Evaluation of the Adoption of Standardized Physician Order Sets by Frontline Users

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“The Canadian Adverse Events Study“ determined that medical errors were occurring in 7.5% of annual hospital admissions

- 36.9% were entirely preventable

Utilization of online order sets:

- Increases legibility
- Decreases variation and unintentional oversight when writing orders
- Reduces medication adverse events
To evaluate the adoption, compliance rates with safety features, gaps in existing Order Sets and learning needs of front-line users.

Specific patient safety features assessed:
- Orders contain patient’s bradma and printed name
- Date and time of order
- Physician name and signature present
- Whether order set was completed online, hand-written, or both
- The availability of the order set for the specific diagnosis, and when it was accessible for utilization
Study Methods

- A retrospective, non-experimental, quantitative study
- Currently evaluating all physicians in the Paediatric and Women’s Health programs.
- Five patient charts are randomly selected from each physician with admitted patients between January 1, 2011 and March 31, 2011.
- Each order set was evaluated for compliance with safety features including patient double identifiers.
Student Role

- Review literature in regards to Computer Physician Order Entry (CPOE)
- Design the sampling plan, such as research and time frame
- Develop and refine data template (spreadsheets that include necessary data)
- Conduct audits of patient electronic charts (data collection)
- Analyze the data
- Interpret the results
- Communicate the findings via oral presentation
Previously, Stroke and Cardiology have been evaluated using the same method and showed 97% and 100% utilization respectively.

Currently focus of study is on Women’s Health and Pediatrics.

After the analysis and interpretation of the quantitative data, the research study will move into the dissemination phase, specifically towards the stage of communicating the findings.

Presentation of the research findings to a scholarly group, represented by users, research partners, and interested professionals.
Overall, a low utilization of order sets
- Order sets were only used in 16% of patient charts
- The majority of used order sets were available from April 2011
- Order set for DKA was available during the time frame of data collection, however was not used

Some common pediatric medical diagnoses for which an order set could be developed:
- Admission
- Pneumonia
- Seizures (febrile)
- Failure to Thrive and more

Common omissions from order sets:
- Absence of patients name (67% of all order sets)
- Time of the order (63% of all order sets)
- Doctors written name (54% of all order sets)
Number of Order Sets Used

Pediatrics

Percentage of Use

No Order Sets Used

Order Sets Used

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Method of Completion

Pediatrics

- Online: 17%
- Written: 33%
- Online & Written: 50%
Women’s Health Results

- High utilization of order sets
  - Order sets were used in 90% of patient charts
  - Average number of order sets per patient was 2.9 when used

- Common omissions from order sets:
  - Absence of patients name (46% of all order sets)
  - Time of the order (31% of all order sets)
  - Doctors written name (20% of all order sets)

- Total number of order sets out of 80 charts reviewed was 194
Number of Order Sets Used

Women's Health

Percentage of Use

No Order Sets Used

Order Sets Used
Method of Completion

Women's Health

- Online: 48%
- Written: 23%
- Online & Written: 28%
Significance of the Study

Utilization of electronic order sets, based on evidence:

- Reduces the potential for medication errors through integrated safety alerts and reminders
- Increases legibility of the orders
- Reduces variation and unintentional oversight through standardized formatting and clear presentation of orders
- Increases potential of standardization of practice across HHS, and assures that all areas have access to most up to date version at the same time
Significance of the Study

This study enables the evaluation of the utilization of order sets and assessment of ongoing education needs for users.

By analyzing the results in regards to:

- The prevalence of order sets in Pediatrics and Women’s Health
- Commonly found omissions
- The need for the development of order sets for common diagnoses for the Pediatric population
Study Limitations

- Time frame, from January 1\textsuperscript{st} to March 31\textsuperscript{st} 2011:
  - Several Pediatric order sets were developed after this period of time
  - Online order set documentation was introduced September 21 2010, physicians may not have been familiar with the system

- Representativeness of the study:
  - Electronic charts of physicians who had less than 5 patients admitted during this period were not included in the study
Recommendations

- Complete additional studies that will include different areas of HHS in a different time frame

- Conduct a survey of end-users that will focus on particular issues they encounter in the utilization of the order sets and any difficulties (barriers) in filling them out

- Conduct education sessions on commonly made omissions for all end-users

- Encourage collaboration among professionals to develop new electronic order sets for the most common medical diagnoses (e.g. pneumonia, URTI, seizures [febrile], dehydration) in Pediatrics
Our study identified the following:

- Low utilization of order sets in Pediatrics and high utilization in Women’s Health
- Order sets should be developed for common Pediatric medical diagnoses such as pneumonia, URTI, seizures (febrile), and dehydration
- Common omissions from order sets in both populations:
  - Absence of patients name
  - Time of the order
  - Doctors written name
- Online utilization of order sets was higher in Women’s Health, and the rate of omission was lower