

# Data Management for Health Research and Evaluation



Building on over four decades of experience developing and operating high-quality, large-scale data management systems, RTI International offers its clients state-of-the-art tools for collaborative data acquisition and dissemination. Web-based data reporting supports the full-range of user infrastructures. Online analysis, data download, and reporting empower researchers and managers. Visual reporting communicates clear and powerful messages to clients and the public.

RTI is a world leader in data management for health research and evaluation, with significant experience designing and managing complex national, international, and multisite research studies and projects. For example,

- RTI serves as the data coordination center for some of the nation's largest research studies, including the National Survey on Drug Use and Health and the National Survey of Child and Adolescent Well-Being, as well as studies of HIV interventions and maternal and child health.
- RTI created the 50,000-participant World Trade Center Health Registry for those who lived or worked near the Center on September 11, 2001.
- RTI researchers developed a surveillance system used to populate a 20,000-participant registry of construction workers building the new containment structure for the damaged Chernobyl Nuclear Power Plant in Ukraine.

Through its work in health informatics, RTI recognizes the importance of ready access to primary and secondary health data across a variety of service delivery and research environments. Interoperability across multiple data system platforms is made possible through the use of open architectures and non-proprietary, "vendor-neutral" software in the development process.

## Best Practices in Data Management

RTI's data management experience is codified through an extensive set of standard operating procedures that form the basis for project operations and staff training and cover all phases of data management. RTI data managers continually stay abreast of emerging practices, technologies, and tools by participating in professional certification programs such as the Data Management Association and the Society for Clinical Data Management, as well as information technology, database, and data warehousing certification processes.

In addition to applying this best practices approach to ongoing project work, RTI is helping public health programs develop world-class data management systems through assessment, evaluation, and design projects. For the Centers for Disease Control and Prevention (CDC), RTI established a state-based, national, intimate partner violence and sexual violence surveillance system for the National Center for Injury Prevention and Control.

Also for CDC, RTI provided short- and long-term recommendations for implementing best practices in data management and automated systems design for CDC's National HIV Behavioral Surveillance System and the Medical Monitoring Project.



## Data Collection

RTI provides a comprehensive range of data collection and coordination services for health surveys, surveillance systems, clinical studies, and epidemiological research. Our staff includes survey methodologists who identify and resolve methodological, measurement, and data collection issues; expert instrument designers supported by cognitive laboratory testing, focus groups, and pilot testing; and health research statisticians who develop comprehensive sampling designs and analytic protocols.

We have been in the forefront of developing computerized data collection platforms, including

- Computer-assisted telephone interviewing (CATI)
- Computer-assisted personal interviewing (CAPI)
- Smartphone and PDA handheld data collection
- Audio computer-assisted self-interviewing (ACASI), RTI's award-winning technique for collecting sensitive data, which can be used in telephone surveys or deployed on laptops or handheld computers
- Web-based instruments that can be administered by telephone interviewers or deployed as self-administered questionnaires
- Health data abstraction systems using the Web or laptops enforce data quality at the point of entry

To support collaborative federal-state data collection for CDC's Pregnancy Risk Assessment and Monitoring System, RTI developed a Web-based system that allows multiple state public health department call centers to administer a CATI instrument from an RTI server, with state-specific items merged into the interview in real time.

## Data Processing

Data validation, editing, and transformation are conducted according to written procedures and monitored through regular quality control checks. RTI's data management systems are designed according to these key principles:

- Automate processing steps where possible.
- Design all intermediate steps of the process with the content and structure of the permanent repository, final analysis files, and final reports clearly in mind.

- Implement through metadata, an approach that supports consistency, efficient modification, and real-time documentation.
- Insert data quality steps as early in the process as possible, beginning with the data collection instrument, and monitor data quality throughout by automated reporting.

## Data Dissemination

RTI has developed numerous data dissemination formats, including electronic codebooks and automated processes for merging data with multiple report shells to produce national and state report sets from a single data source. We can develop restricted and public datasets and apply statistical techniques to assess disclosure risk for identifiable information.

RTI Analyst<sup>SM</sup> is an innovative online dissemination and analysis tool developed for two CDC surveillance systems. This tool is used to analyze survey microdata over the Internet and create and save custom reports that can be converted directly into Microsoft Excel or Word files for further analysis, manipulation, and reporting. It incorporates SUDAAN<sup>®</sup>, analytic software developed by RTI specifically for survey data, and is used to generate estimates that allow advanced modeling for complex survey designs.

For a Substance Abuse and Mental Health Services Administration reporting system, RTI introduced a new generation of dashboard reports, presenting visual displays of key performance management indicators, with user-friendly drill-down and data query tools. The dashboard allows substance abuse treatment grantees and their evaluators to view their treatment and mental health outcomes data in a single, centralized location, enhancing the ability of behavioral health service providers to use federal reporting data for program planning, service delivery improvement, and basic analytic tasks.

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### More Information

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