The National Immunization Survey Quality Control Program

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National Immunization Survey:

Sponsored by
the National Immunization Program
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Conducted by Abt Associates Inc.

Objectives for the NIC Presentation

- To describe the quality control program for the National Immunization Survey

- To enhance understanding about the study in general

- To answer any questions about the study's processes

Overview of the NIS

- The NIS measures levels of immunization for childhood diseases (children age 19-35 months)

- Surveillance mechanism for tracking changes in immunization coverage over time and at national, State, and local-area levels

- Apply a standardized survey design and replicable estimation methodology

Design of the NIS

- 78 Geographic Areas (Immunization Action Plan Areas in 50 States, 28 Metropolitan Areas)

- Random-Digit Dial Telephone Survey
  - **1.9 Million Fielded RDD Phone Lines Per Year**
  - **35,500 RDD Interviews per Year**

- Provider Record Check Study

- Rolling 4-quarter immunization coverage estimates for each IAP area and nationally

NIS Response Rates

- The response rates for the National Immunization Survey are among the highest for RDD surveys: 80% plus

- Vaccination providers share immunization history information on 65%-70% of the study children

Selected Quality Control Measures

- **Sample management**
- **Interviewer training, monitoring**
- **Computerized interviewing (CATI)**
- **Intranet for dynamic reporting system, SPC techniques**
- **Providers' validation of parental self-report**
- **Automated coding of vaccines**
- **Adjustments for non-telephone households**
- **Quality control support from NIP**

Sample Management

- **New RDD sample each quarter**
- **Even and consistent collection of interviews across all IAPs during each quarter of data collection**
- **Algorithms determine selection of cases for telephone work**
- **Frame-relay network: Seamless sample management between phone centers**

Interviewer Training and Monitoring

- **Each new interviewer receives 20 hours of project training and 8 hours of basic interviewer training**
- **Continuous interviewer retraining**
- **Audio-visual monitoring of interviewers (blind to interviewers)**
- **Automated selection of interviewers for monitoring**
- **Over 5% of all interviews are monitored**
- **Quality control feedback to interviewers**
- **Daily augmentation of monitoring database**

Computer-Assisted Telephone Interviewing (CATI)

Telephone work is controlled by the CATI system:

- CATI system determines selection of cases and then dials phone number automatically
- CATI system automatically skips to appropriate questions based on responses
- On-line Provider Address Database (55,000 plus providers) using Zip Code radius methodology
- Interview data saved immediately
- Accurate, daily reports on interviewing production

NIS Intranet: Dynamic Interviewer Reports

Using web browsers, telephone supervisors and managers have immediate access to dynamic interviewer-level reports:

- **Response rates**
- **Refusal rates**
- **Results of Monitoring**
- **Rankings of interviewers on quality and production indicators**
- **Extensive use of Statistical Process Control techniques**

Providers' Validation of Parental Self Report

The Provider Record Check Study validates the accuracy of household data

- A provider mail-out survey with mail-back and fax-back options
- About 83% of interviewed households give consent About 95% of providers cooperate to requests to share vaccination information
- Overall, between 65% and 70% of study children have provider-validated data

Provider-validated results are the basis for vaccination coverage estimation

Automated Coding of Vaccines

Vaccines reported verbatim are electronically coded:

- Database of vaccine names (updated continuously) from 5+ years of data collection

- Uniform coding of a specific verbatim

- Ability to create multi-antigen variables

- Unmatched vaccine verbatim responses are coded by NIP staff.

Adjustments for Non-Telephone Households

Approximately 10% of households having 2-year old children do not have telephones. The NIS developed a statistical adjustment to correct for exclusion of such households. The adjustment:

- Uses data from the National Health Interview Survey (which includes non-telephone households)
- Uses Census data to estimate the number of eligible households without telephone numbers in each IAP
- Derives the relationship between nontelephone and telephone children with respect to their up-to-date vaccination status.

Quality Control Support From NIP

- The NIP helps ensure that the *NIS* maintains a very low error rate in transcription and coding by reviewing 10 percent of all edited and/or transcribed *NIS* Immunization History Questionnaires returned by providers to Abt Associates.

- The error rate, as documented in Dr. Coronado's review of *NIS* provider questionnaires, is consistently less than 1%.

Benefits of the NIS Quality Control Program

- Equal data collection across all IAPs
- Interviewer monitoring maintains high level of proficiency
- A Provider Study error rate of <1% (December 1998)
- A substantial increase over time in children with provider-validated data -- from 44.8% in the first quarter of 1995 to 69.4% in the first quarter of 1998

Conclusion

The quality control program has led to refinements in the RDD telephone survey and Provider Record Check Study that ensure the collection of high quality data and the achievement of consistently high response rates.