Multi-Method Approaches to Monitoring Data Quality

Presented by
Lauren Cohen, Kristin Miller, and Jaki Brown
RTI International

Presented at
International Field Director's & Technologies (IFD&TC) 2008 Conference
May 20, 2008
New Orleans, LA

RTI INTERNATIONAL

3040 Cornwallis Road ■ P.O. Box 12194 ■ Research Triangle Park, NC 27709

Phone 919-541-6000 Fax 919-541-7250 e-mail lcohen@rti.org

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Objectives

- To examine the use of multi-method approaches to monitoring data quality on two large-scale national surveys, the National Survey of Child and Adolescent Well-Being (NSCAW) and the National Survey on Drug Use and Health (NSDUH)
- This presentation provides a qualitative examination of different data quality methods and we hope to help other project teams, in the development stage, to construct the most effective data quality monitoring protocol for their studies

Project Description: NSCAW

- National study of children who have had contact with the child welfare system or are at risk of abuse or neglect
  - Sponsored by the Administration for Children and Families (ACF), an Agency within the US Department of Health and Human Services
- Mandated by Congress in 1996; RTI has worked with ACF since 1997 to conduct the study
- Collects child- and family-level data from children, their current caregivers, and their caseworkers
- Data also collected from teachers of children in kindergarten and higher grades

Acknowledgment: NSDUH

- This project is funded by Substance Abuse and Mental Health Services Administration, Office of Applied Studies, under
  - Contract no. 283-2004-00022 and Project no. 0209009
- This presentation is sponsored by the RTI International's Survey Research Division
- The views expressed in this presentation do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government

Project Description: NSDUH

- Federally sponsored annual cross-sectional household survey that gathers data on substance use and abuse among the non-institutionalized household population of the United States
  - Data collected by RTI International for SAMHSA
- Approximately 170,000 households are screened and 67,500 interviews are conducted across all 50 states and the District of Columbia each year
- Primary source of information on the use of illicit drugs, alcohol, and tobacco in the United States

Overview

These two large-scale field surveys use different combinations of data quality assurance methods to ensure a high level of data quality:

- NSCAW uses a combination of telephone verification, Computer Audio Recorded Interviewing, and review of various data quality reports
- NSDUH uses telephone verification, mail verification, data quality reports, field observations and field verifications

Telephone Verification

NSCAW Telephone Verification:

- Verify percentage of work through telephone interview
- Call takes approximately 5 minutes
- Monitor Interviewer performance and adherence to protocol
- DQ Manager monitors rate of problem occurrences

Telephone Verification

NSDUH Telephone Verification:

- Verify percentage of field interviewer screenings and interviews
- Telephone Interviewers administer brief questionnaire to respondent
- Questionnaire verifies field interviewer followed important protocol when administering screening or interview
- Responses keyed into verification system and reported through various data quality reports

Telephone Verification

Benefits:

- Cost-effective
- Quick turn around

Challenges:

- Expensive start up
- Bad phone numbers
- Hard to reach respondents
- Uncooperative respondents
- Forgetful respondents

Mail Verification

NSDUH Mail Verification:

- Uses mail verification when telephone verification is not an option
- Standardized form with 7 questions
- Assess whether interviewer followed project protocols during interview
- Form returned to RTI by respondent and responses keyed into verification system and reported on various data quality reports

Mail Verification

Benefits:

- Cost-effective
- Reach respondents with no phone/refused phone

Challenges:

- Low response rates

Field Verifications

NSDUH Field Verifications:

- Serious breaches of protocol or potential falsification suspected
- Verifying interviewer re-contacts households
- Uses standardized questionnaire to verify screenings and interviews conducted according to protocol
- Effective method of in person verification

Field Verifications

Benefits:

- Able to determine if the data submitted to the client is of the highest quality. If data is found to be deficient cases can be reworked to ensure integrity

Challenges:

- Field Verifications are an expensive method of verification

Computer Audio Recorded Interviewing (CARI)

NSCAW Computer Audio Recorded Interviewing:

- Uses CARI to review percentage of interviewers completed interviews
- Respondent consent to record
- Audio files transmitted to RTI
- RTI staff reviews 15% of audio recordings
- Performance feedback provided to the interviewer's Field Supervisor
- Problems logged by DQ Manager
- Increased percentage reviewed if issues are detected or suspected

CARI

Benefits:

- Cost-effective
- “Fly on the wall” perspective
- No reliance on future contact with respondent

Challenges:

- Only portions of the interview are recorded
- Availability of review dependent upon consent of respondent to being recorded

Field Observations

NSDUH Field Observations:

- Observe interviewers conduct screenings and interviews in person
  - Assess if interviewers are reading all questions verbatim
  - Ensure that interviewers are not biasing respondents answers
  - Following all procedures and protocols

- Conduct 100 – 400 field observations per year

Field Observations

Benefits:

- Observers are able to see the interviewing process from the screening to the interview
- Observers are able to provide situational feedback

Challenges:

- Field Observations are an expensive method of data quality monitoring

Data Quality Reports

NSCAW Data Quality Reports:

- CARI Refusal Rate Report
- Timer Reports
- Outliers Reports
- Frequency Reports

NSDUH Data Quality Reports:

- Short FI Level Report
- Missing Screening Data Report
- Record of Call Time Discrepancy Report
- Data Quality Report
- The Interview Lengths Report
- Data Quality Summary Report
- Increased Verification Report

Data Quality Reports

Benefits:

- Provides thorough picture of an interviewers overall data quality
- Automated and low cost

Challenges:

- Can be expensive and time exhaustive at the start-up
- Review can be labor intensive

NSCAW - Current Method Combination

Verification Method: Telephone Verification

Monitoring Method: CARI

Various DQ Reports

NSDUH - Current Method Combination

Verification Method: Telephone Verification, Mail Verification, Field Verifications

Monitoring Method: Field Observations

Various DQ Reports

Summary of Suggested Method Combinations

Ideal approach is a combination of some or all of the discussed methods:

- Telephone Verifications
- Mail Verifications
- Field Verifications
- CARI Review
- Field Observations
- DQ Reports

Summary of Suggested Method Combinations

Determine which verification method or combination of methods to use

- Methods of verification:
  - Telephone Verifications
  - Mail Verifications
  - Field Verifications

Summary of Suggested Method Combinations continued…

Determine which monitoring method or combination of methods to use

- Methods of monitoring:
  - CARI
  - Field Observations

Summary of Suggested Method Combinations continued…

Basic Foundation for DQ Process = DQ Reports

- Various Reports presented here track:
  - Timing data
  - Outlier data
  - CARI refusal rates
  - Frequency data
  - Screening and interviewing errors
  - Screening and interviewing refusal and no phone rates

Conclusions

- Through an effective combination of different methods, projects are able to maximize the efficiency and value of the data quality monitoring process.
- We hope that the information provided in this presentation can help other project teams to construct the most effective data quality monitoring protocol for their studies.

Questions

If you have questions please contact:

Lauren Cohen (lcohen@rti.org)

Thank you!