

Random-Digit-Dial Survey Designs



Random-digit-dial surveys with both landline and cell telephone numbers are a cost-efficient method of representing nearly all eligible persons or households in a study's target population. RTI International is a leader in designing, fielding, and weighting random-digit-dial (RDD) surveys, having conducted many RDD telephone surveys and contributed to cutting-edge RDD methodology in the scientific literature.

Overview

Researchers need cost-effective methods for collecting representative data from the general population and targeted subpopulations. As more and more households rely on cell phones exclusively, traditional random-digit-dial samples of landline telephone numbers provide less coverage and the potential for increasing bias. Studies need sample designs that efficiently incorporate both types of phone numbers to control cost, bias, and variance.

RTI uses state-of-the-art methods of stratifying and selecting both landline and cell telephone numbers, allocating the sample to ensure the lowest variance for a given cost. RTI can oversample specific geographies or demographic subpopulations through creative stratification methods, balancing costs with the effects of unequal weighting.

Areas of Expertise

While most survey organizations do not differentiate in sampling, RTI makes effective use of the differences between listed and unlisted landline numbers. This additional stratification makes telephone samples even more efficient.

RTI enhances the standard weighting procedures for RDD surveys in two ways. First, appending demographic data to the phone numbers' geographies and modeling the response propensities reduces the risk of nonresponse bias. Second, the general exponential model procedure in RTI's SUDAAN® software package enables us to constrain the survey totals using more parameters than raking methods allow. Both innovations improve estimation by reducing potential bias.

Project Highlights

National Intimate Partner and Sexual Violence Surveillance System (NISVSS) (2008 to date)—Sponsored by the Centers for Disease Control and Prevention, the NISVSS is building a national surveillance system that systematically and routinely collects valid and reliable information on the magnitude of and trends in intimate partner violence, sexual violence, and stalking. The NISVSS is a dual-frame national telephone survey of men and women drawn from a list-assisted RDD sample and a cell phone sample. The base year included a telephone survey of a random sample of active duty female military personnel and wives of married male service members.

Independent Evaluation of the New York Tobacco Control Program (2007 to date)—RTI is conducting a comprehensive evaluation of the New York State Department of Health's tobacco control program. Five dual-frame telephone surveys are fielded each year. The survey design implements optimal allocation, minimizing variance for a given cost, and oversampling smokers. The weighting procedures include nonresponse adjustments using logistic models to estimate response propensity and RTI's general exponential model, a generalization of raking weight adjustments.

American Legacy Foundation's Youth Tobacco Survey (1999 to date)—This series of national RDD telephone surveys measures the effectiveness of anti-smoking advertising on tobacco usage and attitudes of teens and young adults. RTI is serving as the Evaluation Coordinating Center for the American Legacy Foundation. The nation was divided into more than 40 geographic strata to accommodate various television and radio media markets. A complex dual-frame telephone sampling strategy was developed to efficiently oversample African-American, Hispanic, and Asian youth for a tobacco use and awareness study. In these studies, we have conducted more than 20,000 youth interviews.

Delaware Survey of Children's Health (DSCH) (2010 to date)—DSCH is the Nemours Health & Prevention Services' (NHPS's) most important surveillance vehicle for assessing health outcomes data to evaluate current NHPS programs and to provide guidance for future children's health initiatives. Research using DSCH helps inform policy makers of parents' and legal guardians' opinions about issues surrounding physical and emotional health. This is a dual-frame telephone survey of adults stratified by geographical regions in Delaware, with oversamples of African Americans and Hispanics.

More Information

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