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Demonstrating the Value of Data Warehouses

The Department of Health Policy hosted a Professional Collaboration Day on June 14, 2005. The following is a summary of the morning session, hosted by GE Healthcare, which focused on Demonstrating the Value of Data Warehouses.

Two speakers offered their perspectives on the value of data collected via electronic medical records (EMRs) and managed through data warehouses. Both speakers conduct outcomes research using an office-based patient and data management EMR product designed by General Electric (GE) with the ability to interface with their laboratory and imaging systems. Approximately 5,000 providers (treating over 5 million patients) make up the GE Medical Quality Improvement Consortium (MQIC); whose data feed into the Centricity Data Warehouse. The comprehensiveness of the data coupled with the volume of patients with specific diagnoses adds power to most data analyses.

Diana Brixner, RPh, PhD *is Associate Professor and Chair of the Pharmacy Practice Department in the College of Pharmacy at University of Utah. She also serves as Executive Director of the Phamacotherapy Outcomes Research Center.*

Dr. Brixner introduced the topic by stressing the importance of EMR in outcomes research. She pointed out that although data is abundant, there are barriers that impede its translation into practical knowledge. Information may not be easily accessible by outcomes researchers and is often incomplete or unavailable at the time of decision making.

The array of available data sources includes randomized control trials (RCTs), multi-site RCTs, patient-reported outcomes, observational studies, EMRs, public health data sources, and retrospective claims and pharmacy data. Each type of collection method and design has benefits and drawbacks, but EMRs have a unique advantage in that they facilitate real-time collection and analysis of data from real-world settings. For instance, an EMR is updated daily with clinical and laboratory data necessary for diagnosis and treatment, whereas a traditional claims data source contains limited subsets of clinical and laboratory data and has an update lag time of 3-6 months.

EMRs are clinically rich and provide longitudinal data for each patient. They can be shared and/or merged with other data sources to create even richer repositories of data. But EMRs' promise of improved quality of care and better information for outcomes studies comes with a price tag. It also comes with a set of unresolved problems – legal issues (HIPAA compliance), provider resistance, and interoperability between platforms among them.

Among the studies conducted by Dr. Brixner's team at the Pharmacotherapy Outcomes Research Center (PORC) in Salt Lake City, UT, was *Evaluation of Impact of Second Generation of Antipsychotics (SGAs) Treatment of Weight Gain in Primary Care*. (presented at 2005 ADA meeting in San Diego). Using Centricity

Data Warehouse data, over 50,000 patients met initial inclusion criteria of having a prescription for any of the antipsychotic drugs being studied, of which 9,000 were included in the final analysis. These patients had at least one body mass index (BMI) measurement in their EMR. Analyses demonstrated several of the SGAs were significantly more likely to cause weight gain than conventional antipsychotic drugs.

James M. Gill, MD, MPH *is a member of the Family and Community Medicine Department at Christiana Care Health System, and is affiliated with the Family Medicine and Health Policy Departments at Jefferson Medical College.*

In addition to being an advocate of HIT (healthcare information technology), Dr. Gill is a primary care physician who exemplifies the benefits of implementing an EMR in the clinical setting. Dr. Gill echoed Dr. Brixner's praise for Centricity/MQIC, emphasizing the volume of records, the increased acceptance and use by physicians, and the powerful capability to facilitate improvement in clinical care.

Dr. Gill described several unfunded EMR studies he and his colleagues have conducted, noting that EMR makes outcomes studies relatively inexpensive to perform. For example, a simple study on the *Quality of Care for Osteoporosis in Primary Care* was conducted using Centricity data from two family practice offices and three OB/GYN offices. The researchers looked at prescriptions for appropriate osteoporosis-related medications and documentation of bone mineral density (BMD) testing. Findings indicated that physicians were not following guidelines for prevention and treatment of osteoporosis. This gave rise to quality improvement interventions, including provider education and a reminder system built into the EMR.

There is always room for improvement, and Dr. Gill noted that improving the system's ability to capture more demographic variables for both the patient (race/ethnicity) and the provider (specialty) would permit even greater depth in outcomes research, particularly in the area of reducing disparities.

Because physicians who are willing and financially able to incorporate EMR into their practices may differ significantly from those who are not, the findings from studies using such data warehouses may be limited in their generalizeability. The value of data warehouses will increase as office-based EMR use becomes more widespread.

For more information about Centricity Clinical Information Systems, please visit: www.gehealthcare.com/usen/cis/index.html