

# + More Data, Better Healthcare

## The Issue

The cost of healthcare continues to skyrocket in North Carolina, eating up a growing chunk of both the state's and families' budgets. Using innovative technologies to save lives and improve care while reducing healthcare costs means healthier citizens with less strain on the state budget.

## RENCI Projects

RENCI works with the North Carolina medical community to improve public health while reducing costs. Last year, UNC-Chapel Hill received a \$61 million award from the National Institutes of Health to find better ways to translate biological discoveries to more effective care. RENCI's role in this multifaceted project is to find better ways to use information technologies to turn research discoveries into better healthcare. Through the NC Collaboratory for Bioinformatics, RENCI researchers are creating a system that helps aggregate all available biomedical information on patients in North Carolina so it can be used, reused, and compared during different treatments over the course of the patient's lifetime.

The system should make it easier to track trends in healthcare and treatments, the efficacy of treatments and the relationship of large-scale trends and issues to the effectiveness of individual treatments. RENCI's technological expertise and national track record in informatics was important in winning the NIH award and puts North Carolina at the forefront of developing systems that use electronic records and data analysis techniques to improve healthcare delivery.

Another RENCI project with the Duke University psychiatry department aims to help clinicians quickly discover the best treatment options for mentally ill patients by using data from previous patient visits to predict different treatment outcomes. By providing this tool to clinicians at the point of care, they will be able to make more effective treatment decisions and reduce costly trips to clinics and emergency rooms.

A third project teams RENCI with UNC's pediatrics department. RENCI is helping develop devices that monitor critically ill patients in a way that helps doctors and nurses spot trends and respond quicker to those whose conditions are deteriorating. Patients who are at risk of dying receive the quick attention they need and hospitals are able to transfer lower-risk patients out of expensive intensive care units, thereby cutting costs without sacrificing patient care.

## The Expertise

RENCI staff provide data management, analysis and storage expertise for these projects, helping medical professionals easily access patient data that can be used to improve care and to analyze data to spot trends and evaluate and improve treatments. Significant computing power also makes analyzing and managing these large medical data sets as easy as possible for doctors and other professionals in clinical settings.

## The Partners

UNC School of Medicine (North Carolina Translational and Clinical Sciences (TraCS) Institute, department of pediatrics)  
UNC Hospitals  
Duke University School of Medicine (department of psychiatry)

## The Impact

Healthcare costs North Carolina more than \$3 billion per year, and the system often is inefficient and unable to provide the best possible patient care. If healthcare providers can mine the vast pool of patient data (with appropriate privacy protection in place), they can compare the effectiveness of different treatments, zero in on promising treatments, eliminate treatments that have little or even a negative effect, intervene with new therapies before patients' conditions becomes critical, and generally improve the quality of healthcare. Better quality healthcare, provided more efficiently, means healthier citizens at a lower cost to the state.