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Development of a Perioperative Electronic Medical Record Research and Quality Improvement Database

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Background: Approximately 14,500 patients are evaluated by our Internal Medicine Preoperative Assessment Consultation and Treatment Center each year, and there is enormous research potential from this large volume of patients. The perioperative evaluation is done by our group of 35 physicians who rotate through the perioperative center. We use electronic medical records (EMRs) for documentation, which has generally only permitted free text entry. Data entry was individual-dependent and research required painstaking manual EMR chart review.

Purpose: Our aim was to enable standardized data entry that was easily queriable, retrievable, and searchable for research purposes and quality control monitoring.

Description: With the help of a task force involving our information technology (IT) department, we developed a smart form for data collection that involved the physician clicking either “Yes” or “No” for pertinent history and symptoms for 10 different reviews of systems. This involved 114 data entry points, of which 41 were mandatory. This was to replace prior manual entry of symptoms and history. This smart form was set up to be easily queriable, retrievable, and accessible for research once the data were entered during perioperative assessment by our physicians.

Results: After the implementation of our smart form, we were able to set up a perioperative database that was easily accessible and accurate, as it was standardized and not individual-dependent. This helped to eliminate the huge time constraint involved with retrospective chart research. The workflow of our physicians and the time spent in patient evaluation after the smart form was rolled out compared with our prior evaluation form remained unchanged. Also, this database has enabled us to collect and contribute the preoperative data for the National Surgical Quality Improvement Program (NSQIP) at 100%, compared to prior manual data collection and retrieval, which achieved the minimal requirement of 40 patients per month per service.

Conclusion: Creation of an EMR database as a part of the preoperative evaluation workflow process provides easily queriable, retrievable, and accessible data for research and surgical quality monitoring in a large surgical center.