPSON*SITE7								
EMPSO17	EMPSON*SITE17			0.3246					
EMPSO18	EMPSON*SITE18								
EMPSO19	EMPSON*SITE19		-0.7508***						
EMPSO25	EMPSON*SITE25								
PB35_10	PB35*SITE10								

TABLE E.10 (*continued…*)

Variable	Description	13	14	15	16	17	18	19	20
PB35_17	PB35*SITE17			-0.4668*					
PB35_18	PB35*SITE18								
PB35_33	PB35*SITE33	0.6215***							
PB35_35	PB35*SITE35								0.6127**
PB35_42	PB35*SITE42								
PB35_46	PB35*SITE46					-0.9841***			
PB35_47	PB35*SITE47								
PRVMOR1	PRVMOR*SITE1								
PRVMOR10	PRVMOR*SITE10								
PRVMOR11	PRVMOR*SITE11								
PRVMOR18	PRVMOR*SITE18								
PRVMOR19	PRVMOR*SITE19								
PRVMOR22	PRVMOR*SITE22				-0.3843				
PRVMOR25	PRVMOR*SITE25		1.3579***						
PRVMOR27	PRVMOR*SITE27								
PRVMOR33	PRVMOR*SITE33	0.2137							
PRVMOR35	PRVMOR*SITE35								0.3895
PRVMOR43	PRVMOR*SITE43			0.4432**					
INCCT7	INCCAT1*SITE7								
INCCT8	INCCAT1*SITE8								
INCCT25	INCCAT1*SITE25		1.1892*						
INCCT27	INCCAT1*SITE27								
INCCT35	INCCAT1*SITE35								-0.8344**
LAGFR9	LARGEFIRM*SITE9								
LAGFR26	LARGEFIRM*SITE26								
LAGFR33	LARGEFIRM*SITE33	-0.2781							
LAGFR43	LARGEFIRM*SITE43			0.5875***					
LAGFR46	LARGEFIRM*SITE46					0.6569***			
LAGFR54	LARGEFIRM*SITE54		0.6446**						
HSGRAD2	HSGRAD*SITE2								
HSGRAD8	HSGRAD*SITE8								
HSGRAD18	HSGRAD*SITE18								
HSGRAD27	HSGRAD*SITE27								
HSGRAD32	HSGRAD*SITE32	1.5262**							
HSGRAD43	HSGRAD*SITE43			-0.3856					
HSGRAD47	HSGRAD*SITE47								
***p<01									
***p<05									
**p<10									
*p<15									
NOTE: The following parameters have been set to 0:									
HSA group 2 EMPSPO18= 1* SITE18									
HSA group 10 EMPSPO19= 1* SITE19									
HSA group 14 SITE25= 1* EMPSPO25									

People who resided outside the boundaries of the 60 sites or who did not have private health insurance were out of scope for the Followback Survey. We assigned these individuals their final CTS Household Survey person-level weights as their "Followback weights" (WTPER1 for site-specific estimates based on the augmented sample, WTPER2 for national estimates based on the site sample, and a newly created WTPER5 for national estimates based on the augmented site sample).[9] We set the three Followback weights to zero if a person was part of the Followback process, but his or her policy was a nonmatch.

We set the Followback weights of people whose policies were hard or soft matches equal to their final CTS Household Survey person-level weights, multiplied by the inverse of the probability of a match from the models. That is:

FBWTPER1 = (1/P(site group)) × WTPER1, for site-specific estimates based on the augmented site sample

FBWTPER2 = (1/P(national)) × WTPER2, for national estimates based on the site sample

FBWTPER5 = (1/P(national)) × WTPER1 × WTSITE × HILOADJ,[10] for national estimates based on the augmented site sample

[9] The new type of estimate (national estimates based on the augmented site sample) is equal to WTPER1 × (1/probability of selection of site) × (adjustment factor for high- and low-intensity sites). This estimate required a new set of SUDAAN parameters (PSTRATAF, PPSUF, SECSTRAF, NFSUF, and P1F–P7F).

[10] WTSITE is a weight that adjusts for the probability of selection of the site itself. HILOADJ is an adjustment factor that accounts for the probability of the site being a high- or low-intensity site, and the different expected sample sizes under each scenario. These factors are necessary when building upon a site-specific weight (WTPER1) to make a national weight. (Weight WTPER2 already incorporates these two factors.)

We then poststratified and trimmed outliers for the person-level weights. We used poststratification adjustments for both national estimate Followback weights to achieve the same weighted proportions, using WTPER2 (the final CTS Household Survey person-level weight for national estimates based on the site sample). We made this set of adjustments only for those who were part of the Followback. To do so, we used an iterative raking procedure. We made the following six successive adjustments: (1) for telephone interruption status; (2) age group, by sex; (3) Hispanic, by sex; (4) black, by sex; (5) educational level; and (6) HMO status. We performed a second iteration of these adjustments and then made one final adjustment to the total count of persons. After trimming outlier weights (using the methodology that was used for the original Household Survey person-level weights), we performed another iteration of the six adjustments, so that all the distributions were within 0.1 percentage points of the original person-level weight prior to the Followback adjustment. The post-trimming post-stratification adjustment also included individuals who were not part of the Followback process.

We used post-stratification adjustments for the site-specific Followback weights to achieve the same within-site weighted proportions, using WTPER1 (the final CTS1 Household Survey person-level weight for site-specific estimates based on the augmented site sample). We made this set of adjustments only for those who were part of the Followback. We used an iterative raking procedure within sites and carried out the adjustments separately for high-intensity sites and low-intensity sites.

We made five adjustments for each high-intensity sites: (1) for telephone interruption status; (2) age group; (3) Hispanic, by black; (4) by sex; and (5) HMO status. We then performed a second iteration of the five adjustments for four sites that required this iteration and made a final adjustment to the total count of individuals within site. After trimming outlier weights, we performed another iteration of the five adjustments, so that all distributions were

within 0.1 percentage points of the original person-level weight prior to the Followback adjustment. (One site required a second post-trimming iteration.) The post-trimming post-stratification adjustment also included individuals who were not part of the Followback process.

We made two adjustments for each of the low-intensity sites: (1) for telephone interruption status, and (2) an adjustment that was a combination variable with six values (child, adult female, and adult male crossed with HMO status). We performed only one iteration, with one final adjustment to the total count of individuals within site. After trimming the outlier weights, we performed another iteration of the two adjustments that included individuals who were not part of the Followback process.

F. Summary of Weighting

The Followback–adjusted person-level weight to be used for national estimates based on the augmented site sample is named FBWTPER5. We set this weight to zero for individuals outside the boundaries of the 60 sites (n = 3,648) and for those with nonmatches (n = 9,725). For those within the boundaries of the sites and without private insurance (that is, individuals who were not part of the Followback process), we initially set the Followback weight to what would have been the original person-level weight for this type of estimate (n = 18,488). We adjusted the weights for the 28,585 cases with Followback matches, to account for nonmatches. For individuals with positive values for FBWTPER5 (n = 47,073), the design effect due to unequal weighting was 1.81. For those with Followback matches (n = 28,585), the design effect due to unequal weighting was 1.94.

The Followback–adjusted person-level weight to be used for national estimates based on the site sample is named FBWTPER2. It is set to zero for individuals who were not in the site sample (n = 6,075) and for those with nonmatches (n = 9,179). For individuals in the site sample and without private insurance, we initially set the Followback weight to the original person-level

weight for this type of estimate, WTPER2 (n = 17,738). We adjusted the weights for the 27,454 cases with Followback matches, to account for nonmatches. For individuals with positive values for FBWTPER2 (n = 45,192), the design effect due to unequal weighting was 1.71. For those with Followback matches (n = 27,454), the design effect due to unequal weighting was 1.77.

The Followback–adjusted person-level weight to be used for site-specific estimates based on the augmented site sample is named FBWTPER1. It is set to missing for those outside the boundaries of the 60 sites (n = 3,648) and is set to zero for those with nonmatches (n = 9,725). We initially set the weight for those within the boundaries of the 60 sites and with no private insurance to the original person-level weight for this type of estimate, WTPER1 (n = 18,488). For the 28,585 cases with Followback matches, the weights were adjusted to account for nonmatches. Table E.11 shows the design effect for each site due to unequal weighting.

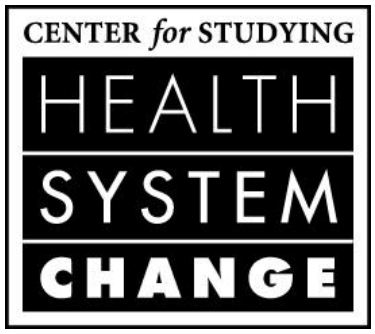
TABLE E.11

DESIGN EFFECT DUE TO UNEQUAL WEIGHTING FOR FOLLOWBACK SITE-SPECIFIC WEIGHT (FBWTPER1)
(Among persons for whom FBWTPER1 is greater than zero.)

Site Number	Frequency	Coefficient of Variation	Design Effect Due to Unequal Weighting
1	1,825	45.3	1.205
2	1,943	43.2	1.186
3	2,088	48.8	1.238
4	2,134	45.2	1.204
5	2,083	51.6	1.266
6	2,346	46.3	1.214
7	1,817	53.4	1.285
8	1,992	51.1	1.261
9	1,780	51.5	1.266
10	1,975	49.8	1.248
11	1,791	47.8	1.228
12	2,127	44.9	1.201
13	478	54.7	1.299
14	466	66.1	1.437
15	452	54.9	1.301
16	403	59.3	1.351
17	493	57.6	1.332
18	469	63.5	1.403
19	481	55.2	1.305
20	571	48.6	1.236
21	385	60.1	1.361
22	473	63.4	1.402
23	435	50.8	1.258
24	487	72.6	1.527
25	437	63.7	1.405

Site Number	Frequency	Coefficient of Variation	Design Effect Due to Unequal Weighting
26	374	64.8	1.419
27	562	63.8	1.407
28	487	59.5	1.354
29	420	61.9	1.383
30	553	54.7	1.299
31	502	58.7	1.344
32	570	53.7	1.288
33	521	50.6	1.256
34	484	60.3	1.363
35	489	54.3	1.295
36	481	57.7	1.333
37	520	64.3	1.413
38	624	46.0	1.211
39	478	53.1	1.282
40	405	49.3	1.243
41	466	59.3	1.351
42	428	67.9	1.461
43	500	48.3	1.233
44	464	53.9	1.291
45	452	62.6	1.392
46	523	55.6	1.310
47	370	59.2	1.350
48	485	55.8	1.312
49	451	52.9	1.280
50	488	46.3	1.216
51	425	48.9	1.239
52	485	66.1	1.437
53	681	58.1	1.337
54	369	65.9	1.435

Site Number	Frequency	Coefficient of Variation	Design Effect Due to Unequal Weighting
55	423	60.7	1.368
56	462	56.0	1.314
57	529	50.8	1.259
58	456	54.1	1.292
59	683	68.5	1.470
60	532	45.3	1.205



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