



Trusted Solutions. Global Experience.



For more than 50 years, RTI International has provided government and private sector clients with independent, objective research and technical expertise—science-based solutions they can trust. As you will see in this annual report, our work spans the globe—from the United States to El Salvador, South Africa, Kenya, and India. We address complex challenges, including the need to develop new energy sources, ensure the health of the environment, and improve the health of people around the world. This year's annual report provides highlights of RTI's trusted solutions and global experience in fiscal year 2009.

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Trusted solutions for global challenges ...

President's Message

This year marked our 50th anniversary as one of the world's leading research and development organizations, dedicated to improving the human condition by turning knowledge into practice.

As we begin our next 50 years, advances in health care, efforts to improve social and economic conditions in developing nations, and new technologies offer the promise of a better tomorrow for people throughout the world. At the same time, issues including the health of the environment, ongoing conflicts in many parts of the world, and the need to develop new energy sources present significant challenges to our society and the global community.

Our dedicated staff members stand ready to help our clients address these new and emerging challenges and opportunities with trusted solutions and global experience. The quality of our staff and our multidisciplinary approach give us a unique and scalable capability for delivering innovative, science-based solutions domestically and globally.

Among our significant milestones during 2009 was the acquisition of the health communications firm MasiMax Resources, Inc., which adds a new dimension and increased capabilities to our health research programs. Another exciting area is our energy research program, which this year began taking on larger, more complex projects, ranging from developing liquid fuels from biomass to carbon dioxide capture technologies.

Our USAID-funded neglected tropical disease control program, now in its third year, provided approximately 221 million treatments to more than 55 million at-risk people in 13 African nations. Equally impressive, our indoor residual spraying program protected nearly 128 million people in 16 African nations from malaria-carrying mosquitoes.

Despite challenging global economic conditions in 2009, we experienced a successful business year, with modest revenue growth and significant achievements across all program areas. We continued to strengthen our business processes and enhance research capabilities in selected areas.

In the coming year, we will enhance our laboratory-based capabilities in areas focused on key concerns in health, genetics, and personalized medicine. These focused efforts will strengthen our life sciences and biotechnology research programs and add to our multidisciplinary capabilities.

As we look to the future, we do so fully understanding the elements of our success—the quality of our dedicated staff members and the trusted solutions and global experience they offer our government and private sector clients.



Victoria Franchetti Haynes
President and Chief Executive Officer
RTI International



Trusted solutions for creating a healthier world ...

Health Research

For more than 50 years, RTI International has been committed to health research. We have made contributions to improving the world's health through studies of the human genome, through national surveys of health behaviors, and by developing and implementing global health programs. Whether we are evaluating the economic benefits of new health coverage or controlling malaria in Africa, our researchers and scientists are dedicated to improving all aspects of human health.

Global Health

In our global health research, we have been committed to improving the health of millions of the world's poorest people. Our health experts focus on guiding effective policy formulation; improving the use of scarce financial resources in the health sector; strengthening health systems; preventing and controlling HIV/AIDS, malaria, tuberculosis, and neglected tropical diseases; and supporting reproductive, maternal, and child health programs.

Tackling the Problem of Indoor Cook Stoves

More than half of the people in the world cook their food and heat their homes by burning coal and wood, dung, and other biomass in open fires or rudimentary stoves. This practice releases toxic gases and particles into the indoor and outdoor air, having an enormous impact on global health and the environment.

Women and their infant children in particular suffer the health risks caused by exposure to these toxins, including a doubled risk of respiratory illness. The World Health Organization estimates that exposure to indoor biomass smoke is the fourth leading cause of death annually in the developing world—causing more than 500,000 premature deaths among women and children in India alone. In addition, the more than 3 billion cook stoves operating in developing countries contribute an estimated 18 percent of the global black carbon particles emitted each year into the atmosphere. The contribution of these emissions to global warming is comparable to that posed by worldwide emissions from diesel vehicles.

Cleaner-burning biomass stoves would measurably improve maternal and child health in developing nations and significantly reduce global carbon emissions. Stoves that use solid fuels more efficiently would also lower the impacts of fuel and energy use on the environment. While designs for cleaner and more efficient stoves exist, they have proven to be inadequate, too expensive, and/or culturally unacceptable to the people who would use them. Better stoves and approaches are needed.

RTI is taking this challenge head-on. In FY2009, we began working with the scientific community and federal agency partners to address the technical, economic, and societal challenges. To jump-start this initiative, we have committed



Designing cleaner biomass stoves ...

Asia, Africa, and South America

Global Experience. RTI is funding multidisciplinary research to address the global health and climate impacts of biomass stove use across the developing world.

\$200,000 in research and development funding to identify social and economic realities in developing nations that have inhibited implementation of new cook stove designs and to work with other experts to find more effective paths forward.

Spearheading this initiative is RTI Senior Fellow Charles Rodes, PhD: "This is an immensely complex problem. It demands an approach that integrates the skills of experts across RTI in engineering, energy and resource management, economics, local and global governance, exposure characterization, environmental health and epidemiologic study design, and data collection and statistics."

In the coming year, we will pursue the application of RTI's thermoelectric technologies to an improved stove design and explore intervention-based designs for epidemiologic studies to characterize the improvements in health outcomes that are expected to occur when cleaner stoves are used. We will also explore new ways to help commercialize improved designs for clean-burning cook stoves and speed diffusion of these new technologies into the cultural fabric of developing nations.

Ultimately, RTI seeks to address this global health challenge by bringing to bear the considerable power of the many experts under our roof.

Eliminating NTDs globally ...

Asia, Africa, and Latin America

Global Experience. RTI is implementing a program to deliver safe and effective preventive medications to eliminate debilitating neglected tropical diseases (NTDs) in 13 of the world's poorest countries.

Eliminating and Controlling Neglected Tropical Diseases

Neglected tropical diseases continue to cause suffering among the world's poorest, but thanks to RTI's Neglected Tropical Disease Control Program, the impact of these diseases is being reduced through innovative, cost-effective integrated service delivery.

In the first three years of implementation, the program has successfully worked with ministries of health to deliver approximately 221 million treatments to more than 55 million people at risk, exceeding the five-year project goals of 160 million treatments to 40 million people.

The program has trained more than 250,000 drug distributors to deliver safe and effective drugs to eliminate and control lymphatic filariasis (elephantiasis), schistosomiasis (snail fever), onchocerciasis (river

blindness), blinding trachoma, and soil-transmitted helminthiasis (intestinal worms).

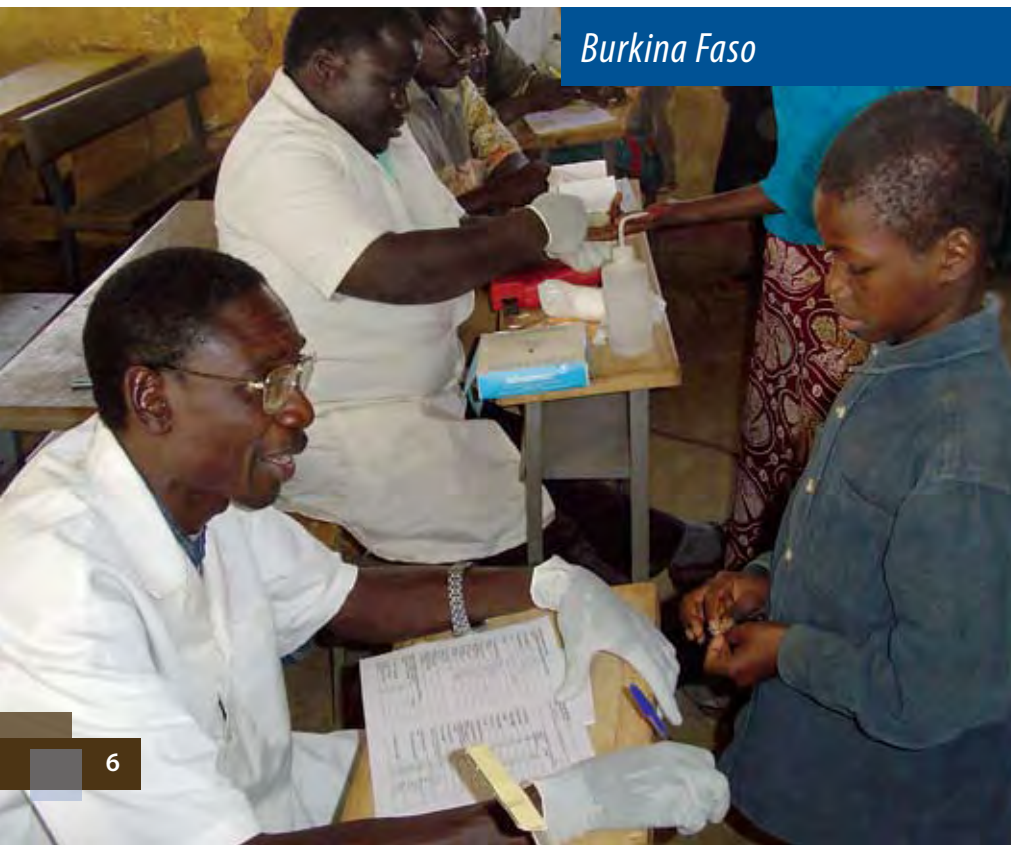
At least 1 billion people—one-sixth of the world's population—suffer from one or more neglected tropical diseases, which are largely unknown in developed nations but cause severe disability, suffering, and social and economic marginalization in less-developed regions of the world.

During FY2009, RTI expanded the program to three more countries; we are now implementing integrated neglected tropical disease control activities in 13 countries: Bangladesh, Burkina Faso, Cameroon, Ghana, Guinea, Haiti, Mali, Nepal, Niger, Sierra Leone, Southern Sudan, Togo, and Uganda.

The program, funded by the U.S. Agency for International Development, represents the largest global public-private partnership to integrate existing disease control programs. In the first three years of the program, RTI has leveraged more than \$1.5 billion worth of drugs donated by pharmaceutical companies Merck & Co., Inc., GlaxoSmithKline (GSK), Pfizer, and Johnson & Johnson.

Program implementing partners and grantees are Health and Development International, Liverpool Associates in Tropical Health, the Schistosomiasis Control Initiative at Imperial College London, the Malaria Consortium, IMA World Health, Helen Keller International, and World Vision.

Burkina Faso



A child in Burkina Faso receives much-needed preventative drugs from the Neglected Tropical Disease Control Program, led by RTI International. The program represents one of the first global efforts to integrate existing disease-specific treatment programs to expand care for five neglected tropical diseases to millions of the world's poorest people. In just three years, the program has already treated more than 55 million people at risk by helping countries scale up and integrate their existing approaches to include additional populations or diseases.

Treating Influenza Patients

Both the seasonal flu and particularly the new strain of H1N1, commonly referred to as swine flu, continue to be global public health concerns. Although thousands of people are hospitalized for influenza each year, the natural course of clinical illness of patients with influenza has not been well established. Public health officials would like to know more about the effectiveness of common medications used to treat influenza, such as Tamiflu, particularly among severely ill patients.

During FY2009, we extended a study to continue researching the effectiveness of common medications for influenza; results will be used to inform future recommendations regarding the use of antiviral medications in persons hospitalized with influenza.

“This is a huge area of concern for medical and public health officials,” said Scott Wetterhall, MD, senior program director of RTI’s Health Security and Systems Research. “As with the rise in resistance to certain antibiotics among bacteria, we are all concerned about the emergence of antiviral resistance in influenza viruses. Such resistance would effectively render useless currently effective treatment regimens.”

During the 2009–2010 flu season, 7,500 hospitalized patients in 12 hospitals in North Carolina and Georgia are being recruited to participate in this study funded by the Centers for Disease Control and Prevention.

This study will help to identify groups of people who are at increased risk for severe illness or other complications from the flu as well as understand better people’s resistance to common antiviral medications.

The study originally began in 2008 targeting older adults, but with the emergence of H1N1, the study was expanded in 2009 to include all persons over 18 years old.

A few antiviral drugs have been developed to prevent or treat influenza infections. However, some are no longer recommended, and others are most effective when given to healthy individuals either before or early in the course of infection.



Pan African Malaria Vector Control Conference

Zanzibar

Controlling Malaria in Africa

At RTI, we have been working for more than 12 years to prevent and control vector-borne diseases, particularly malaria. During FY2009, we continued work on three different indoor residual spraying projects to reduce malaria; these projects reached people in 16 countries across Africa.

As part of the President’s Malaria Initiative, we protected almost 128 million people in nearly 21 million homes from malaria.

During 2009, we also brought together the world’s leading malaria control experts to share experiences, lessons learned, and best practices for using indoor residual spraying so that together we can continue to reduce the spread of malaria in Africa.

More than 100 malaria control program managers and technical experts from 16 African nations attended the week-long conference and contributed to a compendium that will serve as a guide for countries using indoor residual spraying to control malaria.

The conference was held in Zanzibar to highlight the success of our malaria control program there, which has achieved more than 90 percent coverage and protected more than 1 million people from malaria since 2006. Previously, in Zanzibar more than 50 percent of deaths among children under age five were caused by malaria.

Introduced in 2005, the U.S. President’s Malaria Initiative aims to reduce malaria-related childhood mortality by 50 percent in 15 African countries by 2010.

Health Policy

Prioritizing Health Research

At RTI during FY2009, we enhanced the gathering and assessment of the best available evidence about health care treatments to foster better decision making and improve patient care outcomes and quality of life.

In doing so, we continued our partnership with two comparative effectiveness research centers, the RTI-UNC Evidence-Based Practice Center, which conducts systematic reviews and analyses of the scientific evidence on a variety of health care and health policy topics, and the RTI DEcIDE (Developing Evidence to Inform Decisions about Effectiveness) Center, which helps clinicians and patients determine which drugs, devices, procedures, and other medical treatments work best for certain health conditions.

We collected and analyzed relevant scientific literature to produce rigorous systematic reviews on topics related to prevention, diagnosis, treatment, and management of common diseases and clinical conditions, such as depression and rheumatoid arthritis. Our reviews also covered a wide variety of behavioral and policy topics including the use of community health workers and low health literacy interventions and outcomes.

Also during FY2009, Sally C. Morton, PhD, vice president for statistics and epidemiology at RTI, served on the Institute of Medicine (IOM) committee that recommended 100 health topics that should get priority attention and federal funding from a new national research effort to identify which health care services work best.

Informing public health ...

Worldwide

Global Experience. Researchers at RTI assess the best available evidence about health care treatments from studies conducted around the world and use that information to inform public policy, and thus foster better decision making and improve patient care outcomes and quality of life.



The report also spelled out actions and resources needed to ensure that this comparative effectiveness research initiative will be a sustained effort with a continuous process for updating priorities as needed and that the results are put into clinical practice.

Health experts and policymakers anticipate that comparative effectiveness research will yield greater value from America's health care system and better outcomes for patients. Comparative effectiveness research weighs the benefits and harms of various ways to prevent, diagnose, treat, or monitor clinical conditions to determine which work best for particular types of patients and in different settings and circumstances. Study results can help consumers, clinicians, policymakers, and purchasers make more informed decisions, ultimately improving care for individuals and groups.

The report also recommended actions necessary to establish an ongoing comparative effectiveness research effort that would not only carry out studies on the 100 recommended initial topics, but also develop priorities for future research and translate the knowledge gained into improvements in clinical care.

During FY2010, RTI will begin new projects to conduct comparative effectiveness reviews and methods research, supported by the Agency for Healthcare Research and Quality through the American Recovery and Reinvestment Act of 2009. In related IOM work, Morton was also appointed the vice chair of a committee formed to address standards for systematic reviews of clinical effectiveness research.

Developing Personal Health Records

Researchers at RTI conducted a project to learn what consumers want and need when it comes to the development of interoperable personal health records and personal health monitors, and we shared with Congress what we learned.

During FY2009, we researched and developed a prototype of a computer application that could transform computers, personal digital assistants (PDAs), and cell phones into personal health monitors.

The research team, funded by a grant from the Robert Wood Johnson Foundation, worked with the Cooper Institute, a Dallas-based preventive medical research and education center, to design a prototype of a personal health record application that could encourage sedentary adults to become more physically active and reduce their risk for chronic diseases.

The application is designed to be flexible and customizable, allowing patients to monitor their own health as well as help to improve communication between patients and health care providers, leading to a higher quality of care and promoting positive behavior changes.

“Personal health records will play a key role in the national effort to transform our health care system into one that provides patient-centered care,” said Barbara Massoudi, PhD, a senior research health scientist at RTI and the project’s director. “We found that both patients and physicians want consumers to be clearly in control of their health records, so that they decide what information others see, for how long and what purposes.”

Based on our design, patients would be able to input personalized information about their activity level, lifestyle, and goals through an interactive Web portal. They then could receive customized plans to increase activity levels in ways that are tailored to their daily routines, such as taking the stairs or parking further from the office.

The designs for the prototype include biomonitoring data that would track fluctuations in weight and physical activity and would send messages to patients when they need to alter their exercise habits or visit a physician. The personal health record could then be delivered to sedentary adults through computers, PDAs, and cell phones.

“Successful interventions must meet individuals where they are, intersecting with their daily lives, their attitudes, and their stage of change,” Massoudi said.

The program is one of nine projects selected nationwide to participate in the Robert Wood Johnson Foundation Project HealthDesign initiative.

During FY2010, we will further our research in this area. Working with Virginia Commonwealth University, we will develop a personal health records application for adults living with asthma and depression that operates on a smart phone platform. Patients will use the phone to capture their symptoms, spirometry results, physical activity, quality of life, medication use, and smoking. This information will be presented to their physicians through a provider dashboard, which will provide simple analysis and visualization tools that allow physicians to quickly view their patients’ data and communicate any needed changes in treatment or monitoring.

United States

Researchers at RTI worked with the Cooper Institute to design a prototype of a personal health record application that could encourage sedentary adults to become more physically active and reduce their risk for chronic diseases. The application is designed to be flexible and customizable, allowing patients to monitor their own health as well as help to improve communication between patients and health care providers, leading to a higher quality of care and promoting positive behavior changes.



Evaluating Medicare Reform Projects

As health care reform is debated in Congress, throughout the health care industry, and among policymakers, RTI continues to play a major role in designing and evaluating the primary models aimed at improving quality and efficiency of care.

Termed *accountable care organizations*, or ACOs, the general concepts behind these alternative models have also been described as “pay for performance” or “value-based purchasing.” The current designs of ACOs and other reform models are based heavily on a number of current Medicare demonstrations and pilot projects.

Medicare demonstrations form the core of initiatives that seek to improve quality of care, strengthen provider incentives for efficiency and savings, and make health care providers more accountable for care delivered to patients. RTI is the primary independent contractor for both implementation support and evaluation of several Medicare reform projects. The lessons learned from these projects, described below, will inform the reform debate.

During FY2009, RTI continued to provide implementation, monitoring, and program evaluation analyses for the Medicare Physician Group Practice Demonstration, which establishes incentives for quality improvement and cost-efficiency in physician group practices.

“The Physician Group Practice Demonstration is testing the specific ways in which physicians might be held accountable for the care they provide—both in terms of quality of care and costs,” said Leslie Greenwald, PhD, interim vice president of RTI’s Health Services and Social Policy Research division. “This demonstration has been

critical in identifying and solving the many data, payment methodology, and other technical hurdles of this complex model.”

Specifically, the demonstration is testing whether care management initiatives generate cost savings by reducing avoidable hospital admissions, readmissions, and emergency department visits, while at the same time improving the quality of care for Medicare beneficiaries.

In FY2009, RTI also supported Medicare in launching the Medicare Medical Home Demonstration, which will provide targeted, accessible, continuous, and coordinated family-centered care to high-need populations when it is implemented in 2010. A medical home, in broad terms, is a physician-directed practice that provides care that is accessible, continuous, comprehensive, and coordinated and delivered in the context of family and community. Current policy interest in the medical home as the anchor for a patient’s interaction with the health care system has derived from growing recognition that even patients with insurance coverage may not have an established source of access to basic primary care services and that care fragmentation affects the quality and cost of care that patients experience.

Additionally, RTI began evaluating the Acute Care Episode value-based purchasing demonstration, which will offer bundled payments and increased flexibility in financial arrangements between participating hospital-physician consortia. This demonstration is intended to provide an opportunity for participants to develop efficiencies in the care they provide to beneficiaries through improving quality in clinical pathways, improving coordination of care among specialists, and gainsharing.

United States



RTI is the primary independent contractor for implementation support and evaluation of several Medicare reform projects. Michael Trisolini, PhD, director of RTI’s Health Care Quality and Outcomes Program, and Leslie Greenwald, PhD, interim division vice president at RTI, are leading many of these projects and are using lessons learned to inform the health care reform debate.

Beginning in FY2010, RTI will evaluate two Medicare gainsharing models that facilitate collaborations between physicians and hospitals to improve quality and efficiency. Under both demonstration projects, incentive payments made by hospitals to participating physicians must be linked directly to improvements in quality and/or efficiency, and cannot be based on other standards (such as volume reductions or patient referrals). Physician incentive payments are limited to 25 percent of Medicare payments normally made to physicians for similar patients. Payments must also be based on a methodology that is replicable and auditable, and the demonstration must at a minimum be budget-neutral.

Health Behaviors

Health Communication

RTI experts in health communication and social marketing research examine the knowledge, attitudes, and behaviors of target populations and design campaigns to promote effective communication, informed decision making, and healthy behaviors.

During FY2009, we expanded our health communication capabilities, assessed the global prominence of public health branding, evaluated the effectiveness of health campaigns, and began to understand how to best deliver information about the prevention of birth defects and early detection of developmental disabilities.

Parents Speak Up About Sex

One such health campaign that showed positive results was the Parents Speak Up national campaign, which, based on research by RTI International and The George Washington University, successfully encouraged parents to initiate conversations about sex with their children.

The results showed that four weeks after exposure to the advertising campaign, fathers initiated more conversations with their children about sex than they had previously. And after six months, both fathers and mothers who were exposed to the campaign were more likely to specifically recommend to their children to wait to become sexually active.

“The pattern of initiation of conversations about sex at four weeks post-baseline and then recommendations to their child to wait at six months post-baseline among fathers is significant,” said Kevin Davis, a senior researcher at RTI

Evaluating media's impact ...

United States

Trusted Solutions. Research by RTI and The George Washington University of 1,500 parents and children in the United States demonstrated that public health campaigns can impact behavior.

and the study's co-author. “This suggests the campaign succeeded in communicating its call to action, particularly among fathers.”

The campaign, funded by the Department of Health and Human Services, was launched in June 2007 and primarily uses public service announcements, as well as paid television, radio, print, and outdoor announcements.

The study included nearly 1,500 parents of children 10 to 14 years old, selected from the Knowledge Networks, an online panel based on a nationally representative sample of U.S. adults. Participants were randomly assigned to experiment conditions, receiving exposure or no exposure to campaign ads and materials. All participants completed a baseline survey prior to exposure and then two follow-up surveys four weeks and six months later.

Preventing, Detecting Birth Defects

During FY2009, researchers at RTI began working with the U.S. Centers for Disease Control and Prevention (CDC) on multiple health communication and social marketing research projects related to the prevention of birth defects and early detection of developmental disabilities.

As part of this five-year contract, RTI is collaborating with the CDC to better understand what various audiences know about behaviors that could help or harm the healthy development of babies and children.

The target audiences are women and men of reproductive age, parents, early educators, and health care providers.

“This research will contribute to our understanding of what information is most valuable to different people and how best to reach and inform these audience segments,” said Lauren McCormack, PhD, director of RTI's Health Communication Program.

Focal areas of the study include learning women's and couples' knowledge, attitudes, and behaviors related to preconception health; preventing birth defects

and developmental disabilities such as autism, fetal alcohol syndrome, and Down syndrome; and learning what pregnant women could and would be willing to do to protect themselves and their families during pandemic influenza.

Obesity

Our health economists, behavioral psychologists, diet and nutrition specialists, and health communication experts conduct obesity research that helps decision makers as they implement policies and programs designed to reduce obesity and related illnesses and costs.

During FY2009, that research included analyzing the economic impact of obesity in the United States, understanding the growing obesity problem in South Africa, and finding that creating a thin Second Life avatar may encourage individuals to become healthier in their real lives.

Obesity Costs U.S. About \$147 Billion Annually

During FY2009, RTI research put a number on what the rising rate of obesity is costing us. Our research found that annual medical expenditures attributable to obesity have doubled in less than a decade and may be as high as \$147 billion per year.

The study, published on the *Health Affairs* Web site, reports that between 1998 and 2006, the prevalence of obesity (body mass index greater than 30) increased by 37 percent.

This increase is responsible for 89 percent of the increase in obesity costs that occurred during this time period. The

results reveal that obesity is now responsible for 9.1 percent of annual medical expenditures, compared with 6.5 percent in 1998.

“Because obesity affects so many body systems, the medical costs attributable to obesity are almost entirely a result of costs generated from treating the diseases that obesity promotes, such as diabetes and cardiovascular disease,” said Justin Trogdon, PhD, research economist in RTI’s Public Health Economics Program and coauthor of the study.

The results also showed that an obese person has \$1,429 more medical costs, or about 42 percent more costs, per year than someone of normal weight. Costs for an obese Medicare recipient are even greater.

Rising Obesity in South Africa

While many Americans associate health concerns in South Africa primarily with infectious diseases such as HIV/AIDS, malaria, and tuberculosis, rising rates of obesity and noncommunicable diseases such as diabetes and cardiovascular disease are increasingly becoming public health concerns.

Almost one-fifth of South African children are overweight.

Concerns about safety, lack of sources for healthy food, and few resources for physical activity are contributing to the rise in childhood obesity, according to a study by researchers at The George Washington University, MRC South Africa, and RTI International.

The study was published online in the spring 2009 issue of *Social Marketing Quarterly*.

United States



Elizabeth Dean, a research survey methodologist at RTI, found that virtual reality users may adjust their identity to be consistent with that of their avatars, or virtual representation of oneself. Her research showed that creating a Second Life avatar that engages in regular physical activity may encourage individuals to become healthier and more physically fit in their real lives.

“There are substantial environmental barriers to improved nutrition and physical activity in South Africa,” said Jonathan Blitstein, PhD, a senior research scientist in RTI’s Public Health and Environment Division and the study’s co-author. “Families have little disposable income, junk food is readily accessible, people lack access to healthy lifestyle information, and urban areas offer few safe places for children to play.”

The study indicates that in order to begin counteracting the rising obesity rates, a public health strategy needs to use school environments to reach children and teachers, and use home environments and social marketing to reach and educate parents.

Does This Avatar Make Me Look Fat?

During FY2009, RTI researchers studied obesity not only in our world, but in the virtual world as well, and they found that creating a Second Life avatar, or virtual representation of oneself, that engages in regular physical activity may encourage individuals to become healthier and more physically fit in their real lives.

The study, published as a research-in-brief note in the August issue of the *Journal of Virtual Worlds Research*, found support for the idea that individuals are more likely to engage in physical activity in their real lives if their avatars in Second Life engage in physical activity.

“Based on these preliminary results, it seems likely that virtual reality users may adjust their identity to be consistent with that of their avatars,” said Elizabeth Dean, research survey methodologist at RTI and the study’s lead author. “The public health urgency surrounding the issue of obesity means that any intervention that might possibly affect real-life health should be considered.”

The results showed that 80 percent of respondents who reported high levels of physical activity for their avatars reported participating in high levels of physical activity in their real lives.

The ease of manipulating the size and shape of one’s avatar in Second Life gives researchers the opportunity to understand social factors surrounding issues such as obesity, body image, and physical fitness.

“Health professionals are starting to use virtual worlds to conduct research and even provide treatment based on the idea that people are influenced by their avatars,” Dean said.



Marilyn Massey-Ball, vice president of RTI’s Knowledge Translation and Strategic Communication Division

United States

Extending Our Health Communications Research

During FY2009, we expanded our abilities in this sector by acquiring MasiMax Resources, Inc., a communications and marketing firm based in Rockville, Maryland. MasiMax’s core capabilities are in communications, media and public relations, marketing, conferences and exhibits, research and analysis, interactive technologies, and clearinghouse operations.

MasiMax was a leader in the federal health communications and marketing field, with staff members located in several offices throughout the greater Washington, DC, area.

“Adding these talented professionals to our team is part of a strategy to strengthen and broaden our project communications and marketing capabilities into new research fields and market sectors,” said RTI President and CEO Victoria Franchetti Haynes. “Combining the capabilities of our two organizations allows us to take advantage of many new and emerging opportunities in the federal sector.”

“This is an exciting direction for MasiMax. Our expertise in health marketing and communications complements RTI’s research and technical strengths,” said Marilyn Massey-Ball, MasiMax former president and CEO and division vice president of Knowledge Translation and Strategic Communication. “I look forward to working with RTI and anticipate expanded opportunities from the synergies that RTI and MasiMax offer.”

Smoking

RTI has a long history of working to expand knowledge about the consequences of substance abuse and the efficacy of programs that combat it, including tobacco. During FY2009, we conducted research that showed the effectiveness of the truth® anti-smoking campaign and found evidence that bedroom televisions are predictors for white teens' smoking and engaging in sex.

Ad Campaign Prevents Smoking, Changes Attitudes

Televised antismoking campaigns can reduce adolescent smoking, according to research conducted by RTI. Our research showed that the national youth smoking-prevention campaign known as truth® likely prevented 450,000 adolescents from initiating smoking.

The study, published in the *American Journal of Preventive Medicine*, suggests that from 2000 to 2004, as a result of the campaign, 450,000 15- to 24-year-olds were prevented from trying to smoke. The researchers also found that for every \$544 spent on the campaign during its first four years, one less adolescent initiated smoking. The authors suggest that the cost is modest compared to other health interventions.

The researchers think the truth® campaign likely succeeded because it was effective at promoting antismoking attitudes among youth, which decreased their intent to smoke and likelihood of initiating smoking. This finding was based on a study by researchers at RTI International, Columbia University, and the American Legacy Foundation in the February issue of the *International Journal of Environmental Research and Public Health*.

Combined, these two studies were the first to offer longitudinal evidence that the truth® campaign influenced youths' smoking-related attitudes, beliefs, intentions, and smoking initiation.

TVs in Teens' Bedrooms Associated with Increased Likelihood of Smoking, Sex

Although it can be convenient to put TVs in adolescents' bedrooms, there are serious trade-offs, according to a study by researchers at RTI International, the University of North Carolina at Chapel Hill, and Middle Tennessee State University.



The researchers found that bedroom televisions are a significant predictor among white teens of initiating smoking and sexual activity.

The study, published in the September issue of the *Journal of Broadcasting & Electronic Media*, showed that white adolescents who had a bedroom television were, after two years, nearly three-and-a-half times more likely to have initiated smoking and nearly two times more likely to have become sexually active than adolescents who had no bedroom television. Having a bedroom television was particularly detrimental among white adolescents who perceived that they had low parental engagement. Having a television in the bedroom was not associated with initiation of smoking or sexual activity among African-American adolescents.

Two-thirds of adolescents in the United States have a television in their bedroom.

Survey Research

Ranking Best Hospitals

For more than 45 years, RTI has provided a full range of survey research services, designing and conducting surveys that deliver high-quality data, and for the past five years, researchers at RTI have conducted the research behind *U.S. News & World Report's* widely recognized annual rankings of America's Best Hospitals.

We use a well-established methodology that includes original survey data and secondary analyses of data from the Centers for Medicare and Medicaid Services and the American Hospital Association. Hospitals are scored on three key elements: mortality, care-related factors such as technology and nursing, and reputation.

The following three components represent the three key aspects of quality hospital care: outcomes, structure, and process.

Beginning in 2007, RTI also began conducting the research for *U.S. News & World Report's* first separate rankings of America's Best Children's Hospitals. The 2009 version ranks pediatric hospitals in 10 specialties.

The *U.S. News & World Report* rankings are highly regarded by health care professionals and academic researchers, and are frequently cited by and incorporated into scholarly investigations.

During FY2009, *U.S. News & World Report's* Best Hospital rankings named Johns Hopkins Hospital, Mayo Clinic, and Ronald Reagan UCLA Medical Center as the top three "honor roll" hospitals. The hospitals were ranked in 16 adult specialties ranging from cancer and heart disease to respiratory disorders and urology.

Surveying Health Care Professionals, Patients to Mitigate Health Risks

Since 2001, RTI Health Solutions, a business unit of RTI International, has been a leading provider of consulting and research services to help biopharmaceutical companies develop and evaluate risk minimization programs. In other words, we help patients get the benefits of treatment but avoid potential harmful side effects.

During FY2009, with our understanding of pharmaceutical risk management, a multinational team of epidemiologists, and experts in survey research, RTI Health Solutions began conducting risk mitigation and evaluation strategies (REMS) surveys.

REMS require drug sponsors to provide plans for managing risks and assuring the safety of their products. Sponsors are further required to evaluate the effectiveness of their plans

for managing risks. Some of these evaluations rely on the collection of data directly from health care professionals and patients using surveys known as REMS surveys.

"Clients come to us for REMS surveys because they know we have the knowledge and infrastructure to design and implement robust and scientifically sound programs," said Elizabeth Andrews, PhD, vice president, Pharmacoepidemiology and Risk Management at RTI Health Solutions. "Working with Kelly Hollis, who leads the survey research group here at RTI Health Solutions, we have developed a systematic approach to REMS evaluations that provides meaningful and actionable data that clients can submit to regulatory authorities and use to refine and continuously improve their risk management programs."

RTI Health Solutions has consulted on the design and implementation of risk management plans for more than 45 products for 35 different biopharmaceutical companies in the past three years and is currently conducting 11 REMS evaluations and nine safety studies.

As part of our collaboration on these projects, we have designed and implemented REMS study protocols, collected and analyzed data, and prepared reports and manuscripts. In doing so, we have worked with our clients to evaluate their overall risk management programs, specific parts of programs, and the impact of educational interventions. We also helped our clients prepare risk management plan reports for submission to regulatory agencies.

As a result of the Food and Drug Administration Amendments Act of 2007, the FDA can require REMS of any pharmaceutical product with risks that cannot be adequately addressed by labeling alone.

United States

Elizabeth Andrews, PhD, vice president, Pharmacoepidemiology and Risk Management at RTI Health Solutions, is conducting risk mitigation and evaluation strategies (REMS) surveys to help patients get the benefits of treatment but avoid potential harmful side effects.





Trusted solutions for drug effectiveness ...

Drug Discovery and Development

Since our early years, RTI scientists have been at the bench pursuing discoveries and developments that could one day lead to new treatments for diseases. We have published our results in peer-reviewed journals, and our staff members have received many awards for their efforts in this area. This year we highlight several areas of fundamental research as well as our work to help pharmaceutical companies screen potential drug candidates.

Researching New Treatments for Parkinson's Disease

Under a grant with the National Institute of Neurological Disorders and Stroke (NINDS), RTI supports development of new treatments for Parkinson's disease. Our contributions feed into a wide network of researchers and clinicians with the goal of moving compounds into neuroprotection exploratory trials for Parkinson's.

As Parkinson's disease progresses, dopamine-containing neurons are destroyed. Currently available therapies, such as L-DOPA, improve symptoms by boosting the brain's supply of dopamine. The ambitious goal and logical next step is a new generation of treatments that protect dopamine neurons, thus preventing initiation or significantly slowing progression of the disease.

"While the hallmark features of Parkinson's disease are well characterized, the mechanistic hypotheses related to causation and disease progression are highly diverse," said Catherine Price, PhD, who manages the project. "Thus, the pipeline of candidate compounds reflects the creativity and diversity of the Parkinson's research community."

Compounds are nominated to NINDS by university researchers, private laboratories, and small pharmaceutical companies. Selection of candidates for clinical study follows an evidence-based approach developed by the Committee to Identify Neuroprotective Agents for Parkinson's and adopted for other neurodegenerative disorders.

RTI contributes to the selection process—assessing published literature, producing compound dossiers, standardizing preclinical efficacy models, and screening compounds for efficacy and safety. We are also collaborating with a University of Minnesota researcher to characterize and standardize an animal model of Parkinson's. This process involves development and optimization of neurobehavioral, neurochemical, immunohistochemical, and neuropathological assays that can be applied to preclinical efficacy screening.

New Methods in Epigenomics Research

In May 2009, RTI research biologist Maureen Bunger, PhD, received an exploratory research grant from the National Cancer Institute to develop a new method for studying how dietary supplements affect the epigenome.

Bunger explained, "The epigenome refers to biochemical reactions at the level of the DNA that turn genes on and off. These reactions can be influenced by a person's environment, including dietary supplements."

Given the link between some cancers and epigenetic changes, such as the deactivation of tumor-suppressing genes, mapping the epigenome is of great interest to health researchers.

Helping map the epigenome ...

United States

Global Experience. RTI is conducting fundamental epigenetic research, developing a new method for uncovering epigenetic reactions that may be applicable in the study of dietary supplements.

Funded through the 2009 federal stimulus package, RTI's research aims to develop a method for uncovering genes that are most affected by the epigenome. The study uses milk thistle extract, a substance with known epigenetic properties, and prostate cells.

"Our preliminary studies have shown that milk thistle extract affects the regulation and activity of a key epigenetic enzyme, EZH2, in prostate tumor cells," said Bunger. "We will treat prostate cells with milk thistle extract in cultures and use proteomics to monitor what proteins are changing expression levels. Results will help us identify genes that may be more readily influenced by epigenetic enzymes such as EZH2 in prostate cells."

If RTI's method proves reliable for uncovering epigenetic reactions, it may be broadly applicable in the study of all types of dietary supplements, which are widely used by Americans for health promotion and disease prevention.

Uncovering New Questions in Vaccine Research

Since 2005, RTI public health researchers have been working on a project funded by the National Institute of Allergy and Infectious Diseases to study the effects of genetics on a person's immune response to vaccines.

Under this project, we gathered 12,000 samples from some 2,000 residents of poor neighborhoods in Kolkata, India, who were immunized against cholera and typhoid. RTI researchers analyzed these blood and saliva samples using new methods we developed for identifying proteins in saliva and performing shotgun proteomic analysis of the peptides in the samples.

This year the project has focused on analyzing data from those samples, and the results have been somewhat surprising.

"These vaccines are understood to be 60 to 80 percent effective," said Diane Wagener, PhD, principal investigator of the study, "and the goal of this study was to determine the role of genetics in those who do not respond to the vaccine. However, 98 percent of participants in this study have developed what's considered to be an adequate level of immunity to typhoid. This may be a result of previous exposures to these and other pathogens."

Antibody levels developed by individuals vaccinated against typhoid varied across the study population. Carol Whisnant, PhD, co-principal investigator, noted that the genomic analyses are finding genes associated with the magnitude of an individual's immune response to the typhoid vaccine. Analyses of the cholera vaccine are still under way.

Ultimately, these findings may enable pharmaceutical companies to reformulate these particular vaccines, but perhaps more importantly, RTI's research opens up to broader questions in immunology.

"Vaccines behave differently in the bodies of people who are routinely exposed to the types of infectious organisms found in urban slums in the developing world," said Whisnant. "To improve the response rate of these vaccines, future research is going to have to account for environmental complexities."


As the project moves into its final year, RTI will conclude the genomic and proteomic studies, seeking to identify the role of genes and proteins in human immune functions and analyzing additional questions raised by the results.

"In any research study, you never know what you'll find," said Wagener. "Our findings have led to questions that, when answered, could improve the health status of millions of people in developing countries."

Expanded Capabilities in Drug Formulation

For decades, RTI has been providing analytical support and consultation to pharmaceutical, chemical, and biotechnology companies. This year, we expanded our capabilities in preformulation and formulation studies by equipping a state-of-the-art laboratory dedicated to this research under the direction of Poonam Pande, PhD. Pande brings to RTI more than a decade of pharmaceutical experience and a drive to prove the benefits this research can offer our clients.

United States



Using RTI's novel proteomics methods, nanoscale samples of saliva and other fluids are ionized and sprayed into the mass spectrometer to determine which immune-related proteins are present. By comparing data from study participants who responded well to a vaccine with data from those with diminished immune response, and correlating that information with participants' genetic profiles, we are able to assess the role of genetics in immune response.

Preformulation studies reveal critical properties of a drug candidate that affect its safety and efficacy during preclinical and clinical research. These studies also provide an understanding of how the drug candidate will behave during storage and processing into a drug product such as tablets.

Preformulation studies are an important aspect of the screening performed by pharmaceutical companies to select drug candidates for further development. Information generated from these studies is useful in designing a drug product that can deliver medicine in a consistent manner.

Equally important, the U.S. Food and Drug Administration (FDA) requires drug manufacturers to demonstrate that they are controlling for issues related to polymorphism. Because all of RTI's new instruments have been qualified for regulated studies, results from our formulation studies can be used in FDA regulatory submissions.

"This expansion of RTI's capabilities, coupled with our proven expertise in analysis and interpretation of comprehensive data," said Pande, "enables us to serve as a one-stop shop for pharmaceutical clients in need of analytical services—from lead discovery chemistry to cGMP release of finished products."

Finding New Therapeutic Uses for Cannabinoids

Since the 1970s, RTI has been researching cannabinoids and their receptors in the brain and body, expanding our understanding of these neurochemical messengers and their influence on functions such as pain, appetite, memory, addiction, and metabolism.

"The challenge is to find ways to optimize the beneficial properties while avoiding the psychomimetic effects—the high typically associated with marijuana use," said Herbert Seltzman, PhD, RTI senior research chemist and expert in cannabinoid synthesis.

This year, RTI chemists and pharmacologists continued to expand this area of research.

For example, under an exploratory research grant from the National Institute on Drug Abuse (NIDA), Seltzman is collaborating with researchers at UCLA in the search for new treatments for analgesic-resistant nerve pain—such as that experienced by diabetics and amputees. RTI's role is to design a cannabinoid agonist that will mitigate pain in the body without crossing the blood-brain barrier.

Pioneering new drug discoveries ...

United States

Trusted Solutions. Building on close to 40 years of research, RTI continues to expand our understanding of cannabinoid chemistry and synthesis, looking for new therapeutic uses against liver disease and nerve pain.

Under another project, funded by the National Institute on Alcohol Abuse and Alcoholism, RTI is synthesizing and testing cannabinoid antagonists that are selective for receptors in the liver and exhibit properties that may inhibit the progression of liver fibrosis and cirrhosis.

"We are modifying a drug originally developed to treat metabolic disorders," said Rangan Maitra, PhD, research pharmacologist and principal investigator. "In clinical trials, this drug demonstrated potentially beneficial effects on patients' lipid profiles, a sign that it may have clinical utility against heart disease, diabetes, and liver disease."

Under a second NIDA grant, RTI is researching cannabinoid/orexin receptor heterodimers. Formed when cannabinoid and orexin receptors join together, these heterodimers have structural functional properties that differ from those of the individual receptors. Our goal is to determine whether compounds can be synthesized to selectively target these receptor complexes.

"Cannabinoid receptors are found in many regions of the brain," noted research chemist and principal investigator Yanan Zhang, PhD, "but orexin receptors occur only in regions of the brain that are associated with appetitive behavior. If we can create a molecule that is selective only for these dimerized receptors, we can potentially design a drug to stimulate those areas of the brain without undesirable psychomimetic effects."

Each of these projects capitalizes and builds on RTI's unique expertise in cannabinoid chemistry and our long history of successful in vitro studies of cannabinoid and receptor behavior. Our laboratory has been synthesizing cannabinoids for research under contract to NIDA for more than 30 years, providing derivatives to researchers at universities and hospitals to support basic and applied research into a vast range of human health problems. We also supply cannabinoids to pharmaceutical firms and developers of drug screening products through our commercial synthesis programs.



Trusted solutions for worldwide learning ...

Education and Training

RTI International experts conduct rigorous studies to assess and improve the quality of education and employment programs in the United States and internationally. During FY2009, we conducted research to understand why U.S. students lag behind in science, engineering, and math skills and expanded an RTI-developed assessment to improve reading internationally. We also developed a computer-based training program to teach Army soldiers how to repair tanks and designed a Web-based training program to help sexual assault professionals handle cases involving drugs and alcohol.

Improving Reading Internationally

Reading opens the door to lifelong learning. Yet in many poor countries, children who have attended primary school for as many as six years cannot read and understand a basic text. Without reading, children will be handicapped as they try to succeed in school and find good jobs to climb out of poverty.

In Kenya, RTI has demonstrated the power of simple but effective teaching strategies to help children in the early grades learn to read better and more quickly. At 40 schools in one of the poorest districts on Kenya's coast, we conducted a baseline assessment of second grade students' foundational reading skills using the Early Grade Reading Assessment (EGRA), an oral test developed by RTI with support from the World Bank and the U.S. Agency for International Development. The EGRA revealed that the students read roughly 11 words per minute in both Kiswahili and English, far off the grade-level goal for fluency of 45 words per minute.

Based on those results, RTI designed instructional plans for the second grade teachers to address the students' weakest reading skills identified by the assessment. When tested again, students in the 20 schools that received the instruction were reading twice as fluently as they were before. Interestingly, students in the other 20 schools that did not receive the instruction appeared to have improved nearly as much.

"We found through follow-up interviews that teachers from control schools were motivated to improve their students' reading performance after getting the EGRA results," said Luis Crouch, PhD, co-developer of the EGRA and director of the Kenya study. "So when they caught wind of the new instruction methods their peers were using to teach reading they began to copy the methods, essentially teaching themselves."

Teaching children to read ...

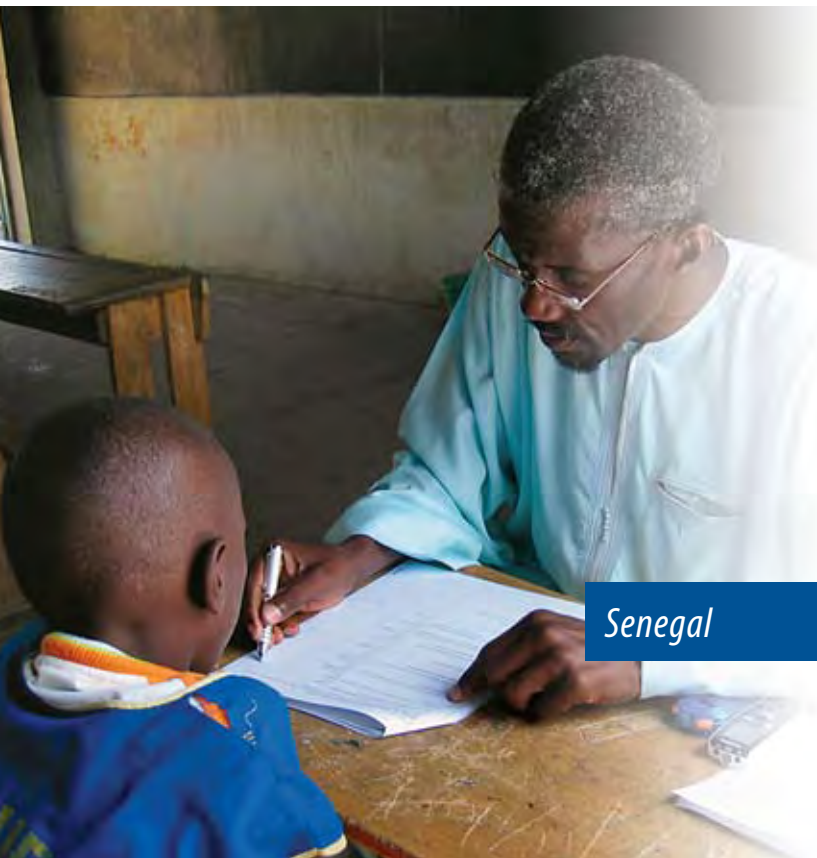
Kenya

Global Experience. By developing new testing methods and teaching strategies, RTI is improving student's reading skills in 40 elementary schools in one of Kenya's poorest districts.

RTI is building on the success in Kenya by conducting another two-year randomized controlled study in Liberia to measure the impacts on student reading of using EGRA-informed teacher training or using the assessment results alone to motivate action by teachers and parents to improve reading instruction.

EGRA has quickly become an internationally recognized tool for learning assessment. By the end of FY2009, EGRA had been used in more than 35 countries and languages. RTI is also applying the experience from EGRA to pilot an Early Grade Math Assessment that evaluates students' grasp of the foundational skills in mathematics.

In addition, RTI is measuring the impact of teaching children to read first in their mother tongue before the official language of instruction by conducting a nationally representative study in up to four African countries—Kenya, Mali, Senegal, and Uganda. With a grant from the Quality Education in Developing Countries (QEDC) initiative of the William and Flora Hewlett Foundation, RTI is working with local language specialists to adapt EGRA into each country's mother tongues. RTI then partners with a local nongovernmental organization to carry out data collection and data analysis, so at project end the non-governmental organization will be able to conduct future assessments on its own.



Senegal

Training first responders ...

United States

Trusted Solutions. RTI's Web-based training program provides U.S. sexual response professionals with the knowledge they need to help victims and increase prosecution of offenders.

Educating Sexual Assault Response Professionals

During FY2009, researchers at RTI began developing a Web-based training program to help sexual assault response professionals handle cases involving drugs and alcohol.

The two-year cooperative agreement is funded under the American Recovery and Reinvestment Act of 2009 and awarded by the Office for Victims of Crime, Office of Justice Programs, U.S. Department of Justice.

The cooperative agreement will allow researchers at RTI to develop and deliver at least five Web-based training modules to further educate professionals such as sexual

assault nurse examiners, sexual assault forensic examiners, and sexual assault response teams, who include law enforcement, emergency medical responders, and victim advocates.

“The Web training modules being developed will provide professionals with a better understanding of the fundamental issues of forensic interviews and evaluations of victims, the roles of investigators and medical professionals, and evidence collection and analysis for drug-involved sexual assaults,” said Jeri Roper-Miller, PhD, of RTI's Center for Forensic Sciences and the project's director. “Increased effectiveness in DFSA [drug-facilitated sexual assault] response has the potential to enhance community support and awareness for the victims.”

The software will give sexual assault response professionals a cost-effective means to continue their professional education, focusing on collecting evidence and recognizing drug behaviors.

“It is believed that increased understanding of the fundamental issues of sexual assault may increase the effectiveness of sexual assault response teams and the prosecution of offenders,” said Peter Stout, PhD, of RTI's Center for Forensic Sciences and the project's co-director.



United States

Jeri Roper-Miller, PhD, of RTI's Center for Forensic Sciences develops a Web-based training program to help sexual assault response professionals handle cases involving drugs and alcohol. The training modules will provide professionals with a better understanding of the fundamental issues of forensic interviews and evaluations of victims, the roles of investigators and medical professionals, and evidence collection and analysis for drug-involved sexual assault.

Training Simulations for Army Mechanics

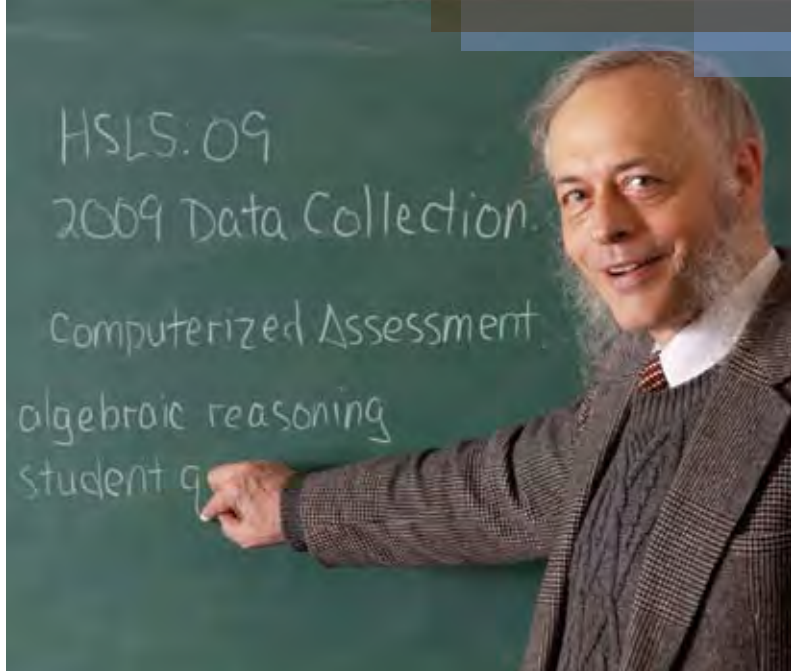
RTI researchers also used their expertise in developing simulation training to begin two programs designed to help Army soldiers make efficient repairs on the latest generation of Abrams tanks and Bradley Fighting Vehicles.

RTI has provided maintenance trainers for the Army's ground vehicles since the early 1990s.

"RTI's approach to this requirement reflects the latest advances in desktop simulations using serious games technology," said Sam Field, vice president of RTI's Digital Solutions Unit. "For years, RTI has pioneered the application of virtual reality on low-cost desktops as a means of providing learning-by-doing in a cost-effective and safe environment. These new Abrams and Bradley products will feature new technologies and everything we know about learning methods."

The RTI approach emphasizes learning-by-doing through high-fidelity, virtual reality simulations designed to accomplish training goals on low-cost personal computers or over the Web. The simulation technology requires students to perform all of the steps they would in a real-world situation and then observe the outcomes of their actions.

RTI provides education and training solutions for military, law enforcement, homeland security, and commercial markets using advanced technologies based on solid science and subject matter expertise. RTI is also a leader in designing and building high-fidelity physical mock-ups for maintenance training. These devices are full-scale, fully functional simulators that provide psychomotor training and share software with desktop devices.



Steven Ingles, Principal Scientist, Education Studies Division

United States

Understanding Students' Education Decisions

Concern over U.S. students' ability to compete in the increasingly global marketplace continues to rise as policymakers and administrators look for ways to boost students' interest and success in science, technology, engineering, and math.

During FY2009, researchers at RTI launched the High School Longitudinal Study of 2009 (HLS:09) to answer many of those questions. HLS:09 updates a series of longitudinal studies that we have conducted for almost 40 years for the National Center for Education Statistics.

The researchers will follow about 20,000 ninth-graders, their parents, and administrators from high schools across the United States as the students progress from high school to college and enter the work force. The study will help researchers and policy administrators understand what home, school, peer, and community factors influence students' learning and development.

"We're exploring how those factors impact the high school experience and students' educations and career choices, particularly regarding science, technology, engineering, and mathematics," said Steven Ingels, PhD, the project's principal investigator. "We need to better understand how we can improve our students' interest and achievement in these areas so they can stay competitive in the evolving international world and marketplace."

The study will also look at what factors influence whether students go to college; how gender, race, ethnicity, and at-risk status influence student success in school and work; and how students make decisions about courses, majors, and careers.



Trusted solutions for developing countries ...

International Development

Since our first international project in 1961, RTI has been called upon by more than 140 countries to provide expertise in environmental management, monitoring and evaluation, program development, economic growth, and other technical areas. Throughout 2009, we continued this work, collaborating with public institutions, the private sector, and civil society to improve the lives of people across the developing world.

Promoting Local Efforts to Bring Clean Water to the World's Poor

Access to safe water remains one of the most serious and persistent development challenges for many of the world's poorest people. Women and children in developing countries invest considerable time, labor, and money to collect and transport water. Many children die from diarrheal diseases caused by water that is contaminated either at its source or during storage in the home. This year, RTI launched three projects to help relieve this global burden.

Identifying Effective, Scalable Programs

RTI was contracted by the Bill & Melinda Gates Foundation to provide independent monitoring and evaluation of the Ripple Effect, a project helping local entrepreneurs in India and Kenya develop improved products and services to reach the poor with clean water. Examples include delivery services to increase household access to safe water, and storage vessels that protect water quality during transportation and handling.

Through participant interviews, observation, and end-user surveys, RTI will assess whether the Ripple Effect project is successful in transferring business- and human-centered design skills to local water service providers. We will also determine whether those organizations are on track to reach 500,000 people with improved options for accessing safe drinking water.

“The Gates Foundation will use the results of RTI’s evaluation, along with other inputs, to determine whether the approach used in the Ripple Effect project was effective,

Improving access to clean water ...

Worldwide

Global Experience. Our non-revenue water modeling tool helps developing countries understand the impact of water losses and better allocate scarce resources.

sustainable, scalable, and could be used to address other tough development challenges,” said Jennifer Van Kirk, RTI project manager.

Analyzing Water Losses to Help Countries Better Allocate Resources

Also this year, RTI invested our own funds to develop a model for analyzing utility losses of water and revenue through leaks, illegal connections, unmetered public use, meter error, and data recording errors. Known as non-revenue water (NRW), these losses amount to as much as \$5.8 billion per year in developing countries.

The RTI model addresses situations that are common in developing countries, including cases in which a water utility’s production capacity does not meet current water demand in its service area. In addition, the model produces useful results with less input data than are generally available in developed countries.

Using secondary data, RTI’s model has been applied to utilities in nine countries in South America, Africa, Asia, and Eastern Europe. More intensive field application is under way in Tanzania, Uganda, and Zambia, where individual utility managers, regional or national utility managers, and water supply regulators may adopt the model to help establish optimal NRW targets, monitor performance, and allocate resources to reduce NRW.

“Our work has generated keen interest from development agencies and water utility professionals. We look forward to building a new set of client services around the model and its applications,” said Alan Wyatt, senior water and sanitation specialist.



India

Enhancing Local Capacity in Senegal

At the close of FY2009, RTI was awarded a contract with the U.S. Agency for International Development to improve access to water and sanitation and to promote better hygiene in small rural towns and peri-urban areas of Senegal. The initial focus will be in the Casamance region, an arid zone in southern Senegal with small, dispersed villages. The project will bring wells, latrines, and other improvements to approximately 125,000 people.

Working with several partner organizations, RTI will set up or revive community associations of water users, which play a role in public planning and oversight of water and sanitation services. The team will provide technical and business training to help launch small enterprises to manufacture drilling tools, water pumps, and latrine slabs, and to provide services such as drilling wells, installing and maintaining pumps, and building and maintaining latrines.

“These entrepreneurs will provide a public good using local capacity and locally available materials and will generate their own revenue doing so,” said Richard Cartier, RTI chief of party.

The RTI team will also promote demand for improved water and sanitation services through a social marketing strategy designed to reach schools, women’s groups, and individual households with messages about safe water storage, hand washing, and other topics.

Enabling Business in El Salvador

Building on recent advances in its business climate, El Salvador continues to pursue improvements that will attract businesses and private investment to municipalities across the country and achieve broad-based economic growth. To help meet this goal, RTI International, together with Salvadoran research partner Escuela Superior de Economía y Negocios, developed a tool for ranking municipalities according to their business environment.

Funded by USAID’s Promoting Economic Opportunities Program, the Municipal Competitiveness Index (MCI) project assessed and ranked the country’s 100 most populous municipalities on nine aspects of economic governance to encourage and stimulate the growth of local businesses. Results showed that the business environment varied significantly across the municipalities and that transparency, municipal services, proactivity, and informal payments were the main factors underlying municipal competitiveness. Of the 100 municipalities, Antiguo Cuscatlán emerged as the top-ranking municipality, followed by La Libertad and Texistepeque.

The MCI can be used by municipal and central government leaders, as well as the donor community, to develop local action plans for reform and to identify best practices for replication across the country. The business community can also use MCI results to advocate for improved local and national policies and procedures relating to the private sector.

At the conclusion of the project, the RTI team presented the project results at a series of three workshops, where mayors and local government officials were able to discuss the results with local business owners.

“These dialogues were a first step toward establishing a peer-to-peer network, consisting of leaders from municipal government, the private sector, and related associations,” said Jennifer Bartlett, a technical manager for the project. “Our hope is that the index will help these stakeholders improve the business environment in their jurisdictions and advance the decentralization agenda in El Salvador.”



El Salvador

Helping El Salvadoran Communities Fight Violence

In partnership with the Center for International Studies and Cooperation, RTI is leading a USAID project to help citizens in seven of El Salvador's most violent municipalities (which include urban and rural areas) develop and implement plans to prevent crime in their communities.

The effort brings together local governments, national authorities, nongovernmental organizations, and community leaders into working groups. These groups prepare crime prevention plans, engage the private sector to provide funding, and track the implementation of the plans.

Project accomplishments this year include completion of baseline surveys, analysis of crime statistics, improvements in crime mapping, and the start of locally planned projects in all four cities where the municipalities were located. These local projects include rehabilitation of public parks and other spaces and the provision of psychological counseling, vocational training, and sexual and reproductive education.

For example, this past spring, 50 residents of the neighborhood of La Chacra in San Salvador participated in a workshop on peaceful coexistence held on the slopes

Creating safer communities ...

El Salvador

Global Experience. Building on two decades of assistance to El Salvador, RTI is helping the most violent Salvadorian neighborhoods become models for community crime prevention.

of the San Salvador Volcano. In other participating neighborhoods, local work groups broke ground for new community and arts centers, conducted workshops on entrepreneurship, provided training on conflict resolution, and developed programs for youth who have dropped out of school.

Across the seven participating municipalities, the project benefits more than 200,000 people who live in high-risk neighborhoods. Ultimately, the project will disseminate best practices throughout the country and beyond to other Central American nations.

"Gradually, these neighborhoods are becoming models for community crime prevention," said Aldo Miranda, RTI's chief of party in El Salvador.

El Salvador

Under the Community-Based Crime and Violence Prevention Project, led by RTI and funded by USAID, communities in El Salvador are developing and implementing plans to prevent crime. These plans include rehabilitating public parks and teaching children and adults how to prevent violence.





Trusted solutions for a cleaner, greener world ...

Energy and the Environment

RTI's commitment to clean energy and a healthy environment remains strong. This year, our experts in inorganic analysis and testing, environmental engineering and economics, and environmental regulations and policy were called on to face challenges in the U.S., Africa, and the Middle East. We reached new milestones in decades-long efforts to track air pollution, prevent exposure to lead, and bring our clean coal technology to commercial reality.

Global Leader in Air Pollution Monitoring

For more than 30 years, RTI has served as one of the U.S. Environmental Protection Agency's (EPA's) premier environmental analysis and quality assurance contractors. This year, our reputation as a leader in air quality research was underscored by projects in the U.S. and overseas.

Experts in Fine Particulate Matter

In July 2009, EPA awarded RTI a subcontract to support the 70 sites in its Clean Air Status and Trends Network (CASTNET), which monitors the air for gaseous precursors and components of acidic deposition, commonly known as acid rain. Under this effort, our experts will perform chemical speciation of $PM_{2.5}$ (particles that are 2.5 microns or smaller in diameter), conduct quality assurance audits of CASTNET sites, and support the expansion of the network to begin tracking gaseous ammonia.

With CASTNET, RTI now supports three major networks that monitor airborne particulate matter in the U.S.

In January 2009, EPA renewed RTI's long-held contract to measure and characterize $PM_{2.5}$ samples collected at more than 180 sites across the U.S. We conduct similar sample analyses for the U.S. National Parks Service, which operates a 120-site network to monitor air quality in the parks.

Also in FY2009, we began analysis of samples taken from 15 sites on U.S. military installations in the Middle East. This baseline study on behalf of the U.S. Army seeks to assess the exposure of soldiers and other base personnel to particulate matter.

Small enough to penetrate the human respiratory system, $PM_{2.5}$ has been linked to asthma and other adverse health effects. By identifying the specific chemical components of a $PM_{2.5}$ filter sample, RTI's work can help to pinpoint sources of pollution.

Advanced Data Analysis and Quality Assurance

In April 2008, EPA's Office of Air Quality Planning and Standards renewed another RTI contract to provide air quality monitoring, modeling, and research services. Recent work under this contract includes supporting EPA efforts to develop new federal reference and equivalent methods for analyzing lead in particulate matter. We also conducted a variety of other tasks, including technical audits and quality assurance reviews of EPA's air toxics programs, in FY2009.

"Over the next five years, our experts will continue to provide advanced data analysis on air pollution control modeling, methods, and technologies," said James Flanagan, PhD, RTI's project director. "We will also continue to provide training and outreach and to support the development of air regulations and policies."

Applying Our Expertise Around the World

With all this experience, it is no surprise that RTI has become a trusted advisor to other countries seeking to establish their own air monitoring networks. RTI research environmental engineer Jeff Nichol has become somewhat of an air monitoring ambassador, traveling to Ghana, Tanzania, and South Africa under efforts funded by the World Bank, U.S. Agency for International Development, and EPA.

Measuring and tracking air pollution ...

Ghana, Tanzania, South Africa, and Nigeria

Global Experience. Decades of work in air quality monitoring make us a valuable advisor to countries seeking to establish their own monitoring networks.



“We work closely with the environmental ministries in each country,” said Nichol, “installing the networks, providing the filters, and training local personnel in the proper procedures for conducting the monitoring and analysis. In the end, we leave them with a system they can sustain.”

In FY2009, RTI delivered to the Lagos Metropolitan Area Transit Authority a plan and costs for establishing a network along transit corridors in Lagos, Nigeria. Enactment of our recommendations would allow long-term monitoring of criteria ambient air pollutants to gauge the effects of the mass transport network on air quality in this city of more than 12 million people.

Managing Environmental Services for Abu Dhabi

This past year, RTI began work under a 10-year agreement to support environmental services for the government of Abu Dhabi. Under the contract, we are managing 30 staff members of the Environmental Agency-Abu Dhabi (EAD), as well as additional locally hired and RTI support staff.

Our first year on the job has seen improvements in the technical quality and understanding of environmental issues by EAD staff, despite a dramatic increase in workload resulting from rapid development in Abu Dhabi.

RTI led the review of 265 environmental impact studies submitted to EAD by proponents of construction and development projects. We also authored technical guidance documents and standard operating procedures that will bring EAD operations in line with international best practices in environmental permitting. We conducted nearly 1,000 routine inspections related to the permitting program, began developing a system that will help prioritize industrial inspections based on the level of risk to human health or the environment, and helped accredit and register 18 new environmental consultants.

“Registering environmental consultants is an important way to ensure that EAD receives high-quality environmental studies of the impacts of development, infrastructure, and industrial projects,” said Robert Zerbonia, RTI’s on-site project manager.

Training is a key component of RTI’s efforts in Abu Dhabi. We held courses on risk management, review of environmental studies, hydrodynamic modeling/dredging analysis, industrial health and safety, and quality assurance.

Ultimately, our goal is to transfer to local experts the knowledge needed to operate a world-class environmental protection program that balances economic development and environmental protection in this unique part of the world.

In a separate effort, RTI economists conducted an assessment of energy and water usage in Abu Dhabi, which has increased rapidly in recent years. This assessment established a baseline for electricity and water usage patterns and included a review of global best practices.

The RTI team recommended a range of initiatives, including more stringent building codes, a public campaign to encourage conservation, and installation of water-efficient irrigation technologies. Such initiatives would be key components of the demand-side management program desired by the government of Abu Dhabi and could result in significant reductions in the rate of growth in demand for electricity and water.



United Arab Emirates

Supporting the First Greenhouse Gas Reporting System in the U.S.

In September 2009, with the support of RTI researchers, EPA finalized the first comprehensive national system for reporting emissions of carbon dioxide and other greenhouse gases produced by major sources.

The new system will cover approximately 85 percent of the nation's greenhouse gas emissions and apply to roughly 10,000 facilities nationwide—including fossil fuel suppliers, electric utilities, cement manufacturing facilities, iron and steel producers, and other major sources of greenhouse gas emissions. Together, these facilities account for close to 90 percent of greenhouse gases emitted in the United States.

As part of this effort, RTI engineers helped assess greenhouse gas emissions from 17 sectors. We developed methods and guidance on how each sector should measure and monitor greenhouse gas emissions, and we estimated the cost burden associated with these measurement and monitoring methods. Using this and other information, RTI economists supported EPA in preparing a regulatory impact analysis that shows the economic impacts and benefits of each regulatory option for more than 30 sectors.

We estimate that complying with the new greenhouse gas reporting requirements will cost the private sector \$115 million for the first year and \$72 million annually in subsequent years.

RTI economists and engineers are often called upon to inform domestic policy alternatives for climate change mitigation and to support international climate change negotiations. Our goal is to help government and industry efforts worldwide to stabilize the concentration of greenhouse gases in the atmosphere and to predict and assess the effects of climate change.

Energy Research as Fuel for Economic Development

At RTI, our understanding of the benefits of energy research extend beyond its scientific and practical applications to its potential as an engine for economic revitalization. Recent U.S. trends show increased public



support for energy research, particularly in clean and renewable energy, as a tool for regional and statewide economic growth.

In 2008, the Commonwealth of Virginia sought to address economic distress in its southern and southwest regions by creating three new Regional Energy Innovation Centers to support R&D and workforce development in the areas of nuclear energy, coal, and biofuels. These centers will facilitate public-private partnerships and provide the knowledge resources that will fuel expansion of industry within their regions.

Working with the sponsoring organizations, RTI helped develop industry assessments and business plans for each center. Our experts assessed market demand, examined regional assets, identified short- and long-term economic opportunities, and developed operating plans and budgets.

Business plans for each center were designed to respond directly to Virginia's energy plan and to regional needs and opportunities for economic development. Using RTI's business plans, the centers jointly requested and received more than \$24 million in funding. Building on this strong beginning, Virginia's Regional Energy Innovation Centers are expected to create much-needed jobs as they make a vital contribution to the state of the technology in emissions reductions and U.S. energy independence.

The Science Behind Healthy Homes

An estimated 12 million children are exposed in their homes to dangerous concentrations of lead, which can cause learning disabilities, impaired hearing, kidney damage, and other serious health problems. For more than 20 years, RTI has supported U.S. programs to study and control household exposure to lead.

This year, on behalf of the U.S. Department of Housing and Urban Development (HUD), RTI collected and began analyzing samples from homes in five U.S. cities where contaminated dirt had been either removed or covered with mulch. Deposited around some homes when exterior paint had flaked, or left behind years ago by passing vehicles using leaded gasoline prior to its ban, lead in soil is a major contributor to blood lead levels. The goal of this study is to determine the effects of different soil treatments on interior dust lead levels in homes.

Also in FY2009, our experts in inorganic analysis and testing were called upon by EPA to develop new methods for testing lead levels in paint, dust, and air that will enable states to meet new regulatory requirements.

Under one effort, RTI devised an improved method for collecting samples of household dust to be tested for lead content. Designed to free up the lead dust that becomes trapped in cracks and residues on floor surfaces in older

homes, RTI's system was shown in laboratory tests to be 10 to 20 percent more effective than the previous standard EPA/HUD method.

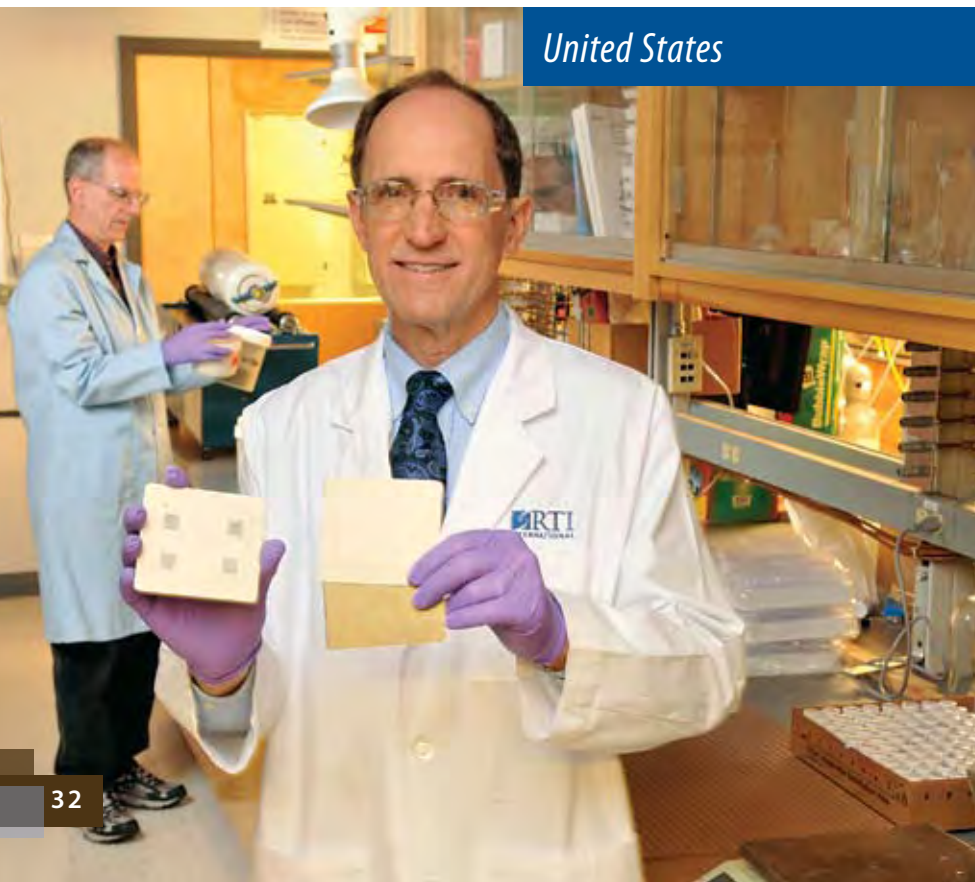
In a similar effort, we developed highly efficient methods for collecting paint samples and then rapidly and accurately testing them for lead. Designed for use in the field, the RTI methods will be crucial components of future commercial test kits. These kits will enable contractors to comply with new EPA regulations requiring them to test for lead in paint before performing renovations and repairs in older homes.

“Currently available test kits don't accurately show whether lead levels in paint samples exceed the federal limit,” explained William Gutknecht, PhD, senior research chemist at RTI.

To help manufacturers working under cooperative agreements with EPA develop commercial kits based on our research, RTI prepared for EPA 31 different quality assurance test materials to be used to ensure kits are suitably accurate. We researched and recreated old recipes for lead paint, mixed in coloring agents and other additives, and coated materials found in older homes like wood, plaster, and masonry with these paints.

In the near future, RTI's work under this effort will facilitate millions of tests each year for lead-contaminated paint, helping protect renovation contractors and residents from lead exposure.

United States



Senior research chemist William Gutknecht, PhD, (foreground) and research chemist David Binstock, PhD, (background) head up RTI's efforts in support of U.S. programs to study and control household exposure to lead. Here, Dr. Gutknecht holds materials developed at RTI to ensure that commercial kits for testing household paint samples for lead are suitably accurate.

Technologies for Clean Energy

This year saw RTI reach a critical milestone in the development of our technology for warm syngas cleanup and the launch of two new efforts focused on carbon dioxide emissions and production of clean fuel. Through these efforts, we continue to support national and worldwide goals of energy security and creation of a reliable, sustainable, and economically viable energy supply.

Scaling-Up Clean Coal Processes

In what marks the final technical hurdle before full commercial deployment, RTI is partnering with the U.S. Department of Energy to test our syngas cleanup system at Tampa Electric Company's 250-megawatt integrated gasification combined cycle (IGCC) power plant.

The system will incorporate RTI technologies to remove trace elements such as mercury and arsenic, capture the greenhouse gas carbon dioxide, and extract more than 99.9 percent of the sulfur from the syngas. Our novel process to convert the extracted sulfur to a pure elemental sulfur product will also be tested.

Over the course of more than 5,000 hours of testing, we will gather data on thermal efficiency, emissions, and cost benefits. This information will help refine the strategy for integrating RTI's system with carbon capture technologies and mitigate technical risks associated with commercial deployment of this technology.

Completion of this testing will bring DOE much closer to its vision of coal power plants that produce near-zero emissions.

Making Transportation Fuels from Sunlight

RTI also began work this year with our partners in the Research Triangle Energy Consortium (RTEC) to develop a process for using photons in sunlight to power the production of hydrogen from water. In a subsequent step, the hydrogen can be reacted with carbon dioxide to produce liquid transportation fuels. If successful, this technology offers the possibility of carbon-free energy for transportation and a way to store solar energy without the use of expensive batteries.

Ambitious projects such as this one exemplify RTEC's vision for solving challenging problems related to the use of energy.



Fueling tomorrow's cars with sunlight ...

United States

Trusted Solutions. Working with RTEC partners, RTI is applying our decades of experience in energy technology to develop solar-derived transportation fuels.

Capturing Emissions from Cement Plants

At the end of FY2009, RTI and CEMEX USA launched a partnership to design a system for capturing and storing carbon dioxide emissions at one of CEMEX's commercial cement plants.

Our researchers will help design a dry sorbent carbon dioxide capture and compression system, a pipeline (if necessary), and a carbon dioxide storage station. The demonstration system may incorporate RTI's Dry Carbonate Process for capturing carbon dioxide. Originally developed for use in power plants, this energy-efficient process can remove more than 90 percent of the carbon dioxide contained in fossil fuel-fired flue gas.

Funded by DOE under the American Recovery and Reinvestment Act of 2009, this commercial-scale carbon dioxide capture and sequestration demonstration project may remove up to 1 million tons of carbon dioxide annually.



Trusted solutions for improving the human condition ...

Corporate Information

As an independent, nonprofit research organization, our primary objective is to provide our government and private sector clients with the highest possible quality research and technical services. Our dedicated scientists and professionals are committed to the highest standards of scientific integrity, objectivity, and quality. Clients, large and small, rely on our trusted solutions and global experience.



Headquartered in Research Triangle Park, North Carolina, RTI International maintains offices around the world to support ongoing research operations and provide technical services. Since 1958, we have conducted more than 10,000 projects in more than 140 countries. We routinely publish our research findings in peer-reviewed journals, enhancing the reach and credibility of our work and our clients.



Victoria F. Haynes



James J. Gibson



Jennie Hunter-Cevera



Allen W. Mangel



G. Edward Story



Lorena K. Clark



E. Wayne Holden



Lon E. Maggart



Satinder K. Sethi

Leadership

RTI is led by an experienced group of senior executives who represent a cross-section of our research fields and business operations. These leaders implement our business strategy and oversee operations for our global enterprise. They are accountable to RTI's president and board of governors, our primary governing body.

Board members, who represent the University of North Carolina campuses, Duke University, and the business and scientific communities, formulate policy that is consistent with our mission.

Senior Management

Victoria F. Haynes
President and Chief Executive Officer

Lorena K. Clark
Senior Vice President, Human Resources and Corporate Affairs

James J. Gibson
Executive Vice President and Chief Financial Officer

E. Wayne Holden
Executive Vice President, Social, Statistical, and Environmental Sciences

Jennie Hunter-Cevera
Executive Vice President, Discovery and Analytical Sciences and Interim Vice President Discovery Sciences

Lon E. Maggart
Executive Vice President, International Development

Allen W. Mangel
Executive Vice President, RTI Health Solutions

Satinder K. Sethi
Executive Vice President

G. Edward Story
Senior Vice President, General Counsel, and Corporate Secretary

Board of Governors

Earl Johnson Jr. (Chairman)

Chairman, Southern Industrial Constructors, Inc.

Thomas F. Darden

*President and Chief Executive Officer,
Cherokee Investment Partners*

Victoria F. Haynes

President and Chief Executive Officer, RTI International

Peter M. Lange

Provost, Duke University

Terri L. Lomax

*Vice Chancellor for Research and Graduate Studies, North
Carolina State University*

Harold L. Martin

Chancellor, North Carolina A&T State University

William M. Moore Jr.

Partner, Franklin Street Partners

H. Troy Nagle

*Professor, Joint Department of Biomedical Engineering,
University of North Carolina at Chapel Hill and North
Carolina State University*

Hilda Pinnix-Ragland

Vice President Corporate Public Affairs, Progress Energy

Paul J. Rizzo

Chairman of the Board and Partner, Franklin Street Partners

Peter M. Scott III

Retired, Progress Energy

James N. Siedow

Vice Provost for Research, Duke University

Tony G. Waldrop

*Vice Chancellor for Research and Economic Development,
University of North Carolina at Chapel Hill*

Phail Wynn Jr.

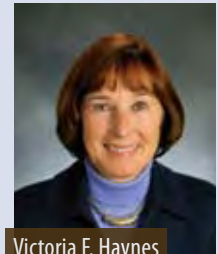
*Vice President, Durham and Regional Affairs,
Duke University*



Earl Johnson Jr.



Thomas F. Darden



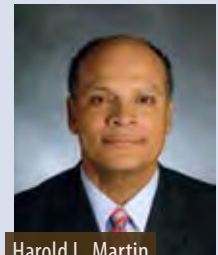
Victoria F. Haynes



Peter M. Lange



Terri L. Lomax



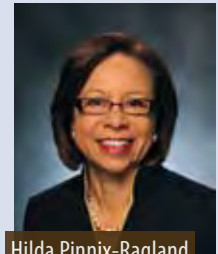
Harold L. Martin



William M. Moore Jr.



H. Troy Nagle



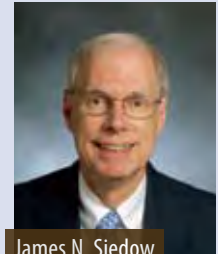
Hilda Pinnix-Ragland



Paul J. Rizzo



Peter M. Scott III



James N. Siedow



Tony G. Waldrop



Phail Wynn Jr.

Living Our Mission

At RTI we live our mission—to improve the human condition by turning knowledge into practice—in a number of other ways. In addition to our research and technical services, we give back to our community through donations and volunteer efforts, we form collaborative organizations with neighbor institutions in Research Triangle Park and beyond, and we publish and disseminate our knowledge so others can benefit. In addition, we strive to create an environment for our staff members that encourages superior performance and scientific achievement.

Giving Back

RTI supports a number of different charities and service and environmental groups through a generous philanthropy program and other activities. Also, many RTI staff members bring RTI's mission to life by volunteering their time and resources to support our communities.

One of RTI's biggest contributions in FY2009 was our corporate donation to the Triangle United Way. This year we raised the most money for the campaign in RTI history: a total of \$333,400, which includes an RTI corporate donation to both the Triangle United Way and the United Way of Metropolitan Chicago.

In addition to the record contributions and participation by RTI staff members in the campaign, RTI earned an Award of Excellence for working to advance the goals of the Triangle United Way Women's Leadership Council.

To further extend our efforts to give back during our 50th anniversary year, RTI held a series of "Improving the Human Condition Volunteer Days" as part of the United Way campaign. Staff members in several RTI locations spent a day or two volunteering at local agencies. In Research Triangle Park, NC, RTI volunteers helped to serve meals at the Food Bank, to create a new trail with the Eno River Association, and to build a home for Habitat for Humanity. In Chicago, RTI staff members volunteered at the Howard Brown Center, a clothing donation center. And in San Francisco, RTI staff volunteered at the Glide Memorial food program, which provides three nutritious meals every day of the year to the city's poor, homeless, and hungry.

RTI also gave back to the community through our Community Partnership Program. In FY2009, RTI donated more than \$157,000 to support 91 charitable organizations that serve the communities where RTI staff live and work, including Atlanta, Chicago, Research Triangle Park, San Francisco, Waltham, and the Washington, DC, area.

In addition to the large coordinated efforts, RTI supported a number of other efforts to improve the lives of others in the communities where RTI staff members live. For example, we held a very successful holiday drive to benefit the Food Bank of Central and Eastern North Carolina, and we held regular blood drives.



United States

Teaming with NC Organizations to Address Complex Challenges

Collaborating with others and sharing information about areas of national and global concern is one of the many ways we work to achieve our mission.

In the past few years, RTI has helped bring researchers at area universities together to collaborate on tough issues. In November 2007, we participated in the creation of the Research Triangle Energy Consortium (RTEC); in September 2008 we helped launch the Institute for Homeland Security Solutions (IHSS); and in September 2009 we participated in the creation of the Triangle Global Health Consortium (TGHC).

Our activities with RTEC are described in more detail in the Energy and the Environment section; see page 33.

Institute for Homeland Security Solutions

Established in September 2008, the IHSS is a federally funded research consortium made up of RTI International, Duke University, the University of North Carolina at Chapel Hill, and the North Carolina Military Foundation. IHSS conducts applied social science research in support of the Human Factors/Behavioral Sciences Division of the U.S. Department of Homeland Security (DHS). IHSS is directed by Joe Eyerman, PhD, of RTI International and David Schanzer of Duke University, with oversight from senior leadership from each of the consortium members.

IHSS research focuses on understanding human behavior as it relates to homeland security and building community resilience to natural disasters, public health emergencies, and terrorist attacks. The Institute also conducts research on analytic tools to aid in the detection of and response to natural and man-made security threats and on the development of biometric technology for human identification and screening.

Triangle Global Health Consortium

This September, RTI participated in the launch of TGHC, an interdisciplinary partnership that includes RTI, Duke University, Family Health International, IntraHealth International, the North Carolina Biotechnology Center, North Carolina State University, and the University of North Carolina at Chapel Hill.



Networking for research ...

United States

Global Experience. RTI's Susan Settergren discusses ways to strengthen health systems with other members of the recently formed Triangle Global Health Consortium.

The mission of the consortium is to promote collaborative research, integrate scientific programs across Triangle institutions, inspire and mentor future researchers and teachers, and establish joint service projects. The consortium will address the larger issues to improve the health of the world's communities, and will work to attract new scientists, faculty, and other talent involved in global health activities.

"As a founding institution of TGHC, RTI will continue its active support in shaping and implementing the new organization's programs," said Doris Rouse, PhD, vice president for Global Health. "TGHC holds great promise for enhancing the advancements in global health that can be realized through collaborations of the member organizations and establishing the Triangle as a resource to the global community, as well as the next generation of researchers in our universities."

Family-friendly workplace ...

Worldwide

Global Experience. RTI International won several “great place to work” awards in FY2009. Retirement savings, flexible work hours, an employee assistance program, and tuition benefits for staff members in the U.S. and around the world are among the benefits that helped RTI win these awards.

Great Place to Work

This past year RTI was recognized as a great place to work by three organizations. RTI was named one of the “Best Employers in North Carolina,” ranking sixth on *NC Magazine’s* “Best Employers 2009” list. The award is sponsored by the North Carolina Chamber, *NC Magazine*, the North Carolina Society for Human Resource Management–State Council, and Best Companies Group. Also in FY2009, RTI was selected as one of North Carolina’s 2009 Family-Friendly 50 companies by *Carolina Parent* magazine. In addition, RTI made *Triangle Business Journal’s* list of the 30 Best Places to Work in the Triangle for 2009. RTI was named among the top 10 companies in the large size category.

RTI was recognized for its 403(b) retirement savings program, our Employee Assistance Program, flexible spending accounts, tuition reimbursement, an onsite childcare facility, and a variety of family-friendly workplace options. Other noted perks included the onsite cafeteria and recycling and waste reduction programs.

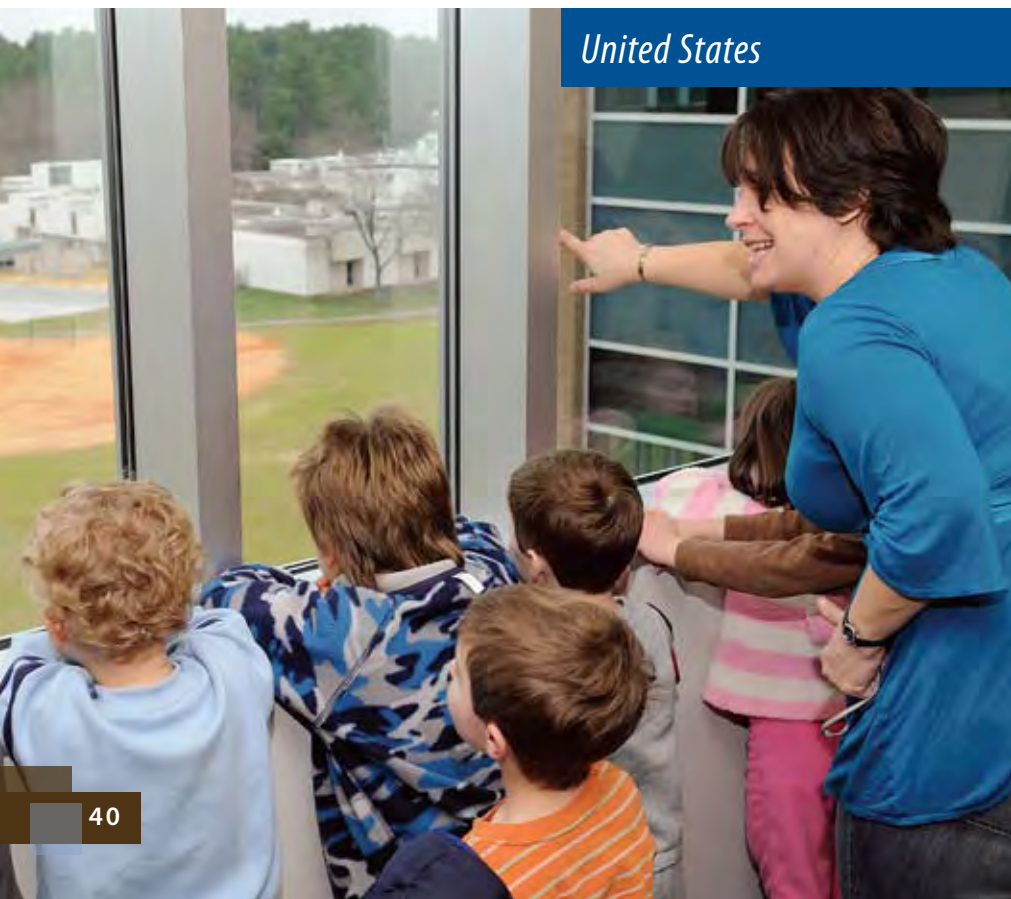
Awards and Recognition

RTI International and our staff members were recognized for superior performance and leadership in fiscal year 2009 in a wide range of categories. These pages list some of the many honors conferred on RTI by professional organizations, governments, and the community in FY2009.

RTI was recognized as the “Nonprofit Business of the Year” by *Triangle Business Journal* and the Nicholas School of Engineering at Duke University for its expanded sustainability and conservation efforts during 2008. RTI was also recognized in the “Commercial New Construction Project” category for its new office building that was designed to earn LEED (Leadership in Energy and Environmental Design) certification upon completion. (Note: Certification was granted in December 2009.)

RTI International was again recognized as one of the Research Triangle’s fastest growing private companies by *Triangle Business Journal* at the 2008 “Fast 50 Awards” ceremony.

United States



The onsite childcare care center at RTI International headquarters in Research Triangle Park, NC, is one of many family-friendly benefits that have helped to make RTI a great place to work. Children from the center toured RTI’s new LEED building shortly after it opened in 2009.



United States

RTI International earned a silver achievement medal in the international business category from the *Environmental Business Journal* for helping the Emirate of Abu Dhabi establish a world-class environmental protection agency.

RTI University was recognized as one of the top corporate training programs in the region with *Business Leader* magazine's 2009 Business Champion Award.

Cecilia Casanueva, PhD, was accepted into the Leaders for the 21st Century Fellowship of Zero to Three: National Center for Infants, Toddlers and Families.

Senior Fellow Dave Ensor, PhD, was awarded the 2009 James R. Milton Award by the Institute of Environmental Sciences and Technology. Also this past year, Ensor was selected for a Meritorious Service Award by the American National Standards Institute (ANSI).

For his dedication to alternative commuting, Jim Miller received the 2009 SmartCommute@RTP Commute Achievement Award.

Sally Morton, PhD, vice president of RTI International's Statistics and Epidemiology unit, served as president of the American Statistical Association (ASA) in 2009.

Mansukh Wani, PhD, who retired from RTI International, was recognized for lifetime achievement in the field of pharmaceuticals at the second Paul Ehrlich World Conference on Magic Bullets, held recently in Germany. Wani received a Magic Bullet Award for his career scientific contributions, and particularly for his co-discovery, with the late Monroe Wall, of the "magic bullets" of Taxol® and camptothecin™.

Scientific Publications

Researchers at RTI International publish extensively with the goal of getting RTI's knowledge into the public domain, where it will be available for researchers, policy analysts, and others. In FY2009, RTI staff published over 637 articles in peer-reviewed journals, as well as several books and book chapters. Journals that published the results of RTI include *BMJ* (8 articles), *Pharmacoepidemiology and Drug Safety* (19), *AIDS Care* (5), *American Journal of Public Health* (8), *Health Services Research* (4), *Journal of Pediatrics* (4), *Medical Care* (4), *Value in Health* (17), *American Journal of Epidemiology* (5), and the *American Journal of Preventive Medicine* (7).

Also this past year, the RTI Press continued to grow, publishing 12 manuscripts—and many more are in the pipeline. All RTI Press publications are available as downloadable PDFs at www.rti.org/rtipress. For a complete list of research publications by RTI, visit our online publications database at www.rti.org/publications.

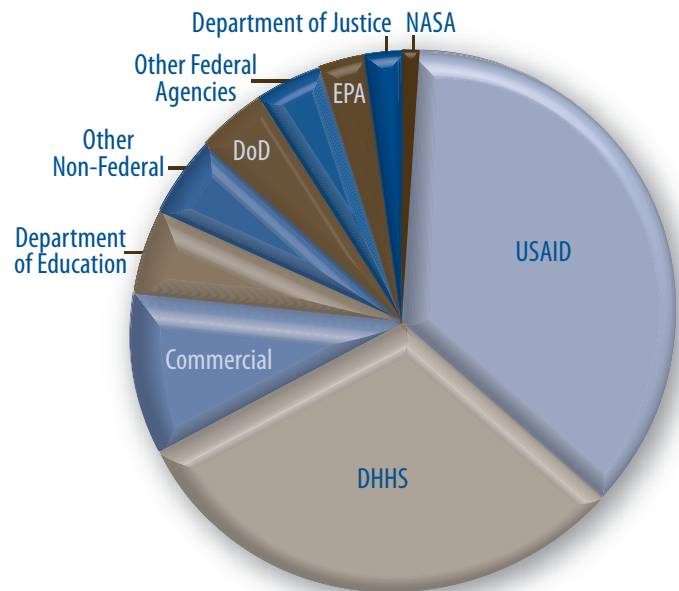
Financials

Despite challenging global economic conditions during the past 12 months, RTI International experienced a successful business year, with modest revenue growth and significant achievements across all program areas. Annual revenue from contracts and grants totaled \$718 million for the fiscal year that ended September 30, 2009 (FY2009).

RTI's financial position and outlook remain strong, with institute equity increasing to \$209 million as of September 30, 2009 (a 9% increase). In FY2009, RTI was awarded 711 new contracts and more than 1,600 modifications to existing contracts for a total funded amount of \$814.3 million.

As a nonprofit corporation, RTI invests its net revenue in facilities, programs, and capabilities to further its mission of conducting research that improves the human condition by turning knowledge into practice.

Revenue by Source (in thousands of dollars)

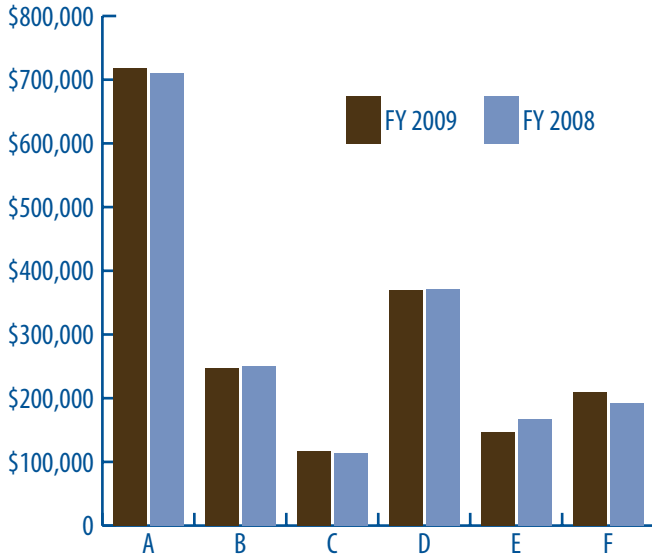


Source	Revenue	Percent
U.S. Agency for International Development	\$262,917	36.6%
Department of Health and Human Services	\$221,273	30.8%
Commercial	\$69,649	9.7%
Department of Education	\$36,020	5.0%
Other Non-Federal	\$33,447	4.7%
Department of Defense	\$30,391	4.2%
Other Federal Agencies	\$28,041	3.9%
Environmental Protection Agency	\$19,715	2.7%
Department of Justice	\$15,387	2.1%
NASA	\$1,077	0.2%
Total	\$717,917	100.0%



United States

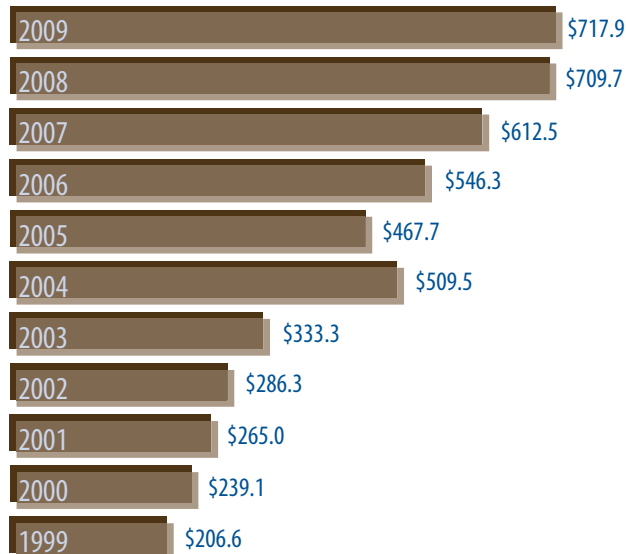
Selected Financial Data (in thousands of dollars)



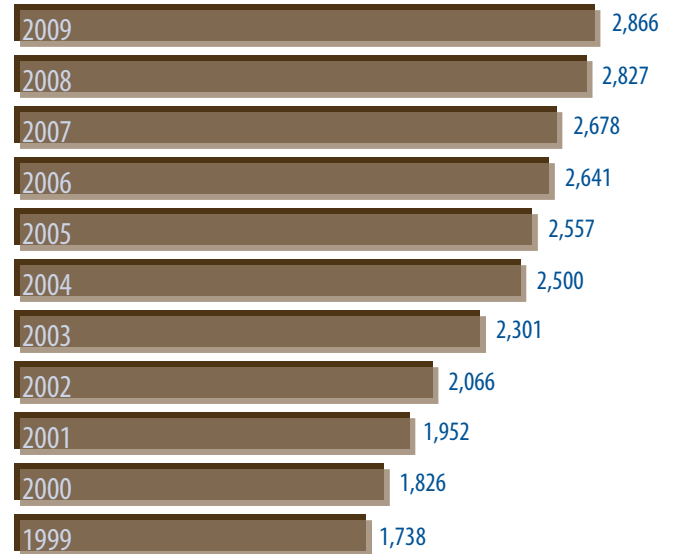
For the Year	FY 2009	FY 2008
A Revenue from research programs	\$717,917	\$709,712
B Current assets	\$247,648	\$250,286
C Property and equipment, net	\$116,234	\$113,111
D Total assets	\$369,782	\$371,128
E Current liabilities	\$146,122	\$167,543
F Institute equity	\$209,410	\$192,168



Revenue in Millions



Staff



Clients

Private Sector Clients

3M Company
 Abbott Laboratories
 Actelion Pharmaceuticals
 Allergan, Inc.
 Amgen
 AstraZeneca
 Bayer HealthCare AG
 Biogen Idec
 BioMS Medical
 Boehringer Ingelheim
 Bristol-Myers Squibb Co.
 Chevron Corporation
 Eli Lilly and Company
 GE Healthcare
 Genentech
 Gilead Sciences, Inc.
 GlaxoSmithKline
 The Hamner Institutes
 Helsinn Healthcare S.A.
 Inspire Pharmaceuticals
 Intendis GmbH
 The Johnson & Johnson Family of
 Companies
 MedImmune
 Merck & Co., Inc.
 Mohawk Industries, Inc.
 Neuromed Pharmaceuticals
 The Nielsen Company
 Novartis
 Novo Nordisk
 Ogawa & Co. USA
 Pfizer
 PhRMA
 Prometheus Laboratories
 Roche
 Sanofi-Aventis
 Schering-Plough
 Shell
 Shire – UK
 Takeda Pharmaceuticals UK
 Talecris Biotherapeutics
 Teva Neuroscience

ThromboGenics Inc.
 Tioga Pharmaceuticals
U.S. News & World Report
 Wyeth Pharmaceuticals

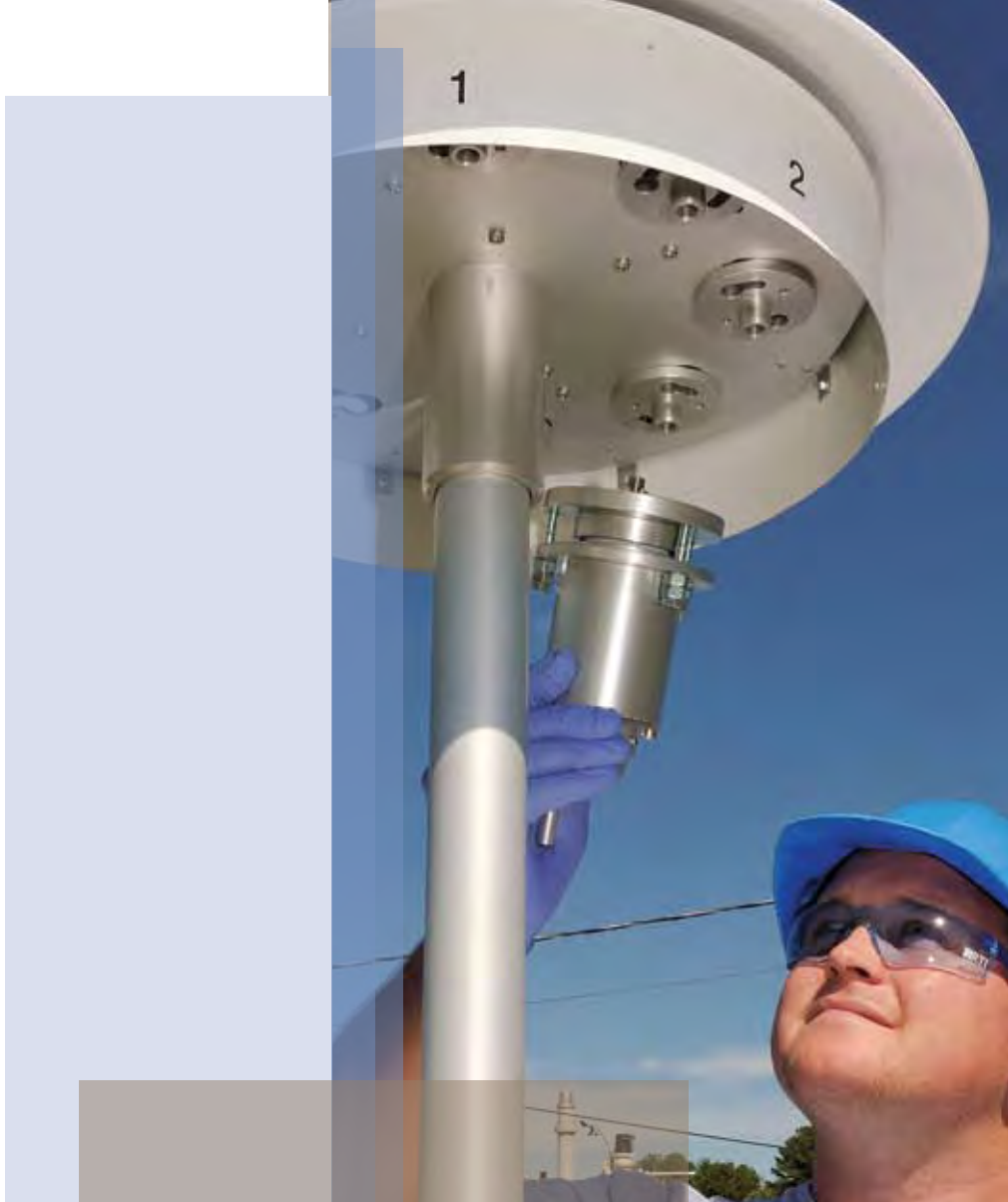
U.S. Government Clients

Department of Agriculture
 Department of Commerce
 Department of Defense
 Department of Education
 Department of Energy
 Department of Health and Human
 Services
 Administration on Aging
 Administration for Children and
 Families
 Agency for Healthcare Research and
 Quality
 Agency for Toxic Substances and
 Disease Registry
 Centers for Disease Control and
 Prevention
 Centers for Medicare and Medicaid
 Services
 Food and Drug Administration
 Health Resources and Services
 Administration
 National Institutes of Health
 National Toxicology Program
 Office of the Assistant Secretary for
 Planning and Evaluation
 Office of the National Coordinator
 for Health Information
 Technology
 Office of Population Affairs
 Office of Public Health and Science
 Office of Research Integrity
 Office of the Secretary
 Substance Abuse and Mental Health
 Services Administration
 Department of Homeland Security
 Department of Housing and Urban
 Development

Department of the Interior
 Department of Justice
 Department of Labor
 Environmental Protection Agency
 National Aeronautics and Space
 Administration
 National Science Foundation
 U.S. Agency for International
 Development

Other Clients

American Heart Association
 American Industrial Hygiene
 Association
 American Legacy Foundation
 Bill & Melinda Gates Foundation
 Environment Agency–Abu Dhabi
 Ford Foundation
 Global Alliance for TB Drug
 Development
 International Partnership for
 Microbicides
 National Multiple Sclerosis Society
 Robert Wood Johnson Foundation
 Smith Family Foundation
 U.K. Department for International
 Development
 U.S. state governments
 The World Bank
 World Health Organization



RTI International is one of the world's leading research institutes, dedicated to improving the human condition by turning knowledge into practice. Our staff of more than 2,800 provides research and technical expertise to governments and businesses in more than 40 countries in the areas of health and pharmaceuticals, education and training, surveys and statistics, advanced technology, international development, economic and social policy, energy and the environment, and laboratory and chemistry services. For more information, visit www.rti.org.

RTI International is a trade name of Research Triangle Institute.



www.rti.org

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Pretoria, South Africa
1st Floor, 121 Muckleneuck Street
Nieuw Muckleneuck
Pretoria, South Africa

San Salvador, El Salvador
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Colonia Escalón
San Salvador, El Salvador