CALIFORNIA HEALTH INTERVIEW SURVEY

CHIS 2003 METHODOLOGY SERIES

REPORT 2

DATA COLLECTION METHODS

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www.chis.ucla.edu

This report describes how data were collected for CHIS 2003. It was a telephone survey using a random digit dialing (RDD) sample, as well as list samples from different sources to augment the yield for certain racial and ethnic groups. All data were collected using a computer-assisted telephone interviewing (CATI) system. Activities included under "data collection" for purposes of this report include Westat involvement in developing and programming the survey instruments, recruiting and training interviewers to administer the survey in five languages, planning and implementing a strategy for release of the sample in the CATI automated scheduler, contacting respondents and conducting interviews, and implementing quality assurance procedures.

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The California Health Interview Survey is a collaborative project of the UCLA Center for Health Policy Research, the California Department of Health Services, and the Public Health Institute. Funding for CHIS 2003 came from multiple sources: the California Department of Health Services, the California Endowment, the National Cancer Institute, the Robert Wood Johnson Foundation, the California Office of the Patient Advocate, the U.S. Centers for Disease Control and Prevention, Kaiser Permanente, the Alameda County Health Care Agency, and L.A. Care Health Plan.

PREFACE

Data Collection Methods is the second in a series of methodological reports describing the 2003 California Health Interview Survey (CHIS 2003). The other reports are listed below. A similar set of reports is available for CHIS 2001.

CHIS is a collaborative project of the University of California, Los Angeles (UCLA) Center for Health Policy Research, the California Department of Health Services, and the Public Health Institute. Westat was responsible for the data collection and the preparation of five methodological reports from the 2001 survey. The survey examines public health and health care access issues in California. The CHIS telephone survey is the largest state health survey ever undertaken in the United States. The plan is to monitor the health of Californians and examine changes over time by conducting periodic surveys in the future.

Methodological Reports

The first five methodological reports for CHIS 2003 are as follows:

- Report 1: Sample Design;
- Report 2: Data Collection Methods;
- Report 3: Data Processing Procedures;
- Report 4: Response Rates; and
- Report 5: Weighting and Variance Estimation.

The reports are interrelated and contain many references to each other. For ease of presentation, the references are simply labeled by the report numbers given above.

This report describes how data were collected for CHIS 2003. It was a telephone survey using a random digit dialing (RDD) sample, as well as list samples from different sources to augment the

yield for certain racial and ethnic groups, and a computer-assisted telephone interviewing (CATI) system. The purposes of this report are:

- To serve as a reference for researchers using CHIS 2003 data;
- To document data collection procedures so that future iterations of CHIS, or other similar surveys, can replicate those procedures if desired;
- To describe lessons learned from the data collection experience and make recommendations for improving future surveys; and
- To evaluate the level of effort required for the various kinds of data collection undertaken.

Activities included under "data collection" for purposes of this report include Westat's involvement in developing and programming the survey instruments, recruiting and training interviewers to administer the survey in five languages, planning and implementing a strategy for release of the sample in the CATI automated scheduler, contacting respondents and conducting interviews, and implementing quality assurance procedures. Special analyses using administrative data from the CATI system inform the purposes above at the RDD stratum and individual supplemental sample levels.

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1. CHIS 2003 DESIGN AND METHODOLOGY SUMMARY

1.1 Overview

The California Health Interview Survey (CHIS) is a population-based random-digit dial telephone survey of California's population that is conducted every two years. First conducted in 2001, CHIS is the largest health survey ever conducted in any state and one of the largest health surveys in the nation. CHIS is a collaborative project of the UCLA Center for Health Policy Research, the California Department of Health Services, and the Public Health Institute. CHIS collects extensive information for all age groups on health status, health conditions, health-related behaviors, health insurance coverage, access to health care services, and other health and development issues.

The CHIS sample is designed to provide population-based estimates for most California counties, all major ethnic groups, and several ethnic subgroups. The sample is designed to meet and optimize two goals: provide estimates for large- and medium-sized population counties in the state, and for groups of the smallest population counties; and provide statewide estimates for California's overall population, its major race/ethnic groups, as well as for several Asian ethnic groups. The resulting CHIS sample is representative of California's non-institutionalized population living in households.

This series of reports describes the methods used in collecting data for the 2003 California Health Interview Survey (CHIS 2003). CHIS 2001 is described in a series of methodology reports.[1] These reports describe the second CHIS data collection cycle, which was conducted between August 2003 and February 2004.

CHIS data and results are used extensively by many State agencies, local public health agencies and organizations, federal agencies, advocacy and community organizations and agencies, foundations, and researchers. They use these data in their own analyses and publications to assess public health and health care needs, to develop health policies, and to develop and advocate policies to meet those needs.

[1] California Health Interview Survey, CHIS 2001 Methodology Series: Report 1 - Sample Design, Report 2 – Data Collection Methods, Report 3 – Data Processing Procedures, Report 4 – Response Rates, and Report 5 – Weighting and Variance Estimation, Los Angeles, CA: UCLA Center for Health Policy Research, 2002.

1.2 Sample Design Objectives

The CHIS sample is designed to meet two objectives: (1) provide estimates for counties and groupings of counties with populations of 100,000 or more; and (2) provide estimates for California's overall population and its larger race/ethnic groups, as well as for several smaller ethnic groups. To achieve these objectives, CHIS relied on a multi-stage sample design. First, the state was divided into 41 geographic sampling strata, including 33 single-county strata and 8 groups that included the 25 other counties. Second, within each geographic stratum, households were selected through random-digit dial (RDD), and within each household, an adult (age 18 and over) respondent was randomly selected. In addition, in those households with adolescents (ages 12-17) and/or children (under age 12), one adolescent was randomly selected for interview and one child was randomly selected and the most knowledgeable parent of the child interviewed.

Table 1-1 shows the 41 sampling strata (i.e., counties and groups of counties that were identified in the sample design as domains for which separate estimates would be produced). A sufficient amount of sample was allocated to each of these domains to support the first sample design objective. These strata were also used for the CHIS 2001 sample; because of funding limitations, the sample sizes allocated to most strata for CHIS 2003 were smaller than in 2001.

Table 1-1. California county and county group strata used in the CHIS 2003 sample design

1. Los Angeles	15. San Joaquin	29. El Dorado
2. San Diego	16. Sonoma	30. Imperial
3. Orange	17. Stanislaus	31. Napa
4. Santa Clara	18. Santa Barbara	32. Kings
5. San Bernardino	19. Solano	33. Madera
6. Riverside	20. Tulare	34. Monterey, San Benito
7. Alameda	21. Santa Cruz	35. Del Norte, Humboldt
8. Sacramento	22. Marin	36. Lassen, Modoc, Siskiyou, Trinity
9. Contra Costa	23. San Luis Obispo	37. Lake, Mendocino
10. Fresno	24. Placer	38. Colusa, Glen, Tehama
11. San Francisco	25. Merced	39. Sutter, Yuba
12. Ventura	26. Butte	40. Plumas, Nevada, Sierra
13. San Mateo	27. Shasta	41. Alpine, Amador, Calaveras, Inyo,
14. Kern	28. Yolo	Mariposa, Mono, Tuolumne

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey.

The samples in Los Angeles and Alameda Counties were enhanced with additional funding to allow sub-county geographic estimates, in Los Angeles at the Service Planning Area (SPA) level and in Alameda for the cities of Oakland and Hayward as well as the remainder of the county. These samples were implemented with and incorporated into the original statewide RDD sample.

To accomplish the second objective, larger sample sizes were allocated to the more urban counties where a significant portion of the state's Latino, African American and Asian ethnic populations reside. To increase the precision of the estimates for Koreans and Vietnamese, areas with relatively high concentrations of these groups were sampled at higher rates; these geographic samples were supplemented by phone numbers for group-specific surnames drawn from listed telephone directories to increase the sample size and precision of the estimates for these two groups.

1.3 Data Collection

To capture the rich diversity of the California population, interviews were conducted in five languages: English, Spanish, Chinese (Mandarin and Cantonese dialects), Vietnamese, and Korean. These languages were chosen based on research that identified the languages that would cover the largest number of Californians in the CHIS sample that either did not speak English or did not speak English well enough to otherwise participate.

Westat, a private firm that specializes in statistical research and large-scale sample surveys, conducted the CHIS 2003 data collection. Westat staff interviewed one randomly selected adult in each sampled household. In those households with children (under age 12) or adolescents (ages 12-17) associated with the sampled adult[2], one child and one adolescent were randomly sampled, so up to three interviews could have been completed in each sampled household. The sampled adult was interviewed, and the parent or guardian most knowledgeable about the health and care of the sampled child was interviewed. The sampled adolescent responded for him or herself, but only after a parent or guardian gave permission for the interview. Table 1-2 shows the number of completed adult, child, and adolescent interviews in CHIS 2003, by the type of sample (RDD or supplemental sample).

[2] Only children for whom the sampled adult was parent or legal guardian were sampled. The CHIS 2003 sample weights account for this sampling procedure.

Table 1-2. Number of completed CHIS 2003 interviews by type of sample, instrument

Type of sample	Adult	Child	Adolescent
Total RDD + supplemental cases	42,044	8,526	4,010
RDD	41,818	8,480	3,996
Supplemental samples:			
Korean	112	24	6
Vietnamese	114	22	8

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey.

Interviews done in all languages were administered using Westat's computer-assisted telephone interviewing (CATI) system. The average adult interview took 33 minutes to complete. The average child and adolescent interviews took 14 minutes and 21 minutes, respectively. Interviews in the non-English languages generally took longer to complete. Approximately 11 percent of the adult interviews were completed in a language other than English, as were 21 percent of all child (parent proxy) interviews and 7 percent of all adolescent interviews.

Table 1-3 shows the major topic areas for each of the three survey instruments (adult, child, and adolescent).

1.4 Response Rate

The overall response rate for CHIS 2003 is a composite of the screener completion rate (i.e., success in introducing the survey to a household and randomly selecting an adult to be interviewed), and the extended interview completion rate (i.e., success in getting the selected person to complete the full interview). To maximize the response rate, especially at the screener stage, an advance letter (in five languages) was mailed to all sampled telephone numbers for which an address could be obtained from reverse directory services. An advance letter was mailed for approximately 72 percent of the sampled telephone numbers. In 2003, the screener completion rate was 55.9 percent[3], and the rate was higher for those households that could be sent the advance letter. The extended interview completion rate was 60.0 percent for the adult survey. Multiplying the screener and extended rates gives an overall response rate of 33.5 percent. Response rates vary by sampling stratum.

[3] In CHIS 2003, households that refused at the screener level were subsampled and only the subsampled households were called again in an attempt to convert them to respondents. The response rates are weighted to account for this subsampling.

Table 1-3. CHIS 2003 Survey topic areas by instrument

HEALTH STATUS	**ADULT**	**TEEN**	**CHILD**
General health status, height and weight	✓	✓	✓
Emotional health		✓	
Days missed from school due to health problems		✓	✓
HEALTH CONDITIONS	**ADULT**	**TEEN**	**CHILD**
Asthma	✓	✓	✓
Heart disease, high blood pressure, epilepsy	✓		
Diabetes	✓	✓	
Physical disability/need for special equipment	✓	✓	✓
Elder health (stroke, falls, incontinence)	✓		
Parental concerns with child development, attention deficit disorder (ADD)			✓
HEALTH BEHAVIORS	**ADULT**	**TEEN**	**CHILD**
Dietary intake		✓	✓
Physical activity and exercise		✓	✓
Walking for transportation and leisure	✓		
File and pneumonia immunization	✓		
Alcohol and tobacco use	✓	✓	
Drug use		✓	
Sexual behavior, STD testing, birth control practices	✓	✓	
WOMEN'S HEALTH	**ADULT**	**TEEN**	**CHILD**
Pap test screening, mammography screening, self-breast exam	✓		
Emergency contraception, pregnancy status	✓	✓	
Menopause, hormone replacement therapy (HRT)	✓		
CANCER HISTORY AND PREVENTION	**ADULT**	**TEEN**	**CHILD**
Cancer history of respondent	✓		
Colon cancer screening, prostrate cancer (PSA) test	✓		
DENTAL HEALTH	**ADULT**	**TEEN**	**CHILD**
Last dental visit, could not afford care, missed school/work days	✓	✓	✓
Dental insurance coverage	✓	✓	✓
INJURY/VIOLENCE	**ADULT**	**TEEN**	**CHILD**
Serious injuries (frequency, cause)		✓	✓
Injury prevention behaviors (bike helmets, seatbelts)		✓	✓
Infant-toddler home safety			✓
Interpersonal violence		✓	

Table 1-3. (Continued)

ACCESS TO AND USE OF HEALTH CARE	**ADULT**	**TEEN**	**CHILD**
Usual source of care, visits to medical doctor	✓	✓	✓
Emergency room visits	✓	✓	✓
Delays in getting care (prescriptions, tests, treatment)	✓	✓	✓
Health care discrimination due to race or ethnic group	✓		
Communication problems with doctor	✓	✓	✓
Ability and parental knowledge of teen contacting a doctor		✓	
Child immunization reminders			✓
HEALTH INSURANCE	**ADULT**	**TEEN**	**CHILD**
Current insurance coverage, spouse's coverage, who pays for it	✓	✓	✓
Health plan enrollment, characteristics and assessment of plan	✓	✓	✓
Whether employer offers coverage, respondent/spouse eligibility	✓		
Coverage over past 12 months	✓	✓	✓
Reasons for lack of insurance	✓	✓	✓
EMPLOYMENT	**ADULT**	**TEEN**	**CHILD**
Employment status, spouse's employment status	✓		
Work in last week, industry and occupation	✓		
Hours worked at all jobs	✓	✓	
INCOME	**ADULT**	**TEEN**	**CHILD**
Respondent and spouse's earnings last month before taxes	✓		
Household income (annual before taxes)	✓		
Number of persons supported by household income	✓		
Assets	✓		
PUBLIC PROGRAM ELIGIBILITY	**ADULT**	**TEEN**	**CHILD**
Household poverty level (100%, 130%, 200%, 300% FPL)	✓		
Program participation (TANF, CalWorks, Public Housing, Food Stamps, SSI, SSDI, WIC)	✓	✓	✓
Assets, alimony/child support/social security/pension	✓		
Reason for Medi-Cal non-participation among potential eligibles	✓	✓	✓
FOOD INSECURITY/HUNGER	**ADULT**	**TEEN**	**CHILD**
Availability of food in household over past 12 months	✓		
PARENTAL INVOLVEMENT	**ADULT**	**TEEN**	**CHILD**
Parental presence after school, parental knowledge of whereabouts and activities		✓	
Child's activities with family			✓
NEIGHBORHOOD AND HOUSING	**ADULT**	**TEEN**	**CHILD**
Neighborhood cohesion	✓		
Neighborhood safety	✓	✓	
Neighborhood characteristics for children			✓
Length of time at current address/neighborhood, type of housing	✓		
Home ownership, number of rooms, amount of mortgage/rent	✓		

Table 1-3. (Continued)

CHILD CARE	ADULT	TEEN	CHILD
Current child care arrangements			✓
Child care over past 12 months			✓
Reason for lack of childcare			✓
RESPONDENT CHARACTERISTICS	**ADULT**	**TEEN**	**CHILD**
Age, gender, height, weight, education	✓	✓	✓
Race and ethnicity	✓	✓	✓
Marital status	✓		
Sexual orientation	✓		
Citizenship, immigration status, country of birth, English language proficiency	✓	✓	✓

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey.

The CHIS response rate is comparable to response rates of other scientific telephone surveys in California, such as the California Behavioral Risk Factor Surveillance System (BRFSS) survey. California as a whole, and the state's urban areas in particular, are among the most difficult parts of the nation in which to conduct telephone interviews. Survey response rates tend to be lower in California than nationally, and over the past decade response rates have been declining both nationally and in California.

One way to judge the representativeness of a population survey is to "benchmark" its results against those of other reliable data sources. The CHIS 2001 sample yielded unweighted and weighted population distributions and rates that are comparable to those obtained from other sources. The demographic characteristics of the CHIS 2001 sample (such as race, ethnicity, and income) are very similar to those obtained from 2000 Census data. CHIS 2001 respondents also have health characteristics and behaviors that also are very similar to those found in other reliable surveys, such as the California BRFSS. An extensive benchmarking project is being undertaken for the 2003 California Health Interview Survey.

Adults who had completed at least 80 percent of the questionnaire (i.e., through Section I on health insurance) after all followup attempts were exhausted to complete the full questionnaire were counted as "complete." At least some items in the employment and income series or public program eligibility and food insecurity series are missing from these cases.

Proxy interviews were allowed for frail and ill persons over the age of 65 to avoid biases for health estimates for elderly persons that might otherwise result. Eligible selected persons were

recontacted and offered a proxy option. For 171 elderly adults, a proxy interview was completed by either a spouse/partner or adult child. Only a subset of questions identified as appropriate for a proxy respondent were administered. (Note: The questions not administered are identified in their response set as being skipped (denoted by a value of "-2") because a proxy is responding for the selected person.)

1.5 Weighting the Sample

To produce population estimates for the RDD CHIS results, weights are applied to the sample data to compensate for a variety of factors, some directly resulting from the design and administration of the survey. The sample is weighted to represent the non-institutionalized population for each sampling stratum and statewide. Sample weighting was carried out in CHIS 2003 to accomplish the following objectives:

- Compensate for differential probabilities of selection for households and persons (Note: telephone numbers for which addresses could be found and advance letters mailed were assigned a higher probability of selection than those without addresses);
- Reduce biases occurring because nonrespondents may have different characteristics than respondents;
- Adjust, to the extent possible, for undercoverage in the sampling frames and in the conduct of the survey; and
- Reduce the variance of the estimates by using auxiliary information.

As part of the weighting process, a household weight was created for all households that completed the screener interview. This household weight is the product of the "base weight" or the inverse of the probability of selection of the telephone number and adjustment factors computed for the following weight adjustments:

- Subsampling for numbers with addresses;
- Multiple chances of being selected in the RDD and supplemental samples;
- Unknown residential status;
- Subsampling screener refusals for conversion attempt;
- Screener interview nonresponse;

- Multiple telephone numbers; and
- Household poststratification.

The resulting poststratified household weight was used to compute a person-level weight. This person-level weight includes weight adjustments for the within-household sampling of persons and nonresponse. The final step is to adjust the person-level weight using a raking method so that the CHIS estimates are consistent with population control totals. Raking is an iterative procedure that forces the CHIS weights to sum to known totals from auxiliary data sources. The procedure requires iteration to make sure all the control totals or dimensions of raking are simultaneously satisfied (within a specified tolerance).

The control totals or raking dimensions used in CHIS 2003 were created primarily from the 2003 California Department of Finance estimates of the numbers of persons by age, race, and sex, and from the 2000 Census of Population counts from the U.S. Census Bureau. The 14 dimensions are combinations of demographic variables (age, sex, race, and ethnicity), geographic variables (county, city, and, in Los Angeles County, Service Planning Area), household composition (presence of children and adolescents in the household), and socio-economic variables (home ownership and education). The socio-economic variables are included to reduce biases associated with excluding households without a telephone number from the survey. One of the limitations of using the Department of Finance data is that it includes about 2.4 percent of the population of California who live in "group quarters" (i.e., persons living with 9 or more unrelated persons). These persons were excluded from the CHIS sample and, as a result, the number of persons living in group quarters had to be estimated and removed from the control totals prior to raking.

1.6 Imputation Methods

To enhance the utility of the CHIS 2003 data files, missing values were replaced through imputation for nearly every variable. This was a massive task designed to eliminate missing values in all source variables. Westat imputed values for variables used in the weighting process, and the UCLA staff imputed values where missing due to item nonresponse for nearly all other variables.

Two different imputation procedures were used by Westat prior to delivering the data to UCLA to fill in missing responses for items in CHIS 2003 that were essential for weighting the data. The

first imputation technique is a completely random selection from the observed distribution of the respondents. This method is used only for a few items when the percentage of the items that are missing is very small. For example, when imputing the missing values for self-reported age which had a very low item non-response rate, the distributions of the responses for age by type of interview (adult, child, or adolescent) were used to randomly assign an age using probabilities associated with these distributions.

The second technique is hot deck imputation without replacement. The hot deck approach is probably the most commonly used method for assigning values for missing responses in large-scale household surveys. With a hot deck, a value reported by a respondent for a particular item is assigned or donated to a "similar" person who did not respond to that item. The characteristics defining "similar" vary for different variables. To carry out hot deck imputation, the respondents to an item form a pool of donors, while the nonrespondents are a group of recipients. A recipient is matched to the subset pool of donors based on household and individual characteristics. A value for the recipient is then randomly imputed from one of the donors in the pool. Once a donor is used, it is removed from the pool of donors for that variable. Hot deck imputation was used to impute race, ethnicity, home ownership, and education in CHIS 2003.

The UCLA staff imputed missing values through a hierarchical sequential hot deck method with donor replacement. This method rank-orders the control variables from the most essential to the least essential, allowing the control variables to be dropped if the imputation conditions (such as minimal number of donors or no missingness in control variables) are not met in the imputation process. The control variables are dropped one at a time sequentially, starting from the least essential. CHIS incorporated an automated data quality control check both before and after the imputation process.

Imputation flags for CHIS source variables are included in separate data files to identify all imputed values.

1.7 Methodology Report Series

A series of five methodology reports are available with more detail about the methods used in CHIS 2003:

- Report 1 – Sample Design;
- Report 2 – Data Collection Methods;
- Report 3 – Data Processing Procedures;
- Report 4 – Response Rates; and
- Report 5 – Weighting and Variance Estimation.

For further information on CHIS data and the methods used in the survey, visit the California Health Interview Survey Web site at www.CHIS.ucla.edu or contact CHIS at CHIS@ucla.edu.

2. SCREENING INTERVIEW AND CATI INSTRUMENT STRUCTURE

The 2003 CHIS could include, for a given household, up to three substantive questionnaire sections: the adult, child, and adolescent extended questionnaires. Besides the substantive survey content, there was also a need for the CATI instruments to perform sampling and administrative functions, including identifying eligible individuals and selecting sample members from among them, identifying appropriate respondents for the various questionnaires, and sequencing the activities within a household. All of these functions were programmed into the CATI instrument; they are described in this chapter.

2.1 Basic Initial Screening Interview

The CHIS 2003 sample was composed of telephone numbers selected as described in Report 1: Sample Design. On first contact with a sampled telephone number, interviewers needed to:

- Identify a household member 18 years of age or older to act as informant;
- Determine whether the telephone number was associated with a residence; and
- Ask how many persons 18 or older lived in the household and select one for the extended interview.

These basic elements were scripted into the initial screening interview for each sample (RDD and list). Unlike CHIS 2001, the initial screener usually did not include an enumeration of adults in the household. Rather, the sample selection algorithm was based on the number of adults reported as follows:

- If one adult, that adult was selected;
- If two adults, either the screener respondent or the other adult was randomly selected, with probability equal to 0.5; or
- If three or more adults, the screener respondent was randomly selected with probability equal to one over the number of adults, or else the other adult with the most recent birthday was selected.

If the screener respondent did not know the birthdays of other adults, the interviewer then enumerated the other adults, and one was randomly selected. As in CHIS 2001, the screening interview did not include an enumeration of adolescents and children. This enumeration became part of the adult extended interview.

The following other elements were also included in the initial screener to assist in developing survey weights:

- The number of children under 12 years of age living in the household;
- The number of adolescents between 12 and 17 years of age living in the household; and
- The number and use (home, business) of telephone numbers ringing into the household.

2.2 Initial Screening Interview for Supplemental Samples

As described in Report 1, CHIS 2003 included two ethnic supplemental list samples, one of Koreans and one of Vietnamese. For telephone numbers selected in these samples, the initial screening interview included an additional question to determine whether a household included one or more individuals of the target ethnic group:

> **Do any of these adults who live in your household consider themselves to be (ETHNICITY) or of (ETHNICITY) descent?**

Also, part of the RDD sample in Alameda County was designated to enhance the achieved sample of African Americans. Korean and Vietnamese respondents were also accepted from this portion of the RDD sample. The screening question for this portion of the sample was:

> **Do any of these adults in your household consider themselves to be African American or Black, or of Vietnamese or Korean descent?**

If the answer to the ethnic screening question was "yes," then the interviewer asked whether each adult was of the target ethnic background(s). Only adults of the appropriate ethnic background(s) were eligible to be selected for the extended interview. In Section A of the extended interview, sampled adults were asked about their racial and ethnic background. Those responding that they were something other than a target category were also considered ineligible and the interview was terminated.

2.3 Overall Structure of CHIS 2003 Questionnaire

Given the number of different instruments and the rules for who could respond to each, one household could potentially have several individuals acting as respondents, including:

- The screener respondent;
- A sampled adult;
- An adult who could give permission for the adolescent interview, who except in rare instances was the sampled adult;
- A sampled adolescent; and
- A "most knowledgeable adult" (MKA) to answer the Child Questionnaire.

In practice, of course, one adult usually filled multiple roles in households with adolescents and/or children. However, the possibilities of multiple respondents required rules for the order of instruments and of the various administrative activities (e.g., selecting sample persons, identifying and contacting respondents), and CATI tools for navigating through the administrative and questionnaire screens. The default sequence of questionnaire and navigation sections is presented in Figure 2-1. A basic principle of the interview flow as shown in Figure 2-1 is that once the sampled adult is on the telephone, the interviewer should attempt to complete as many different parts of the interview as possible with that person. Once that has happened, the system goes to the HHSELECT screen. If there are remaining parts of the interview, the interviewer selects another individual (e.g., the MKA for the Child Questionnaire), and so on.

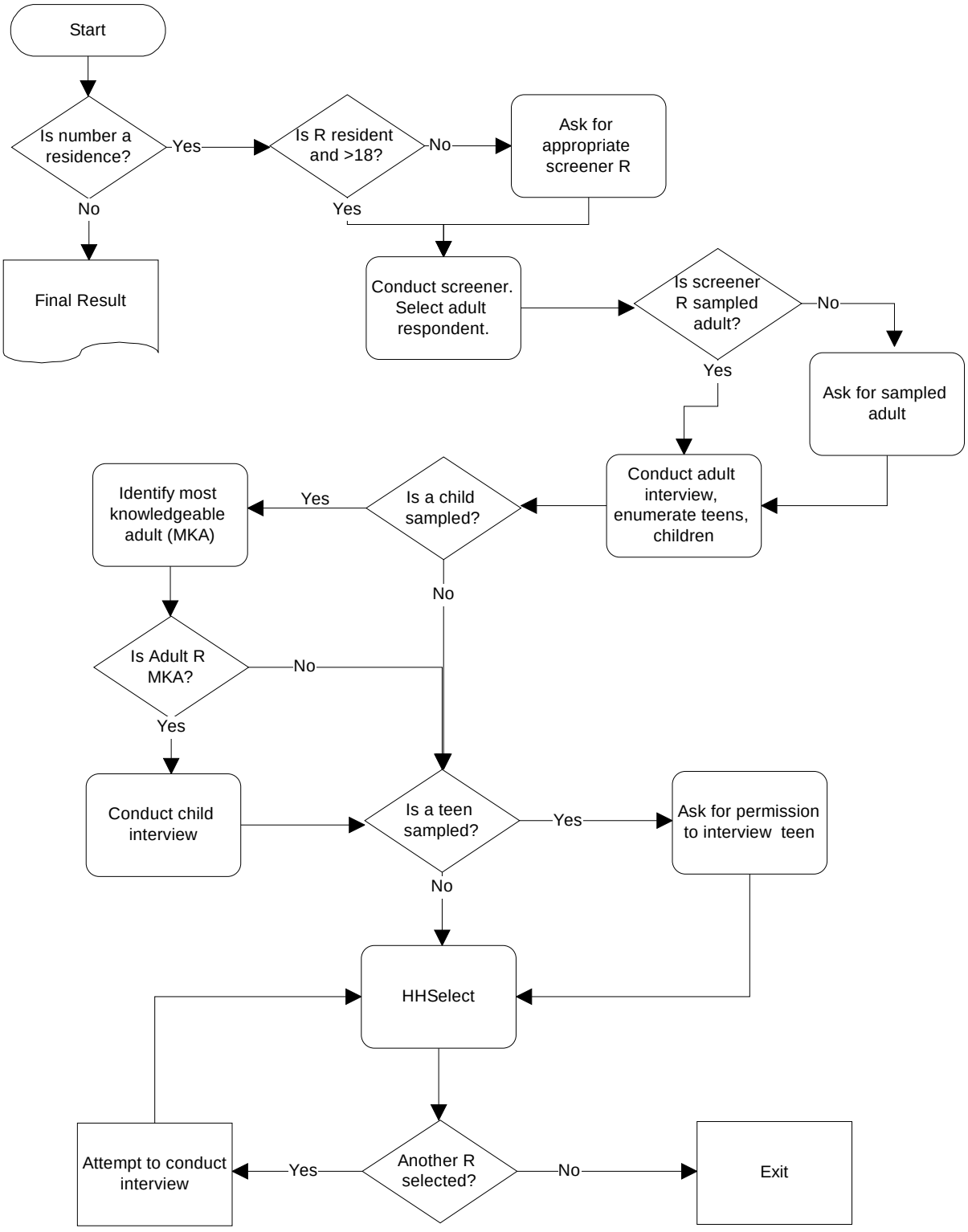

Figure 2-1. CHIS 2003 Interview Flow

The screening interview resumes in the middle of Section G of the Adult Extended Questionnaire, with the following items:

- Identification of adult respondent's spouse if living in the household;
- Enumeration of adolescents and children in the household; and
- Determining for which adolescents and children the adult respondent and/or spouse is the parent or legal guardian.

This information is used by the CATI program to select one adolescent and one child from among those for whom the sampled adult is the parent or legal guardian. This procedure is somewhat different from that used for CHIS 2001. In 2001, adolescents and children of either the adult respondent or his/her spouse were eligible to be selected. In addition, any adolescents or children who did not have a parent or legal guardian in the household were randomly assigned to one of the enumerated adults; any assigned to the sampled adult were eligible for selection. Finally, children of adolescents were given a chance of selection through the parent or guardian of the adolescent. These changes were mandated by the UCLA Institutional Review Board, and resulted in proportionately somewhat fewer adolescents and children being selected for the survey than in 2001.

Because sampling children and adolescents is part of the adult interview, the adult interview must be completed first. Other basic principles of the CATI system flow, once the adult interview is completed, include:

- Attempt to complete as many components as possible with the adult respondent before asking for someone else; and
- Attempt the child interview before asking permission for the adolescent (teen) interview.

After the adult interview is completed, if an adolescent and/or child was selected the sampled adult is asked:

- To identify the MKA in the household to serve as respondent for the Child Extended Questionnaire; and
- To give permission for the selected adolescent to be interviewed.

Once all possible components have been attempted with the adult respondent, the CATI program displays a master navigation screen called HHSelect. A sample HHSelect screen is presented as

Exhibit 2-1. HHSelect displays all interviews scheduled for a household, the name of the respondent, and whether the interview has been completed. The interviewer selects one of the outstanding interviews from HHSelect, and is routed to the appropriate introductory screens for that interview. HHSelect reappears after each component is completed, or attempted and not completed. It also appears when an interviewer first enters a case that has been started by another interviewer.

Exhibit 2-1. CHIS 2003 HHSelect CATI screen

```
0.0020  HHSELECT              900009990201 – (301) 215-1500 – 08:26

     [ASK FOR PEOPLE WITH RESULT THAT IS NOT FINAL. ENTER NUMBER FOR CHOSEN
     PERSON. ENTER 0 TO LEAVE THIS CASE.]

                                    (  )
                                          AT
                                          THIS           APPOINTMENT
#      RESPONDENT     TYPE    SUBJECT     PHONE   RSLT   DATE/TIME
1      MARY/30/F      ADLT                  Y     CA

2-SR   ALFRED/32/M    CHLD    WILL/8/M      Y
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3. EXTENDED INTERVIEWS

CHIS 2003 includes three "extended interviews": adult, child, and adolescent. The 2001 survey also had a separate interview about sampled adolescents' health insurance coverage, which for 2003 was incorporated into the adult interview. This chapter describes Westat's involvement in the development of these questionnaires, the content of each, pretesting of the questionnaires, translation of the questionnaires from English into four other languages, changes in the questionnaires during data collection, and how proxy interviews were conducted.

3.1 Questionnaire Development Process

The CHIS questionnaire design was driven by the research needs of UCLA, sponsoring agencies, and a variety of governmental, academic, and other partners, as well as by concerns about respondent burden, response rates, and costs. The target was an adult questionnaire that would not normally exceed 35 minutes in administration time, and child and adolescent questionnaires that would not exceed 20 minutes each.

Early in 2003, UCLA began sharing drafts of the adult, adolescent, and child questionnaires with Westat staff. These drafts were developed by UCLA and its partners to cover a wide variety of health-related research topics. Westat reviewed the drafts and provided comments on the selection of question items, wording and sequence, and on the estimated length of the draft instruments. There were many iterations of draft instruments before complete instruments of reasonable length were ready for pretesting.

The surveys included many items from the 2001 interview as well as new items. Some of the items carried over from 2001 were re-worded or re-ordered. To reduce the programming required and to facilitate pooling data across survey years, the 2001 variable numbers were retained in the CATI program; new variables based on new questions were assigned the next available number in their section. Variable numbers for 2001 items not included in the 2003 survey were not re-used. A separate, sequential numbering system was also developed to facilitate manual use of the questionnaire documentation. Please note that the questionnaires posted on the CHIS website (http://www.chis.ucla.edu/topics.html) include both a *question* number (sequential) and *variable* number (based on CHIS 2001).

3.2 Questionnaire Content

The Adult Extended Questionnaire is divided into 15 sections:

A. **Demographics** – Age, race, ethnicity, and marital status.

B. **General Health and Health Conditions** – Presence and effects of certain chronic conditions, preventive behaviors, and cancer screening.

C. **Elder Health** – Stroke, falls, incontinence.

D. **Health Behaviors** – Tobacco and alcohol use, exercise, height and weight, sexual orientation and behaviors.

E. **Health Quality of Life, Disability, Social Support** – Limitations of activity, need for special equipment, availability of social support.

F. **Women's Health** – Cancer screening tests, contraception, pregnancy, hormone replacement.

G. **More Demographics** – Country of origin, discrimination, languages spoken at home, English proficiency, immigration status, foster care, child care, education, and employment status. -

I. **Health Care and Health Insurance –** Usual source of care, current coverage by public or private plans, source of coverage, spouse's coverage, benefits of plan, duration of coverage, and whether any uncovered period in past year.

MA. **Adolescent and Child Insurance** – For sampled adolescent and child, current coverage by public or private plans, source of coverage, benefits of plan, duration of coverage, and whether any uncovered period in past year.

J. **Health Care Utilization and Access and Dental Health** – Doctor visits in past year, communication with doctor, assessments and ratings of health care experiences, barriers to treatment or prescription drugs, most recent visit to a dentist and dental insurance coverage.

K. **Work Status, Program Eligibility, Poverty Status** – Type of work and monthly salary for self and spouse, household annual income, housing.

L. **Public Program Participation –** Participation in public social programs, alimony and child support, Social Security, and pensions.

M. **Housing and Neighborhood** – Tenure, neighborhood characteristics.

N. **Food Insecurity and Hunger** – Whether ever short of food.

O. **Final Demographics** – County of residence, address, willingness to participate in followup study, questions specific to Alameda County sample.

The Child Extended Questionnaire comprises eight sections:

A. **Demographics and Health Status** – Age, height, and weight, breastfeeding, use of medications and therapy services, activity limitations, and health and behavioral conditions.

B. **Injuries and Prevention** – Injuries in past 12 months, bicycle helmet, safety for young children.

C. **Dental Health and Diet** – Dental hygiene, most recent visit to a dentist, dental insurance, food consumption, physical activity.

D. **Use of Health Care Services** – Usual source of care, most recent physician visit, communication with doctor, emergency room use.

E. **Barriers to Care** – Barriers to treatment or prescription drugs, public program participation.

F. **Child Care and Activities –** Child care arrangements, family activities, childhood development, mental health, neighborhood.

G. **More Demographics** – Race and ethnicity, citizenship/immigration status of child and parents, respondent's English speaking ability, and respondents' and other responsible adult's level of education.

Finally, the Adolescent Extended Questionnaire comprises nine sections:

A. **Demographics** – Age, height and weight, school attendance, and employment.

B. **General Health and Health Conditions** – Self-reported health status, missing school, and health conditions.

C. **Health Behaviors** – Injuries in past 12 months, bicycle helmet and seat belt use, neighborhood, diet, physical activity, height and weight, use of tobacco, alcohol, illegal drugs, and steroids.

D. **Emotional Functioning** – Mental health over past week.

E. **Sexual Behaviors** – Sexual intercourse, contraception, sexually transmitted diseases.

F. **Health Care Utilization, Access, and Dental Health** – Usual source of care, most recent physician visit, emergency room use, communicating with doctor, barriers to care, ability to access care on own, dental care.

G. **Interpersonal Violence** – Exposure to violence and threats of violence.

H. **Adult Supervision, Resiliency, and Role Models** – Living arrangements and how much parents know about adolescent, availability of supportive adults at home and school, role models.

I. **More Demographics** – Race and ethnicity, citizenship and immigration status, English proficiency, and future plans.

3.3 Translation of Questionnaires

Translation of the CHIS 2003 questionnaires began with a thorough review of the 2001 instruments to identify items that would be administered again in 2003. This review was performed by Westat staff who compared printed versions of the two instruments side-by-side. In addition, electronic comparisons were made using text files of the 2001 and the 2003 "screen libraries" generated by the CATI system. To expedite the translation process and to begin conducting non-English interviews as quickly as possible, it was decided that unchanged items would not require a new translation and that they would be administered as they were in CHIS 2001.

The electronic comparison of the two survey versions was literally a character-by-character comparison so that any difference, no matter how trivial or insignificant (e.g., an extra space or line) would be identified as a change or as a new item for CHIS 2003. The results of the electronic comparison showed the need to fully translate or to update the existing translation for about 600 screens in the CATI system. This electronic comparison of the 2001 and 2003 instruments was made using the July 12, 2003, English version of the CHIS instrument. Several substantive changes made to the English instrument after July 12 were iterated through the translations.

Letter Translations

UCLA translated and provided to Westat the initial versions of the advance letter and the initial (screener level) and extended interview refusal conversion letters in all non-English languages (Spanish, Korean, Vietnamese, and Chinese). Much of the text from the CHIS 2003 advance and refusal conversion letters was left intact from those used for CHIS 2001. Staff from Westat's translation unit and contracted translators reviewed the documents and returned then to UCLA including some suggested changes. UCLA updated the advance letters based on the Westat review and sent finalized text to Westat.

The multilanguage advance letter was printed in the same layout as in CHIS 2001—an 11x17 folded document with English on the front, Spanish on the back, and with Chinese, Vietnamese, and Korean printed from left-to-right on the inside two pages. The refusal letters were printed in four formats; one that combined English and Spanish (front and back of the document), and three others that combined English with the Asian languages.

Spanish Questionnaire Translation

The survey items identified as new or needing revision based on the electronic comparison were translated by Westat's translation unit and contracted translators in early August 2003. A formatted text file of the English CATI screens for these items was used for translation work. There were 115 new or updated items in CHIS 2003 that required Spanish translation. In addition, the entire library of more than 900 CATI screens was reviewed and accent marks were added for display purposes. Additional Spanish translation work was done in mid-September for survey items administered to households that were selected as part of the Alameda sample.

Following a Westat internal evaluation of the initial translation, UCLA reviewed the translation and in that process found a number of survey items requiring further attention, or in some instances re-translation. These items were categorized into two groups, one of which became known as the "high priority" items. In early September 2003, UCLA's language experts and Westat held conference calls to review, discuss, and finalize the translation. Further changes were made to the instrument to coincide with updates to the English survey and as a result of comments collected from Westat's bilingual interviewing staff.

Asian-language Questionnaire Translations

In CHIS 2001, the Korean- and Chinese-language interviews were administered using a hard-copy version of the questionnaire as data were entered by bilingual interviewers using the English CATI screens. It was necessary, therefore, to create an entirely new screen library for the CHIS 2003 Chinese and Korean surveys. Although the CHIS 2001 Vietnamese-language interview was conducted in CATI, there were a number of problems with the screen library including both translation issues and the proper display of accented characters.

The translation approach used for the Spanish-language interview was adopted for the Asian language interviews in that only the new or revised survey items were translated. The same list of new or revised items identified as needing Spanish translation was used for the Asian language translations. Existing electronic documents from CHIS 2001 were used to construct the initial CHIS 2003 Asian-language screen library for the unchanged items. The screen names and survey item numbers from the CATI system were used as the primary "key" when referring to specific items and in identifying items that had been or needed to be translated (e.g., item number "AD56").

Chinese Questionnaire Translation. The new and revised items were translated into Chinese by Westat and contracted translators between mid-July and mid-August, 2003. Translated sections of the survey were forwarded to UCLA as they became available. The process for review and approval of the Chinese translation was identical to the process used for the Spanish translation. UCLA's review showed a number of items needing further review. Westat translators and UCLA staff conducted a conference call in mid-September 2003 to discuss and finalize these items. Some additional work continued into early October to accommodate items asked in households that were in the Alameda sample.

Korean Questionnaire Translation. The first set of text files of the new and updated English CATI screens were sent to Westat contracted translators at the end of July 2003. Subsequent sections were sent in early August and the final translated section was returned to Westat by mid-August. Westat's in-house Korean expert reviewed each translated section and made modifications or revisions as needed before sending it to UCLA for review and approval. Several items in the CHIS 2003 interview that referred to medical procedures or conditions were especially difficult to translate because there was not an equivalent Korean term or concept. Westat's internal review of the translated sections was completed in late August.

Vietnamese Questionnaire Translation. Using the same translation and review process used for the other Asian languages, the updated and revised items were translated during August 2003. Westat's internal review of the initial translation was completed shortly thereafter and two conference calls with UCLA staff and their language experts were held in September. UCLA gave final approval of the translation late in September.

Westat also provided translated versions of the "Frequently Asked Questions" pages used to help interviewers answer respondents' questions about the survey and respond to objections that respondents may have had.

3.4 Pretest and Pilot Test

Westat conducted a small paper-and-pencil pretest of the adult, child, and adolescent interviews in late March 2003. The purpose of this test was to estimate the length of the interviews and to assess the interview flow and wording of specific items. Respondents were recruited by a market research firm at the direction of UCLA. Westat interviewers in the Citrus Heights, California, Telephone Research Center (TRC) conducted six adult interviews, eight adolescent interviews, and two child interviews. The revised insurance section was very difficult to administer from a paper questionnaire, so Westat conducted a small and successful pretest of the insurance section in CATI in early June, 2003, also with specially recruited respondents. All pretest interviews were conducted by experienced interviewers and monitored by Westat, UCLA, and/or Public Health Institute (PHI) staff.

The formal pilot test was held in the Citrus Heights TRC, from July 9 through July 12, 2003. Twelve experienced interviewers were trained and conducted interviews. The pilot test was intended as a full dress rehearsal of the main study, except that only an English-language instrument was used, and no attempt was made to convert refusals or followup with language problem cases. The pilot test sample used an RDD approach, using telephone exchanges expected to have a high yield of adolescents and children. Table 3-1 presents the results of the pilot test.

Table 3-1. Number of completed interviews and refusals and cooperation rates in the CHIS 2003 pilot test

Instrument	Completed interviews	Refusals	Cooperation rate
Screener	322	426	43.0%
Adult interview	180	48	78.9%
Teen interview	21	6	77.8%
Child interview	50	2	96.2%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey

The screener cooperation rate was about five percentage points lower than the rate in the 2001 pilot test and foreshadowed the lower initial cooperation rate achieved in the main survey. On the

other hand, the adult extended cooperation rate was considerably higher than that achieved in the 2001 pilot test, a reflection in part of revisions to the consent screens before the adult interview.

The adult extended interview averaged 33 minutes to administer, the child interview about 13.5 minutes, and the adolescent interview about 21 minutes. The screening interview averaged 2 minutes, and getting permission to interview adolescents also about 2 minutes. While these times were not far from the targets, the adult and adolescent interviews were cut further between the pilot test and the start of the main study.

Staff from UCLA, the California Department of Health Services, the PHI, and Westat observed the pilot test. Westat also conducted a debriefing of pilot test interviewers and team leaders after the conclusion of data collection. Results of the observations and debriefing helped inform decisions about cutting and modifying questions between the pilot test and the main study.

3.5 Changes in the Questionnaire During Data Collection

As Westat, UCLA, and PHI staff monitored interviews during the data collection period, as interviewer debriefing sessions were conducted, and as Westat data preparation staff reviewed marginal comments entered by interviewers, several issues with question items arose, some of which suggested that a change in the question wording or answer categories would be beneficial. Some of these issues led to changes in the CATI instrument during the field period. Exhibit 3-2 presents all of the changes to the CATI instruments after the start of the data collection period. Note that on September 8, 2003, a set of questions was added in Section O of the Adult Questionnaire that were asked only of respondents reporting that they lived in Alameda County. The questions covered a variety of topics and were largely items that had been in CHIS 2001.

Exhibit 3-2. Changes in CHIS 2003 questionnaire after start of data collection

Date	Changes
8/8/2003	Change condition for asking AM9 – skip if AM8 = "don't know" or "refused"
	IF NEEDED instruction for CIN1 and instruction added for AM14 and AM15
8/13/2003	AI22A condition & AI43 condition were changed to match specs
8/14/2003	Skip change; everyone who gets TF19 will now also get TF20; previously, TF20 was asked only if TF19 = 1; only teen before this date that was asked TF19 also was asked TF20.
8/15/2003	Screener respondents are not eligible for selection from the screener roster if SC5A was given
	Add AAGE < 30 to condition for asking AH43A so that no one is ever asked AH43A if they are 30 or older; 82 AH43A values set back to -1
	TH25 & TH26 have been merged into 1 item called TH25
8/18/2003	Condition for asking TF23 changed from TEENAGE >= 13 to > 13; 13 teen interviews had TF23, TF12, TF24, TF13 set back to -1
	Condition for asking TF25 changed from if TF14 inset(1,2,3,4) to … | okmiss(TF14); 6 values of TF25 changed from -1 to -9
	Condition for asking TI10 … TI10 now has the same condition as TI8; 5 values of TI10 set to -1
8/19/2003	CD27 is now asked regardless of the response to CD26; 2 values of CD27 set to -9
	TC41 text changes; drop TC43
8/20/2003	Condition for asking TE25; ^okmiss(TE23) replaces TE23 ^= miss(-8)
8/22/2003	CH24-CH26 will now exclude AR/MKA's spouse because spouse is now mentioned in the display.
	Removed "if TA4 = 1" condition for asking TA4A; 6 values of TA4A changed from -1 to -9
8/28/2003	Allow 2 year olds without teeth to go to CC11
9/5/2003	The birthday method screen SC6E was adjusted to verify that the name given is NOT the screener respondent.
9/8/2003	New Alameda county items will now be asked if AH42 = 1 and interview conducted in English or Spanish
9/9/2003	AOALINTR now allows option to skip out of Alameda module
9/16/2003	Correct spelling of "acitve" to "active" on CC25
9/18/2003	Correct skip error for TI4 = YES; was skipping to TI7; now skips to TI6; 14 teen questionnaires had TI6FMT set to -9
9/24/2003	Text changes to Spanish screens from debriefing and testing
10/2/2003	More text changes to Spanish screens from reviews; new AOAL14 item for Alameda
10/4/2003	Hysterectomy questions AD12 & AD12A from CHIS 2001 were added
10/9/2003	Added AK2 = 3 to the exclusions for asking AI13
10/10/2003	Display "main health" was not translated to Spanish for AI22C
10/15/2003	Add 2 new response categories to CH13 and CH16; don't display PO BOX addresses at AO2 address collection/verification
	AI12 response category 2 is now conditional (displayed)
10/19/2003	Fix Spanish screen INTRO1, which had 1st sentence of "The computer has selected { }…" and that sentence should be "[Hello, my name is {interviewer name}]."
10/20/2003	Spanish fixes: SC13X overlay screens were not properly positioned at the bottom of the matrix; SC30 display updated
10/27/2003	Child height/weight soft edit table implemented
10/30/2003	Green card items now have additional sentence for other colors of the "green" card

Exhibit 3-2 Changes in CHIS 2003 questionnaire after start of data collection (continued)

Date	Changes
11/5/2003	Alameda module will now be asked of all languages.
	Teen refused TA3 should always be RT, not CT. 2 cases repaired
11/14/2003	Delete instruction from PN AI22A to skip if the AR has only Medicare or Medical. All AR's with ARINSURE = 1 should be asked AI22A
11/17/2003	Change to Alameda module condition: add "OR (AH42 = -7,-8 AND STRATUM = 7) OR AO1/AO2 CITY = list of cities
	Also, "Alameda County" and "for people living in Alameda" were deleted from AOALINTR.
11/28/2003	Drop El Cerrito and San Ramon and add Sunol, Fairview, Cherryland, and Ashland to the Alameda module condition
1/2/2004	Proxy version ready
1/29/2004	Adjustments for the Hayward supplemental sample

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey.

4. INTERVIEWER RECRUITING AND TRAINING

4.1 Organization of the Telephone Research Centers

Westat conducted CHIS 2003 at all seven of its Telephone Research Centers (TRCs), in Rockville and Frederick, Maryland; Citrus Heights and Merced, California; Chambersburg, Pennsylvania; Sarasota, Florida; and Greeley, Colorado. More than half of all interviewer hours for CHIS 2003 were in the two California TRCs. Overall direction of telephone survey operations was from the TRC central office at the Rockville headquarters.

Westat's computing systems and telephony capabilities enable the networked combination of geographically diverse locations to operate as a single "virtual" TRC managed from the home office location at Rockville. All interviewing and supervisory stations at all locations are interconnected on a high-speed data communications network that provides a single integrated database and a single call scheduling and reporting capability. Integrated voice and data monitoring is available for supervisors at each center and at a central facility at the Rockville home office. Each center has an administrative director and a group of supervisors who schedule and supervise the center's interviewing staff.

The Citrus Heights TRC was the pilot test and pretest site. The operations manager was in the Rockville office. All centers conducted RDD interviewing in English. The Merced TRC screened the Korean and Vietnamese surname samples (in English). Spanish bilingual interviewers were present in all sites, with the largest group in Merced. All of the Asian-language screening and extended interviewers were conducted in the Rockville office.

4.2 Pretest and Pilot Test Recruiting and Training

Westat selected experienced interviewers from the Citrus Heights TRC for the pilot and the pretest. For the pretest, interviewers were trained informally on paper-and-pencil versions of the CHIS 2003 draft questionnaire. Training was conducted by members of the CHIS team. Since the pretest respondents were recruited by a California market research firm, there was no need to train the pretest interviewers on contacting and callback procedures.

The pilot test was also conducted out of the Citrus Heights TRC. Westat used 12 experienced interviewers, several of whom had interviewed for CHIS 2001. The training program was developed and implemented by the TRC operations manager, and anticipated the training for the main study. CATI was used for administration of the pilot interviews.

4.3 Recruiting and Training for English-Language Random-Digit-Dial Sample

The field period for CHIS 2003 began in early August of 2003, and ran for 7 months. Westat's data collection plan was to recruit and train a large number of interviewers at the beginning of the field period with a second large recruitment after Labor Day, so that peak production would be reached within the first 6 weeks of the study. Bilingual Spanish-speaking interviewers were to be trained along with English-only interviewers to conduct interviews in English for a few weeks. Once familiar with the survey, they would be trained in and use the Spanish-language instrument. Asian bilingual interviewers were to be added in the winter.

4.3.1 Recruiting Telephone Interviewers

The CHIS 2003 interviewing force was a combination of Westat-experienced and newly-hired interviewers. In all centers some experienced interviewers were available at the beginning of the field period, and others became available as another study wound down in September. After all training sessions had been held, 508 interviewers of the 578 invited to training successfully completed all sessions. Of those who completed training, 196 had previous interviewing experience at Westat and 312 were new hires.

Generally, Westat recruits new interviewers by placing advertisements in local newspapers. Applicants call a toll-free number that rings in the Rockville office, and they undergo a screening interview over the telephone. Those considered potentially good candidates with clear speaking voices are invited to open houses at the local TRC, where they are presented with the details of the job. Finally, they are interviewed in person at the local TRC, and a hiring decision is made. Successful applicants are invited to the next available training in general interviewing techniques (see Section 4.3.4). Applicants must complete this general training, training in Westat's CATI system, and project-specific training before they actually become Westat employees.

4.3.2 Overview of Training Plan

Development of the training started with an outline of key concepts to be covered. The agenda and the development of materials followed from this starting point. The appearance of all materials was standardized and presentations were scripted so that all trainers could follow the format and deliver a consistent training program across groups.

Training sessions were also organized according to standard Westat procedures. Training teams were organized with staff who had distinct responsibilities (e.g., a lead trainer who delivered the training script, a group leader who evaluated trainees, runners who helped trainees during interactives and role plays, etc.) so that training sessions flowed smoothly. The TRC operations manager led development of the training materials, served as one of the lead trainers, and trained the other lead trainers directly.

Initial training was provided to all interviewers in general interviewing techniques and the use of the computer system. The interviewers then received a project-specific training that focused on the CHIS 2003 screener and extended interviews.

The first few trainings for the main survey were conducted simultaneously in the Citrus Heights, Merced, and Greeley centers beginning August 2, 2003. Training in the Rockville and Frederick centers followed, starting on August 4, 2003. Additional trainings were conducted as needed throughout the data collection period. Trainings were held at seven centers: Frederick and Rockville, Maryland; Citrus Heights and Merced, California; Greeley, Colorado; Sarasota, Florida; and Chambersburg, Pennsylvania.

After all interviewers started production, they received supplemental training on specific questionnaire issues that arose after training. They also received more training in gaining respondent cooperation. Monitoring of interviewers continued throughout data collection as a method of quality control.

Interviewers who demonstrated relevant skills were selected to also receive training in how to handle special cases. These included interviews with proxy respondents and interviews with persons who had refused to participate during an earlier call to the household. These cases were placed in special work classes so that they would only be delivered by the scheduler to the select group of interviewers.

4.3.3 Development of Training Materials

Prior to training, key members of the study area staff, the TRC operations manager, and senior TRC staff developed training materials. Guided by an outline of all the concepts relevant to the study, a complete set of training materials that complemented one another was produced. These materials included the following items.

- **A Training Program Agenda.** The agenda identified the format of the sessions (lecture, interactive, dyad role play, etc.), the topics to be covered (overview of questionnaire, particular questionnaire sections, etc.), and the length of time the session was scheduled to take (see Exhibit 4-1). This document was used during training by the lead trainer and others assisting in training to see what materials were used by the lead trainer as well as the interviewer during each session.

- **Interviewer Help Text.** In order to provide easy access to additional information about interview questions, Westat included in the CATI program online help text accessed for a related question by pressing the F1 key. Having the specifications for each question available in this format precluded the need for a formal hard-copy manual. Interviewers were each provided with a hard-copy version of the help text to supplement the CATI.

- **Lead Trainer's Manual.** This manual contained all material presented by the lead trainer. It included interactive scripts and exercises that were designed to develop and fully test the level of an interviewer's comprehension of survey materials and procedures.

- **Dyad Role-Play Scripts.** Role plays were produced that focused on contact procedures and provided practice on the administration of the extended interview.

- **Support Materials Folder.** Each interviewer was provided with a folder that stored the following reference documents:

  - Frequently Asked Questions and Answers;
  - Advance Letter;
  - Hard copy of Help Text;
  - Key Concepts Sheet;
  - Pronunciation Guide;
  - 800 number/Web Site Reference Card; and
  - Coding of Recordings/Messages Guide.

Exhibit 4-1. Agenda for English-language interviewer training, CHIS 2003

Session	Length	Topic	Interviewer/Trainee Materials
1	30 minutes	Introduction	Client presentation, review of some of CHIS 2001 results
2	70 minutes	Adult Interactive number1	Personal computer
3	55 minutes	Child Interactive (includes a 15-minute break)	Personal computer
4	35 minutes	Screener Interactives	Personal computer
5	50 minutes	Exercise on Probing and Collecting Valid Answers	Exercise handout
6	1 hour	Contact Procedures	Personal computer, Telephone company recording/NR coding card, Appt. message review
7	50 minutes	Adolescent Permission and Interview Interactive	Personal computer
6	10 minutes	Review Problem Sheet/Support Handouts	Folder handouts
7	15 minutes	Sensitivity Issues	
8	75 minutes	Adult Interactive number2	Personal computer
9	15 min	Summary Review	
10	15 minutes	Interviewer Questions and Answers	Q & A sheet
11	1 hour	Strategies for Gaining Respondent Cooperation	Q & A sheet Practice scenario cards
12	2 hours, 30 minutes	Role Plays (includes 15 minute break)	Personal computer

- American Indian/Alaska Native Cultural Competence Handout; and
- Protocol for Referring Distressed Teen Respondents.

4.3.4 Training Teams

The training team for each group consisted of a lead trainer, a data display operator, a group leader, and two runners. The roles and responsibilities of the team members follow.

Lead Trainer. Lead trainers were responsible for the overall presentation and the pace of training. All lead trainers for CHIS 2003 had several years of training experience and were well-versed in training techniques and group control. It was the role of the lead trainers to concentrate on delivery of the material; trainee evaluation was the responsibility of the group leader.

Data Display Operator. The data display operator was responsible for following the lead trainer script and making entries in the master terminal that displayed the CATI interview on large screens in the front of the training room. The data display operator was familiar with the CATI program and entered responses given by the lead trainer.

Group Leader. The group leader was responsible for taking attendance, coordinating trainee evaluations, troubleshooting, and making certain that all materials were available when needed. That person was responsible for pairing trainees for role plays and for making sure that each person was sufficiently monitored in role-play situations to evaluate performance. Most importantly, the group leader was responsible for coordinating an evaluation of each trainee. Information from each member of the training team was compiled and used to determine if a trainee was ready for live interviewing. If not, a remedial training program was implemented or the person was released. Remedial training typically involved more role play. If the additional role play did not result in sufficient performance improvement, the person was released. Once interviewing began, the group leader was responsible for assuring that each of the trainees was adequately monitored and provided feedback. The role of group leader was filled by shift supervisors with many years of experience working with interviewers.

Runners. As the name implies, runners moved around the training room making sure each trainee kept up with the script and assisted trainees who made entry errors that put them in an inappropriate place in the interview. Two runners were assigned to each group. Runners were supervisors and senior interviewers who had direct experience working with interviewers in a one-to-one setting.

Prior to interviewer training, data display operators, group leaders, and runners attended a meeting during which roles and responsibilities of each position were discussed. The work of the training

teams was coordinated and closely supervised by the operations manager, as well as by the project director and the director of the TRC.

4.3.5 Stages of Interviewer Training

Interviewers were trained in three stages. The first two stages are standard for all CATI interviewers, and the last stage is specific to the project. The stages are General Interviewing Techniques (GIT), Teltrain (CATI training), and project-specific training.

General Interviewing Techniques

Every new interviewer participated in a 4-hour GIT session; this training was supported by Westat and was not charged to the project. In GIT training, interviewers were introduced to Westat and to survey research, shown samples of types of survey questions and recording conventions, and taught basic ways to obtain accurate data through listening and probing. They learned confidentiality procedures and methods for gaining respondent cooperation. The format was interspersed with exercises, interactive lectures, role plays, a question-and-answer period, and practice exercises. Each interviewer received a manual—the Westat General Interviewer Training Interviewer's Manual (Westat, 1997e) —that documented the material presented in the session. This session also allows staff to identify those interviewers whose reading and speaking skills were inappropriate for the study.

CATI Training with Teltrain

Before specific project training, each trainee participated in a 4-hour training session on the use of the CATI system. This session used an interactive, computer-assisted tutorial training program that was supervised, but self-administered, and took each participant through the procedures for conducting interviews using CATI. The session instructed interviewers on the use of the computers, all Westat CATI recording functions, and special CATI commands. The script included practice with logging on to the computer and using the keyboard (particularly the keys that control the flow of the CATI interview). This training also served as an opportunity to identify trainees with weak keyboard skills. Those who did not demonstrate sufficient keyboard facility were released from the CHIS 2003 training program.

Included in the Teltrain session was a tutorial lesson on the coding of contact procedures. Contact results covered included ring/no answers, nonworking numbers, fax machine tones, answering machines, and busy signals. Through headphones, trainees experienced exact replications of common contact situations and learned the proper coding techniques through presentation and practice. A followup test was administered to evaluate mastery of the contacts. After scoring 100 percent on this test, an interviewer was eligible for the specific project training.

CHIS Project Training

After interviewers were trained in GIT and the use of the CATI system, they participated in a training session devoted to the specific procedures and the administration of the CHIS CATI questionnaire.

Because of the multiple skills interviewers need, training focused on the techniques designed to cultivate these skills. This involved the active participation of all trainees by simulating the actual conditions of the interview. This approach required trainees to use the same procedures and data collection instruments they used to conduct the survey. This approach is summarized below.

Interactive Lectures. Interactive lectures were used to familiarize interviewers with the questionnaire. They were conducted as mock interviews in which the trainer acted as the respondent and the interviewers asked the questions using the computer to read the question text. In addition, the trainer took time to explain or define concepts pertinent to the CHIS interviews, or to ask the interviewer to read a definition or procedure from available Help Text.

The scripts used for interactive training were prepared using the Cheshire Automated Training Scripts (CATS) system. CATS is a series of macros created in MS Word for Windows for TRC staff to develop scripted training materials. With this program, CHIS training staff created training scripts. Standards of style have been developed so that each training script looks uniform regardless of the author, and all training groups hear the same information, regardless of which trainer presented the material.

Dyad Role Plays. In dyad role plays, one trainee took the role of interviewer using the computer while the other acted as the respondent. Both used a prepared script that was produced using the

CATS system. Interviewers reversed roles after the end of each role play. Each interviewer participated in several dyads. Group leaders and other training team members monitored the role plays.

Reinforcing Exercises. In addition, written exercises were given to the interviewers during training to reinforce what was learned during the interactive interviewing sessions. These exercises dealt with proper probing techniques, the entering of additional comments to clarify a response, and gaining respondent cooperation.

For the extended interview, trainers instructed interviews on how to access online additional information for questions by pressing the F1 key to display Help Text. These question-by-question (QxQ) specifications for some questions were reviewed as part of the interactives. These QxQs were used to provide interviewers with more in depth information on questions such as those on health care coverage, employment and earnings, family income, program participation, and industry and occupation. The QxQ specifications were also provided to interviewers as a hard-copy handout. An exercise on the place of employment and type work engaged in was included to reinforce collecting codeable answers. The lead trainer used an answer key so that all interviewers heard consistent answers across training groups.

Practice Answering Commonly-Asked Questions. Commonly-asked questions and answers were discussed and reviewed throughout training as part of the interactive presentations. In CHIS training, card-stock copies were given to each interviewer during the training and made available on the interviewing floor. The questions dealt with both general interviewing issues and CHIS project-specific issues. Translation of this document was done in Spanish, Chinese, Korean, and Vietnamese for use with non-English language speaking respondents.

4.3.6 Schedule and Number of Interviewers Trained

Table 4-1 shows the timing of project-specific interviewer training sessions for CHIS 2003. The first trainings beginning August 2, 2003, were held simultaneously at the Citrus Heights, Merced, and Greeley centers. On August 4, training began in Frederick and Rockville. Later in August and September, Sarasota and Chambersburg added interviewers to the CHIS project.

Table 4-1. CHIS 2003 interviewer training dates, sites, and number of interviewers trained

Training dates	Site	Interviewers invited to training	Interviewers completing training
2003			
8/2-8/4	Citrus Heights	34	25
	Merced	34	28
	Greeley	36	27
8/3-8/5	Citrus Heights	36	27
	Merced	33	30
8/4-8/6	Rockville	22	21
	Frederick	13	12
8/23-8/24	Rockville	39	38
	Frederick	11	11
8/25-8/27	Sarasota	24	20
9/8-9/10	Chambersburg	30	27
9/12-9/14	Merced	31	30
10/14-10/16	Sacramento	19	18
10/16-10/19	Merced	31	28
	Greeley	22	19
	Rockville	19	17
	Frederick	20	18
	Sarasota	20	20
	Chambersburg	11	9
11/20-11/23	Merced	16	14
	Greeley	18	18
11/23-11/25	Rockville	10	10
12/3-12/4	Rockville	17	12
12/15-12/17	Sacramento	17	13
2004			
1/15-1/16	Rockville	6	6
1/31-2/2	Rockville	10	10
Total Interviewers completing English training		579	508

4.3.7 Refusal Avoidance and Conversion

Within 2 weeks of a training, Westat scheduled abbreviated small group training sessions. The objective was to improve interviewer skills in answering respondent questions and objections with

immediate and informative responses. This was also done as part of the main study training but once interviewers had some production experience, the application of these skills became that much more salient. Role playing with typical scenarios was practiced. The purpose of this training included an attempt to improve the screener cooperation rate. A subset of these interviewers who were particularly adept with gaining cooperation were subsequently trained and assigned to work as converters for screener refusals.

During the regular project training, all interviewers received instruction in refusal avoidance methods. Further strategies were reviewed at all sites in special refusal avoidance meetings. Included in the effort to improve respondent cooperation were special coaching sessions by supervisors assigned to small groups of interviewers. In these meetings, the emphasis was on the review of good interviewing techniques by direct observation and intervention. In addition, supervisors selected experienced interviewers with higher-than-average cooperation rates in either the screener, the extended interview, or both for refusal conversion activities.

Refusal conversion focuses on attempts to persuade respondents who have previously refused to participate or to complete an interview. Interviewers received special training in re-contacting and encouraging participation by those respondents who had originally declined. The refusal conversion training sessions lasted 1 to 2 hours and covered specific conversion strategies. They explored common reasons for refusals, reasons specific to CHIS 2003, and the importance of addressing respondent concerns with appropriate responses.

4.3.8 Interviewer Performance

Interviewer performance was evaluated through examination of cooperation rate reports and monitoring of live interviewing to evaluate the skills needed for effective interviewing. Ten percent of interviewing time was monitored throughout the data collection period. Supervisors monitored interviewers for a minimum of 10 minutes at a time. The monitoring was followed by a one-on-one coaching session to review techniques that were or were not working in an effort to either reinforce exemplified skills or provide feedback for improving interviewing style. Interviewers were monitored by TRC supervisors and training staff to determine if the following skills were demonstrated: use of a conversational style; reading fluency; ability to answer respondent questions quickly, accurately, and completely; ability to gain respondent cooperation; reading screens verbatim; and using neutral probes.

Interviewers whose performance fell below acceptable levels attended additional coaching sessions with an emphasis on gaining respondent cooperation and answering respondent questions.

The following techniques were used to identify and reinforce behaviors effective in gaining respondent cooperation.

- The operations manager sent a weekly priority list to shift coordinators. It included lists of interviewers by name who were targeted for heavy monitoring because of recent change in status such as cooperation rates lower than average, evaluation for specialized tasks, and refusal conversion. The issues that were to be focused on during monitoring were also provided, such as the interviewer's ability to answer respondent questions/concerns quickly and accurately, and read all screens (in particular the screener introduction) at the appropriate pace and tempo for the respondent; read screens verbatim; and probe neutrally and appropriately. For refusal interviewers, the emphasis was on the ability to engage respondents and use appropriate techniques;

- Supervisors provided feedback to interviewers on an individual basis after monitoring sheets had been completed. This included feedback on positive aspects of the interview and suggestions for improving performance;

- Shift coordinators sent reports regarding interviewer performance to the operations manager. Reports identified strengths and weaknesses as reported in monitoring sheets. They also provided input on interviewers recommended for special tasks; and

- Shift coordinator reports were used in combination with cooperation rates to identify interviewers for refusal conversion and other specialized tasks.

4.4 Training for RDD Spanish-language Interviewing

All Spanish bilingual interviewers were trained according to the protocol described in Section 4.3.4, in sessions that included both English-only and bilingual interviewers. After completing the English-language CHIS-specific training, Spanish bilingual interviewers initially worked in English. Once the Spanish-language instrument was ready, bilingual interviewers were given practice using it before proceeding to live interviewing in Spanish. The training was monitored by Spanish-speaking supervisors at each site. Since the English and Spanish instruments were so similar, there were few substantive or operational issues to work through during training.

Once the interviewers began interviewing in Spanish, they were monitored closely by Spanish-speaking supervisors as described earlier. The first priority in CATI for Spanish bilingual

interviewers was handling respondents from the work class identified as speaking Spanish. Bilingual Spanish interviewers worked primarily in the Spanish work class for the rest of the field period but also made the initial followup calls to households that English speaking interviewers categorized as OTHER LANGUAGE (not Spanish, Chinese, Korean, Vietnamese, or other Asian language). The expectation was that some of these would turn out to be Spanish-speaking households not identified by a monolingual interviewer. If the household was not Spanish-speaking and the Spanish interviewer was unable to ascertain the language being spoken, these cases were next called by interviewers fluent in both Mandarin and Cantonese to determine if the household spoke an Asian language and, therefore, would be eligible for a foreign language interview.

4.5 Training for RDD Asian-language Interviewing

A multilingual staff was utilized to assist the CHIS interviews in Vietnamese, Mandarin, Cantonese, and Korean. The training for Asian-language interviewers was conducted in multiple stages. Interviewers were first trained to administer English interviews. All trainees were hired on the premise that some of their interviewing time would be spent conducting English interviews. Asian households were identified in limited quantities; therefore, in order to make their interviewing time the most efficient, interviewers had to demonstrate an ability to conduct English interviews. Additionally, it was not uncommon to conduct the adult interview in an Asian language followed by an adolescent interview where the preferred language was English.

Chinese and Korean characters and Vietnamese accented text were displayed on CATI screens in the Asian languages. Interviewer instructions and help text remained in English.

Asian interviewers attended the following training sessions:

- GIT;
- Teltrain;
- CHIS training in English;
- CHIS training in specific Asian languages;

- Dyad role plays—both in the Asian languages and one in English; and
- Live interviewing.

GIT, Teltrain, and CHIS Training in English. Following the standard training protocol established for CHIS, the Asian-language interviewers completed GIT, Teltrain, and parts of the English-language CHIS project training. Each of these training steps was conducted in English, but was open exclusively to the interviewers hired to conduct interviews in Vietnamese, Mandarin, Cantonese, and Korean. Because the Asian-language interviewers had English as a second language, trainers spent additional time defining terms, explaining concepts, and providing instruction on telephone interviewing and the CHIS instruments.

Vietnamese, Mandarin, Cantonese, and Korean Training Assistance. Vietnamese, Mandarin, Cantonese, and Korean speaking staff were drawn from various areas of the Westat organization to assist in the creation of training materials. A research-trained Mandarin assistant was recruited to serve as the trainer for the Chinese trainings. Experienced Vietnamese, Cantonese, and Korean staff assisted in the translation and presentation of Asian interactives. The operations manager worked with each of the assistants to gain the skills necessary to conduct effective interviewer training. Together, the operations manager and the Vietnamese, Mandarin, Cantonese, or Korean training assistant worked with the groups of interviewers. As in the English-language interactive sessions, the trainer called on trainees to read portions of the questionnaire aloud. The trainer pointed out questions that were difficult to administer and worked with the trainees to help them become comfortable with the questionnaire.

While the multilingual training assistant focused on helping the trainees become familiar with the instrument, the operations manager instructed the interviewers on the technical and data entry aspects of CATI.

Table 4-2 shows the dates of Asian-language questionnaire training and the groups trained.

Table 4-2. CHIS 2003 Asian-language interviewer training dates

Dates	Group (All at Rockville TRC)
November 25, 2003	Cantonese and Mandarin
December 7, 2003	Vietnamese
December 17, 18, 2003	Korean
January 15,16, 2004	Korean
February 3, 2004	Vietnamese/Korean

Dyad Role Plays. Once the instrument had been thoroughly reviewed, the trainees were given the opportunity to practice using role plays. The trainee acting the part of the interviewer would use the CATI instrument to administer the CHIS questionnaire in Vietnamese, Mandarin, Cantonese, or Korean. The trainee acting the part of the respondent would use the scripted role play book to respond to the interviewer's questions. The role play book responses were scripted in the various Asian languages. An adolescent role play interview conducted in English was included in the set in an attempt to simulate a common real-life scenario and provided additional English practice.

At any point in the interviewing process, interviewers had the capability to change the displayed text on a screen from English to an Asian language or vice versa. Additionally, if it was appropriate to have an interview done by a bilingual interviewer speaking another language, interviewers could move a case to any of the other language work classes using a control key sequence. Practice on this capability was included in the language specific trainings.

Live Interviewing. After training and practice, the interviewers began interviewing in Vietnamese, Mandarin, Cantonese, and Korean. Having a CATI instrument with Mandarin, Cantonese, Korean, and Vietnamese translations including diacritical marks provided a streamlined and greatly simplified interviewing process. Since all cases were contained in the CATI scheduler, case control was easily managed with cases designated for a specific language only being delivered to interviewers trained in interviewing in that Asian language.

Bilingual Assistant/Peer Monitoring. Asian-speaking Westat assistants and peer monitoring were used to teach interviewing techniques, to measure interviewing quality, and to provide feedback to individual interviewers. As data collection began in each of the Asian languages, multilingual interviewers and Asian-speaking staff were taught to monitor live interviews for quality control. Specific monitoring forms and guidelines describing what to look and listen for were provided to help in peer monitoring sessions. After an interviewer had completed a monitoring session, the TRC supervisor would

join the interviewer to review the completed monitoring sheets. The supervisor would discuss with the interviewer what he had monitored and would initiate a dialogue about the appropriate and inappropriate techniques that had been observed. Peer monitoring provided an opportunity for monitors to return to interviewing having learned or reinforced good interviewing techniques. The monitoring information was further used to follow up with the interviewer who had been monitored to review strengths and weaknesses exhibited.

4.6 Training for Interviewing Supplemental Samples

Supplemental samples were added to CHIS 2003 during the data collection period. These samples included:

- Supplemental RDD samples in Alameda County and the cities of Hayward and Oakland; and
- Samples of telephone numbers associated with Korean and Vietnamese surnames.

The Hayward and Oakland supplemental samples were intended to increase the CHIS 2003 achieved sample for these cities generally, as well as for certain racial and ethnic groups within these cities. In order to achieve the target for African-Americans within Hayward, a portion of the sampled telephone numbers were designated for screening, that is, an adult was sampled only if the household included one or more African-American adults. The surname samples were handled the same way, with screening for Korean and Vietnamese adults, respectively. The screening interview for the Alameda and Oakland oversamples, as well as for the remaining part of the Hayward oversample, was the same as for the general RDD sample.

The Hayward and surname samples were handled the same way administratively and in training. Groups of interviewers were informed about the differences between the RDD interview and the interview for these samples, that is, that one or more screening questions were added to determine whether the household met the criteria for the particular sample for which it was selected. For the surname samples, a rostering of all adults was included as part of the screener to determine if any adults met the particular ethnicity criteria and one adult was randomly selected from those who were eligible. Households not meeting the criteria were considered ineligible. In the extended interview for the surname samples, if the selected adult did not consider him/herself to be of the particular ethnicity, the interview

was terminated after Section A. Training for these samples was brief, as the differences from the RDD procedures were slight.

The hit rate for the Korean and Vietnamese surname sample was projected to be low. This allowed for the screening of these cases to be done primarily by English-speaking interviewers who had the capability of moving cases into a specific language group, if necessary. This approach allowed the Asian interviewers to concentrate more fully on cases already identified as specific to their language.

Residents of Alameda County, regardless of whether they were in the original or one of the supplemental samples, were asked some additional questions in a section at the end of the adult interview. These extra questions did not require additional training except for awareness of their presentation for Alameda residents.

4.7 Training for Proxy Interviews

For cases where a sampled adult was 65 or older and unable to be interviewed for physical or mental health reasons, the interviewer attempted to identify an appropriate proxy respondent. The proxy had to be an adult member of the household who knew about the sampled adult's health and health care. The CATI questionnaire was modified as described in Chapter 2 to accommodate proxy interviews.

A select group of interviewers was trained to conduct the proxy interviews. Training comprised discussion of how to contact the households identified as candidates for proxy interviews, determine whether a proxy would be appropriate, and identify a respondent; a review of the changes to the questionnaire for proxy interviews; and several practice interviews in CATI. Cases identified as eligible for proxy interviews were grouped in a separate work class allowing them to only be delivered by the CATI system to interviewers trained for proxy interviewing.

5. SCHEDULING AND RELEASE OF WORK

This chapter describes activities related to initiating data collection, including preparation and release of sampled telephone numbers, how the sample was organized in the CATI system, purging the sample of nonworking and business numbers, mailing prenotification letters, and handling inbound calls to Westat's CHIS 1-800 number. Data collection began August 8, 2003.

5.1 Description of Samples and Timing of Field Period

5.1.1 Random-Digit-Dial (RDD) Sample

A total of 351,216 telephone numbers were selected for the RDD sample (see Report 1: Sample Design). Of these, more than one-third were removed prior to turning them over to interviewers for screening. More than 10 percent (36,975) were eliminated because they were listed only in the Yellow Pages, and 25 percent (87,953) were eliminated by a computer system that dials numbers to eliminate nonworking numbers.[4] This computer can detect the tritone signal for a nonworking number very quickly, usually without an audible ring of any telephone number that is tested. (See Section 5.3, Table 5-3, for more detailed information on the exclusion of telephone numbers.)

The remaining 226,288 telephone numbers were sent to reverse directory services to attempt to match the selected telephone number to a mailing address. From this service, addresses were obtained for 70 percent (158,553).[5]

The RDD sample for CHIS 2003 was selected and released to CATI somewhat differently from that of CHIS 2001. Whereas in 2001 the target sample size (number of completed adult interviews) remained fixed but the expected yield was unknown, in 2003 the target sample size increased during the field period as additional funding became available, and there were good estimates of the yield by stratum

[4] Before arriving at the final sample of 351,216 telephone numbers, a larger sample was screened for business and nonworking numbers. These categories of numbers were subsampled at 0.75 to arrive at the final sample size; numbers without addresses were also subsampled at 0.75. Of the larger sample, 12 percent were identified as businesses and 28 percent as nonworking.

[5] As noted above, the final sample included only 75 percent of the cases without addresses. The proportion of numbers from the larger sample for which addresses were obtained was 64 percent.

from the 2001 survey. Report 1: Sample Design describes the selection process in detail; it is summarized here to demonstrate how the sample was fielded.

The initial CHIS 2003 RDD sample fielded (released to CATI) included 240,007 numbers, covering all strata except Alameda. In mid-November 2003, when additional funds became available, an additional 54,234 numbers were fielded. These numbers included a sample to meet the increased targets in some strata as well as an additional sample in other strata where the yield proved to be lower than anticipated. Sixty percent of telephone numbers from this and most other sample releases were designated as "conversion" cases; that is, if a respondent refused to complete the screening interview, another interviewer would call back to attempt to complete it unless the refusal was abusive or particularly hostile. The remaining 40 percent of numbers were designated as "no conversion," and were not called back after the initial screener refusal.

Because the Alameda County Health Care Agency contracted for an additional sample in Alameda, that sample was handled separately. The initial Alameda sample of 10,555 numbers, corresponding to the number of cases called for in the initial overall design, was fielded in early October 2004. This sample was monitored for yields by race and ethnicity within geographic areas (the cities of Oakland and Hayward and the remainder of Alameda County) to inform the next stage of design. Two additional Alameda samples were fielded, one of 26,202 numbers and one of 16,649, in early December 2003. Finally, a sample of 3,208 numbers was fielded in January 2004 to screen for additional African American households in Hayward.

5.1.2 Supplemental Samples

Two supplemental samples were fielded for CHIS 2003 to increase the yield of adult Korean and Vietnamese interview. The samples were based on surname lists and published telephone numbers. A total of 2,158 numbers were fielded from the Korean list, and 1,667 from the Vietnamese list. These numbers were all fielded early in 2004; all had addresses and all were designated as "no conversion."

5.2 Sample Preparation

Before releasing sampled telephone numbers for interviewing, Westat arranged for purging out-of-scope telephone numbers. Table 5-1 shows the number and proportion of sampled telephone numbers excluded because they were identified as nonworking or business numbers by RDD stratum.[6] See Report 1: Sample Design for more details on these procedures. Overall, just over 10 percent of sampled numbers were purged as businesses. The proportion of RDD numbers purged as business ranged from a low of 7.2 percent in Tulare County to a high of 13.1 percent in Alameda County. Another 25 percent of RDD numbers were identified as nonworking by automated dialing and detection of a tritone sound. The low was 16.8 percent in Butte County and the high 37.3 percent in Tulare County.

An advance letter signed by CHIS Director was sent for all sampled telephone numbers to which an address was available from reverse directory services. The advance letter (Appendix 1) used for the RDD samples was printed in English, Spanish, Chinese, Korean, and Vietnamese. For the Korean and Vietnamese supplemental samples, the letter was printed in English and the appropriate language.

Table 5-1 also shows the proportion of nonpurged numbers (those eligible to be called by Westat interviewers) for which addresses were obtained in reverse directory matches. Overall, about 70 percent of numbers yielded addresses in the matches performed with multiple vendors. There was not much variability by RDD stratum—Butte County had the highest address rate at 78.9 percent, and San Francisco County the lowest at 60.8 percent.[7]

Westat conducted an experiment to test the relative contribution of additional vendors to the address matching process. Three vendors were sent the entire original RDD sample (except that the Alameda oversample was excluded from the experiment). The first vendor provided addresses for just over 60 percent of the sampled numbers. The second vendor provided addresses for 28 percent of the numbers, including 3 percent that were not provided by the first vendor. The third vendor provided addresses for 25 percent of the sampled numbers, including 1 percent that were not provided by either the

[6] Note that this table includes only the sample delivered for CATI. Numbers identified as nonworking and business were subsampled at the rate of .75 from the original selection. The percentage of excluded numbers as calculated from the original sample is somewhat higher than that shown in the table, ranging from 0.8 to 1.7 percentage points higher for businesses and from 2.5 to 4.4 higher points for nonworking numbers.

[7] Similarly to purged numbers, numbers without addresses were subsampled at .75 from the original selection. The percentage of numbers for which addresses were obtained as calculated from the original sample is somewhat lower than that shown in the table, ranging from 5.3 to 7.0 percentage points lower.

Table 5-1. Number and percentage of telephone numbers removed from sample before calling by reason, and number and proportion of numbers available to be called for which addresses were obtained

Stratum	Description	Sampled	Removed—Business		Removed—Nonworking		Sample Available to Call			
			Number	Percentage	Number	Percentage	Total	Address	No address	% w/ Addr.
1	Los Angeles	97,181	10,218	10.5%	20,086	20.7%	66,877	46,179	20,698	69.1%
2	San Diego	17,468	1,922	11.0%	3,659	20.9%	11,887	8,679	3,208	73.0%
3	Orange	20,204	2,256	11.2%	4,790	23.7%	13,158	8,865	4,293	67.4%
4	Santa Clara	11,225	1,148	10.2%	3,025	26.9%	7,052	4,994	2,058	70.8%
5	San Bernardino	8,795	823	9.4%	1,737	19.7%	6,235	4,317	1,918	69.2%
6	Riverside	8,258	799	9.7%	1,454	17.6%	6,005	4,224	1,781	70.3%
7	Alameda	56,805	7,430	13.1%	20,899	36.8%	28,476	18,953	9,523	66.6%
8	Sacramento	7,404	817	11.0%	1,629	22.0%	4,958	3,494	1,464	70.5%
9	Contra Costa	6,053	557	9.2%	1,635	27.0%	3,861	2,913	948	75.4%
10	Fresno	4,940	410	8.3%	1,472	29.8%	3,058	2,229	829	72.9%
11	San Francisco	10,564	821	7.8%	2,597	24.6%	7,146	4,454	2,692	62.3%
12	Ventura	4,842	557	11.5%	1,079	22.3%	3,206	2,280	926	71.1%
13	San Mateo	5,496	491	8.9%	1,666	30.3%	3,339	2,487	852	74.5%
14	Kern	3,484	315	9.0%	953	27.4%	2,216	1,683	533	75.9%
15	San Joaquin	3,533	339	9.6%	710	20.1%	2,484	1,867	617	75.2%
16	Sonoma	3,463	363	10.5%	692	20.0%	2,408	1,839	569	76.4%
17	Stanislaus	3,469	346	10.0%	702	20.2%	2,421	1,853	568	76.5%
18	Santa Barbara	3,544	398	11.2%	899	25.4%	2,247	1,583	664	70.4%
19	Solano	3,068	265	8.6%	540	17.6%	2,263	1,773	490	78.3%
20	Tulare	4,031	291	7.2%	1,504	37.3%	2,236	1,693	543	75.7%
21	Santa Cruz	3,402	308	9.1%	885	26.0%	2,209	1,615	594	73.1%
22	Marin	4,375	541	12.4%	1,078	24.6%	2,756	1,956	800	71.0%
23	San Luis Obispo	2,935	308	10.5%	525	17.9%	2,102	1,543	559	73.4%
24	Placer	3,328	350	10.5%	630	18.9%	2,348	1,547	801	65.9%
25	Merced	3,369	287	8.5%	762	22.6%	2,320	1,768	552	76.2%
26	Butte	2,809	281	10.0%	471	16.8%	2,057	1,624	433	78.9%
27	Shasta	2,922	312	10.7%	553	18.9%	2,057	1,487	570	72.3%
28	Yolo	2,858	292	10.2%	551	19.3%	2,015	1,504	511	74.6%
29	El Dorado	3,418	306	9.0%	746	21.8%	2,366	1,681	685	71.0%
30	Imperial	3,517	341	9.7%	877	24.9%	2,299	1,776	523	77.3%

Table 5-1. Number and percentage of telephone numbers removed from sample before calling by reason, and number and proportion of numbers called for which addresses were obtained (continued)

Stratum	Description	Sampled	Removed—Business		Removed—Nonworking		Sample Available to Call			
			Number	Percentage	Number	Percentage	Total	Address	No address	% w/ Addr.
31	Napa	3,347	375	11.2%	650	19.4%	2,322	1,682	640	72.4%
32	Kings	3,445	298	8.7%	756	21.9%	2,391	1,759	632	73.6%
33	Madera	3,542	314	8.9%	815	23.0%	2,413	1,543	870	63.9%
34	Monterey, San Benito	4,208	434	10.3%	1,269	30.2%	2,505	1,832	673	73.1%
35	Del Norte, Humboldt	3,419	250	7.3%	1,193	34.9%	1,976	1,371	605	69.4%
36	Lassen, Modoc, Siskiyou, Trinity	2,918	233	8.0%	1,035	35.5%	1,650	1,160	490	70.3%
37	Lake, Mendocino	2,721	236	8.7%	744	27.3%	1,741	1,286	455	73.9%
38	Colusa, Glen, Tehama	2,482	231	9.3%	555	22.4%	1,696	1,226	470	72.3%
39	Sutter, Yuba	2,652	222	8.4%	604	22.8%	1,826	1,330	496	72.8%
40	Plumas, Nevada, Sierra	2,617	260	9.9%	651	24.9%	1,706	1,179	527	69.1%
41	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne	3,105	230	7.4%	875	28.2%	2,000	1,325	675	66.3%
	Total RDD	351,216	36,975	10.5%	87,953	25.0%	226,288	158,553	67,735	70.1%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey.

first or second vendor. Thus, while there is a marginal gain in the proportion of sampled numbers for which an address is obtained, the extent of the gain diminishes rapidly, at least with the vendors used in this experiment.

5.3 Sample Management

All of the RDD cases were classified by whether they were designated for refusal conversion at the screener stage or not and whether an address was obtained from directory services. Cases designated for conversion were fielded before those that were not. Cases with addresses were divided into "release groups," or random subsets of the overall samples. They were fielded in such a way that the prenotification letters would be received within a few days of the initial telephone contact attempt. Both cases with and without addresses were given the same priority within the CATI scheduler.

Within the CATI system, active and completed cases were allocated into work classes, which are divisions of the sample that are to be worked by interviewers with special training or skills. Westat's CATI scheduler treats each work class as an independent sample. Work classes were given priority order for delivery of work to qualified interviewers. For example, a refusal converter would always be delivered a refusal work class case if one was available before being given a case from the default work class. The CHIS 2003 work classes were defined as follows:

- **Default—**All RDD and county supplemental sample cases on initial release, and continuing RDD and county supplemental sample cases that had not been moved to another work class; available to all interviewers;
- **Refusal—**Any RDD sample case that encountered a refusal at any point in the interview process, whether at the screener or any extended interview level; available only to interviewers selected to work and trained as refusal converters. There were five different refusal work classes: screener initial refusal, extended refusal (other than adolescent and adolescent permission), adolescent refusal, adolescent permission refusal, and second refusals of any type;
- **Hearing/Speech—**Any RDD or county supplemental sample case in which a respondent was determined to have difficulty communicating because of hearing or speech impairment;
- **Language (Spanish)—**Any case determined or suspected to require a Spanish bilingual interviewer to re-contact; available only to the appropriate bilingual interviewers;
- **Language (Mandarin, Cantonese, Vietnamese, and Korean)—**All RDD cases determined or suspected to require a Mandarin, Cantonese, Vietnamese, or Korean bilingual interviewer to re-contact; available only to the appropriate bilingual interviewers;

- **Language (Other)—**Any RDD or county supplemental sample case determined or suspected to require contact in a language other than Spanish, Mandarin, Cantonese, Korean, or Vietnamese; available to bilingual interviewers for verification of language spoken by the respondent;

- **Ethnic Supplemental Samples (Vietnamese and Korean)—**Each of these supplemental samples was loaded in its own work class, available to bilingual interviewers, and to English-only interviewers trained to screen these samples; and

- **Proxy Interviews—**For sampled adults 65 or older who could not complete the interview because of poor health or physical limitations, selected interviewers attempted to complete an interview with a proxy respondent in the household.

Toward the end of the field period, Westat data collection and statistical staff monitored the yield (number of completed interviews) by stratum, and by substratum within counties that had substratum targets. As the number of completed interviews neared the targets, several actions were possible. Some cases in each stratum (and substratum) were held in reserve; in strata that appeared to be falling short of the targets, an additional sample was released for calling. This process was repeated several times, re-calibrating the fielded sample as more information on progress to date became available. Table 5-2 describes the sample by stratum that was never called. Overall, 6.6 percent of sampled numbers were never called. In four strata (Alameda, Santa Cruz, San Luis Obispo, and Plumas-Nevada-Sierra) all sampled numbers were called. At the other extreme, more than 12 percent of sampled numbers were not called in San Bernardino, Riverside, Colusa-Glen-Tehama, and Sutter-Yuba. Table 5-2 also shows the proportion of numbers called and not called for which addresses were obtained. Overall, a higher proportion of called numbers had addresses (72 percent) than did those that were not called (50 percent).

5.4 Inbound Toll-Free Calls

Westat maintained a toll-free number for respondents to call with questions about the survey. The toll-free line was staffed weekdays from 9 a.m. to midnight Eastern Time, Saturdays from 10 a.m. – 6 p.m. Eastern Time, and Sundays from 2 p.m. – 10 p.m. Eastern Time. In the event an operator was not available to field the call or for calls made outside of the above time frames, the caller was directed to a voicemail message specific to CHIS.

Respondents had access to the toll-free number from a variety of sources. The toll-free number was included on all advance letters with an invitation for respondents with questions to call. The number was also placed on all refusal conversion letters sent to respondents who had earlier refused to participate. Interviewers provided the number throughout the data collection period to respondents who requested additional information.

Table 5-2. Number and percentage of telephone numbers removed from sample before calling by reason, and number and proportion of numbers available to be called for which addresses were obtained

Stratum	Description	Sample Available	Sample Not Called		Not Called with Address		Called with Address	
			Number	Percentage	Number	Percentage	Number	Percentage
1	Los Angeles	66,877	7,558	7.8%	3,776	50.0%	42,403	71.5%
2	San Diego	11,887	840	4.8%	578	68.8%	8,101	73.3%
3	Orange	13,158	1,090	5.4%	662	60.7%	8,203	68.0%
4	Santa Clara	7,052	1,181	10.5%	511	43.3%	4,483	76.4%
5	San Bernardino	6,235	1,085	12.3%	453	41.8%	3,864	75.0%
6	Riverside	6,005	1,016	12.3%	441	43.4%	3,783	75.8%
7	Alameda	28,476	0	0.0%	0	N/A	18,953	66.6%
8	Sacramento	4,958	575	7.8%	353	61.4%	3,141	71.7%
9	Contra Costa	3,861	573	9.5%	252	44.0%	2,661	80.9%
10	Fresno	3,058	484	9.8%	219	45.2%	2,010	78.1%
11	San Francisco	7,146	834	7.9%	381	45.7%	4,073	64.5%
12	Ventura	3,206	537	11.1%	232	43.2%	2,048	76.7%
13	San Mateo	3,339	531	9.7%	260	49.0%	2,227	79.3%
14	Kern	2,216	334	9.6%	161	48.2%	1,522	80.9%
15	San Joaquin	2,484	321	9.1%	173	53.9%	1,694	78.3%
16	Sonoma	2,408	248	7.2%	128	51.6%	1,711	79.2%
17	Stanislaus	2,421	323	9.3%	168	52.0%	1,685	80.3%
18	Santa Barbara	2,247	223	6.3%	135	60.5%	1,448	71.5%
19	Solano	2,263	211	6.9%	159	75.4%	1,614	78.7%
20	Tulare	2,236	284	7.0%	143	50.4%	1,550	79.4%
21	Santa Cruz	2,209	0	0.0%	0	N/A	1,615	73.1%
22	Marin	2,756	339	7.7%	145	42.8%	1,811	74.9%
23	San Luis Obispo	2,102	0	0.0%	0	N/A	1,543	73.4%
24	Placer	2,348	243	7.3%	137	56.4%	1,410	67.0%
25	Merced	2,320	250	7.4%	118	47.2%	1,650	79.7%
26	Butte	2,057	237	8.4%	126	53.2%	1,498	82.3%
27	Shasta	2,057	297	10.2%	133	44.8%	1,354	76.9%
28	Yolo	2,015	143	5.0%	114	79.7%	1,390	74.3%
29	El Dorado	2,366	228	6.7%	133	58.3%	1,548	72.4%
30	Imperial	2,299	193	5.5%	139	72.0%	1,637	77.7%
31	Napa	2,322	0	0.0%	0	N/A	1,682	72.4%

Table 5-2. Number and percentage of telephone numbers removed from sample before calling by reason, and number and proportion of numbers available to be called for which addresses were obtained (continued)

Stratum	Description	Sample Available	Sample Not Called		Not Called with Address		Called with Address	
			Number	Percentage	Number	Percentage	Number	Percentage
32	Kings	2,391	303	8.8%	141	46.5%	1,618	77.5%
33	Madera	2,413	366	10.3%	118	32.2%	1,425	69.6%
34	Monterey, San Benito	2,505	323	7.7%	145	44.9%	1,687	77.3%
35	Del Norte, Humboldt	1,976	293	8.6%	132	45.1%	1,239	73.6%
36	Lassen, Modoc, Siskiyou, Trinity	1,650	288	9.9%	137	47.6%	1,023	75.1%
37	Lake, Mendocino	1,741	310	11.4%	144	46.5%	1,142	79.8%
38	Colusa, Glen, Tehama	1,696	317	12.8%	149	47.0%	1,077	78.1%
39	Sutter, Yuba	1,826	326	12.3%	145	44.5%	1,185	79.0%
40	Plumas, Nevada, Sierra	1,706	0	0.0%	0	N/A	1,179	69.1%
41	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne	2,000	350	11.3%	135	38.6%	1,190	72.1%
	Total RDD	226,288	23,054	6.6%	11,476	49.8%	147,077	72.4%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey.

Between the start of data collection in August 2003 and the end in February 2004 more than 1,400 calls were made to the toll-free number from individuals who spoke directly with Westat staff. Forty-one voicemail messages were left. The vast majority of these calls were made simply to verify the legitimacy of the study or ask general questions with no further action required. Of these calls, 308 resulted in Westat staff accessing the case ID number and giving the household a specific disposition. One hundred seventy adult interviews were completed in households that provided enough information to link their call to a specific case. Of the 170 adult interviews completed, 96 of the households had refused prior to calling the toll-free number but agreed to participate after the call. Seventy-four others called to express interest in completing the interview and recommend convenient times for the interview. Staff fielding the calls had the capability of setting future appointments for respondents. Respondents who were available to complete the interview at the time of their call could be directly transferred to an interviewer for immediate attention.

One hundred and three people called the toll-free number to refuse to be interviewed. Staff attempted to address concerns of anyone who called to expressly refuse participation. Some complained that they were being called after registering to be on the national "do not call" list or were called on nonpublished numbers. If the attempt to persuade the individual to cooperate was unsuccessful, the case was given a final refusal result code and was not eligible for a callback through the normal conversion process.

Respondents who called were asked to provide the telephone number on which an interviewer had contacted them. If their call was the result of receiving a letter, the home telephone number was collected. Using a utility linking sample telephone numbers to the study ID numbers, staff were able to match all but six calls to the specific case when a number was provided. For the six people for whom no ID match to their telephone number could be made, it was presumed that the advance letter they received did not match a sample telephone number. Once an ID number was located, a disposition could be given to the case

Thirty-eight of the calls to the toll-free number resulted in a final disposition other than a completion or refusal. Some of these calls were made to notify staff that a selected adult was physically or mentally unable to complete an interview or was otherwise unavailable during the field period.

UCLA also maintained a toll-free number during the field period, which was available on the CHIS web site. Westat interviewers provided the UCLA number to respondents who specifically wanted

to talk with someone there, and in other cases to help persuade the person to do the interview. There was continual back-and-forth contact between UCLA and Westat in response to these calls. Westat followed up on any calls complaining about an interviewer's behavior by identifying the interviewer and reviewing the case with her or him.

6. DATA COLLECTION RESULTS

This chapter describes the results of the CHIS 2003 data collection, first presenting detailed tables of outcomes at each interview level, and then discussing procedures to increase response once various interim outcomes were encountered. The chapter discusses separately strategies for answering machines, "ring no answers," callbacks, language problems, and refusals.

6.1 Detailed Results by Outcome

Interviewers assign a result code to each attempt to reach a sampled telephone number. The codes are divided into interim (numeric) and final (alpha) codes. During data collection, each case is tracked according to its most recent result code. Cases with interim codes are typically managed automatically by the scheduler according to preset parameters, such as how to work through "time slices" (see Section 6.3) and how long to wait before re-contacting an initial refusal. Problem cases (result codes beginning with "8") require manual intervention before they are re-fielded.

Cases assigned certain final result codes are often re-fielded, but these actions require specific decisions and return of cases to the active scheduler. For example, cases with no contact after seven calls were given a final status of "NA," if the only contact over seven calls was an answering matching, the code "NM" was assigned. Groups of NA and NM cases were periodically re-fielded for an additional set of seven calls each. Once a case resulted in some human contact, it was no longer eligible for a final NA or NM code.

Initial refusals (interim codes beginning with "2") were moved to the refusal work class and generally not contacted for 2 weeks.[8] Initial refusals that were considered hostile or abusive received a final result code of "RB." If a case received a second refusal, it was also coded as RB. Some RBs were re-fielded for a third attempt.

At the end of the field period, all remaining interim cases were assigned final result codes according to their call history. Many cases for which some contact had been made received codes

[8]An exception was that Westat conducted an experiment with the hold period for screener refusals, described in Section 6.**??**. Eighty percent of the screener refusals were held for 3 weeks, 10 percent for 2 weeks, and another 10 percent for only 1 week.

beginning with "M" (maximum calls), with the actual designation depending on what else had happened during their call history.

Tables 6-1, 6-3, 6-5, and 6-6 present the complete final result code dispositions, by sample, for the screener, adult, child, and adolescent interviews, respectively. The following sections discuss these results by instrument.

6.1.1 Screening Interview

As shown in Table 6-1, nearly half of the sampled RDD telephone numbers were determined to be out of scope, either because they were nonresidential or nonworking. More than 70 percent of the out-of-scope cases were identified before the sample was fielded (NB and NT results, see Table 5-3) and the other half through interviewer calls (NR, NW, and OD results). As one would expect, the surname samples had considerably lower rates of out-of-scope cases, with 21 percent for the Korean list sample and 16 percent for the Vietnamese list sample.

Eligibility criteria for the RDD sample were quite limited; only 5 cases were determined to be ineligible during the screener because more than nine unrelated adults lived in the household, and 13 where there were no adults in the household.[9] The special Hayward oversample within the RDD was screened for persons identifying as African Americans, Koreans, and Vietnamese. The 723 "IS" **(**no eligible adult in household**)** status cases are from this sample.

For the ethnic supplemental samples, households were eligible if one or more adults were of the target ethnicity. The eligibility rates (completed screeners with eligible households divided by completed screeners with both eligible and ineligible households) for the ethnic supplemental samples were 45 percent for the Korean sample and 54 percent for the Vietnamese sample. These rates compare with 39 percent and 92 percent, respectively, for these samples in CHIS 2001. There is no ready explanation for the dramatic drop from 2001 to 2003 for the Vietnamese sample. For both of these samples, it is likely that the language problem cases are also ineligible, since interviewers speaking

[9] Unlike CHIS 2001, in 2003 we did not interview in households where all residents were under age 18.

Table 6-1. Detailed results of CHIS 2003 data collection, screening interview, by sample

	RDD			KOREAN LIST			VIETNAMESE LIST		
		Percentage			Percentage			Percentage	
	Number	Within category	of Total	Number	Within category	of Total	Number	Within category	of Total
CS – COMPLETED SCREENER (C)	66,243		18.86%	213		9.87%	201		12.06%
NEVER CALLED	23,054		6.56%	0		0.00%	0		0.00%
Ineligible(I)									
IF – INELIGIBLE SCREENER; >9 UNRELATED ADULTS	5	0.67%		0	0.00%		0	0.00%	
IS – INELIGIBLE SCREENER; NO ELIGIBLE ADULTS	723	97.57%		260	99.24%		171	100.00 %	
IZ – INELIGIBLE SCREENER; NO ADULTS IN HH	13	1.75%		2	0.76%		0	0.00%	
Total Ineligible	741		0.21%	262		12.14%	171		10.26%
Out of Scope									
NB – NONRESIDENTIAL, BUSINESS PURGE	36,975	21.16%		0	0.00%		0	0.00%	
NR – NONRESIDENTIAL PHONE NUMBER	10,860	6.22%		60	13.42%		34	12.73%	
NT – NONWORKING, TRITONE MATCH	87,953	50.34%		0	0.00%		0	0.00%	
NW – NONWORKING PHONE NUMBER	38,905	22.27%		387	86.58%		233	87.27%	
OD – DUPLICATE TELEPHONE NUMBER	17	0.01%		0	0.00%		0	0.00%	
Total Out of Scope	174,710		49.74%	447		20.71%	267		16.02%
Noncontact									
NA – NO CONTACT MADE AFTER TIME SLICES FILLED	22,128	73.19%		121	35.48%		178	39.12%	
NM – NO CONTACT – REACHED ANSWERING MACHINE	8,104	26.81%		220	64.52%		277	60.88%	
Total Noncontact	30,232		8.61%	341		15.80%	455		27.29%
Refusal (R)									
R1 -- NO SCREENER REFUSAL CONVERSION	21,719	49.27%		575	90.84%		308	81.05%	
R3 – FINAL REFUSAL – RECEIVED 3 OR MORE 2S	11,706	26.56%		0	0.00%		0	0.00%	
RB – FINAL REFUSAL	2,053	4.66%		58	9.16%		72	18.95%	
RM – REFUSAL REACHED MAXIMUM CALL LIMIT	4,225	9.59%		0	0.00%		0	0.00%	
RX – RE-RELEASED RB REACHED MAX CALL LIMIT	4,376	9.93%		0	0.00%		0	0.00%	
Total Refusal	44,079		12.55%	633		29.33%	380		22.80%
Other Nonresponse									
LH – FINAL HEARING AND SPEECH PROBLEM	101	0.83%		1	0.38%		1	0.52%	
LM – LANGUAGE PROBLEM REACHED MAX CALLS	3,691	30.36%		86	32.82%		31	16.06%	
LP – FINAL LANGUAGE PROBLEM	1,491	12.26%		70	26.72%		77	39.90%	
MC – MAXIMUM CALLS	6,697	55.09%		102	38.93%		84	43.52%	
ML – MAXIMUM CALLS – LANGUAGE PROB IN HH	4	0.03%		0	0.00%		0	0.00%	
MR – MAXIMUM CALLS – REFUSAL IN HH	3	0.02%		0	0.00%		0	0.00%	
NO – OTHER NONRESPONSE	170	1.40%		3	1.15%		0	0.00%	
Total Other Nonresponse	12,157		3.46%	262		12.14%	193		11.58%
TOTAL	351,216		100.00 %	2,158		100.00%	1,667		100.00%
ELIGIBILITY RATE (C / (C+I))			98.89%	33.70% (with language)		44.84%	41.79% (with language)		54.03%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey

Korean and Vietnamese were working their respective samples. If the language problem cases are considered ineligible, the eligibility rates drop to 34 and 42 percent, respectively, as compared with 30 percent and 76 percent in 2001.

The completion rate, or sample yield, is simply the ratio of completed screeners for eligible households to the total sample. Since the denominator includes out-of-scope and ineligible cases, it is considerably lower than the response rate (see Report 4: Response Rates), but is useful because it shows what sample size is needed to achieve a particular number of completed cases. The completion rate (top right-hand corner of each sample's columns) is 19 percent for the RDD sample. If the "never called" cases are removed from the denominator (see Table 6-2), the completion rate is about 21 percent, as compared with 27 percent for CHIS 2001. The refusal rate in 2003 is about 3 percentage points higher than that in 2001, due in part (about half) to subsampling refusals for conversion. The 2003 out-of-scope rate is also about 3.8 percent higher than in 2001. This increase occurred despite a lower subsampling rate for the business and nonworking purged numbers (0.75 in 2003 versus 0.8 in 2001). The purge (NB/NT) identified a much higher proportion of the total out-of scope numbers in 2003 (almost 70 percent) than in 2001 (about 50 percent). The purge procedure used in 2003 was more advanced than that used in 2001, which may explain most or all of the differences between the 2001 and 2003 proportions. There may also be just more out of scope numbers in the 2003 frame than there were in 2001. Note that the proportion of noncontacts in the overall sample shown in Table 6-2 is lower in 2001 than in 2003, which may be the result of the improved purge.

Table 6-2. Comparison of RDD Screener Outcomes between CHIS 2003 and CHIS 2001

	CHIS 2003		CHIS 2001	
	Number	Rate	Number	Rate
Completed Screeners	66,243	21.0%	82,009	27.8%
Ineligible	741	0.2%	2	0.0%
Out of Scope	161,982	51.4%	140,675	47.6%
NB/NT	112,200	35.6%	71,759	24.3%
NR/NW	49,765	15.8%	68,912	23.3%
Noncontact	30,232	9.6%	30,548	10.3%
Refusal	44,079	14.0%	32,295	10.9%
Other Nonresponse	12,157	3.9%	9,785	3.3%
Total	315,434		295,314	

Note: This table excludes noncalled numbers and a concomitant proportion of purged (NB/NT) numbers for CHIS 2003

Source: UCLA Center for Health Policy Research, 2001 and 2003 California Health Interview Survey

The completion rates for the Korean (10 percent) and Vietnamese (12 percent) list samples shown in Table 6-1 were both lower than the corresponding 2001 rates (14 and 33 percent, respectively). Since refusal conversion was not attempted for either of these samples, much of the difference is explained by a higher refusal rate. The noncontact rate was also much higher in 2003 than in 2001 for both samples. Further, for the Vietnamese sample the proportion of ineligible (10 percent) was more than three times higher in 2003 than in 2001.

6.1.2 Adult Extended Interview

The number of completed (eligible) screeners becomes the total number of cases available for the adult extended interview. The results of data collection efforts for the adult extended interview are shown in Table 6-3.

Completed adult extended interviews accounted for 63 percent of RDD sample adults. The CHIS team decided that it would use data from partially completed adult interviews, so long as the interview went at least through Section J. Just over 1 percent of all adult interviews counted as complete were only partially done (CP). The proportion of completed interviews (CA and CP) of 63 percent compares with 66 percent in CHIS 2001. The proportion of refusals in the 2003 RDD adult sample (17 percent) was virtually identical to that of 2001; the proportion of other nonresponse (18 percent) was up about three points, accounting for the decline in the completion rate.

The completion rates were lower for the Korean (53 percent) and Vietnamese (57 percent) list samples than for the RDD, because of the higher proportions of ineligible adults (self-reporting themselves to be not Korean or Vietnamese) and "other nonresponse," typically inability to contact the sampled adult after repeated attempts. The net results for the 2003 Vietnamese sample were very similar to those in CHIS 2001, but the completion rate for the Korean list was about 10 points lower than in 2001. The difference was largely due to higher rates of ineligibles and "other nonresponse."

The CHIS 2003 eligibility rates for the Korean (92 percent) and Vietnamese (91 percent) samples were both somewhat lower than those in 2001 (98 and 95 percent, respectively). When factoring in the language problem cases, the 2003 rates were also somewhat lower than in 2001—87 versus 92 percent for the Korean sample, and 87 versus 94 percent for the Vietnamese.

Table 6-3. Detailed results of CHIS 2003 data collection, adult extended interview, by sample

	RDD			KOREAN LIST			VIETNAMESE LIST		
		Percentage			Percentage			Percentage	
	Number	Within category	of Total	Number	Within category	of Total	Number	Within category	of Total
Completed Interviews									
CA – COMPLETED ADULT EXTENDED	41,265	98.68%		106	94.64%		107	93.86%	
CP – ADULT PARTIAL COMPLETE – FINISHED	553	1.32%		6	5.36%		7	6.14%	
Total Completed Interviews	41,818		63.13%	112		52.58%	114		56.72%
Ineligible									
IA – INELIGIBLE AGE FOR ADULT EXTENDED	36	85.71%		0	0.00%		0	0.00%	
IN – INELIGIBLE ADULT RACE FOR SURNAME SAMPLE	6	14.29%		10	100.00%		11	100.00%	
Total Ineligible	42		0.06%	10		4.69%	11		5.47%
Out of Scope									
OE – OUT OF SCOPE ENUMERATION ERROR	1,211	99.92%		1	100.00%		2	100.00%	
OO – OTHER OUT OF SCOPE	1	0.08%		0	0.00%		0	0.00%	
Total Out of Scope	1,212		1.83%	1		0.47%	2		1.00%
Refusal									
R3 – FINAL REFUSAL RECEIVED 3 OR MORE 2S	576	5.02%		0	0.00%		0	0.00%	
RB – FINAL REFUSAL	6,711	58.53%		16	57.14%		24	72.73%	
RM – REFUSAL REACHED MAXIMUM CALL LIMIT	3,459	30.17%		12	42.86%		9	27.27%	
RX – RE-RELEASED RB REACHED MAX CALL LIMIT	719	6.27%		0	0.00%		0	0.00%	
Total Refusal	11,465		17.31%	28		13.15%	33		16.42%
Other Nonresponse									
LH – FINAL SCRNRSLT HEARING AND SPEECH PROBLEM	130	1.11%		0	0.00%		1	2.44%	
LM – SCRNRSLT PROBLEM REACHED MAX CALLS	727	6.21%		5	8.06%		5	12.20%	
LP – FINAL SCRNRSLT PROBLEM	268	2.29%		2	3.23%		1	2.44%	
MC – MAXIMUM CALLS	3,504	29.93%		32	51.61%		23	56.10%	
ML – MAXIMUM CALLS – SCRNRSLT PROB IN HH	3,315	28.32%		15	24.19%		4	9.76%	
MR – MAXIMUM CALLS – REFUSAL IN HH	1,683	14.38%		0	0.00%		0	0.00%	
MT – MAXIMUM NUMBER OF CALL ATTEMPTS	28	0.24%		0	0.00%		0	0.00%	
ND – RESPONDENT DECEASED	52	0.44%		0	0.00%		0	0.00%	
NF – RESPONDENT NOT FOUND AT CALL BACK	120	1.03%		1	1.61%		0	0.00%	
NO – OTHER NONRESPONSE	1,513	12.92%		4	6.45%		4	9.76%	
NR – NONRESIDENTIAL PHONE NUMBER	10	0.09%		0	0.00%		0	0.00%	
NS – SUBJECT SICK/INCAPACITATED	352	3.01%		3	4.84%		3	7.32%	
NW – NONWORKING PHONE NUMBER	4	0.03%		0	0.00%		0	0.00%	
Total Other Nonresponse	11,706		17.67%	62		29.11%	41		20.40%
TOTAL	66,243		100.00%	213		100.00%	201		100.00%
ELIGIBILITY RATE			99.90%	86.82% (with language)		91.80%	86.36% (with language)		91.20%
COOPERATION RATE			78.48%			80.00%			77.55%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey

There was less variability in cooperation rates than in completion and eligibility rates across the samples, with all three being in the 78-80 percent range. Nonresponse other than refusals tended to be more of an issue for the Korean sample than for the RDD or Vietnamese, as it accounted for 29 percent of all sampled adults versus 18 percent for the RDD and 20 percent for the Vietnamese samples.

Thus far, the discussion has considered cooperation, eligibility, and completion rates for the screener and adult interviews separately. In fact, it is the combination of these two sets of rates that is most instructive in judging the performance of the samples. Table 6-4 presents the combined eligibility and completion rates[10] for each sample for both 2003 and 2001. The combined eligibility rates are very similar between 2001 and 2003 for the RDD and the Korean list sample. For the Vietnamese list sample, the combined eligibility rates, both including and excluding language problem cases, is dramatically lower (almost half) in 2003 than in 2001. This difference is driven more by the screener rate described earlier than by the adult extended rate.

The combined completion (yield) rate provides a basic statistic for sample performance: how many sampled telephone numbers does it take to yield one completed adult interview? Note that the completion rate is a function of the cooperation and eligibility rates, and also includes residency and other nonresponse components. The main RDD sample had a combined yield rate of about 12 percent, or about 8.3 sampled telephone numbers per adult completed interview. This rate compares with 18 percent in 2001. The difference is largely driven by the screener completion rate, which results from a higher level of nonresponse, including not following up a subsample of screener refusals.

Neither of the ethnic supplemental samples had as high a yield as the RDD in either 2003 or 2001, with the Korean sample at 5 percent and the Vietnamese sample at 7 percent in 2003, as compared with 9 percent and 18 percent respectively in 2001. The drop for the Korean sample is driven by a higher level of nonresponse, including not following up screener refusals. While increased nonresponse is a factor for the Vietnamese sample as well, the dramatically lower screener eligibility rate is the most significant source of the reduction.

[10] Cooperation rates are not included because the subsampling for refusal conversion makes the 2 years' surveys not comparable.

Table 6-4. CHIS 2003 and 2001 cooperation, eligibility, and completion rates combined across screening and adult interviews

	Eligibility rate			Completion (yield) rate		
	Screener	Adult extended	Combined	Screener	Adult extended	Combined
RDD 2003	98.89%	99.90%	98.79%	18.86%	63.13%	11.91%
RDD 2001	100.00%	99.90%	99.90%	27.80%	66.00%	18.30%
Korean 2003	44.84%	91.80%	41.17%	9.87%	52.58%	5.19%
Korean 2001	39.30%	97.90%	38.50%	14.20%	63.20%	9.00%
Korean 2003 (with language ineligible)	33.70%	86.82%	29.26%			
Korean 2001 (with language ineligible)	29.90%	92.40%	27.60%			
Vietnamese 2003	54.03%	91.20%	49.28%	12.06%	56.72%	6.84%
Vietnamese 2001	91.90%	94.90%	87.20%	32.60%	55.50%	18.10%
Vietnamese 2003 (with language ineligible)	41.79%	86.36%	36.09%			
Vietnamese 2001 (with language ineligible)	76.10%	93.80%	71.40%			

Source: UCLA Center for Health Policy Research, 2003 and 2001 California Health Interview Survey

6.1.3 Child Extended Interview

The completion rate for the child interview (Table 6-5) in the RDD sample was about 86 percent, down about three points from CHIS 2001, with small increases in rates of ineligibility, refusal, and other nonresponse. The completion rates were substantially lower for the ethnic list samples than for the RDD. The completion rate for the Korean sample (69 percent) was 21 points lower than in CHIS 2001, due in large part to a large increase in the proportion of refusals. The rate for the Vietnamese sample (76 percent) was virtually identical to that in CHIS 2001.

6.1.4 Adolescent Extended Interview

Table 6-6 presents data collection results for the adolescent interviews by type of sample. All of the numbers and percentages in the upper portion of the table refer to sampled adolescents for whom permission to interview was obtained from a responsible adult. The bottom three rows add the permission dimension.

Table 6-5. Detailed results of CHIS 2003 data collection, child extended interview, by sample

	RDD			KOREAN LIST			VIETNAMESE LIST		
		Percentage			Percentage			Percentage	
	Number	Within category	of Total	Number	Within category	of Total	Number	Within category	of Total
Completed Interviews									
CC – COMPLETED CHILD EXTENDED	8,480		85.90%	24		68.57%	22		75.86%
Ineligible									
IC – INELIGIBLE AGE FOR CHILD EXTENDED	56		0.57%	1		2.86%	1		3.45%
Out of Scope									
OE – OUT OF SCOPE ENUMERATION ERROR	20			0			0		
Refusal									
RB – FINAL REFUSAL	461	74.24%		5	71.43%		0	0.00%	
RM – REFUSAL REACHED MAXIMUM CALL LIMIT	160	25.76%		2	28.57%		1	100.00%	
Total Refusal	621		6.29%	7		20.00%	1		3.45%
Other Nonresponse									
LH – FINAL SCRNRSLT HEARING AND SPEECH PROBLEM	1	0.14%		0	0.00%		0	0.00%	
LM – SCRNRSLT PROBLEM REACHED MAX CALLS	8	1.15%		0	0.00%		0	0.00%	
MC – MAXIMUM CALLS	175	25.18%		0	0.00%		3	60.00%	
ML – MAXIMUM CALLS – SCRNRSLT PROB IN HH	287	41.29%		2	66.67%		1	20.00%	
MR – MAXIMUM CALLS – REFUSAL IN HH	137	19.71%		1	33.33%		0	0.00%	
MT – MAXIMUM NUMBER OF CALL ATTEMPTS	2	0.29%		0	0.00%		0	0.00%	
NF – RESPONDENT NOT FOUND AT CALL BACK	9	1.29%		0	0.00%		0	0.00%	
NL – NOT LOCATABLE THROUGH TRACING	76	10.94%		0	0.00%		1	20.00%	
Total Other Nonresponse	695		7.04%	3		8.57%	5		17.24%
TOTAL	9,872		100.00%	35		100.00%	29		100.00%
COOPERATION RATE			93.18%			77.42%			95.65%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey.

Table 6-6. Detailed results of CHIS 2003 data collection by sample, adolescent extended interview

	RDD			KOREAN LIST			VIETNAMESE LIST		
		Percentage			Percentage			Percentage	
	Number	Within category	of Total	Number	Within category	of Total	Number	Within category	of Total
Completed Interviews									
CT – COMPLETED ADOLESCENT EXTENDED	3,996		83.4%	6		100.0%	8		72.7%
Ineligible									
IT – INELIGIBLE AGE FOR TEEN EXTENDED	65		1.4%	0		0.0%	0		0.0%
Out of Scope									
OE – OUT OF SCOPE ENUMERATION ERROR	24		0.5%	0		0.0%	0		0.0%
Refusal									
R3 – FINAL REFUSAL – RECEIVED 3 OR MORE 2S	1	0.3%		0			0	0.0%	
RB – FINAL REFUSAL	339	89.9%		0			1	100.0%	
RM – REFUSAL REACHED MAXIMUM CALL LIMIT	35	9.3%		0			0	0.0%	
RT – ADOLESCENT REFUSED GENDER QUESTION	2	0.5%		0			0	0.0%	
Total Refusal	377		7.9%	0		0.0%	1		9.1%
Other Nonresponse									
LH – FINAL SCRNRSLT HEARING AND SPEECH PROBLEM	1	0.3%		0			0	0.0%	
LM – SCRNRSLT PROBLEM REACHED MAX CALLS	1	0.3%		0			0	0.0%	
LP – FINAL SCRNRSLT PROBLEM	1	0.3%		0			0	0.0%	
MC – MAXIMUM CALLS	83	25.1%		0			0	0.0%	
ML – MAXIMUM CALLS – SCRNRSLT PROB IN HH	135	40.8%		0			1	50.0%	
MR – MAXIMUM CALLS – REFUSAL IN HH	37	11.2%		0			0	0.0%	
NF – NOT AVAILABLE IN FIELD PERIOD	9	2.7%		0			0	0.0%	
NL – NOT LOCATABLE THROUGH TRACING	50	15.1%		0			1	50.0%	
NO – OTHER NONRESPONSE	1	0.3%		0			0	0.0%	
NS – SUBJECT SICK/INCAPACITATED	13	3.9%		0			0	0.0%	
Total Other Nonresponse	331		6.9%	0		0.0%	2		18.2%
TOTAL	4,793		100.0%	6		100.0%	11		100.0%
COOPERATION RATE			91.4%			100.0%			88.9%
ADOLESCENTS SAMPLED	6,613			22			20		
PERMISSION NOT RECEIVED	1,820		27.5%	16		72.7%	9		45.0%
COMBINED COMPLETION RATE			60.4%			27.3%			40.0%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey

The completion rate among adolescents for the RDD sample (83 percent) was almost exactly the same as for CHIS 2001, although the combined completion rate (60 percent) was almost four points lower because of a higher refusal rate from the permission giving adult (PGA). The adolescent sample sizes in the supplemental samples are relatively small, and the completion rates higher than for the RDD. However, the PGA refusal rate was much higher for both the Korean and Vietnamese samples than for the RDD, so the overall completion rates were much lower for the supplemental samples. The rate for the Vietnamese sample (40 percent) was comparable to that in CHIS 2001, but, as with the child interview, the rate for the Korean sample (27 percent) was much lower than in 2001 (59 percent).

6.2 Answering Machines

Studies indicate that leaving a message on an answering machine seems to increase cooperation rates (e.g., Xu et al., 1993). Apparently the message acts as an advance letter in that it legitimizes the study, allows the respondent time to make an informed decision, and distinguishes the "survey telephone call" from telemarketing calls. Because of this finding in the literature, the message below was left the **first time** an answering machine was encountered at a telephone number.

> "Hello, I'm calling for the University of California. We are doing a study about the health of the people of California and about health care. I am not asking for money—this is a scientific study called the California Health Survey.
>
> We will call you back in the next few days."

Table 6-7 shows the proportion of the sample with at least one answering machine contact at the screener and adult extended level for both CHIS 2003 and CHIS 2001, and the percentage point change from 2001 to 2003. Overall, more than one-third of all cases attempted at each level had at least one call reach an answering machine. The 2003 screener rate (40 percent) was up two points from 2001, while the rate for the extended interview (36 percent) was virtually unchanged. At the low end of the RDD screening interview is Imperial County, with just more than one-quarter of all cases having an answering machine contact; at the high end are Marin and Contra Costa Counties, with about 46 percent. Tulare County had the lowest rate for the extended interview, at 25 percent, and Marin County the highest, at 43 percent. Most counties showed an increase in the rate for the screening interview, headed by Kern County Stratum 36 at a seven point increase; among the counties with lower rates, San Francisco and Alameda declined the most, at about three and one half points. San Francisco also showed a decline

Table 6-7. Proportion of numbers called at screener and adult extended level with at least one answering machine contact, CHIS 2003 and CHIS 2001

		Percentage of cases with at least one answering machine contact					
		Screener			Adult extended		
Stratum	Description	2003	2001	Diff.	2003	2001	Diff.
1	Los Angeles	40.7%	39.0%	1.8%	37.1%	37.4%	-0.3%
2	San Diego	43.1%	40.9%	2.3%	40.3%	40.0%	0.3%
3	Orange	39.5%	39.3%	0.2%	40.6%	40.4%	0.3%
4	Santa Clara	43.2%	38.1%	5.1%	39.3%	41.2%	-1.9%
5	San Bernardino	44.1%	38.2%	5.9%	39.2%	36.5%	2.7%
6	Riverside	42.7%	37.8%	4.9%	38.9%	37.3%	1.5%
7	Alameda	37.6%	41.2%	-3.6%	35.8%	38.1%	-2.3%
8	Sacramento	40.2%	38.2%	2.0%	38.3%	36.3%	2.0%
9	Contra Costa	45.7%	42.1%	3.5%	38.0%	38.8%	-0.9%
10	Fresno	35.9%	29.9%	6.0%	32.8%	31.5%	1.3%
11	San Francisco	38.2%	41.7%	-3.5%	36.4%	43.5%	-7.1%
12	Ventura	44.4%	40.2%	4.2%	38.7%	38.6%	0.1%
13	San Mateo	44.7%	41.6%	3.1%	41.0%	40.1%	0.9%
14	Kern	36.5%	29.5%	7.0%	29.2%	29.0%	0.2%
15	San Joaquin	38.7%	35.2%	3.5%	36.5%	33.3%	3.2%
16	Sonoma	43.6%	40.8%	2.8%	35.5%	38.4%	-3.0%
17	Stanislaus	37.8%	34.7%	3.0%	34.0%	33.1%	0.8%
18	Santa Barbara	43.0%	40.0%	3.0%	33.9%	38.1%	-4.2%
19	Solano	44.1%	42.0%	2.1%	39.7%	40.4%	-0.7%
20	Tulare	32.3%	30.4%	1.9%	26.2%	26.9%	-0.7%
21	Santa Cruz	42.3%	40.1%	2.3%	35.8%	37.2%	-1.5%
22	Marin	45.5%	45.1%	0.4%	42.0%	43.2%	-1.2%
23	San Luis Obispo	37.0%	38.3%	-1.3%	36.1%	35.0%	1.1%
24	Placer	41.0%	39.4%	1.6%	36.8%	39.2%	-2.3%
25	Merced	33.6%	29.5%	4.1%	32.9%	28.3%	4.6%
26	Butte	39.0%	35.1%	3.8%	30.7%	34.8%	-4.1%
27	Shasta	36.9%	34.0%	2.9%	34.0%	30.9%	3.0%
28	Yolo	37.9%	40.5%	-2.7%	32.4%	35.4%	-3.0%
29	El Dorado	42.1%	38.9%	3.2%	37.5%	36.2%	1.3%
30	Imperial	28.2%	24.6%	3.6%	27.0%	24.8%	2.1%
31	Napa	39.6%	38.9%	0.7%	33.9%	34.3%	-0.5%
32	Kings	34.9%	30.8%	4.1%	27.8%	26.8%	1.0%
33	Madera	33.7%	30.1%	3.6%	30.9%	30.5%	0.4%
34	Monterey, San Benito	37.8%	34.8%	2.9%	30.3%	34.6%	-4.4%
35	Del Norte, Humboldt	37.1%	36.3%	0.9%	30.4%	30.0%	0.4%
36	Lassen, Modoc, Siskiyou, Trinity	36.6%	29.5%	7.1%	26.6%	30.1%	-3.6%
37	Lake, Mendocino	37.5%	33.3%	4.1%	29.9%	26.2%	3.6%
38	Colusa, Glen, Tehama	35.1%	28.8%	6.3%	30.6%	27.4%	3.2%
39	Sutter, Yuba	37.4%	32.3%	5.1%	32.3%	31.3%	1.0%
40	Plumas, Nevada, Sierra	39.9%	37.7%	2.2%	37.2%	34.0%	3.2%
41	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne	37.5%	35.0%	2.6%	33.0%	32.8%	0.2%
	RDD Total	39.9%	37.8%	2.1%	36.2%	36.0%	0.2%
	Korean List	36.5%	47.4%	-10.9%	29.6%	29.7%	-0.1%
	Vietnamese List	35.0%	40.0%	-5.0%	25.4%	23.4%	2.0%

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey

in the rate for the extended interview of seven points, while Merced had the largest increase, almost five points. The Korean and Vietnamese list samples' screener answering machine rates were a bit lower than the RDD sample overall; both were substantially lower than those experienced in 2001. The supplemental samples' rates for adult extended interviews were comparable to those in 2001, and considerably lower than the overall RDD rate.

6.3 Time Slice Strategy

If the initial call attempt resulted in "no answer," a busy signal, or an answering machine, the automatic call scheduler would place the telephone number into time slice queues so that additional calls would be made over several days at several different times of day. The goal is to find a time when someone would answer the telephone. Based on some recent methodological work, Westat revised the time slice strategy, as follows below, for CHIS 2003 from what was used in CHIS 2001.

The time slices were defined as: (1) weekdays, 9 a.m. to 6 p.m.; (2) early evening, 6 p.m. to 7:30 p.m.; (3) late evening, 7:30 p.m. to 9 p.m.; (4) Saturday, 10 a.m. to 6 p.m.; (5) Sunday, 2 p.m. to 9 p.m. The strategy consisted of a total of 14 calls if there was no contact with a person:

- four calls consisting of a day, early evening, late evening, and weekend (either Saturday or Sunday), in any order;
- 1 week wait;
- three calls consisting of an early evening, late evening, and the weekend day not called in the preceding four calls, in any order;
- 1 week wait;
- four calls consisting of a day, early evening, late evening, and weekend (either Saturday or Sunday), in any order;
- 1 week wait; and
- three calls consisting of an early evening, late evening, and the weekend day not called in the preceding 4 calls, in any order.

If, after these 14 calls, there was still no answer, the telephone number was retired by coding it a NA (all no answer or busy) or NM (at least one answering machine result). The differences between this strategy and that employed in CHIS 2001 (also using a total of 14 calls) included more weekday

evening and fewer weekday daytime calls and spacing the calls out over a longer period. Weekday evenings have the highest contact rates for households, and the extended overall field period covers more situations where respondents may be away from home for some time. A proportion of NA and NM cases were refielded to help in allocating noncontacted numbers to household/nonhousehold status for calculating the response rates (see Report 4: Response Rates).

At the end of the survey, there were 22,128 NAs across all samples, which is 6.3 percent of the sampled telephone numbers. About 2.3 percent (8,104) of the sampled telephone numbers ended up as NM (see Table 6-1). As discussed in Section 6.1.1, these rates are not comparable to the rates in 2001 for reasons other than the revised time slice strategy. Although the rates of noncontact are lower in 2003 than in 2001, the effect of the new strategy cannot be separated from the effects of an improved purging procedure employed by the sample vendor.

6.4 Maximum Call Limits

When a person answered the telephone, the telephone number was removed from the time slice strategy described above. Once contact was made, all subsequent calls were based upon the respondent's assessment of the best time to call or it was left to the interviewer to suggest the best time. This was generally in terms of an exact appointment or a general "best time" to call (e.g., day, evening, or weekend). The maximum call counter for these cases for both the screener and the extended interview was set at 23 each. This limit was set to allow enough calls for two refusal conversion efforts and calls in Spanish. As a result, less than 2 percent of the sampled telephone numbers ended as "maximum calls" (MC) at the screener level (Table 6-1). (See Section 9.2 of Report 4: Response Rates for more detail on the number of calls made.) In some strata, work on screening interviews was stopped before the end of the field period as the stratum targets were reached; in such instances, cases received maximum call codes without necessarily reaching the call limit.

At the adult extended level, almost 14 percent of cases (Table 6-3) received one of the "maximum call" codes—MC, LM/ML (maximum calls where the number was coded a language problem at some point), MR (maximum calls where a refusal was encountered at some point), and MT (maximum calls where we were given a different telephone number to reach the adult respondent). About 6 percent of child interviews (Table 6-5) and 5 percent of adolescent interviews (Table 6-6) were in these

categories. Maximum call codes were also applied to pending cases for which work was stopped because of the end of the field period.

6.5 Language Strategy

An important capability for CHIS 2003 was conducting interviews in a variety of languages, including English, Spanish, Mandarin, Cantonese, Korean, and Vietnamese. Section 3.3 describes the process by which the questionnaires were translated and prepared for use, and Sections 4.4 and 4.5 describe the recruitment and training of Spanish- and Asian-language bilingual interviewers, respectively. This section describes how the non-English interviews were managed in the CATI system and the TRCs where they were conducted.

6.5.1 RDD Strategy

All sampled telephone numbers for the general RDD sample were loaded into the default CATI work class, which meant that they were available to any interviewer working the RDD sample. (See Section 5.2 for a complete description of the CHIS 2003 work classes.) Before the non-English questionnaires were in use, whenever an interviewer encountered a respondent who did not speak English in attempting to complete the screener or an extended interview, he or she would indicate that it was a "language problem," and what language (if it could be determined) the respondent was speaking. The first sort was into Spanish, Cantonese, Mandarin, Korean, Vietnamese, undetermined Asian language, and other or not determined language.

Cases determined to require a Spanish bilingual interviewer were put into the Spanish-language work class, and became available to bilingual interviewers after the Spanish translations were finalized in CATI.

Cases where the respondent was thought to be speaking an undetermined Asian language were called by a group of Asian bilingual interviewers, who would either continue with the process if they spoke the appropriate language or move it to the appropriate language work class. Cases where the language was not determined at all were assigned first to Spanish bilingual interviewers, then to Chinese bilingual interviewers if the language was still undetermined. Often in the process respondents were able

to tell interviewers what language they spoke, and the interviewers would immediately re-assign the case to the appropriate language work class. Cases requiring a language other than the six for which translations were available were finalized as language problem nonresponse.

6.5.2 Supplemental Sample Strategy

Initially, the Korean and Vietnamese supplemental samples were worked by bilingual interviewers only. However, it quickly became clear that this was not the most efficient strategy. The "hit rate" for these samples was low enough that it was more efficient to have bilingual English-Spanish interviewers do much of the screening, and turn the cases over to the Asian bilingual staff as needed.

6.5.3 Completed Interviews by Language

Table 6-8 shows the number of adult extended interviews completed in each of the six CHIS 2003 languages, by RDD stratum and supplemental sample.

Overall, some 3,737 adult interviews were conducted in Spanish, just under 9 percent of the total, which was three-tenths of a point lower than in 2001. The highest percentage of adult interviews completed in Spanish was in Imperial County (37 percent), almost twice that of any other RDD stratum.

In the RDD sample, there were 978 adult interviews conducted in an Asian language, or about 2.3 percent of the total. This compares with 811, or 1.5 percent, in the CHIS 2001 RDD sample. This increase is due in part to oversampling areas with relatively higher proportions of Korean and Vietnamese residents in some strata. (See Report 1: Sample Design.) The highest RDD proportions of Mandarin (6.1 percent) and Asian in total (8.6 percent) were in the San Francisco stratum, of Cantonese (1.6 percent) in Santa Clara County, and of Korean (1.5 percent) and Vietnamese (3.6 percent) in Orange County. In the Korean and Vietnamese supplemental samples, a large majority of the adult interviews were conducted in the Asian language.

See Table 9.4 in Report 4: Response Rates in CHIS 2003, for more on numbers of interviews conducted by language.

Table 6-8. Number of adult interviews completed by language and sample/RDD sample stratum

Strata	Sampling stratum	Completes	English	Spanish	Cantonese	Mandarin	Korean	Vietnamese	Percentage Spanish	Percentage Asian
1	Los Angeles	10,279	8,599	1,306	94	110	134	36	12.7%	3.6%
2	San Diego	2,301	2,126	148	0	10	5	12	6.4%	1.2%
3	Orange	2,168	1,862	179	4	13	32	78	8.3%	5.9%
4	Santa Clara	1,300	1,153	77	9	21	5	35	5.9%	5.4%
5	San Bernardino	1,233	1,119	104	0	4	3	3	8.4%	0.8%
6	Riverside	1,178	1,057	113	0	4	3	1	9.6%	0.7%
7	Alameda	4,724	4,115	400	91	52	28	38	8.5%	4.4%
8	Sacramento	1,058	999	46	6	1	2	4	4.3%	1.2%
9	Contra Costa	817	776	38	2	0	1	0	4.7%	0.4%
10	Fresno	625	554	69	0	1	0	1	11.0%	0.3%
11	San Francisco	909	796	35	55	14	6	3	3.9%	8.6%
12	Ventura	615	563	48	1	1	2	0	7.8%	0.7%
13	San Mateo	607	574	21	5	3	3	1	3.5%	2.0%
14	Kern	536	475	60	0	1	0	0	11.2%	0.2%
15	San Joaquin	520	478	37	3	0	0	2	7.1%	1.0%
16	Sonoma	507	479	26	0	1	0	1	5.1%	0.4%
17	Stanislaus	549	502	44	0	1	0	2	8.0%	0.5%
18	Santa Barbara	504	454	49	1	0	0	0	9.7%	0.2%
19	Solano	509	490	19	0	0	0	0	3.7%	0.0%
20	Tulare	575	482	92	0	1	0	0	16.0%	0.2%
21	Santa Cruz	512	469	41	1	1	0	0	8.0%	0.4%
22	Marin	521	510	9	0	1	0	1	1.7%	0.4%
23	San Luis Obispo	503	485	18	0	0	0	0	3.6%	0.0%
24	Placer	507	497	8	0	0	1	1	1.6%	0.4%
25	Merced	519	432	87	0	0	0	0	16.8%	0.0%
26	Butte	564	553	9	0	2	0	0	1.6%	0.4%
27	Shasta	506	503	3	0	0	0	0	0.6%	0.0%
28	Yolo	516	480	30	1	3	2	0	5.8%	1.2%
29	El Dorado	503	490	13	0	0	0	0	2.6%	0.0%
30	Imperial	529	330	195	1	0	2	1	36.9%	0.8%
31	Napa	505	454	51	0	0	0	0	10.1%	0.0%
32	Kings	531	449	80	0	0	0	2	15.1%	0.4%
33	Madera	512	449	63	0	0	0	0	12.3%	0.0%

Table 6-8. Number of adult interviews completed by language and sample/RDD sample stratum (continued)

Strata	Sampling stratum	Completes	English	Spanish	Cantonese	Mandarin	Korean	Vietnamese	Percentage Spanish	Percentage Asian
34	Monterey, San Benito	519	412	102	1	0	3	1	19.7%	1.0%
35	Del Norte, Humboldt	529	516	12	1	0	0	0	2.3%	0.2%
36	Lassen, Modoc, Siskiyou, Trinity	419	417	2	0	0	0	0	0.5%	0.0%
37	Lake, Mendocino	409	395	14	0	0	0	0	3.4%	0.0%
38	Colusa, Glen, Tehama	425	380	44	0	1	0	0	10.4%	0.2%
39	Sutter, Yuba	460	420	39	1	0	0	0	8.5%	0.2%
40	Plumas, Nevada, Sierra	403	400	3	0	0	0	0	0.7%	0.0%
41	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne	412	409	3	0	0	0	0	0.7%	0.0%
	TOTAL RDD	41,818	37,103	3,737	277	246	232	223	8.9%	2.3%
	Korean	112	18	0	0	0	94	0	0.0%	83.9%
	Vietnamese	114	15	0	0	0	0	99	0.0%	86.8%
	TOTAL									

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey

6.6 Refusal Conversion

At each stage of the interview process, Westat conducted extensive conversion efforts for refusals that were not judged to be hostile or abusive. These procedures and the results are described in Report 4: Response Rates in CHIS 2003. That report contains the initial and conversion cooperation rates by type of interview.

6.7 Proxy Interviews

As in CHIS 2001, UCLA decided to allow proxy reporting for sample persons over 65 who were unable to respond for themselves because of physical, mental, or emotional limitations. Proxy respondents had to be adult members of the household knowledgeable about the sampled adult's health. Some 349 candidates for proxy interviews were identified based upon interviewers' notes; of these, 171 interviews were completed with proxies, and another 30 were completed with the sampled adults themselves.

Interviewers who conducted the proxy interviews were trained to substitute the name of the sampled adult or an appropriate pronoun wherever "you" appeared in the question text; in cases where "you" referred specifically to the respondent (e.g., "You said earlier . . ."), the word "you" was highlighted for the proxy interviews.

6.8 Level of Effort

In order to support costing of various types of samples, Westat estimated the level of effort required to complete data collection by component. The key figure in this estimate was the number of interviewer hours, on average, required to complete all of the instruments associated with one household for households where an adult interview was conducted. This estimate includes time spent interviewing, contacting respondents, and gaining cooperation for a particular case, as well as an amortization of time spent on nonresponse, ineligible, and out-of-scope cases. The estimate also includes an amortization of interviewer administrative time associated with project activities. Table 6-9 presents the estimate of adult interviews to be completed across all samples, average interviewer time per case, and total interviewer

hours. It also presents these figures for the actual survey administration. All of the actual figures are very close to the estimates.

Table 6-9. Estimated and actual number of adult interviews, hours per case, and total interviewer hours.

	Initial estimate	Actual results
Number of adult interviews	42,000	42,044
Hours per case	2.20	2.22
Total interviewer hours	92,603	93,448

Source: UCLA Center for Health Policy Research, 2003 California Health Interview Survey

These overall numbers mask considerable variation in the level of effort per case for different samples and for different strata within the RDD sample. The primary reasons for these differences include:

- Large differences in interview administration time across languages;
- Differences across samples and strata in sample yield (proportion of telephone numbers resulting in completed adult interviews);
- Differences in the mean number of calls needed to complete a case, whether an interview, nonresponse, ineligible, or out of scope; and
- Differences across samples and strata in the proportion of households with sampled children and adolescents.

Report 2: CHIS 2001 Data Collection presents a detailed analysis of the effects of these factors on level of effort, and summarizes the estimated level of effort by type of sample and RDD stratum. This report does not replicate that analysis, but presents the differences in interviewing time across languages for CHIS 2003 and compares those differences with 2001. A comparison of sample yields from CHIS 2001 and CHIS 2003 may be found in Section 6.1.2 of this report.

As described in Chapter 2, CHIS 2003 was conducted in six languages: English, Spanish, Vietnamese, Chinese (Cantonese, Mandarin), and Korean. In CHIS 2001, for the Chinese and Korean interviews the question text was on paper and interviewers entered responses onto the corresponding English CATI screen. In CHIS 2003, all languages appeared on the CATI screens, although only English and Spanish screens had dynamic displays.

Table 6-10 presents mean administration times for the various questionnaires by language for both CHIS 2003 and CHIS 2001. The English 2003 screener interview was almost half a minute shorter than the 2001 screener, largely because most screening interviews used a modified "last birthday" method rather than enumerating household adults. The 2003 screener was shorter than the 2001 in all languages, and the ratio to English was very similar over the 2 years for Spanish, Korean, and Vietnamese. However, both Chinese dialects were comparatively longer—by a factor of 0.2—than English in 2003.

The mean administration time for the English adult extended interview was about three-quarters of a minute shorter in 2003 than 2001, but the 2003 adult interview was longer than that of 2001 in all other languages except Mandarin. The Spanish adult interview, for example, went from a third longer than the English in 2001 to 50 percent longer on average in 2003.

The child interview, with an overall mean length of 14 minutes, was shorter in 2003 than in 2001 or about the same length for all languages except Vietnamese. On the other hand, the adolescent interview, at 21.5 minutes, was longer than in 2001 for every language except Mandarin. There were very few adolescent interviews conducted in the Asian languages.

Surprisingly, there did not seem to be a consistent reduction in mean administration time for the languages that went from paper instrument and CATI data entry in 2001 to in-language screens in 2003. Adding the mean times for all four instruments, the English interviews were about a half minute shorter in 2003 than 2001, the Mandarin interviews almost 13 minutes shorter, the Cantonese interviews almost 6 minutes longer, and the Korean interviews virtually unchanged from 2001. For the two non-English languages whose interview appeared on CATI screens in both years, the Spanish interview means totaled almost 8 minutes longer, and the Vietnamese 13.5 minutes longer than in 2001.

Table 6-10. Mean administration times (in minutes), relative times, and sample sizes for CHIS 2003 and CHIS 2001 instruments by language of administration

	CHIS 2003			CHIS 2001		
	N	Mean	Ratio to English	N	Mean	Ratio to English
Screener						
All Languages	66,657	2.29		88,026	2.72	
English	57,731	2.19	1.00	77,695	2.60	1.00
Spanish	7,229	2.86	1.31	8,000	3.45	1.33
Vietnamese	482	3.40	1.55	1,143	3.85	1.48
Korean	513	3.20	1.46	585	3.89	1.50
Cantonese	347	3.45	1.58	308	3.60	1.38
Mandarin	355	3.77	1.72	295	3.96	1.52
Adult Interview						
All Languages	41,478	32.68		57,087	32.95	
English	36,766	31.01	1.00	50,514	31.76	1.00
Spanish	3,589	46.82	1.51	5,008	42.53	1.34
Vietnamese	309	42.60	1.37	650	36.36	1.14
Korean	314	37.38	1.21	456	36.82	1.16
Cantonese	261	42.64	1.38	230	38.67	1.22
Mandarin	239	46.63	1.50	229	49.83	1.57
Child Interview						
All Languages	8,526	13.98		13,181	14.47	
English	6,695	12.93	1.00	10,432	13.66	1.00
Spanish	1,595	18.12	1.40	2,358	17.89	1.31
Vietnamese	82	17.30	1.34	168	12.69	0.93
Korean	73	13.92	1.08	126	14.66	1.07
Cantonese	42	15.02	1.16	55	16.15	1.18
Mandarin	39	17.65	1.37	42	22.12	1.62
Adolescent Interview						
All Languages	4,010	21.50		5,910	20.12	
English	3,723	20.99	1.00	5,395	19.62	1.00
Spanish	261	28.23	1.34	454	24.27	1.24
Vietnamese	8	28.08	1.34	32	25.01	1.27
Korean	5	24.68	1.18	16	23.82	1.21
Cantonese	6	28.62	1.36	3	25.59	1.30
Mandarin	7	25.90	1.23	10	30.89	1.57

Source: UCLA Center for Health Policy Research, 2003 and 2001 California Health Interview Survey

7. QUALITY CONTROL

Westat's quality control procedures were in place throughout the study. Some of them, such as CATI testing and training, were used before data collection began as preventive quality controls. Others, such as supplemental interviewer training, monitoring, and comment and problem sheet review were used during data collection to respond to issues with interviewers or to make adjustments to the questionnaire. Each quality control method is briefly described below.

7.1 Computer-Assisted Telephone Interview Testing

Quality control of the survey questionnaires began with development of specifications for CATI programming. Westat's automated management system for CATI specifications tracked question text, sequencing, response categories, the appropriate use of "fills" within questions based upon previously recorded information, and range and logic checks. The specification document, published both in PDF and Microsoft Word format, provided the guide for project staff and programmers as to what the CATI instrument should include. The system tracked each change to the specifications and the reason for that change, whether it originated from UCLA, Westat project staff, or the programming team. At some points during the design period, changes were programmed directly into CATI, and the specification database was updated later to reflect what was actually administered.

Once programming commenced, quality control continued with testing to make sure that the CATI instrument was working according to the specifications. The questions and skip patterns were tested as soon as the questionnaire was programmed, as was the database used to store the captured responses. This testing included review by project staff, TRC staff (including interviewers), data preparation staff, the statistical staff and programmers, and by staff at UCLA and PHI

After the pilot test and then again during the first few weeks of the statewide field period, the data preparation and programming staffs reviewed frequency counts from each instrument to make sure that the CATI program was performing correctly and all responses and administrative data were being stored in the appropriate variable fields.

7.2 Online Range and Logic Checking

Another method of quality control involved the use of edits in the CATI system. Specifically, online range checks were programmed for several sections of the questionnaire to catch unlikely or impossible responses and also to catch errors that might result from typographical errors by interviewers. Each check had defined ranges with minimum and maximum values. For example, there were checks to ensure that a child's reported height and weight were within appropriate ranges for the units (metric or English/avoirdupois) the interviewer had specified. Some of these edits were added during the field period.

The edits included both soft and hard ranges. "Hard-range" checks do not allow the interviewer to continue without entering an answer within the range programmed, while "soft-range" checks merely require an interviewer to confirm an unlikely entry. In the rare situations where a respondent insisted on an answer that violated a hard-range check, the interviewer entered "Don't know" for the response to the item and wrote a comment describing the situation that was later reviewed by data preparation staff.

Other edits checked logic between responses. For example, if a respondent 65 years of age or older reported not being covered by Medicare, a verification question appeared on the CATI screen.

7.3 Training

A good training program is another important quality control measure. Training was standardized across sessions so that all interviewers received the same information. Also, team leaders attended the same project-specific training sessions as the interviewers so that they would be well prepared to handle their duties. Team leaders were also prepared because of their previous experience. Many TRC supervisory staff occupy permanent positions at Westat, have worked on many RDD surveys, and are very familiar with the kinds of questions asked by interviewers and respondents and the common problems that occur in an RDD study.

7.4 Supplemental Training

In addition, about 2 weeks after each training session interviewers began attending sessions designed to maximize respondent cooperation. Following this training, interviewers were monitored further and feedback was provided about how well they were doing and what they might do to improve their performance.

7.5 Interviewer Memoranda

As discussed in Chapter 4, interviewer memorandums were given to the staff to clarify and reinforce issues, as well as to inform staff of procedural changes. A total of six memoranda were distributed to interviewers.

7.6 Interviewer Meetings

Interviewer meetings were also held as a quality control procedure. These were conducted as necessary with the interviewing and supervisory staff to reinforce procedures, review points of emphasis, provide updates on procedures, and inform staff of study progress. These were important to the interviewing process whenever minor changes were made during data collection.

7.7 Interviewer Monitoring

Westat monitored telephone interviewer performance throughout the field period. Monitoring forms for each interviewer were reviewed weekly, and any interviewers who were identified as in need of additional monitoring were monitored more heavily in the following week. Team leaders also performed additional monitoring if there was concern about an interviewer's performance.

Westat's capacity to monitor telephone interviewers is based on an investment in highly sophisticated equipment and electronic linkages. From a remote location, team leaders and monitors intercepted calls and silently listened to both the interviewer and the respondent. At the same time, the team leader could see what appeared on the interviewer's computer screen and the responses that the

interviewer entered. Team leaders simultaneously checked on interviewing technique and the interviewer's ability to correctly capture data.

Westat team leaders and monitors selected 15-minute intervals of each interviewer's working time to monitor. Team leaders performed extra monitoring if there was a concern about an interviewer's performance. An interview monitoring report form was completed each time an interviewer was monitored. Interviewers who continued to have significant problems after receiving feedback or remedial training were released from the study.

During the first weeks following completion of training, the results of monitoring were discussed with each interviewer immediately following the monitoring session. This discussion provided feedback to the interviewer and suggestions to improve his or her techniques to gain cooperation, ask questions, or record responses. Subsequent reports were only reviewed with an interviewer if there was a specific problem, in which case the report was discussed immediately. Team leaders reviewed the monitoring reports throughout the survey period to identify any common problems that might have revealed the need for additional interviewer-wide training.

7.8 Triage

Interviewing during all hours of TRC operation is supported by a specially trained "triage" team leader. The triage team leader was called whenever a problem interfered with the ability to conduct CATI interviewing. When the triage team leader received a problem report, he or she diagnosed the problem and called the appropriate personnel. Hardware, software, and project-specific support were always available via home telephones or beeper numbers. The appropriate support personnel were able to respond to problems within minutes of a problem report, regardless of the time.

7.9 Using Comments and Problem Sheets to Find Problems

Interviewers made comments within the CATI questionnaire whenever a response did not fit a category and/or when they perceived a problem with a question. With input from UCLA and PHI, some of these comments were used to update data. Data updates and other data preparation issues are discussed in detail in Report 3: Data Processing Procedures in this methodology series.

Comments were also used as indicators of difficulties with the questionnaire. If there were many comments about a particular item, it potentially indicated that a question needed to be changed or reinforced with an interviewer memorandum or a meeting.

Problem sheets were also used for quality control. When interviewers or team leaders encountered a problem in conducting or monitoring an interview, they completed a CATI problem sheet. These sheets were reviewed by a triage team leader and forwarded to the appropriate staff member for resolution. Any problems that suggested a change to the questionnaire were discussed with the UCLA project director.

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