

Contact History Instrument (CHI)

William E. Dyer, Jr., U.S. Census Bureau July 07, 2004

The Contact History Instrument (CHI) was designed to collect information about each contact attempt made by a field representative (FR), including information about why respondents refuse and what actions the FR took to attempt to obtain the interview. This paper explains the rationale behind this instrument, the development approach we used for this project, CHI's place in the interview sequence, preliminary results from the field, and the vision for the future of this initiative. We are working toward collecting, collating and tabulating data about contact and non-contact attempts within and across surveys. The contact history will provide the field representative, senior field representative, headquarters, and the sponsors with additional data about contact history attempts for all surveys requesting this service.

1. Introduction

The initial goal of the CHI was to obtain information for researchers to analyze trends in respondent refusal. Its intended use has now expanded, and it has become a tool for the FRs, and Regional Office (RO) Survey Managers to look for patterns of what works and what does not work to obtain complete interviews from reluctant respondents. The next step for CHI is to return previous interview contact history data for longitudinal surveys. The Census Bureau is in the process of implementing a generic system capable of gathering contact history data for all types of surveys.

The CHI is a data collection instrument, written in Blaise following Census standards for screen design and programming. The supporting post-data collection Manipula script converts the answers into an ASCII transaction record for the CAPI Case Management (CM) systems. This paper addresses the "generic" aspects of this application. We look at how the Census Bureau intends to use the CHI to collect contact history data and perform analysis on the metrics gathered by this process. In addition the paper will touch on the research effort underway to reduce non-response. We are especially interested in how senior field representatives are using CHI to identify and possibly convert potential refusals into completed interviews.

1.1 History

The oldest reference I can find, to Ch'i – (pronounced Chee) The Samurai Martial Art of Jiu-Jitsu Eight Principles of a Warrior hangs on a note above my desk; the 6th tenet is **CHI – Enhance wisdom by broadening your knowledge**. This definition fits the CHI project, pronounced (K-eye) very well. We hope to improve the data collection process for our sponsors by learning more about all interviewers' contact attempts. CHI may be part of the solution to improve response rates and manage rising survey costs.

The decision was made to only allow a single version of CHI in the field at any time. This instrument must be designed to report for all types of surveys. We are trying to save costs and increase quality by having a single instrument instead of creating unique versions for every survey. Also, in this way the FRs who work multiple surveys only have to learn one CHI, thus reducing training time and expense.

Disclaimer: This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The views expressed are those of the author and not necessarily those of the U.S. Census Bureau.

The development of CHI did not happen all at once to be sure. Back in the days of old we had paper forms and control cards, which allowed the interviewer to record each interview attempt and to make remarks. For recurring surveys interviewers would record dates and times of interview

attempts and make remarks to record successful methods used to get the interview. The image below is part of the big pink folder an interviewer used to keep track of the Consumer Expenditure Quarterly interviews progress. This is where CHI data might have been entered



Part of: FORM **BC-1669** (CEQ) (6-19-93)

As questionnaires moved from paper to electronic format some of that handwritten information was lost. For CAPI, only the final outcome code for the case was captured. Until a case was made a “resolved” case, the case was given a “202-open” outcome, which gave the Regional Office (RO) no information as to what was going on with the case. We developed a number of ways to record and track the FR notes and observations. The Case Management staff created the Note_Editor application, which is scheduled to run after each interview to record important information about the case not captured during the interview. This technique provided the FRs a good way to pass information from month to month, but the information in the notes is difficult to analyze in a systematic fashion.

When the laptop Case Management system was redesigned for the move from DOS to Windows, a record of calls table was added as a first attempt at capturing date, time and outcome data each time the instrument was opened. Unfortunately, this did not permit us to capture non-contact attempts because the FRs usually do not open the instrument in those cases. Also, the “202” outcome problem still existed; that is, multiple attempts could be recorded but all with a “202” outcome. CATI does maintain call history records that provide more detail than CAPI has, but they do not capture information about why respondents refuse. The focus of CHI now is CAPI.

What started out as an Interagency Household Non-response Group requirement to provide data to headquarters for evaluating non-response, has evolved into something more. The Contact History Initiative is an interactive, real-time tool to support field operations for both interviewers, senior field representatives (SFR) and the Regional Office Staff. We have added reporting capability for the users. Screens display tables of CHI data to the FRs and SFRs and numerous standard and customizable printed reports are available to the RO staff.

CHI version 4.8 was first fielded for the National Health Interview Survey (NHIS) in early January 2004. The returning data was analyzed and seems to confirm our expectations regarding reasons for non-contact, break-offs and refusals.

The Type-A non-interviews require more work, increased focus on making contact and more often result in refusal to participate in our survey.

**Average number of contact attempts by final outcome:
2004 National Health Interview Survey Q1W3-W4**

Final Outcome	Average Number of Contact Attempts	Total Number
Completed	3.2	1372
Sufficient partial	5.0	264
TypeA noninterviews	6.8	223
Insufficient partial	5.8	24
No one home	8.6	54
Temporarily absent	7.5	11
Refused	6.2	109
Other	6.4	25
TypeB noninterviews	2.1	376
Screened out	2.5	572
TypeC noninterviews	1.9	197

Table provided by: Andrea L. Piani, [The use of Field Metrics and Paradata in evaluating CASIC Surveys, CAPI History Data CHI](#)

2. Development Approach

2.1 Requirements

The Contact History Instrument was developed as a series of prototypes. These iterations were further refined by subject matter specialists then reviewed by the user community i.e., Field Representatives, in focus groups. It was necessary to test the instrument and develop a method to integrate CHI with existing control systems prior to release. Our expectation was not to get everything (instructions, categories, codes and navigation) exactly right in the first edition. We chose to put CHI in the field and reevaluate our approach at regular intervals.

The first version of the CHI had more of a National Health Interview Survey (NHIS) focus toward a single survey because this sponsor was willing to initiate CHI development. This survey interviews households only one time. Since the premier version did not address contact history issues for surveys that conduct multiple interviews with the same household or respondents, after the preliminary results were returned and analyzed the Census Bureau formed a group to identify additional requirements for other types of surveys. In February 2003 the Contact History Automated Interview for Recurring & Multi-mode surveys (CHAIRMS) committee met (see Nelson, 2003). The group developed requirements needed to program a single CHI that can be used for all surveys.

2.2 Development Philosophy

When possible, the CHI tried to use existing resources and piggyback on systems already in place. I do not want to imply that we did CHI on a shoestring budget, but our approach has been, and still is, very frugal. We have been diligent in including the stakeholders in the process from the beginning. The single instrument approach gives focus to our efforts. Using accepted established procedures for project development and applicable Census Bureau standards we embrace the Capability Maturity Model (CMM) best practices and meet process improvement goals for

authoring instruments in Blaise. We work hard to limit overhead to our control systems, causing minimal impact. The CHI system tries not to consume additional resources and attempts to reduce FR burden in the process.

2.2 CHI Development

By using written specifications and flow diagrams developed from the original CHI, the CHAIRMS and focus groups have been able to define requirements for the next version of the instrument. The subject matter personnel facilitate our development efforts by documenting the specifications and applying change requests to our system. As changes are approved they are integrated into the instrument using accepted Census Bureau Authoring Configuration Management processes. The TMO Testers Menu is used as a platform for testing and evaluating as well as a distribution method for a stand-alone zip version of the CHI system for independent testing. This permits multiple users to review our work. They may make suggestions for modifications to either the steering group or committee responsible for approving and implementing change requests to the CHI v5.7 instrument and Case Management sub systems.

An example of a flow diagram is included for your review in Appendix A. This documentation has helped make instructions by the design team, developers and testers clear and contributed to making the code easy to write and modify. A staff member who was given the task to make a CHI prototype and apply changes to existing code commented that he liked CHI because it is manageable, straightforward and well documented. Though it is a bit of work to set up the flow chart for the first version, it is invaluable for future iterations of development and testing. Being able to train new employees and communicate with experienced developers who are unfamiliar with the project is a bonus. I strongly recommend this approach given the feedback I receive from programmer and specification writers.

2.3 “The Prime Directive”: CHI’s Place in the Interview Sequence

CHI will not interfere with the survey instrument data collection effort in any way.

Because the CHI was an untried process, we did not want to risk affecting survey data, so the CHI instrument is kept completely independent of the specific survey instrument processing.

CHI is launched in one of two ways:

1. Directly from Case Management – This option is for contact attempts where the FR did not launch the survey instrument. This covers instances such as phone calls to set up appointments, drive by attempts, meeting neighbors and distribution of literature.
2. At the end of an interview session – The CHI instrument is launched automatically whenever the survey instrument is closed. In this option the post-data collection processes, such as releasing the Blaise database; collection of other information from the note_editor; compacting files and saving the interview back into the control system database, are done before CHI is invoked. This is in part why the interviewers think CHI takes a long time to launch. We actually open Manipula a second time, which also takes some time to load, and create a new CHI database, but this isolates the contact history transaction, insuring non-interference with the survey interview.

3. The CHI Process

3.1 The Instrument

Appendix C lists a subset of the CHI instrument Blaise code and gives the reader a bit of insight to the inner workings of this tool. For programmers, the interesting part of this project is in its simplicity, its design for maintenance and how the CHI instrument approaches a pure data collection effort. The CHI is unhampered by post-data collection issues, irregular navigation, sophisticated edits and the like. It is after all a tool for the interviewer.

The instrument itself is designed to be very simple. It does not require the interviewer to ask questions in the way a traditional CAPI interview does. The InfoPane is entirely made up of interviewer instructions (in blue). It is important to note that none of the questions are read aloud. This format for data collection from FR's is more like data keying than interviewing.

The shortest path (best case scenario) through the instrument takes seven keystrokes. (10 seconds)

- 1) Q: Are you making a contact attempt or just looking at a case?
A: Contact Attempt
- 2) Q: Are you entering CHI at the time of a contact attempt?
A: Yes
- 3) Q: Was this a personal or telephone contact attempt?
A: Personal
- 4) Q: Select the category that best describes this attempt.
A: Contact with SAMPLE unit member
- 5) Q: Status - Select the category that best describes this attempt.
A: Completed case - ready to transmit
- 6) Q: Select the categories that describe respondent concerns, behaviors, or reluctance during this contact attempt.
A: No concerns
- 7) Q: Select the categories that describe the strategies used on this contact attempt.
A: Scheduled appointment

We record some data fields automatically or fill them if left blank; for example, date and time. Other variables are always asked, such as, contact or non contact; personal or telephone; status; and now the reluctant respondent screen is always on route. Contrary to some “instrument design” techniques you may learn in school, from books or which are applied to typical interviewing, CHI may duplicate a response or allow the FR to enter “No Concerns;” for example, as a verification that the reluctant respondent screen has been visited. The data we are trying to collect from CHI is a bit more ethereal, and harder to capture, than “yes or no” or enter a number between 0 and 99.

As you can see from inspecting Appendix A, the CHI v5.7 Flowchart, other screens come and go depending on the items offered in the enumerated set and which have been selected in the answer list box. We may want to know more detail about language difficulties, movers or simply allow the FR to fill in “Other Specify ____” entries should the need arise. Most of the screens in CHI have “mark all that apply” and enumerators are trained to mark their answers in priority order. With the most important option being keyed first. This high order event is displayed in Case Management with other lesser issues being available for review, if the FR wishes to go data mining, by selecting the control button (snowflake) in Case Management next to the primary category listed.

To see additional screen detail review Appendix B. The first iteration of CHI. These screens show the scope of the original instrument. A CHI questionnaire is quick to get through no matter the circumstances of the event; i.e., contact or non-contact. It may take longer to run Manipula to load

CHI on the laptops than it does to actually collect the data and make an output file. The instrument is small, the process simple and keying quick. The next issue to be dealt with after the instrument is built and tested is to hook in with the existing control system. To get this done we put Maniplus to work for us.

3.2 The Script

To make this application sharable across Case Management and our Regional Office Survey Control System (ROSCO) a code was defined for each item, Alpha and two-digit numeric codes are used, something like the key codes used at our main data processing center in Jeffersonville, Indiana. I have seen Agriculture, Economic and other forms keyed this way. One advantage is that the coding scheme can be used across surveys and over time if you retire old codes rather than reuse the same codes for different categories for each new release.

C00 Contact
C01 Completed case - ready to transmit
C02 Partial interview - follow-up required
C03 Unable to conduct interview"
L00 Language
L01 Specify language or dialect _____
L02 No household member able to translate
L03 Contact RO about language problem
L04 Unable to find translator
L05 No time left to find translator

These codes map the variable with the text for that answer. When data is passed, files copied or transmitted, it is in the key code + "#write-in" format. The codes need to be translated for display in Case Management or to make some types of reports, but not for tabulations and summary tables. This format should be very easy to query in SAS, for example, once the data is released to HQ.

Keep in mind that the programmer wants to keep the questionnaire simple; simple is good! A consistent look-up table is important to the script which creates a transaction record for each contact attempt. This standardized transaction means that changes and revisions can be isolated in the instrument and transaction processor without having to upgrade the external processes unless the look-up table changes when new codes are added or answer category text is modified. This should be a cost saving and effective method to support CHI over the life of the project.

Following is the transaction file created for Case Management (CM):

#caseid 00000001 #frdate 07/26/2004 11:13 AM #howcontacted P #contactstatus C	#detail CU #types C03\$^U04\$^L01#German #strat S18\$^S17\$^S12
--	--

This transaction is for caseid 00000001

The FR overrode the automatic date and entered 07/26/2004 11:13 AM

It was a personal visit, Contact, unable to initiate interview

The path in the instrument was: Language problem (Specify _____) – German

Strategies attempted in priority order were:

S18 Transferred to RO for re-assignment

S17 Sought help from Senior Field Representative / Regional Office

S12 Checked with neighbors

When designing and building the CHI system we try to anticipate the need for change and consider maintenance issues for all parties. The best way to think of this process is like a bank. Each deposit or withdrawal is a separate transaction. Every time CHI is run, a new CHI.bdb is created populated, transaction generated and the database is deleted. The instrument displays the screens and collects keystrokes, but the transaction processor Manipula script does the work to translate Blaise data into a flat ASCII file. Actually the output is a file that uses a combination of techniques to send data downstream to other control systems. We use a variety of ways to communicate with our partners; labels; delimited lists; fixed and variable length records or entries all constitute a transaction. It may seem complex to a casual observer to mix all these methods but the resulting transaction ends up being very neat and predictable. Another really great thing about CHI is that it has no memory, which further simplifies the process. Once the process is closed our job is done. We provide a lookup list to our partners with code and English translation (actual answer list text, slightly modified to remove @|@/B@K etc) for each new release of CHI, making integration and upgrades simple. This is like the magic decoder ring that allows anyone else to decipher our transaction.

CHI Code Examples: Appendix C

- ❖ **Example: Blaise CHI.bla program (abstract)**
- ❖ **Example: Trans.man (for formatting ASCII)**
- ❖ **Example: Lookup List**
- ❖ **Example: ASCII Transaction file**

4. Preliminary Results and the Redesign for Longitudinal CHI

After evaluating returning CHI data for NHIS, originally presented by Andrea L. Piani shown in Appendix D, we opted to reduce the number of categories listed on the screens for several reasons. Though the field representatives at the initial focus groups requested we list all possible occurrences for each category of interest, plus allow for a “write in” other specify category, we found through data analysis that many were marked less than two percent of the time. We found that answers which were marked infrequently often occurred with slightly different wording as “other specify” entries. To make the objective clear to our field interviewers and supervisors, we decided to drop little used answers in favor of improved data density on the info pane.

During this initial review the CHI team also realized that one of our goals to collect data on and about potential refusals was not being met. Our interviewers, to their credit, were unwilling to “give up on the data collection effort” and viewed reporting a potential refusal as a bad thing to do; they avoided filling in answer categories for potential refusals. This was quite a quandary for us since we were trying to collect data which would help the field turn non-response or potential refusals into completed cases. I am not sure if this was interviewer bias, a training issue or something else. We needed to rethink our approach to getting the FRs to report accurately. We had a debriefing in preparation for implementing longitudinal CHI and found that both experienced FRs and SFRs agree this is a tool that will help them do their jobs better

Initially, some FRs viewed CHI as a method for headquarters to review their work – “Big brother watCHIng.” However, when the data started coming in and enough was available to populate reports, they changed their view. The field staff has realized WIIFM “What’s in it for me” and embraces this initiative. Reports like the FR Contact Attempt Report, which shows attempts by day of week and time of day, for example, became a helpful tool for Field to evaluate contact attempts for non-response cases “at a glance.” Additional information is being gleaned for contacts, completed cases and workload distribution. The effect of additional assignments on FR work remaining, incomplete or non-contact cases also became apparent. This may be just the tip of the iceberg. As more data become available across surveys and for various survey types (reoccurring and longitudinal), I expect we will realize additional uses for CHI, ways to save time and money as well as hither to unexpected revelations. If we give the statisticians enough data to work with, some time to crunch the numbers and evaluate the results they may be able to come up with information to help us improve response rates, save time and reduce costs. I hope CHI will continue to be supported, improved and “cloned” by other interested agencies, private and public so that we all benefit from this work.

The National Health Interview Survey staff should be credited with having the initiative to accept the CHI challenge. Appendix D shows some of the tables that have been generated from CHI data. What started out as kind of an orphaned project, was adopted (requirements identified), visited the pediatrician (analysis), nurtured with care (designed), put through school (tested), graduated (placed in the field/implementation) and is now being redesigned (planned obsolescence) and it looks as if it will be used in 2005 for longitudinal surveys. In effect CHI has an advanced degree and is moving out on its own. The Census Bureau, the Technologies Management Office (TMO), Demographic Surveys Division (DSD), and Field Divisions (FLD) are supporting this effort to keep CHI generic and available across all surveys.

5. Vision for CHI

In the past Contact history has been collected for interviews either by memory, on paper notes, or other more automated techniques. Our best and senior field representatives have a good concept about response rates, ways to complete difficult interviews and to persuade respondents not to quit the survey; however, intuition is not enough. Part of the issue is that we need metrics about the contacts we make, non-contacts and the nature of reluctance, so that we can take a more scientific approach to understanding human nature, cultural concerns and individual issues surrounding survey response.

In summary, this type of information should be made available to Regional offices, senior, and rank and file interviewers to help reduce non-contacts. In many surveys, interviewers are given their entire assignments at the beginning of the field period – with previous call history information and a little planning, work efforts can be more efficiently spent on days and times when chances are best for contact.

Another hypothesis to explore is whether attrition households appeared disproportionately represented by one mode over another, personal visit versus telephone contacts. We want to look at those respondents who are ‘on the fence’ and are in need of refusal conversational or other special efforts to secure the interview.

For the future, we hope to provide better reporting of the CHI data. The initial focus was to collect the data for analysis by headquarters researchers. For the most part the Field staff is seeing more or less raw data. We would like to provide more detailed reports, such as identifying outliers or recommending a best time to attempt a case, that will be more useful to the interviewer.

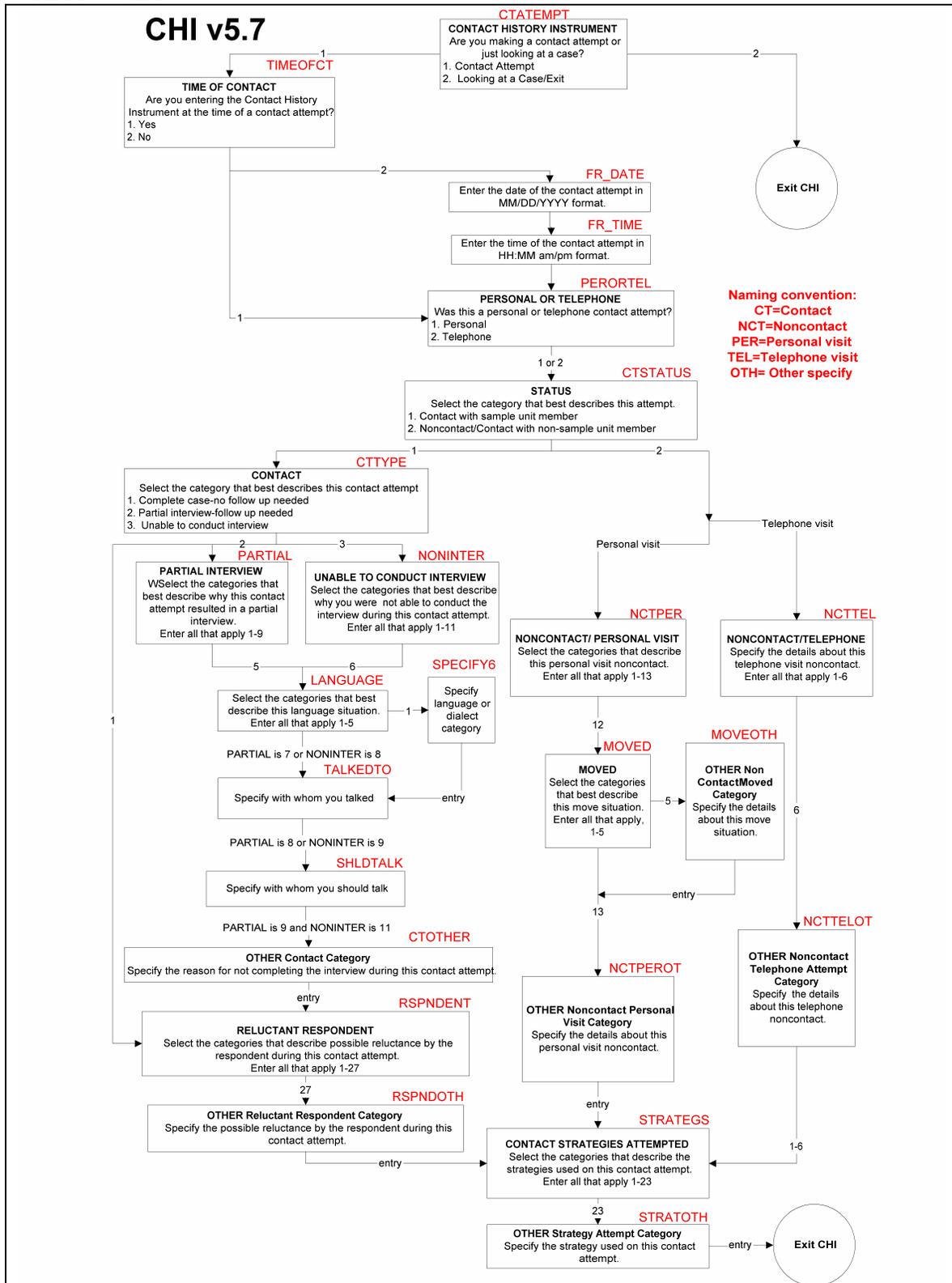
The CHI was used in production for the first time in the National Health Interview Survey, a cross-sectional survey conducted annually (see Piani, 2004). Currently, the original instrument is undergoing revisions based on interviewer feedback and analysis of data from NHIS.

Several other presentations and papers have been written based on the initial CHI. The Census Bureau has presented articles at the American Association for Public Opinion Research (AAPOR), (see Bates 2003, 2004), which give us a perspective and some direction to this project. Nancy Bates has been a staunch supporter of the CHI throughout the development process she and others have contributed to making CHI a success.

The next version of CHI is being developed with plans for use in the 2005 Consumer Expenditure Survey, the 2005 NHIS and possibly the Survey of Income and Program Participation (SIPP) Panel wave of interviewing occurring in 2006. A new enhancement to allow senior field representatives to view their team’s CHI records is also in the works. We intend to implement the plan to use CHI for longitudinal surveys in such a way that previous interview cycle’s contact records can be fed forward and be available to interviewers in later rounds of interviewing. We anticipate the expanded use of CHI will produce even richer datasets upon which to continue attrition research and expand our understanding of how contact histories may reduce it.

Appendix A

CHI Flow Chart



Our subject matter specialist specifies variable names, question text, navigation and coding schemes to facilitate development, testing and making change requests.

Appendix B

Contact History Instrument (CHI) V4.6
William E. Dyer, Jr. & Adriana Gonzalez

Why CHI?

A subgroup of the Interagency Household Survey Non-response Group (IHSNG) made a proposal to gather more information on the reasons behind refusals, no one homes and other type A non-interview outcomes. The Census Bureau developed a data collection instrument that collects information about every contact attempt made. The reengineered National Health Interview Survey (NHIS) will be the first survey to use the CHI in production.

The data from CHI are viewed in Case Management and ROSCO, providing FRs and survey supervisors with immediate feedback about a case's contact history. Survey supervisors and FRs may use this information to improve response rates by converting potential refusals into completed surveys.

Who will use the CHI?

(Senior) Field Representatives, Survey Supervisors, HQ, and sponsors.

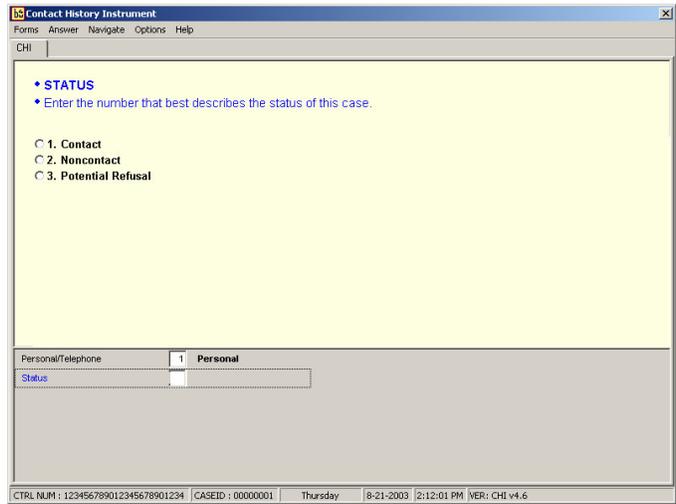


Figure 1: Establish the case status

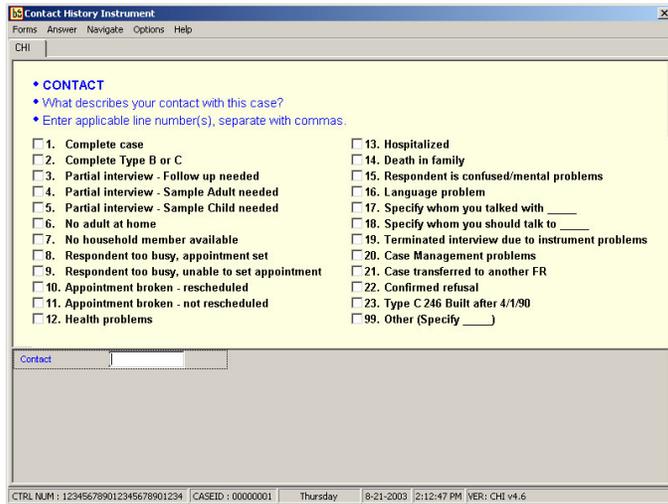


Figure 2: Contact Screen allows additional Specify __ entries

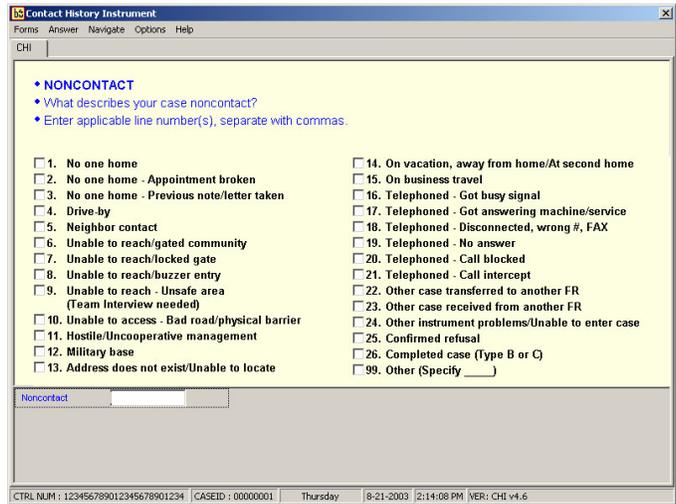


Figure 3: Non-contact answer list categories are standardized

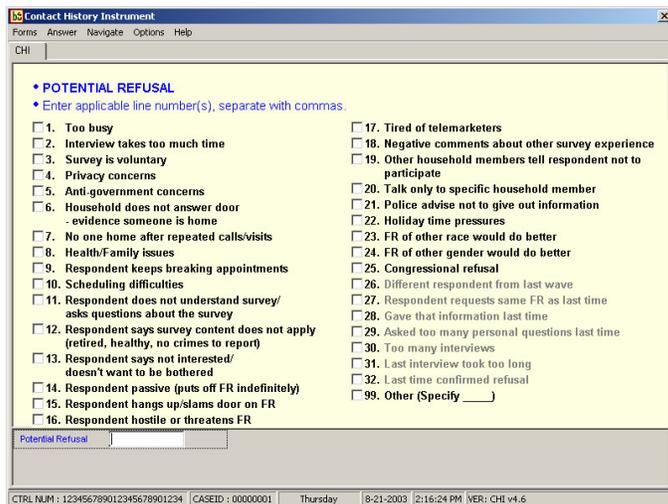


Fig 4: Potential Refusal (longitudinal survey categories in gray)

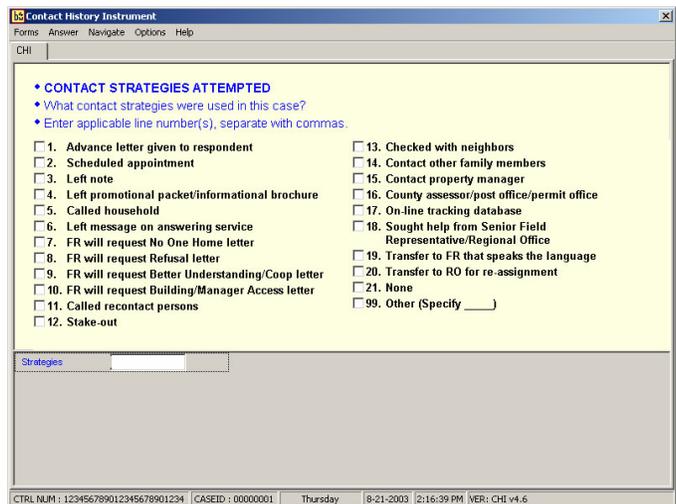


Figure 5: Contact Strategies Attempted (final CHI screen)

Case Management view from the original CHI showing contact type detail.

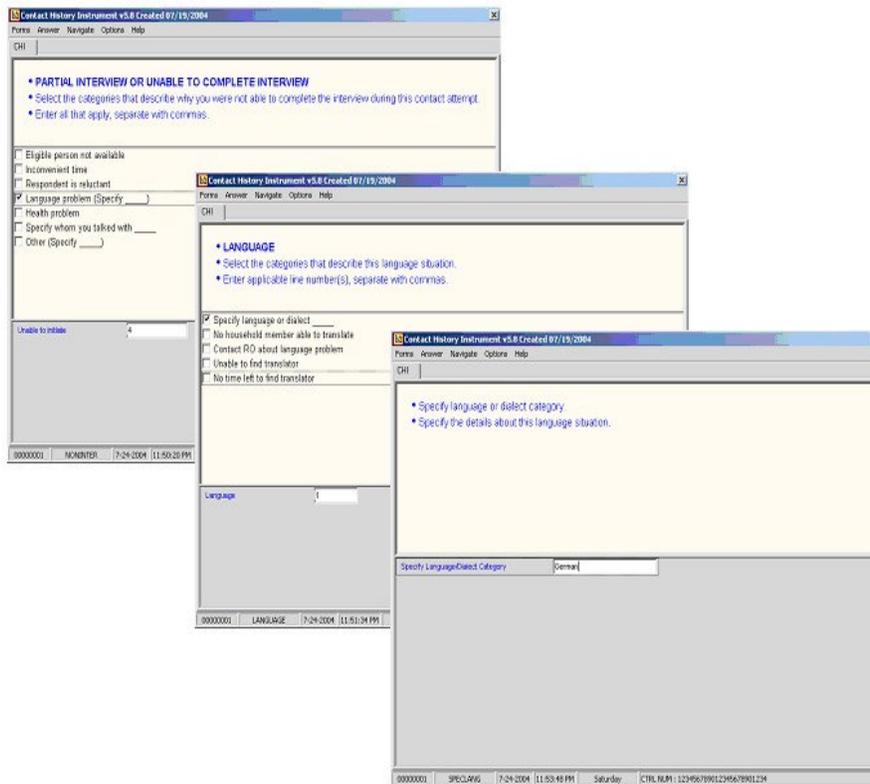
The screenshot shows the Case Management application window. The title bar reads "Case Management SURVEY: HIS (Windows) ASSIGNMENT PERIOD: 2003113". The menu bar includes "File", "Edit", "View", "Actions", and "Help". The toolbar contains icons for various functions, with labels: F1 Help, F2 Interview, F3 Next Tab, F4 Case List, F5 Reports, F6 Listing, F7 Notes, F8 View, F9 Sort, F10 Exit, F11 Go To..., and F12 CHI.

The main window displays a table titled "Case Management - Details" with the following columns: Assign Pd, Control Number, SS*, Address, Place Name/City, Appointment, Status, Telephone#, and Rte. The table contains 12 rows of data, with the 4th row (2003/1/13, 08 12095 1024, Y03A 01 00) selected. A dialog box titled "Case Management - Contact Type" is open over the selected row, containing the text "Partial interview - Follow up needed" and "Specify language or dialect _____" with "German" entered below. The dialog has "Close" and "Help" buttons.

Below the table, there are tabs for "Assignment" and "HH Roster". The "Assignment" tab is active, showing a "Control Number: 08 12095 1024 Y03A 01 00". Below this is another table with columns: FR Code, Contact Date, P/T, Status, Type, and Strategy. The table contains one row: 1, Z98, Mon 03-31-2003 02:37 PM, P, C, Partial interview - Follow up needed, and Advance letter given to respondent.

The status bar at the bottom left shows "Ready".

Training cases provide an example of the FR's view of CHI in Case Management



These screens are from CHI v5.8 and represent a series of instructions from the FR to log why they were unable to complete the interview for this contact attempt. The code example tries to follow this transaction example through the process.

Appendix C

Blaise Code examples do not have the complete syntax for recreation of the complete CHI application. However, this should give both new and experienced coders a peek into the process. The screens show an unable to complete interview, language problem, German scenario. I hope this code is enough to give you the idea of how the Contact History Initiative system functions.

❖ Example: Blaise.bla programType, Field, Rules

```
{ Contact History Instrument
AUTHOR: Ed Dyer
DATE: 04/17/2002
PROGRAM DESCRIPTION
Collecting Case Characteristics for Interagency Household Survey Non-response Group
07/16/2004 Revised v5.8 strawman additional adjustments and changes from ..
    Nancy Bates, Joseph Brunn, Ed Dyer, Valerie Loundon, Michael Lucero,
    Laura Nehilson, Dawn Nelson, Andrea Piani,
07/19/2004 Revised v5.8 updates from flow and other requests - Michael Lucero and Ed Dyer.
*****}
DATAMODEL CHI "Contact History Instrument v5.8 Created 07/19/2004"

LANGUAGES = ENG "English",
ATTRIBUTES = Dk, Rf, NOEMPTY
TYPE
  Trccoother = STRING[80]
  Trcccontact =
    (C01 (1) "Completed case - ready to transmit",
    C02 (2) "Partial interview - follow-up required",
    C03 (3) "Unable to conduct interview"
    )
  Trcclanguage = SET OF
    (L01 (1) "Specify language or dialect _____",
    L02 (2) "No household member able to translate",
    L03 (3) "Contact RO about language problem",
    L04 (4) "Unable to find translator",
    L05 (5) "No time left to find translator"
    )
  Trccunable = SET OF
    (U01 (1) "Eligible person not available",
    U02 (2) "Inconvenient time",
    U03 (3) "Respondent is reluctant",
    U04 (4) "Language problem (Specify _____)",
    U05 (5) "Health problem",
    U06 (6) "Specify whom you talked with _____",
    U07 (7) "Other (Specify _____)"
    )
FIELDS
  RCCC      (CTTYPE)
  Eng "@/@L@Zs@Z@B CONTACT @B
        @/@Zs@Z Select the category that best describes this contact attempt. @L "
        / "Contact"
        : Trcccontact

  RCCL      (LANGUAGE)
  Eng "@/@L@Zs@Z @BLANGUAGE@B
        @/@Zs@Z Select the categories that describe this language situation.
        @/@Zs@Z Enter applicable line number(s), separate with commas.@L@/"
        / "Language"
        : Trcclanguage

  RCCU      (NONINTER)
  Eng "@/@L@Zs@Z @BPARTIAL INTERVIEW OR UNABLE TO COMPLETE INTERVIEW@B
        @/@Zs@Z Select the categories that describe why you were not able to
        complete the interview during this contact attempt.
```

```
@/@Zs@Z Enter all that apply, separate with commas.@L@/"
/ "Unable to initiate"
:Trccunable
```

specifylanguage (SPECLANG)

```
Eng "@/@L@Zs@Z Specify language or dialect category.
@/@Zs@Z Specify the details about this language situation.@L@/"
/ "Specify Language/Dialect Category"
:Trccoother
```

specifytalkto (TALKEDTO)

```
Eng "@/@L
@/@Zs@Z Specify with whom you talked.@L@/"
/ "Talked with"
:Trccoother
```

specifyunable (CTOTHER)

```
Eng "@/@L@Zs@Z @BOTHER Contact Category@B
@/@Zs@Z Specify the reason for not completing the interview during this
contact attempt.@L@/"
/ "Other Contact Category"
:Trccoother
```

RULES

{...}

{CONTACT -----}

{Contact}

```
IF ( CaseContact = Contact ) THEN
RCCC
ENDIF
```

{Partial or Unable to initiate interview}

```
IF (( CaseContact = Contact ) AND ( RCCC = C02 )) OR {contact and partial }
(( CaseContact = Contact ) AND ( RCCC = C03 )) THEN {contact &unable to initiate}
RCCU
ENDIF
```

{contact partial interview talk to}

```
IF ( U06 IN RCCU ) THEN
SPECIFYtalkto
ENDIF
```

{contact partial interview other category}

```
IF ( U07 IN RCCU )THEN
SPECIFYunable
ENDIF
```

{Language}

```
IF ( U04 IN RCCU ) THEN
RCCL
ENDIF
```

```
IF (L01 IN RCCL) THEN
SPECIFYlanguage
ENDIF
```

ENDIF {endif contact not empty}

{There is a section missing here for non-contact ...}

{RELUCTANT -----}

NEWPAGE

```
IF ( CaseContact = Contact ) OR (U03 IN RCCU ) THEN {ask for reluctance in contacts or u03}
RCCR
```

```
IF RCCR <> EMPTY THEN
{reluctant respondent other}
```

```
IF ( R23 IN RCCR ) THEN
```

```

        SPECIFYreluctant
    ENDIF
ENDIF
ENDIF

```

```

{STRATEGIES -----}
{always ask contact strategies attempted}
NEWPAGE
RCCS
IF RCCS <> EMPTY THEN
    {attempt other}
    IF ( S23 IN RCCS ) THEN
        SPECIFYStrategy
    ENDIF
ENDIF
{...}
LAYOUT
    AT RCCC      INFOPANE INFOP15x11x01 FIELDPANE FP38x15x13 GRID Grid01x01 {CONTACT}
    AT RCCL      INFOPANE INFOP15x11x01 FIELDPANE FP50x26x24 GRID Grid01x01 {LANGUAGE}
    AT RCCS      INFOPANE INFOP15x11x02 FIELDPANE FP50x26x24 GRID Grid01x01 {ATTEMPTED}
    AT RCCU      INFOPANE INFOP15x11x01 FIELDPANE FP50x26x24 GRID Grid01x01 {UNABLE}

    AT SPECIFYtalkto  INFOPANE INFOP10X02X01 FIELDPANE FP50x26x24
    AT SPECIFYreluctant INFOPANE INFOP10X02X01 FIELDPANE FP60x35x24
    AT SPECIFYlanguage INFOPANE INFOP10X02X01 FIELDPANE FP60x35x24
    AT SPECIFYStrategy INFOPANE INFOP10X02X01 FIELDPANE FP60x35x24
ENDMODEL

```

❖ **example.man (for formatting ASCII)**

```

{Contact History Instrument Transaction program
... Interagency Household Non-Response Group
AUTHOR: Ed Dyer
DATE: Started back in 04/17/2002 with NHIS

```

PROGRAM DESCRIPTION

```

This is the transaction driver for CHI }

```

MODIFICATIONS { ... }

```

PROCESS Run_Interview

```

SETTINGS

```

DESCRIPTION = 'CHI Transaction processing'
{AUTOREAD = NO } { Comment this out for MANIPLUS }

```

USES

```

Interview_instrument 'CHI' { Meta file (i.e. bmi file for the survey) }

```

```

DATAMODEL TRANSACTION { TRANSACTION record }
                        { Also used for logging transactions}

```

FIELDS

```

CASEID      : String [8]
BLANK1      : String [1]
CONTROL_NUM : String [24]
TRANS_CODE  : String [2]
OUTCOME_CODE : String [3]
AGENDUM_CODE : String [2]
FLDREINT_FLG : String [1]
INSTRUMENT  : String [8]  {.bmi file }
UPDATE_CASE : String [20]  {capi_casemgt_in Manipula script name}
UPDATE_CASEMGT : String [20] {capi_casemgt_out Manipula script name}
LOG_TRANS   : String [1]  {If '1', transaction will be written to log file}
BLANK2      : String [1]

```

ENDMODEL

DATAMODEL outfilefmt

FIELDS

CCList : STRING[1000]

ENDMODEL

UPDATEFILE {The survey database}

UpFile : Interview_instrument ('CHI', BLAISE)

SETTINGS

CONNECT = NO

OPEN = NO {Gets opened in the manipulate section}

INPUTFILE {The TRANSACTION file that case management creates}

InTRANS : TRANSACTION ('trans_file', ASCII)

SETTINGS

CONNECT = NO

OUTPUTFILE

Output : outfilefmt('CHI_flat.asc', ASCII)

SETTINGS

MAKENEWFILE = YES

{Error trapping and AUXFIELDS omitted ...}

{... Start CHI the low-response non-response questionnaire procedure}

PROCEDURE RunNRQ

INSTRUCTIONS

IF FILEEXISTS('CHI.bmi') THEN

{CHI databases are created on the fly by CASEID and deleted by casemanagement at the end}

AUXDBNAME := THECASE + 'CHI.bdb'

Upfile.OPEN(AUXDBNAME)

Upfile.READNEXT

Upfile.INITRECORD

Upfile.CHI.CASEID := InTRANS.CASEID

Upfile.CHI.CONTROL_NUM := InTRANS.CONTROL_NUM

UpFile.WRITE

Upfile.RELEASE

Reslt2:= edit ('CHI.bmi' + '/N ' + '/K' + THECASE +
'/M..\Config\CHI.bwm' + '/F' + AUXDBNAME + '' +
'/G /X')

ENDIF

{Error trapping omitted ...}

ENDPROCEDURE

{... End Procedure}

PROCEDURE RunBLAISTOASCII

INSTRUCTIONS

Upfile.RELEASE

Upfile.open(AUXDBNAME)

Upfile.READNEXT

I := 1

output.open(THECASE+'.CHI') {write out data to a transaction record}
{Setup CATI-CAPI, CaseContact, Date, Time, Personal-or-Telephone, etc ...}

CCList := '#caseid'

output.write

Output.CCLIST := THECASE

output.write

{Omit contact status – detail labels ...}

Output.CCLIST := "

{format from CHI program}

{Contact}

```
IF ( UpFile.CHI.CaseContact = Contact ) THEN
  tmpfld := '0' + str(UpFile.CHI.RCCC)
  Output.CCLIST := Output.CCLIST + 'C' + tmpfld + '$^'
ENDIF
```

```
IF (UpFile.CHI.CaseContact = Contact) AND (Upfile.CHI.RCCC = C02) THEN
```

```
FOR ctr := 1 to UpFile.CHI.RCCU.CARDINAL DO
  IF (UpFile.CHI.RCCU[ctr] < 10 ) THEN           {make sure the codes are all three characters}
    tmpfld := '0' + str(UpFile.CHI.RCCU[ctr])
  ELSE { (RCCu[ctr] > 9 ) then}
    tmpfld := str(UpFile.CHI.RCCU[ctr])
  ENDIF
```

```
Output.CCLIST := Output.CCLIST + 'U' + tmpfld + '$^'
```

{Language}

```
IF ( UpFile.CHI.CaseContact = Contact ) AND ( UpFile.CHI.U04 IN UpFile.CHI.RCCU ) THEN
  FOR ctr := 1 to UpFile.CHI.RCCL.CARDINAL DO
    IF (UpFile.CHI.RCCL[ctr] < 10 ) then
      tmpfld := '0' + str(UpFile.CHI.RCCL[ctr])
    ELSE
      tmpfld := str(UpFile.CHI.RCCL[ctr])
    ENDIF
```

```
Output.CCLIST := Output.CCLIST + 'L' + tmpfld + '$^'
```

```
IF UpFile.CHI.RCCL[ctr] = 1 THEN {Other Language}
  Output.CCLIST := Output.CCLIST + '#' + UpFile.CHI.SPECIFYlanguage + '$^'
ENDIF
```

```
ENDDO
```

```
ENDIF
```

```
IF UpFile.CHI.RCCU[ctr] = 4 THEN {specify language unable shared with language}
  Output.CCLIST := Output.CCLIST + '#' + UpFile.CHI.SPECIFYlanguage + '$^'
ENDIF
```

```
IF UpFile.CHI.RCCU[ctr] = 6 THEN {specify talk to unable}
  Output.CCLIST := Output.CCLIST + '#' + UpFile.CHI.SPECIFYtalkto + '$^'
ENDIF
```

```
IF UpFile.CHI.RCCU[ctr] = 7 THEN {specify other unable}
  Output.CCLIST := Output.CCLIST + '#' + UpFile.CHI.SPECIFYunable + '$^'
ENDIF
```

```
ENDDO
```

```
ENDIF
```

```
{
{Noninterview - Unable to initiate interview} {EAJ}
{code for this section omitted ...}
```

```
linelen := LEN(Output.CCLIST)
lastchars := SubString(Output.CCLIST,linelen-1,2)
{display(lastchars,wait) }
IF lastchars = '$^' THEN
  Output.CCLIST := SubString(Output.CCLIST,1,linelen-2)
ENDIF
{display(Output.CCLIST,wait)}
```

```
output.write
output.release
```

```
ENDPROCEDURE
```

MANIPULATE

```
InTRANS.OPEN
InTRANS.READNEXT {Read the TRANSACTION file }

WHILE NOT (InTrans.EOF) DO

    THECASE      := InTrans.caseid      {CASEID}
    {... Call the Contact History Instrument (CHI) ... Transaction code '08'}
    IF InTRANS.TRANS_CODE = '08' THEN {SFR observed case update set FLDREINT from trans file}
        RunNRQ
        RunBLAISTOASCII
    ENDIF
    InTRANS.READNEXT {Read the TRANSACTION file }
ENDWHILE
```

❖ Example: Part of the lookup code list provided to CM, ROSCO & HQ

C00 Contact
C01 Completed case - ready to transmit
C02 Partial interview - follow-up required
C03 Unable to conduct interview"
L00 Language
L01 Specify language or dialect _____
L02 No household member able to translate
L03 Contact RO about language problem
L04 Unable to find translator
L05 No time left to find translator
S00 Strategies
{omitted}
S12 Checked with neighbors
{omitted}
S17 Sought help from Senior Field Representative / Regional Office
S18 Transferred to RO for re-assignment
{omitted}
U00 Unable to initiate
U01 Eligible person not available
U02 Inconvenient time
U03 Respondent is reluctant
U04 Language problems (Specify _____)
U05 Health problem
U06 Specify whom you talked with _____
U07 Other (Specify _____)

❖ Example: ASCII Transaction file

Following is resulting transaction file for Case Management (CM).

```
#caseid
00000001
#frdate
07/26/2004 11:13 AM
#howcontacted
P
#contactstatus
C
#detail
CU
```

#types
C03\$^U04\$^L01#German
#strat
S18\$^S17\$^S12

This transaction will remain in this format for all the subsystems CM and ROSCO it will eventually be returned to HQ for review by the survey analysts. This method compresses code, standardizes our approach, saves resources both for storing the data on the laptop hard drive & regional office servers and minimizes the transmission of CHI data through the system. This format is similar to our other control system interfaces, does not require retraining and extensive reprogramming and retains the order of the entries as can be seen in the strategy category. FR's are trained to enter the most important items first.

The following screen images were taken from the current CHI v5.8 and show part of the redesign effort. This is just to give the reader an idea how exhaustive the entries are.

The screenshot shows a software window titled "Contact History Instrument v5.8 Created 07/19/2004". The window has a menu bar with "Forms", "Answer", "Navigate", "Options", and "Help". Below the menu bar is a tab labeled "CHI". The main content area is a yellow box with the following text:

- ◆ **CONCERNS / BEHAVIOR / RELUCTANCE**
- ◆ Select the categories that describe respondent concerns, behaviors, or reluctance during this contact attempt.
- ◆ Enter all that apply, separate with commas.

Below this text is a list of 23 items, each with a checkbox:

<input type="checkbox"/> 1. No concerns	<input type="checkbox"/> 12. Hang-up / slams door on FR
<input type="checkbox"/> 2. Not interested / Does not want to be bothered	<input type="checkbox"/> 13. Hostile or threatens FR
<input type="checkbox"/> 3. Too busy	<input type="checkbox"/> 14. Other household members tell respondent not to participate
<input type="checkbox"/> 4. Interview takes too much time	<input type="checkbox"/> 15. Talk only to specific household member
<input type="checkbox"/> 5. Breaks appointments (puts off FR indefinitely)	<input type="checkbox"/> 16. Family issues
<input type="checkbox"/> 6. Scheduling difficulties	<input type="checkbox"/> 17. Respondent requests same FR as last time
<input type="checkbox"/> 7. Survey is voluntary	<input type="checkbox"/> 18. Gave that information last time
<input type="checkbox"/> 8. Privacy concerns	<input type="checkbox"/> 19. Asked too many personal questions last time
<input type="checkbox"/> 9. Anti-government concerns	<input type="checkbox"/> 20. Too many interviews
<input type="checkbox"/> 10. Does not understand survey / Asks questions about the survey	<input type="checkbox"/> 21. Last interview took too long
<input type="checkbox"/> 11. Survey content does not apply (retired, healthy, no crimes to report)	<input type="checkbox"/> 22. Intends to quit survey
	<input type="checkbox"/> 23. Other (Specify _____)

At the bottom of the yellow box, there is a text input field with the label "Concern/Behavior/reluctance".

At the very bottom of the window, there is a status bar with the following information: 00000001 | RSPNDENT | 7-24-2004 | 11:54:12 PM | Saturday | CTRL NUM : 123456789012345678901234

Contact History Instrument v5.8 Created 07/19/2004 [X]

Forms Answer Navigate Options Help

CHI

♦ CONTACT STRATEGIES ATTEMPTED

♦ Select the categories that describe the strategies used on this contact attempt.

♦ Enter all that apply, separate with commas.

<input type="checkbox"/> 1. Advance letter given	<input type="checkbox"/> 14. Contacted property manager
<input type="checkbox"/> 2. Scheduled appointment	<input type="checkbox"/> 15. Visited county assessor / post-office / permit office
<input type="checkbox"/> 3. Left note / appointment card	<input type="checkbox"/> 16. On-line tracking database
<input type="checkbox"/> 4. Left promotional packet / informational brochure	<input type="checkbox"/> 17. Sought help from Senior Field Representative / Regional Office
<input type="checkbox"/> 5. Called household	<input type="checkbox"/> 18. Transferred to RO for re-assignment
<input type="checkbox"/> 6. Left message on answering machine	<input type="checkbox"/> 19. Offered incentive
<input type="checkbox"/> 7. FR will request No One Home letter	<input type="checkbox"/> 20. CED double placement
<input type="checkbox"/> 8. FR will request Refusal letter	<input type="checkbox"/> 21. Used MAF or ALMI
<input type="checkbox"/> 9. FR will request Better Understanding letter	<input checked="" type="checkbox"/> 22. None
<input type="checkbox"/> 10. Called contact persons	<input type="checkbox"/> 23. Other (Specify _____)
<input type="checkbox"/> 11. Stake-out	
<input type="checkbox"/> 12. Checked with neighbors	
<input type="checkbox"/> 13. Contacted other family members	

Strategies attempted

00000001 STRATEGS 7-24-2004 11:55:09 PM Saturday CTRL NUM : 123456789012345678901234

Appendix D

CHI Reports

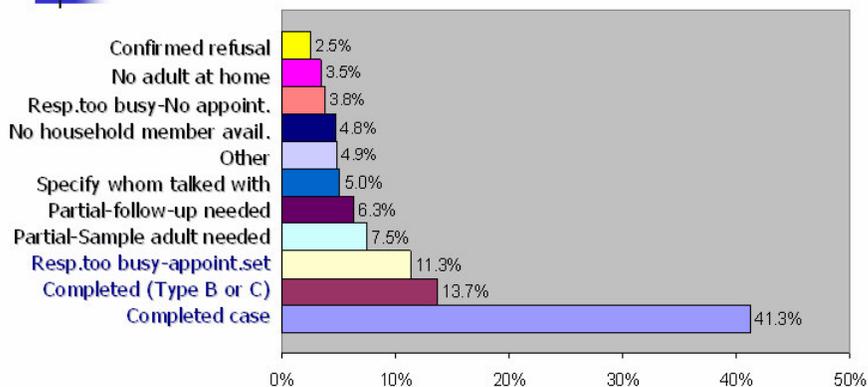
Andrea L. Piani, Gave a very interesting presentation about the use of data from Contact History Initiative (CHI), at FEDCASIC in March of 2004. With her permission we are able to include a few summary tables for your review. These represent a sample of the tables and graphs that can be generated once CHI data is collected and analyzed.

Percent distribution of contact attempts by final outcome: NHIS Q1W3-W4

Final outcome	1	2-3	4-6	7-10	11+	Total	N
Completed	27	41	22	8	2	100	1372
Sufficient partial	10	29	34	20	7	100	264
TypeA noninterviews	9	23	31	20	17	100	223
Insufficient partial	17	25	33	8	17	100	24
No one home	6	15	26	31	22	100	54
Temporarily absent	0	27	27	27	18	100	11
Refused	11	22	33	19	15	100	109
Other	4	40	36	4	16	100	25
TypeB noninterviews	54	33	10	3	0	100	376
Screened out	42	39	13	5	1	100	572
TypeC noninterviews	58	31	7	3	1	100	197

Type-A non-interviews require many contact attempts by the FR

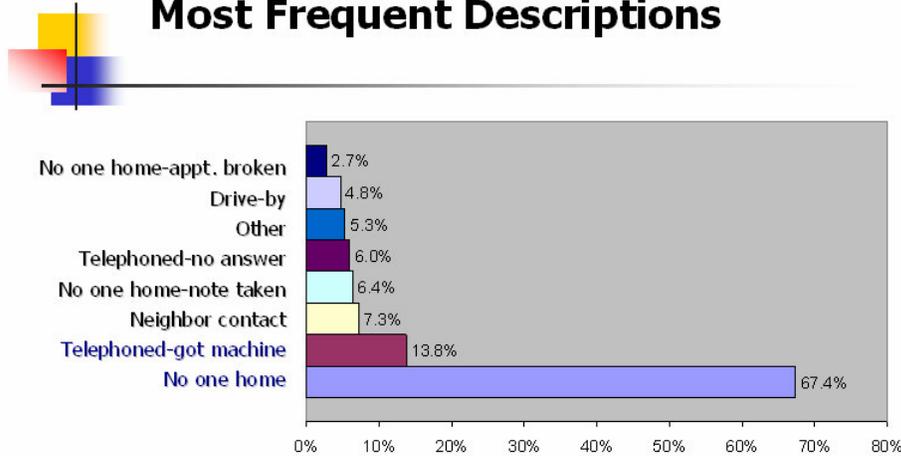
Contact Status Most frequent descriptions



Note: All other categories selected less than 2 percent of the time

After two weeks of interviewing 55% of the interviews were completed.

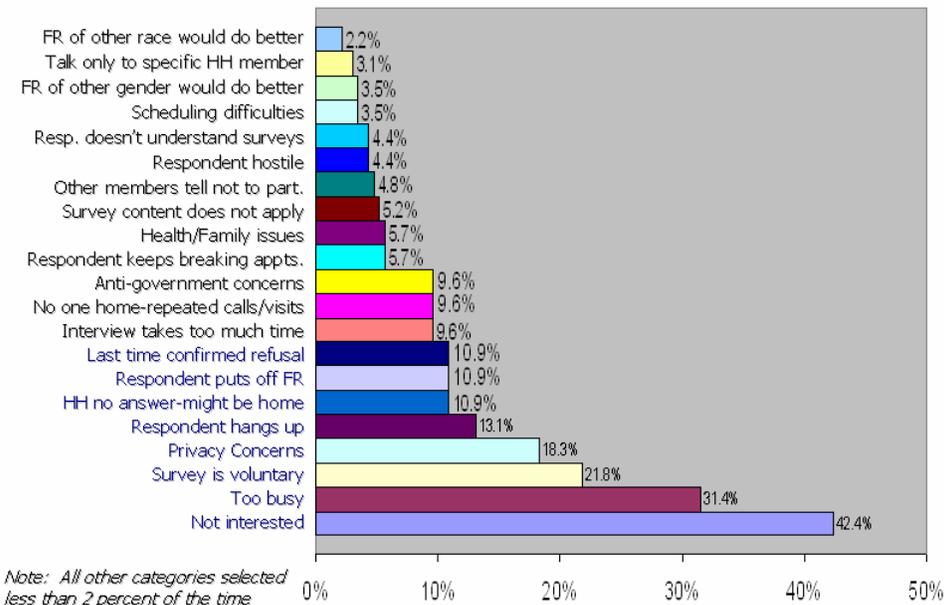
Noncontact Status Most Frequent Descriptions



Note: All other categories selected less than 2 percent of the time

The most common non-contact occurrence was “No one home” 67%

Potential Refusal Status



Note: All other categories selected less than 2 percent of the time

Metrics gathered by the Contact History Initiative for the National Health Interview Survey during January 12-28, 2004 confirm that the top five reasons given to interviewers for potential refusal (by reluctant respondents) are: Not interested; Too busy; Survey is voluntary; Privacy concerns and hang-up. What if anything can be done to improve our interviewers chances of getting a complete interview. Now that we have a baseline the SFR may look at printed reports, suggest other times to visit or in time Field Division may use this data to change procedures to educate the respondents, shorten the interviews or provide incentives. This is just the beginning, as more data is available we

will refine the CHI to meet Field Division’s requirements to collect and process contact history data.

Contact History Reports are generated as required in the Regional Offices for supervisory review of survey contact attempts. ROSCO generates a number of standard reports. Many are - Census Confidential Title 13 – so we can not give examples without performing disclosure. However, the **“Type of Contact by Time of Attempt”** report, which does not show any individual respondent information is a good example of the way CHI data is summarized for our Field Division and supervisory interviewers.

NHIS Contact History Instrument
Type of Contact by Time of Attempt Report
Interview Periods: 2003210

Outcome Type	Contact Status	Total Attempts		Time of Attempt											
				6:00 - 8:59 AM		9:00-11:59 AM		12:00 - 2:59 PM		3:00 - 5:59 PM		6:00 - 9:59 PM		0:00 - 11:59 P	
		M-F	W/E	M-F	W/E	M-F	W/E	M-F	W/E	M-F	W/E	M-F	W/E	M-F	W/E
201	Contact	364	39	11	0	99	16	155	18	71	3	21	1	6	0
	Non Contact	18	3	0	2	8	0	4	0	3	1	2	0	1	0
	Total by Outcome	382	42	11	2	107	16	159	18	74	4	23	1	12	0
	First Attempt - Final Outcome	259	27	6	0	66	13	127	10	47	3	13	1	0	0
203	Contact	126	5	4	0	39	2	48	1	24	2	5	0	6	0
	Non Contact	13	2	0	1	1	0	5	0	6	1	1	0	0	0
	Potential Refusal	1	0	0	0	0	0	0	0	1	0	0	0	0	0
	Total by Outcome	140	7	4	1	40	2	53	1	31	3	6	0	6	0
First Attempt - Final Outcome	43	3	0	0	16	2	20	0	5	1	1	0	1	0	
A's	Contact	141	10	3	0	41	5	65	4	17	0	6	0	5	1
	Non Contact	288	16	4	0	71	6	94	10	46	0	24	0	17	0
	Potential Refusal	13	1	0	0	7	0	3	0	0	0	1	0	0	1
	Total by Outcome	442	27	7	0	119	11	162	14	63	0	31	0	25	2
First Attempt - Final Outcome	281	19	2	0	59	9	103	10	40	0	23	0	20	0	
B's	Contact	14	1	0	0	3	1	5	0	2	0	1	0	2	0
	Non Contact	62	4	1	1	18	0	19	2	16	1	5	0	0	0
	Total by Outcome	76	5	1	1	21	1	24	2	18	1	6	0	2	0
	First Attempt - Final Outcome	49	4	0	1	14	1	15	2	10	0	6	0	0	0
C's	Contact	86	4	1	0	32	1	26	3	15	0	10	0	1	0
	Non Contact	199	18	6	4	34	3	56	0	46	10	30	0	25	0
	Potential Refusal	8	0	0	0	4	0	2	0	1	0	0	0	0	0
	Total by Outcome	293	22	7	4	70	4	84	3	62	10	40	0	43	0
First Attempt - Final Outcome	117	2	0	0	11	0	51	1	35	0	15	0	3	0	

Titles of other CHI Reports available to NHIS field supervisors:

NHIS Contact History Summary Report

(CHI 1) Cases Not Checked In

(CHI 2) Type A Report

NHIS Contact History Instrument

(CHI 3) Partial Report (Outcome 203)

(CHI 4) Number of Attempts Report

(CHI 5) Type of Contact by Time of Attempt Report

(CHI 6) Strategies Report (cases w/at least 1 Potential Refusal)

(CHI 7) Number of Attempts Report by FR

(CHI 8) Strategies Report (cases w/ at least 1 Potential Refusal) by FR

(CHI 9) FR Contact Attempt Report

References

Andrea L. Piani, The use of Field Metrics and Paradata (Process Data) in evaluating CASIC Surveys, CAPI History Data Contact History Initiative (CHI), presentation for FEDCASIC 2004 Workshop TA-3 at the Bureau of Labor Statistics, March 4, 2004

William E. Dyer, Jr. and Adriana Gonzalez, CHI v4.6 Why CHI? Prepared for Field Day, U.S. Census Bureau, August 27, 2003.

Laura Nehlson, CHI Flow Chart V5.7, U.S. Census Bureau

Nancy Bates, Contact Histories in Personal Visit Surveys: The Survey of Income and Program participation (SIPP) Methods Panel U.S. Census Bureau, Demographic Surveys Division, 3384-3, Washington, DC 20233 A paper presented at the annual conference of the American Association for Public Opinion Research (AAPOR), Nashville, Tennessee May 15-18, 2003

Nancy Bated, Contact Histories as a Tool for Understanding Attrition in Panel Surveys U.S. Census Bureau, Demographic Surveys Division, 3384-3, Washington, DC 20233 A paper presented at the annual conference of the American Association for Public Opinion Research (AAPOR), Phoenix, Arizona May 13-16, 2004

Dawn V. Nelson, Charter for the Recurring & Multi-mode Surveys Contact History Committee, U.S. Census Bureau, February 11, 2003.

