Michigan CATI Sample Management System (SMS) – Blaise CATI Enhanced

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1. Overview of the CATI SMS

The Survey Research Center (SRC) at the University of Michigan began implementing its Blaise CATI SMS in 2001. This was on the heals of the development of SRC's proprietary CAPI sample management system, SurveyTrak, that transmits sample data, versions of the instrument, and information on call attempts and sample outcomes back and forth from the decentralized staff and the central office.

The experience SRC gained from its previous CATI systems and SurveyTrak brought on the notion of adding features to the existing CATI system to create a robust and enhanced CATI SMS version. In contrast to the decentralized sample management system, the CATI SMS had different requirements such as: the interviewers sharing sample lines and working predefined shifts; the sample is pooled and managed by sample types and attributes, e.g., RDD and Recontact subsamples, Language, interviewer experience, refusal conversion required, "hard" versus "easy" case workgroups. All of these requirements brought forth the need for a different network-based system. However, the two sample management systems share the same reporting database, which allows for the implementation of the Dynamic Reporting System (DRS). DRS will be discussed briefly at the end of this paper.

In the SMS version implemented in 2001, interviewers could maintain sample line information; telephone number; type of sample (recontact, new sample); time zone, strata; collect data on contact attempts; results of each call; record interviewer notes and observations; and allowed for Supervisor review and sample assignment. However, after using the first generation CATI SMS system it was determined that several shortcomings needed to be addressed. One of the principal shortcomings was that sample assignment was executed through paper coversheet distribution (Pennell, et al. 2004). This meant significant Supervisor effort, including determining: lines to contact the next day, managing number of calls on a sample line, manually assigning specific types of sample to different interviewers (by language, refusal conversion, appointment follow-up, etc.). It was also labor intensive to focus interviewer effort on particular strata. Therefore, it was decided that the next generation of the CATI SMS system should implement the Blaise Call Scheduler to allow for automatic case delivery.

Other second-generation SMS issues that needed to be addressed were the ability to manage sample distribution and survey costs while adding flexibility to the overall architecture of the enhanced version of the CATI SMS II system. It was determined to manage the sample distribution more effectively, the following priorities were identified (Pennell, et al. 2004):

- Hierarchical priorities, including hard appointments, soft appointments, last call busy;
- Sorting based on study-specific requirements, including strata, states, or time zones;
- Managing to quotas, for example by recontact cases;
- The ability to mange appointments by initially distributing sample to the interviewer setting the appointment, then distributing to the general or group interviewer pool.

Other items impacting the management of survey costs were (Pennell, et al. 2004):

- Having the ability to automatically prioritize calls by their likelihood to contact. In addition, appointments needed to be kept and busy calls followed up on, even if the calling interviewer gets another respondent on the line;

- Automated distribution of cases with no contact based on preset call windows, would guarantee a balanced effort on the case;

- Automated limits on number of contact attempts per sample line; meeting contract cost / effort specifications.

Adding flexibility to the overall architecture of CATI SMS II meant all the features existing in the current CATI SMS would be retained, this includes: Supervisor review of cases and bringing up a sample line by Sample ID or telephone number. Additionally, by working with groups, Supervisors can assign specific types of cases to specific interviewers; for example, flagging cases for refusal conversion. The fully integrated second-generation CATI SMS II system is currently in its testing phase and is expected to be in production by fall 2004.

The current CATI SMS system does not employ the Blaise CATI "Dial Screen" nor will it be used in CATI SMS II. The "INHERIT CATI" requirement has been separated from the Interview data and is instead associated with a smaller CATI-only related datamodel used exclusively for CATI management. The CATI SMS also features two separate and distinct modules; one for the Supervisor and one for the Interviewer.

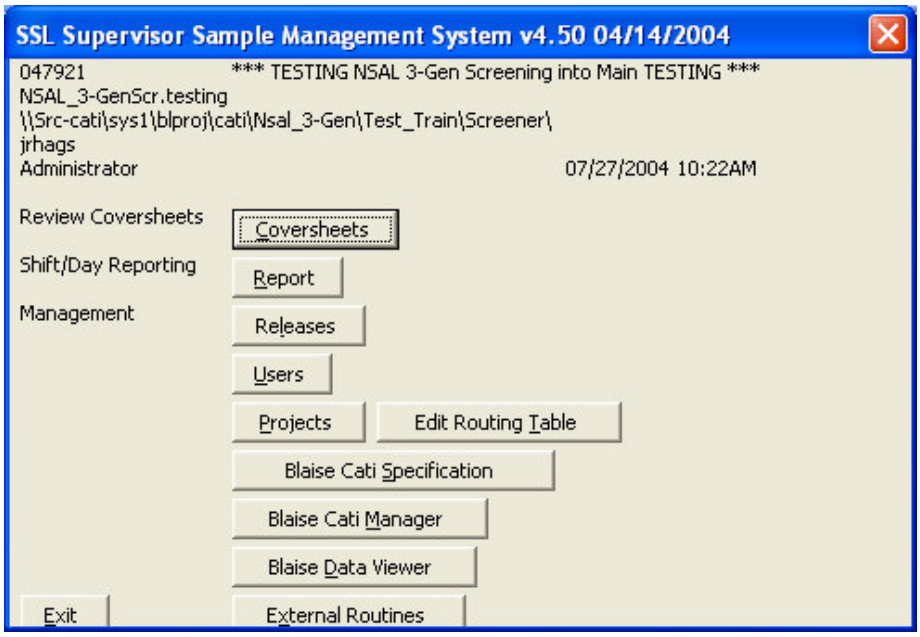
The system has the advantage of permitting standardized reports to be produced across all studies which eliminates the need to build a separate set of reports for each project. There are also a detailed set of Supervisory Management tools that allow Supervisors to manage projects, result codes, and users (Interviewers).

The system includes the capability of running external routines and provides for a set of "Special Calls" that can run Manipula scripts prior to the Coverscreen, prior to the Interview, and after the Interview has been completed. The main portion of this paper will review the CATI SMS II features as they interact with Blaise CATI. First, an exploration of the supervisory module functions will be discussed, then briefly discussing the interviewer module, and ending with a section discussing the Dynamic Reporting System (DRS).

2. SMS Supervisor Module

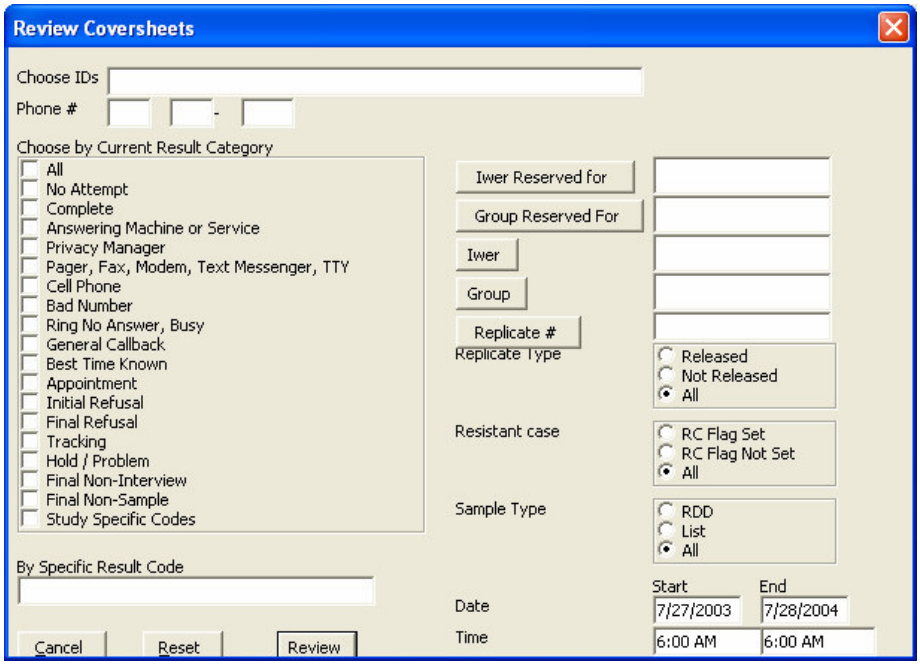
The Supervisor (SMSSuper) module provides a variety of features for Project Managers, Team Leaders, and Shift Supervisors to manage sample lines and interviewers. A login screen prompting for username and password permits entry into the Supervisor module.

Once a project has been selected, a main dialog screen appears. From this screen, many management functions can be performed and these are discussed below.



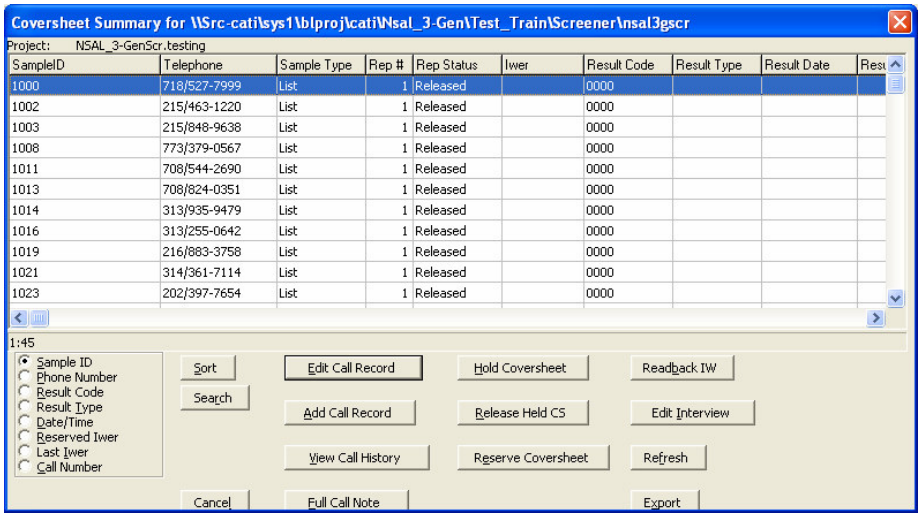
2.1 Main Dialog: Coversheets

Upon selecting the "Coversheets", the Supervisor may review the coversheets by many different parameters. They may select cases for review by Sample ID, Telephone Number, Result Code, Interviewers, Groups, Replicate Types, Resistance Type, and Sample Type, as well as by Date and Time.



Once criteria have been selected, the resulting screen displays those sample lines. Globally, the user may sort the lines by Sample ID, phone number, result code, result type, date/time, reserved interviewer (a case reserved for a specific interviewer), last interviewer, and call number.

On any particular sample line, the user may "Edit Call Record," "Add Call Record," "View Call History," review "Full Call Note," "Hold Coversheet," "Release Held CS," "Reserve Coversheet," "Readback IW," "Edit Interview," "Refresh" (refresh the current view), and "Export" (exports the data in the view to a comma separated file).

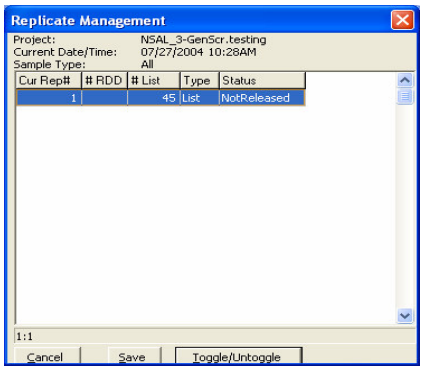


2.2 Main Dialog: Reports

Due to the current restructuring of the SMS –Reporting utility, report functions are discussed briefly at the end of this paper.

2.3 Main Dialog: Releases

SMS manages releases (replicates) in two parts, handled through the same interface. There is a master list of releases stored in the system for the study, and each case has a release number and a flag whether the case has been released. Setting the flag on individual cases is important for automatic case delivery because the Blaise delivery algorithms are based upon flags and other status for each case. Note: because a release may happen during production interviewing, the release management is conducted in "shared mode" (SMS2002 Supervisor Manual, V.1, 2003).

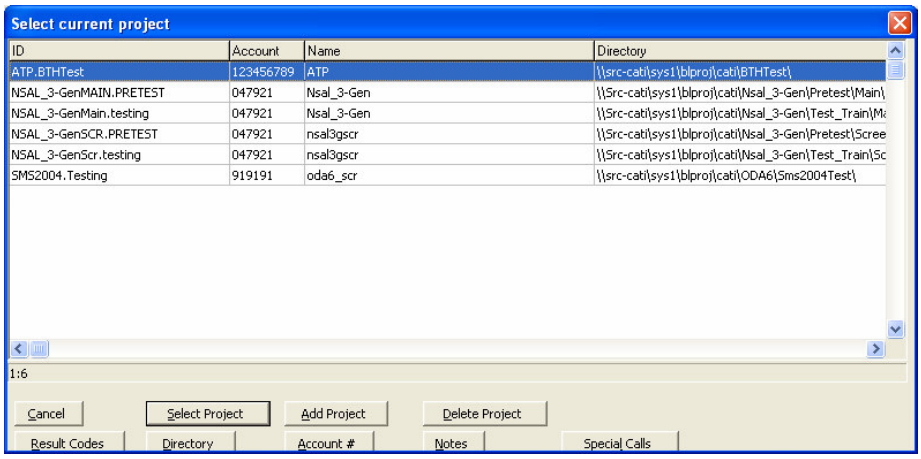


2.4 Main Dialog: Users

The management of all users in the system is handled by the "Users" button; bringing up a list of users and other project-specific information. Features available from the User dialog screen are: manage groups, add new groups, add or remove users.

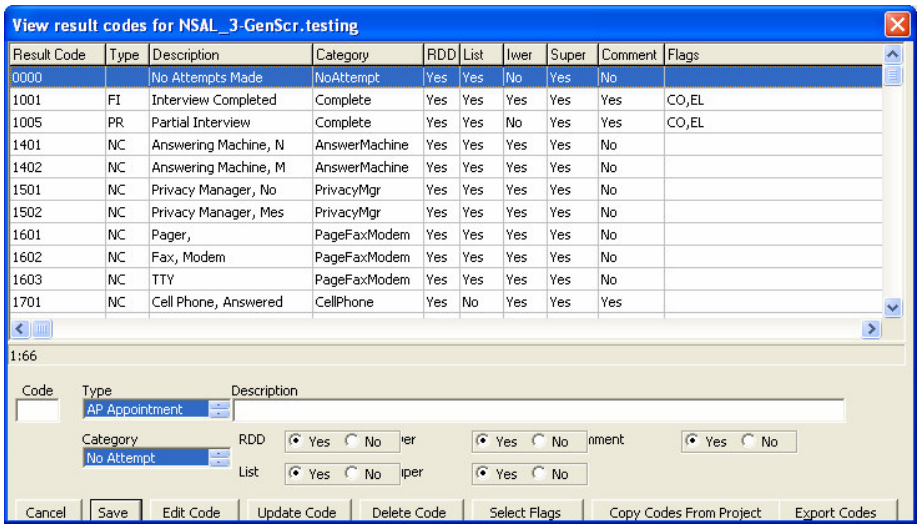
2.5 Main Dialog: Projects

A list of projects is presented to the user for selection. Also on this screen, additional functions can be performed such as "Add Project," "Delete Project," "Result Codes," updating the directory path of the project, update the account number, enter notes specific to the project, and "Special Calls".



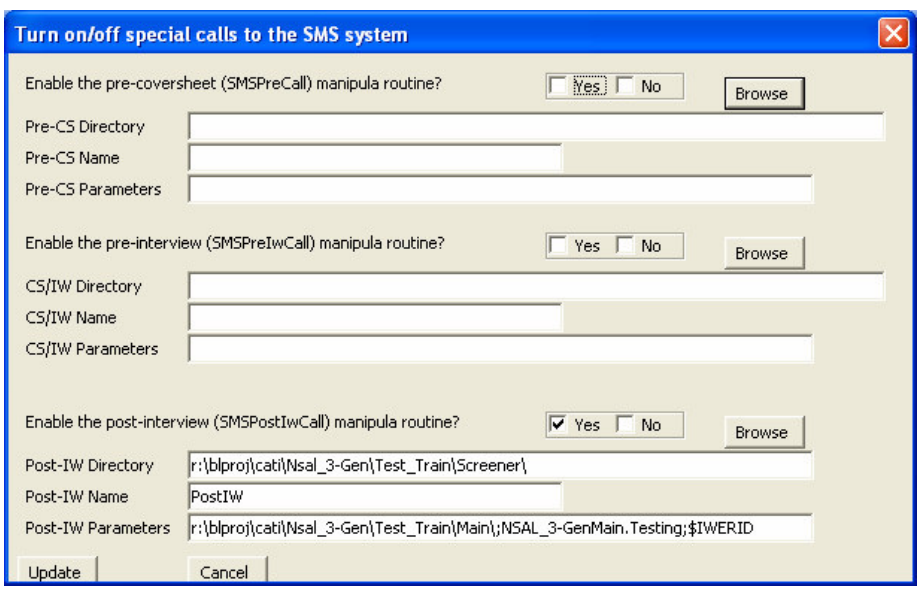
2.5.1 Main Dialog: Projects: Result Codes

The Result Codes interface allows the user, at the start of a project, to select which result codes, from a standardized list, they wish to include.



2.5.2 Main Dialog: Projects: Special Calls

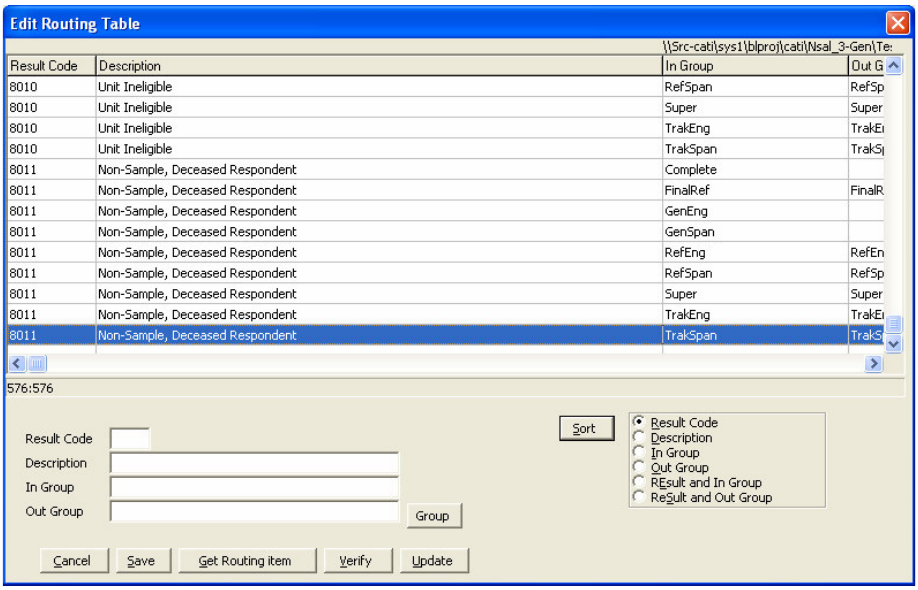
"Special Calls" allows the user (CAI Programmer) to select from three different types of Manipula routines; "pre-coversheet" (this feature is not available with automatic case delivery via the call scheduler), "pre-interview," and "post-interview" depending on the needs of the project at hand.



The example above displays the set-up for a "post-interview" Manipula routine. The directory where the routine resides is declared; the name of the routine, and finally the specified set of parameters being passed into the routine.

2.7 Main Dialog: Edit Routing Table

The Routing Table concept was provided to SRC by Statistics Canada. This new feature in CATI SMS II allows for the routing of cases to various groups of interviewers. This routing is dependent on the most recent result code for the case.



2.8 Main Dialog: Blaise CATI Specification

This provides direct access to the CATI spec file for an individual project using the standard Blaise CATI Spec Editor.

2.9 Main Dialog: Blaise CATI Manager

This also provides direct access to the Blaise CATI Manager for each individual project.

2.10 Main Dialog: Blaise Data Viewer:

The data viewer allows the user to browse through Blaise databases (and other data) via SMSSuper. There are three kinds of viewing: browse coversheet**,** browse interviews**,** browse other data.

2.11 Main Dialog: External Routines

The External Routines button gives the option to run supplementary programs via SMSSuper. There are three options to run programs (SMS2002 Supervisor Manual, V.1, 2003):

- Browse for executable programs: Executable programs are like Notepad, Word, Excel, and other special programs.

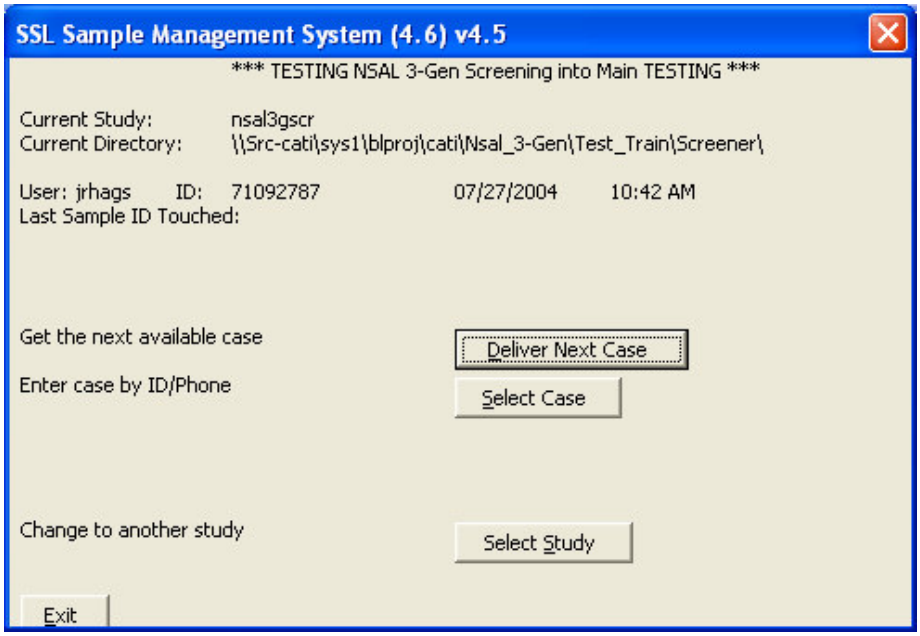
- Browse for Manipula scripts: Similar to browsing for .EXE programs, this is designed to run prepared Manipula/Maniplus programs (.MSU extension).

- Browse other program types: Ability to open other file types that are not EXEs and MSUs.

3. SMS Interviewer Module

The SMS Interviewer (SMSCati) module provides the interviewer with direct access to their daily work. As seen in the Supervisor's module, the interviewer is presented with a login screen prompting for username and password; this permits entry into the Interviewer module. They are then provided with a list of projects that they are allowed to access:

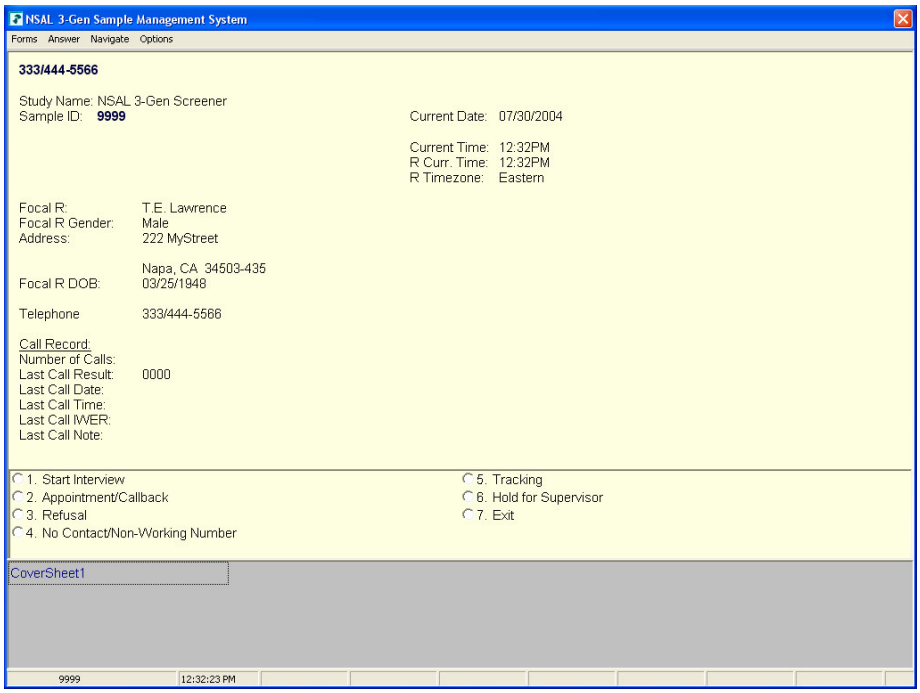
The SMSCati Main dialog provides the interviewer with more than one option by which to access sample lines; it also includes a variety of information that the interviewer can utilize. The "Deliver Next Case" option allows an interviewer to access cases that have been given priority by CATI SMS II.



The "Select Case" button allows access to a specific case by either Sample ID or Telephone Number. The default is by Sample Id.

3.1 Accessing the Coverscreen

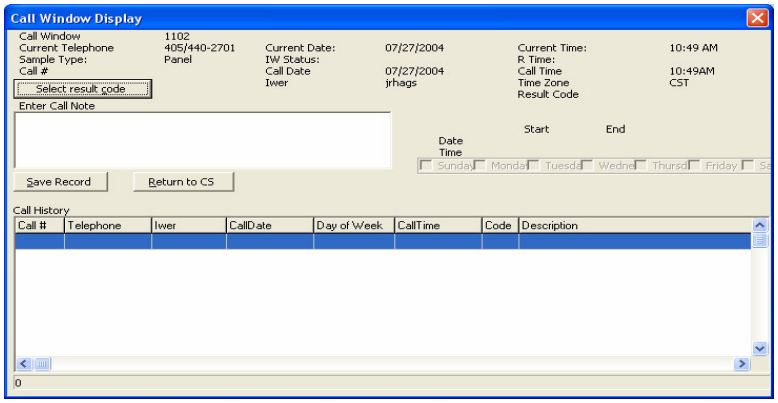
This screen appears when a case has been accessed via either the "Deliver Next Case" or "Select Case" commands. The Coverscreen includes a variety of information about the respondent as well as other information that will help the interviewer develop a calling strategy for the sample line (SMS2002 Supervisor Manual, V.1, 2003). This additional information includes the Sample ID, date, current time, and the respondent's current time, as well as further information relative to the composition of the respondent's household. This information can be very helpful to an interviewer in their preparation for calling a particular case.



Depending on the response, the interviewer will either conduct the interview or enter a call record and result code for the sample line.

3.2 Call Window Display

The "Call Window Display" provides the Interviewer with the ability to record a result code and call record for the sample line. At the same time, they can see the call history for the sample line.



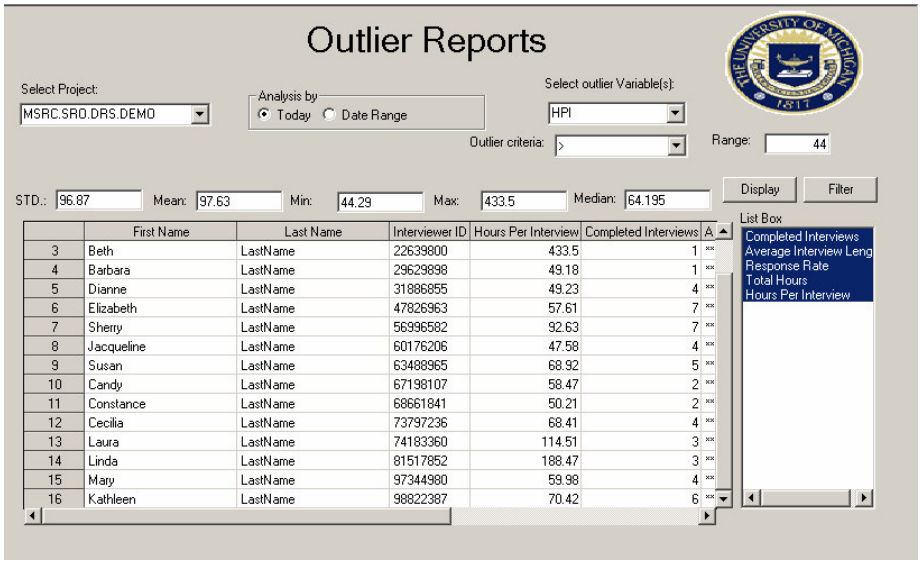
4. Dynamic Reporting System (DRS)

The DRS is intended to integrate CATI SMS II and SurveyTrak reporting databases into a single reporting database. It will create analytical reports in addition to descriptive reports, serving multiple user types: field managers, project managers; and principal investigators. DRS will ultimately enable further independent analysis of process data by simplifying the output procedure (Pennell, et al., 2004).

DRS will have several ways of outputting reports including the creation of reports for the following issues: outliers, trends, key statistics, snapshots, and standard reports. These are explained briefly below with a screen shot of how these reports will look:

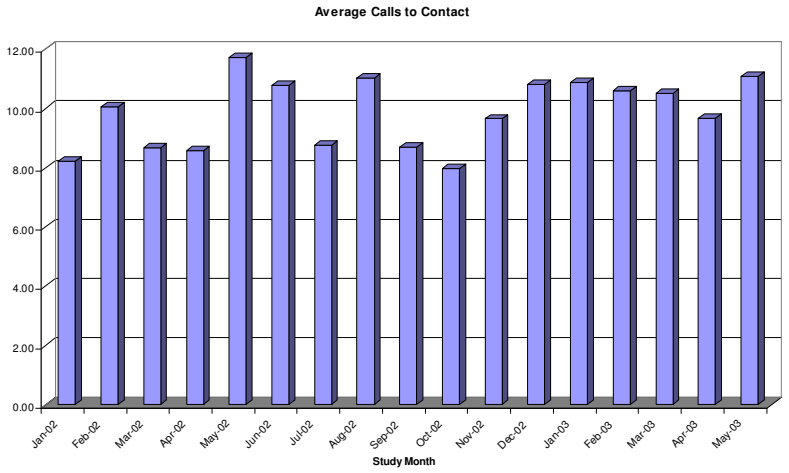
4.1 DRS: Outlier Reports

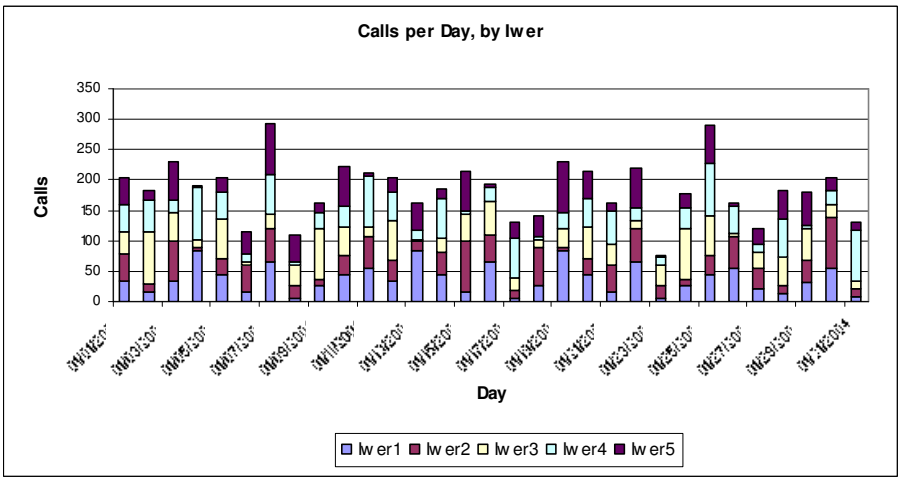
Interviewer level data to identify which interviewers perform at exceptional levels (for good or bad) on key performance characteristics



4.2 DRS: Trend reports

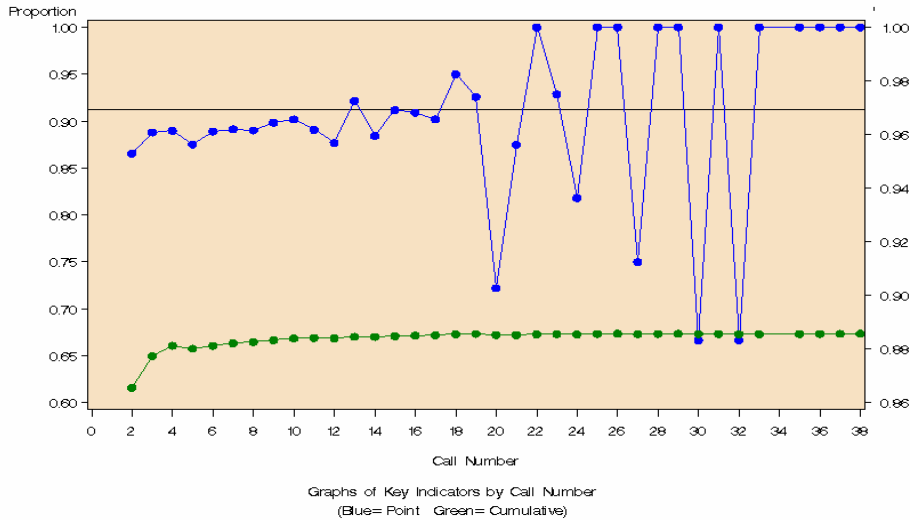
This report outputs interviewer level data to determine trends in sample development at different points of a study, the ability to select all datasets. (Additional variables include Minutes between calls, Verification type results)





4.3 Key statistics reports

Call level data to uncover potential bias.



4.4 Snapshot reports:

Interviewer level data enabling the analysis of work patterns at specified time frames.

4.5 Standard Reports:

Standard Field Progress Report (FPR); Client FPR; Standard Cost Report; Client Cost Report; Standard Verification Report; Client Verification Report; etc.

5. References:

Pennell, B.E., Benson, G., Chardoul, S., Cheung, G-Q. (2004). "Technical Developments in SRO". June Primary Research Staff Seminar, Survey Research Center, University of Michigan.

SMS2002 Supervisor Manual, V.1. (2003). Manual produced by the Technical Services Group, Survey Research Operations, Survey Research Center, University of Michigan.