



PRACTICALLY Speaking

The Donaghue Foundation Newsletter. Focused on research and knowledge uptake initiatives.

Program for Research Leadership Awarded for "Hospitalomics"

The 2010 Program for Research Leadership was awarded last December to Harlan Krumholz, MD, and since then he and his team of researchers from Yale University Schools of Medicine and Public Health, Tufts University and Harvard University Schools of Medicine, and Premier, Inc. have been forging new ground in characterizing patterns of hospital care.

The team, which includes clinicians, outcomes researchers, statisticians, basic scientists, quality of care and management experts and an organizational psychologist, recently conducted their second retreat to review progress and plan for the next steps. What is clear in their work so far is that the variations in practice that are being revealed by this research go far beyond what anyone has described previously. For example, for particular drug treatments there is little consistency by drug preparation within a class, dose, mode of administration, timing, and monitoring. The project is seeking to employ strategies, including visualization software, to transform these disparate approaches to care into meaningful and distinctive

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patterns, uncovering clusters of hospitals with generally similar patterns. The team is also focused on cost and resource utilization, developing the approach to compare the effect of the various patterns on the cost of care — and eventually on the outcomes of care.

The overall goal of this four-year, \$880,000 grant is to develop and refine a scientific approach that will be able to describe the complex and detailed patterns of hospital care and to determine the relationship between these patterns and hospital performance. Hospitals exert strong influence on patient outcomes. However, it has been known for some time that performance is quite variable and some institutions have markedly better outcomes and lower costs than others,

even after controlling for differences in the types of patients they treat. This project will create the tools to characterize detailed patterns of hospital care for specific patient groups, to help us invest our hospital resources where there is a greater return for our patients.

In partnership with Premier, Inc., a consortium of more than 1,000 hospitals, the project is using a scientific, data-driven approach to investigating hospital care. Premier, Inc. has created one of the nation's most comprehensive data warehouses of hospital processes, to which more than 400 hospitals contribute patient-level data. The data will be analyzed and organized to create hospital-specific profiles or "signatures." The team coined the word "hospitalomics" as the approach borrows from efforts in systems biology and bioinformatics to take large amounts of multidimensional data and produce useful knowledge in a given domain, and in this case the focus is on the hospital processes.

After characterizing hospital performance by measuring clinical outcomes and healthcare costs, the team will identify the hospital profiles that are most strongly associated with the best clinical outcomes and the lowest cost, laying the groundwork for possible interventions to improve performance. They will work with the hospitals that generated the



The Hospitalomics team meets regularly to discuss and resolve the many challenges of their work on the project.

data to facilitate knowledge uptake to improve effectiveness and efficiency. It is hoped that the infrastructure created by this effort will provide the capacity for ongoing research into comparative effectiveness of organizational strategies to deliver care more safely, effectively, equitably, and efficiently.