



## Data Integration, Reporting, and Analytics

### Data Security

Data security is one of the most critical services we provide to our clients. RTI has developed information security systems for our IT infrastructure based on National Institute of Standards and Technology controls. Our Moderate Security Network—a Federal Information Processing Standards (FIPS) 199 Moderate impact environment—protects the confidentiality, integrity, and availability of personally identifiable information using the appropriate security and access controls. RTI also houses 1 of 29 Federal Statistical Research Data Centers (FSRDCs) at our headquarters in Research Triangle Park, North Carolina. Our on-site FSRDC contains census microdata available for researchers to study.

RTI International develops systems that turn data from diverse sources into useful, easily accessible information that helps our clients improve performance, inform policymaking, and advance research. We combine computing and subject matter expertise, and we blend open-source and commercial software to create cost-effective tools that make information easy to find, see, and use.

### Core Services

RTI builds robust business intelligence systems that help our clients monitor and improve the performance of service providers at state and local levels. We collect and manage data for the country's largest survey of drug use and health, and for forensic laboratories across the nation. RTI-built systems securely store and share data with researchers, administrators, and members of the public—plus we work with scientists around the country to establish standards that promote open science by making data easier to find and use.



**User-Friendly Interfaces.** Whether our clients are interested in cost-effective data collection or responsive designs that put scientific results at their fingertips, RTI works to understand the nature of the data and how best to represent them in the user interface. This attention to both the data and our customers' needs leads to intuitive, accessible, and accurate user interfaces. Our development expertise includes the following:

- Design that provides user-friendly interactions with data
- Section 508 compliance to make both the data and the website accessible to people with disabilities
- Compatibility across browsers and devices for seamless performance on desktop computers and mobile devices
- Utilization of advanced techniques to ensure compliant data submission
- Use of frameworks—such as Bootstrap and Material Design—for responsiveness and layout consistency.

**Data Integration.** RTI's data specialists identify relationships among diverse sets of data, and apply appropriate technologies and integration approaches to elicit valuable intelligence from these datasets. We often introduce additional sources of information to provide insights into a program's status or impact. We work collaboratively with our clients, applying proven practices and developing new solutions as needed for effective data governance strategies. We develop these strategies in consultation with our clients to improve data stewardship and quality, maximizing data access and use while guiding the incorporation of newly acquired data in multiple formats. The result for our clients is robust, reliable, and current insight into information to guide timely, informed decision making.

**Data Analysis Systems.** RTI scientists regularly develop and refine online analysis tools that help researchers build custom datasets easily and download them for offline

research. Our data analysis systems feature user-friendly interfaces, backed by training videos that instruct users how to perform basic research tasks at the click of a button. When sensitive or restricted data are involved, we can provide customized solutions that make sure individual responses or other unwanted identifications will not be disclosed. We also help our clients develop online communication strategies to foster research communities built around the data.

**Data Visualizations.** RTI approaches data visualization as an art and a science. We work with project team members and subject matter experts to determine the key indicators to track and plot, and develop visualizations that communicate clearly and efficiently what data mean. The interactive charts, graphs, and plots we design allow users to analyze and interpret data through a standard web browser. Because users' needs vary, we provide data in easy-to-use, downloadable formats for inclusion into other analytic tools.

**Cloud Infrastructure.** When a cloud strategy best meets a project's needs, implementing the strategy effectively provides cost savings and a reliable infrastructure. We evaluate our clients' needs and propose secure, scalable, and cost-sensitive approaches; these approaches include Infrastructure as a Service (IaaS), Platform as a Service (PaaS), or Software as a Service (SaaS). For U.S. government clients, we offer significant experience migrating systems into GovCloud environments and meeting accompanying federal security requirements.

RTI has migrated several projects to cloud-based environments for clients, including the National Institutes of Health and the Substance Abuse and Mental Health Services Administration (SAMHSA), improving reliability and reducing costs.

## Demonstrated Experience

**National Survey on Drug Use and Health (NSDUH) (SAMHSA, 1988–present).** RTI has developed a close partnership with SAMHSA to make NSDUH the federal government's primary source of data on substance abuse and mental health issues. NSDUH field interviewers, equipped with Android tablets and laptops, visit approximately 240,000 households annually to complete 67,500 interviews. This effort requires a complex IT infrastructure in a FIPS-Moderate security environment, including specialized data collection hardware and software; data transmission systems; and data processing, analysis, and control software. The data collected in NSDUH's roughly 50 relational databases provide important insights on tobacco, alcohol, and illicit drug use; the non-medical use of prescription drugs; and related mental health issues across the United States.

NSDUH is the primary source for national and state-level data on substance abuse and mental health in the United States.

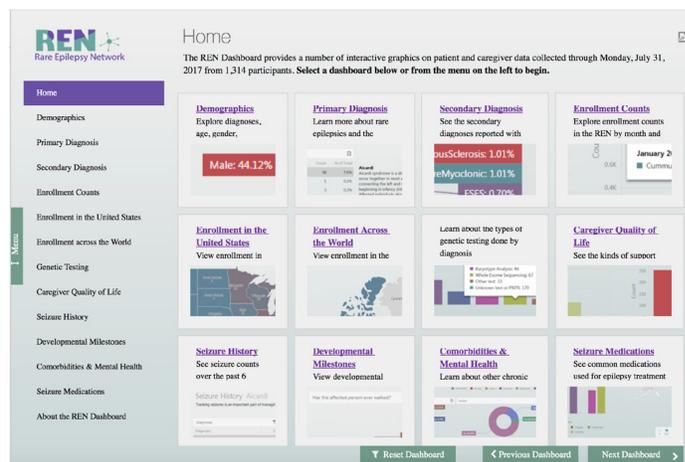
**National Forensic Laboratory Information System (NFLIS) (Department of Justice [DOJ], 1997–present).** NFLIS is a U.S. DOJ Drug Enforcement Administration program that systematically collects results from drug chemistry analyses conducted by state and local forensic laboratories across the country. The NFLIS database contains more than 16 million drug cases with more than 26 million drug items/exhibits. Although participation is voluntary, 279 of the nation's approximately 295 individual crime laboratories participate in NFLIS—with 271 laboratories reporting data monthly. We developed the NFLIS website, including a powerful and versatile web-based analytical tool—the NFLIS Data Query System—that program staff members, the DOJ, and other stakeholders use to conduct standard and customized remote analyses. We produce annual, midyear, and special reports; develop national and regional estimates for drugs identified by laboratories; conduct numerous ad hoc analyses and studies; and co-develop and present NFLIS posters and discussions at symposiums and conferences.

**Substance Abuse and Mental Health Data Archive (SAMHDA) (SAMHSA, 2015–present).** SAMHDA is the archive for SAMHSA's data collection efforts, including NSDUH, Drug Abuse Warning Network (DAWN), and the National Survey of Substance Abuse Treatment Services. In addition to a web interface that provides analysis and access to datasets, SAMHDA provides public-use data files, file documentation, and access to

restricted-use data files to support a better understanding of drug use and mental health issues. RTI manages all aspects of the project, including the following:

- Acquisition, storage, and formatting of data
- Data analysis that allows users to perform regression analysis, frequency distributions, and other statistical analysis
- Maintenance of a secure data portal with confidential information that SAMHSA and SAMHDA project staff members use to perform analysis and write research papers.

RTI also promotes use of SAMHDA data through a social media campaign and a presence at conference events.

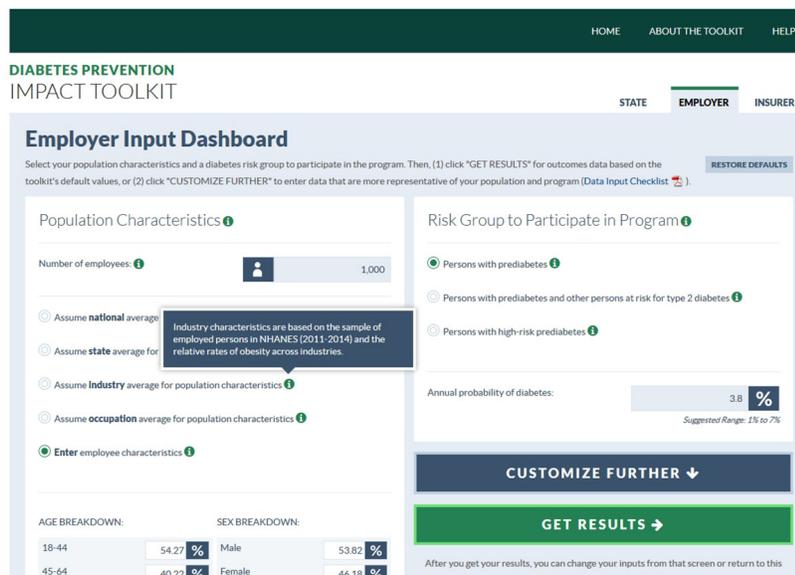


RTI developed the Rare Epilepsy Network (REN) Dashboard to give caregivers, epilepsy organizations, and researchers a user-friendly format to find and use REN data. The dashboard provides a series of interactive visualizations based on anonymized data reported by patients or caregiver organizations.

**PhenX (Consensus Measures for Phenotypes and eXposures) (National Human Genome Research Institute [NHGRI], 2007–present).** Under a cooperative agreement with NHGRI, RTI facilitates the expert consensus process and develops the online PhenX Toolkit ([www.phenxtoolkit.org](http://www.phenxtoolkit.org)) to improve the consistency of data collection, facilitate cross-study analyses, and help investigators identify opportunities for collaborative biomedical research. The toolkit contains more than 520 measures spanning close to 25 research domains. Toolkit users can browse or search the resource, add measures of interest to their toolkit, and access tools to help integrate PhenX measures into their study designs. Users can also request custom reports and data dictionaries compatible with the database of Genotypes and Phenotypes (dbGaP) and Research Electronic Data Capture (REDCap) software. This project also receives co-funding from the National Institute on Drug Abuse.



**SAMHSA's Performance Accountability and Reporting System (SPARS) (SAMHSA, 2016–present).** SAMHSA provides funding to substance abuse and mental health grantees to offer services to clients within their communities. Congress requires SAMHSA to report on the performance of those grantees and the value the funding provides. RTI designed, developed, and maintains SPARS—the mechanism by which SAMHSA aggregates and reports on performance data from grantees. This project replaces three separate projects that provided performance data aggregation and reporting services, and it provides SAMHSA with a single system to receive and store Government Performance and Results Act data from discretionary funds grants across SAMHSA's three operational centers. At the core of SPARS is a real-time web-based system for data entry, XML-based data uploading, and data downloading. Other system modules include an online analytics and reporting tool, a technical assistance request and tracking system, and an online learning center that provides webinars and recorded training. The project also includes support to SAMHSA staff members and grantees through technical assistance, training, help desk support, and fulfillment of ad hoc reporting and analysis requests.



*The Diabetes Prevention Impact Toolkit predicts the health and economic effects of the National Diabetes Prevention Program or similar programs on populations at risk for diabetes. Specifically, this toolkit allows users to estimate program costs, diabetes-related medical costs, and return on investment.*

## More Information

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