

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



Research Tutor: Christine Probst

Co-Tutor: Janet Glancy



Students: Stella Caruntu and  
Katie Price-Owen

# Background

- “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

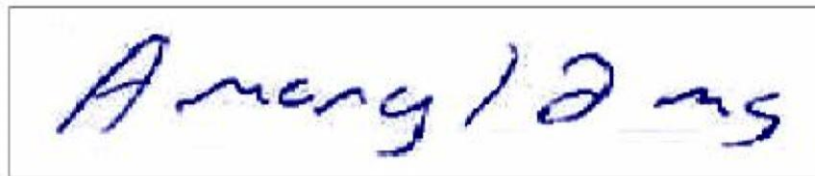
A photograph of a handwritten medication order in blue ink on a white background. The text reads "Amaryl 12 mg". The handwriting is cursive and somewhat slanted. The number "12" is written with a vertical line through it, making it look like "12" instead of "2".

Figure 3. An Order for Amaryl 2 mg Misread as 12 mg. Provided courtesy of ISMP.

# Purpose of Study

- 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

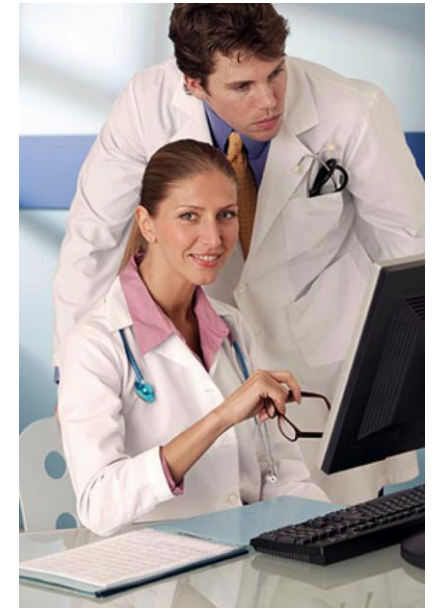
- Review literature in regards to Computer Physician Order Entry (CPOE)
- Design the sampling plan, such as research and time frame
- Develop and refine data template (spreadsheets that include necessary data)
- Conduct audits of patient electronic charts (data collection)
- Analyze the data
- Interpret the results
- Communicate the findings via oral presentation

# Current Stage of the Study

- 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

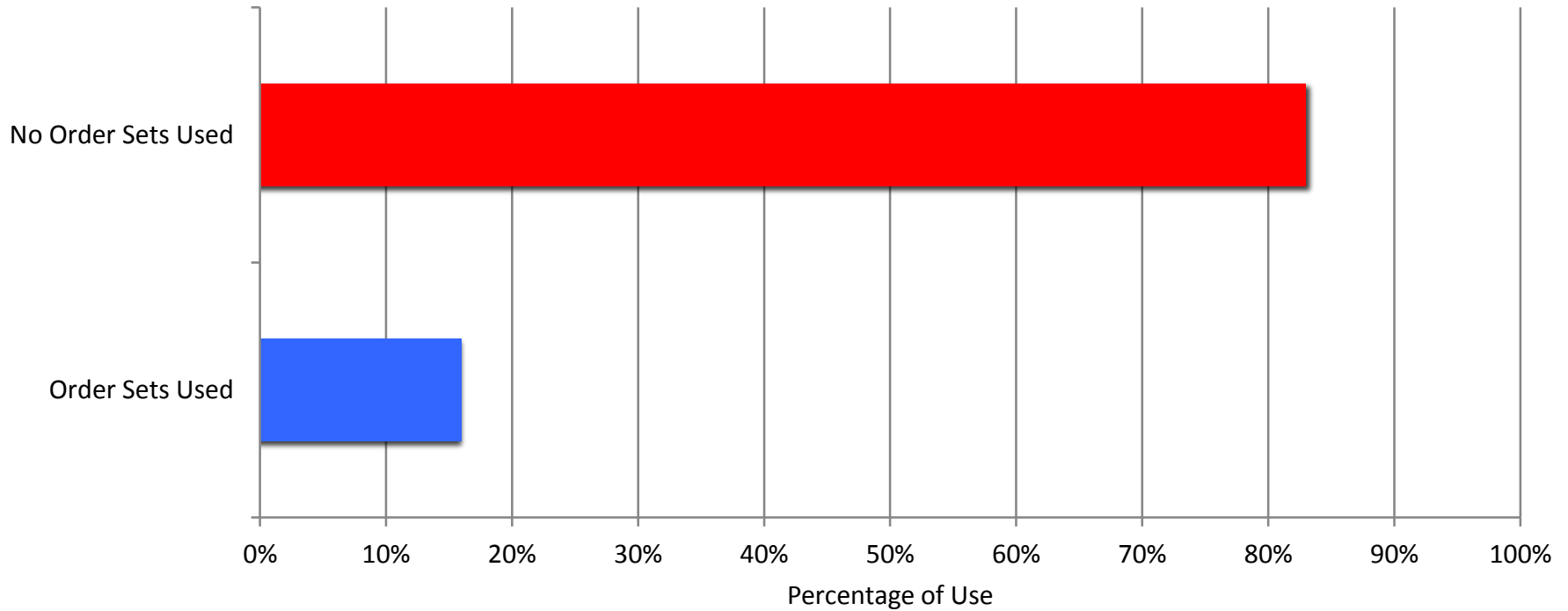
# Pediatrics Results

- 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)



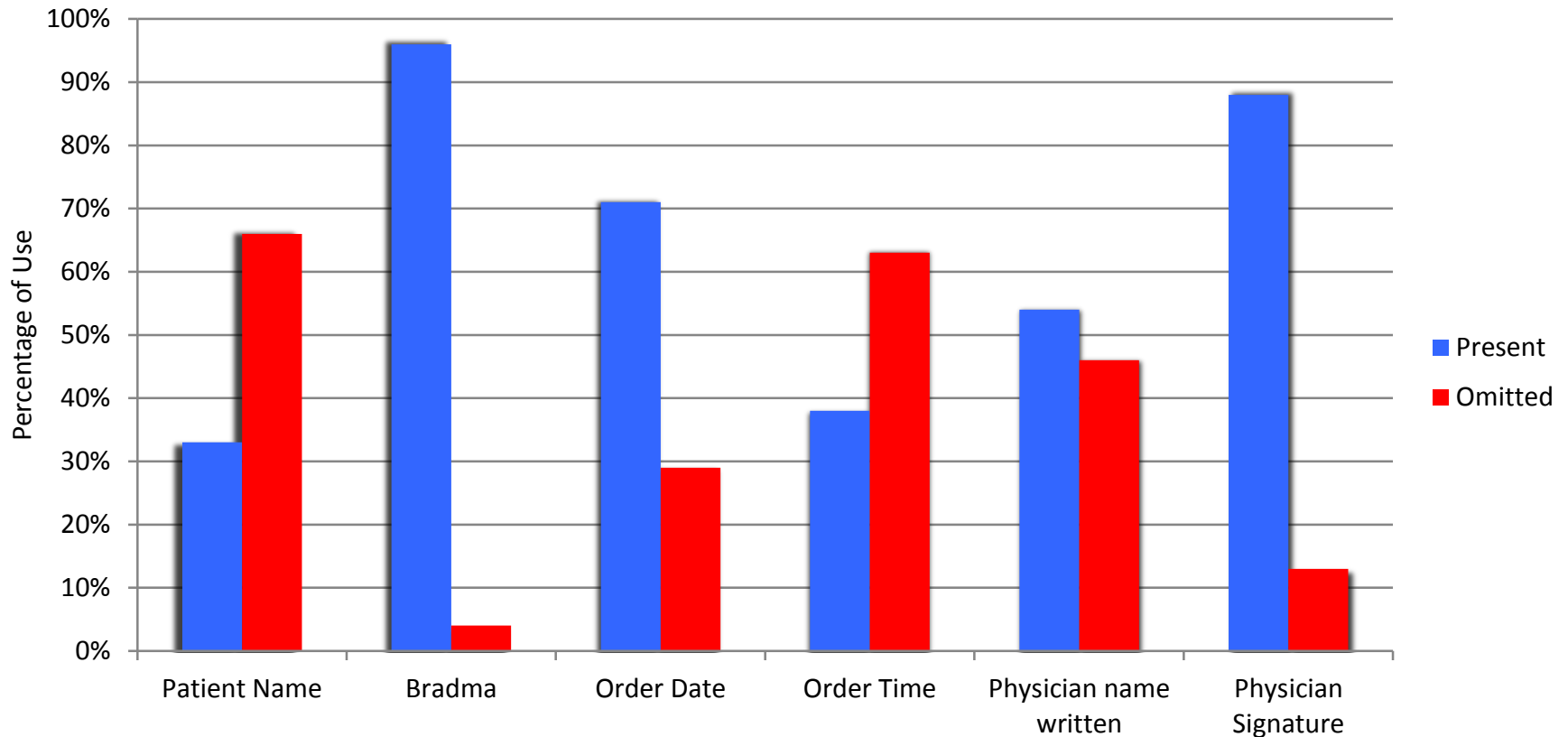
# Number of Order Sets Used

## Pediatrics



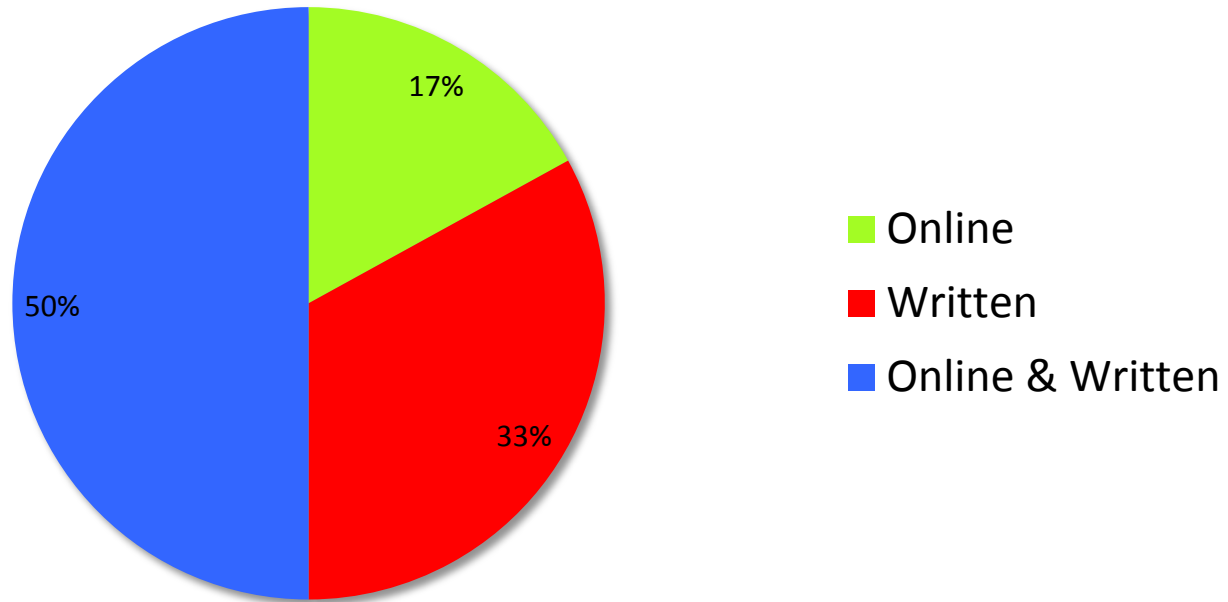
# Order Set Data

## Pediatrics



# Method of Completion

## Pediatrics

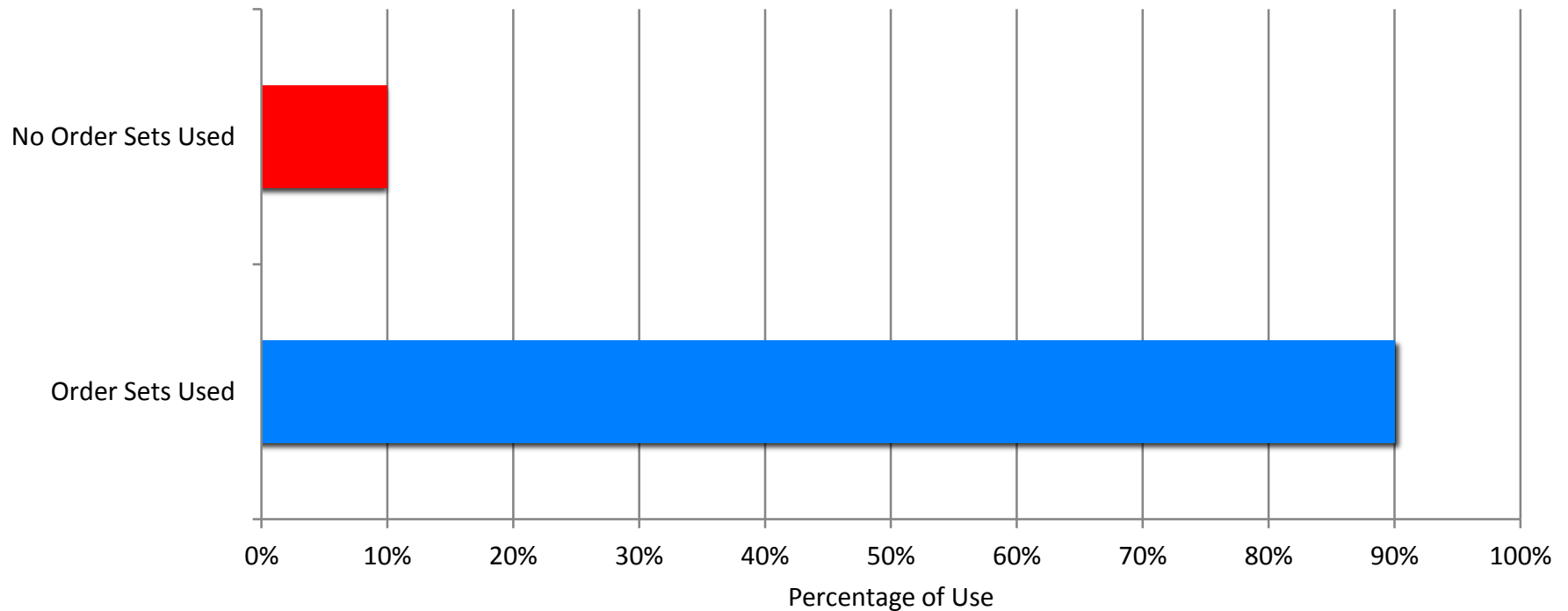


# Women's Health Results

- 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

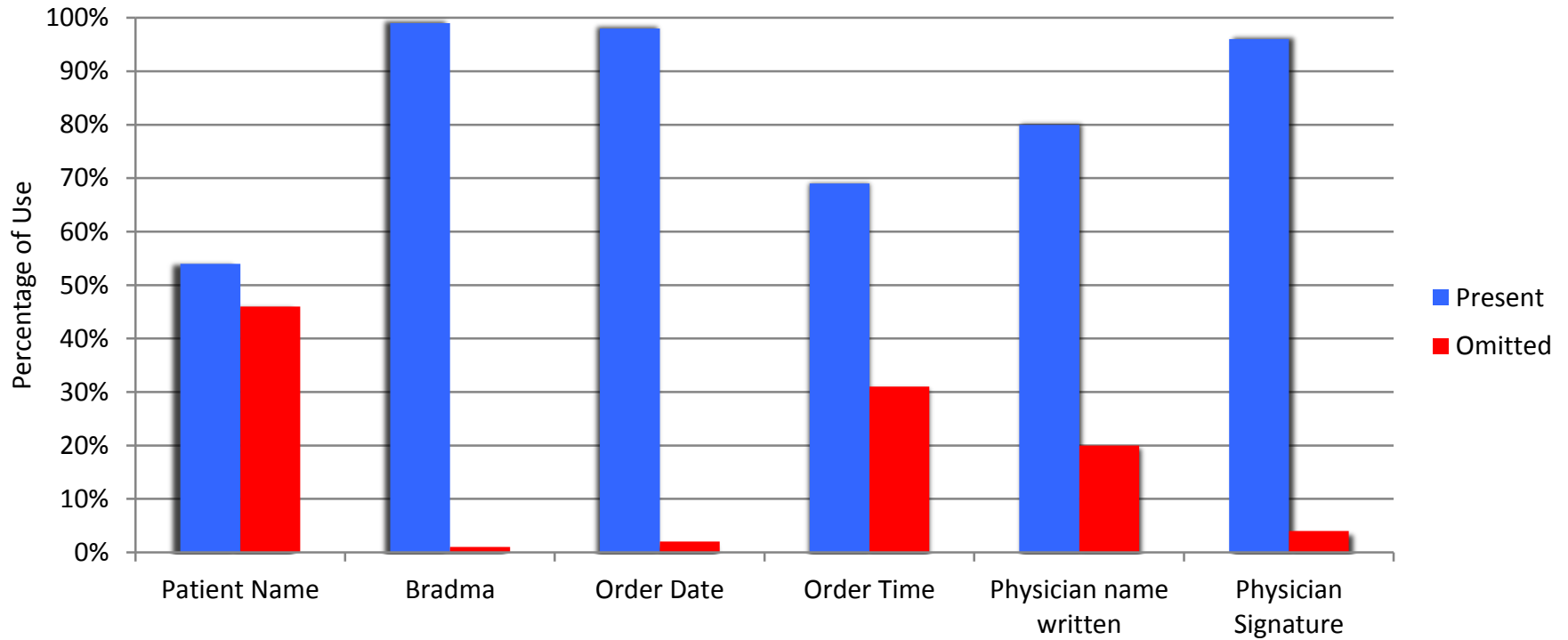
# Number of Order Sets Used

## Women's Health



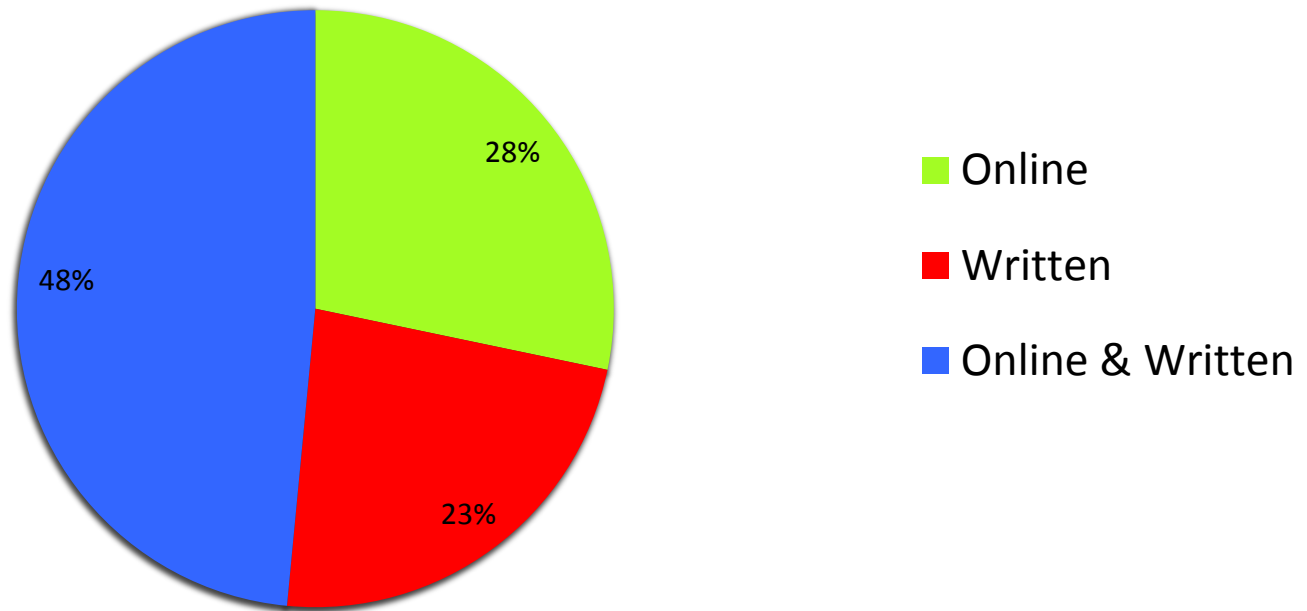
# Order Set Data

## Women's Health

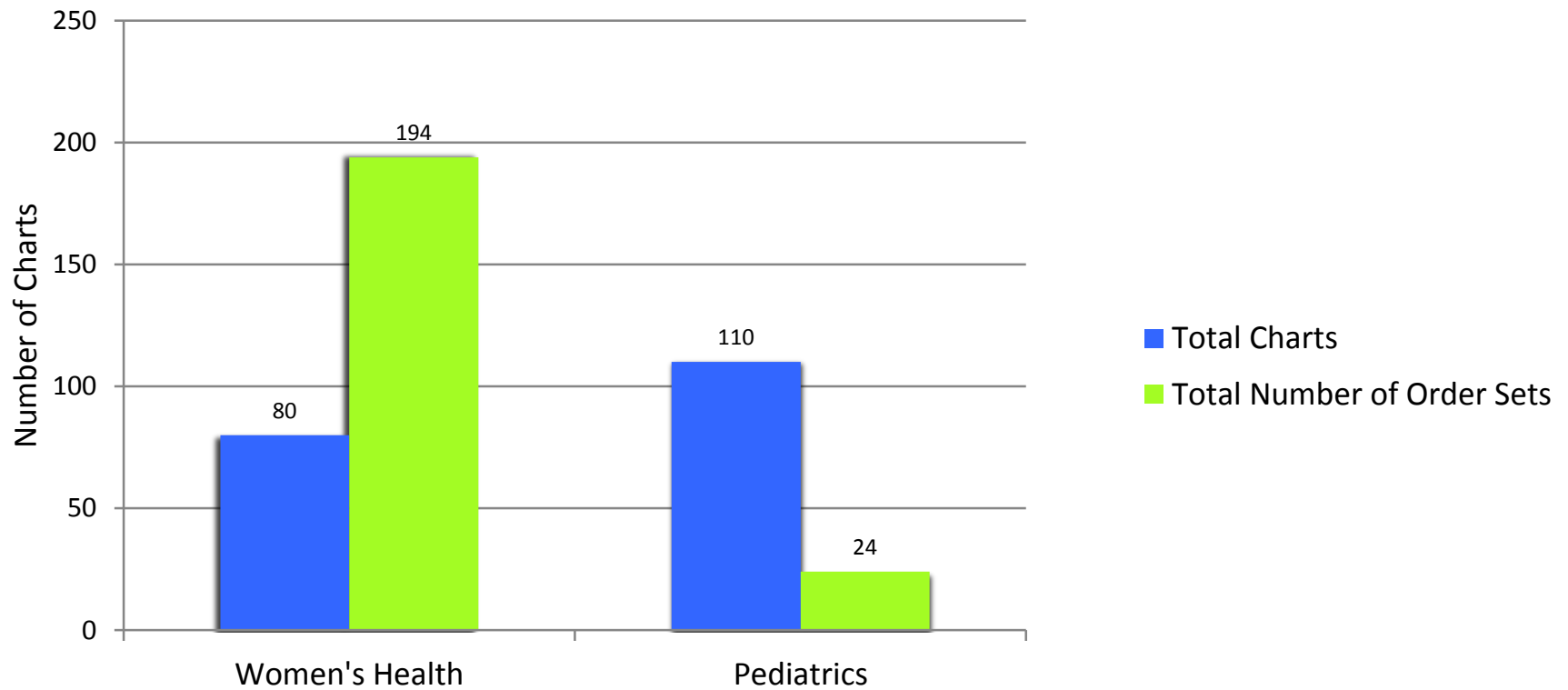


# Method of Completion

## Women's Health



# Pediatrics vs. Women's Health



# 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 on-going 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<sup>st</sup> to March 31<sup>st</sup> 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

# Conclusion

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

# References

- Anderson, M., Baker, M., Bell, R., Ferguson-Pare, M., Lee, L., Musing, E., & Taylor, B. (2006). The business case for patient safety. *Healthcare Quarterly, 10*, 20-25.
- Hamilton Health Sciences. (2010). Electronic order sets at Hamilton Health Sciences (education presentation).