Development and Order set Utilization in Ambulatory Pediatric Specialty Care

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Abstract

One of the keys to any successful CPOE implementation is the development, deployment, and maintenance of well designed order sets that promote evidence based best practice. At Seattle Children’s we implemented ambulatory CPOE in multiple subspecialty pediatric clinics. Using our previous experience with inpatient CPOE, we translated our order set process to the ambulatory setting, making sure to understand the unique features of ambulatory subspecialty practice.

Objective

To describe the development, design, implementation and first 6 months of order set utilization for ambulatory CPOE at Seattle Children’s multiple subspecialty practices.

Methods

The design process involved two physicians (ME/AP) working with the clinical departments in a multi-step, template driven approach on the design, build and implementation of 304 standardized, clinical order sets for our June 2006 ambulatory CPOE implementation. The entire process took 12 months. Since the original implementation we have added 39 additional order sets, inactivated 3 and made hundreds of modifications to the original sets. We used a custom Cerner Command Language (CCL) query against our transactional database to see how many clinical plans were ordered on all ambulatory encounters over a specified date range. In addition querying a separate registration and scheduling database obtained visit data. This data was then compared within individual clinics.

Results

Data was obtained during the first six months after system implementation, between June 5th and Dec 31st, 2006. We found that 44,911 clinical plans were ordered. The total number of patients seen during this period of time was 49,663. Order set utilization clearly paralleled clinic specific patient volume (figure 1). The top five plans (1.5% of total number of plans) were ordered 12,946 times representing 28.8% of the total number placed. The top three plans were all generic, clinic specific, but not disease specific plans. However 90 plans (26%) were individually ordered ten times or less, for a combined total of 406 times (0.9%).

Discussion

The development of order sets was critical to the success of our ambulatory CPOE implementation. The methods we describe here are easily reproducible and have utility for any institution planning on implementing CPOE. Based on patient order set utilization and patient volumes our most active subspecialty clinics include Cardiology, Endocrinology, Hematology-Oncology, Orthopedics and Otolaryngology. Lessons learned include the need to identify departmental clinician contacts to develop and review order sets, the importance of developing structural standardization of content and display, the vital importance of multidisciplinary review by ancillary diagnostic services for accuracy and compliance and the importance of rapid post implementation modifications and enhancements to existing order sets. Initial utilization data suggests that utilization is directly related to patient visit volume and that there is a balance between developing too many highly specialized order sets and more generic, simplified order sets that facilitate a high volume, short encounter ambulatory workflow.