Computerized Physician/Provider Order Entry in Anatomic Pathology: A Single-Center Experience

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Introduction

▸ Computerized physician/provider order entry is common in CP, but not in AP

▸ The reasons behind this are myriad
  ▸ In CP, tests are dictionary-driven; not so in AP
  ▸ No discrete test types in AP – an AP specimen is ordered as "surgical pathology" or "cytopathology", etc.

▸ However, it is known that CPOE in the AP realm would solve many of the problems that plague us today
  ▸ No or inadequate clinical history received
  ▸ Procedure missing or incorrect

Design

▸ CPOE modules linking CoPath and SurgiNet (one in each system) were built and customized in collaboration with Cerner, enabling electronic communication between these two systems

▸ In this system, surgical nurses are responsible for entering patient registration information, surgery type, specimen type, and specimen description into the SurgiNet CPOE module

▸ The module sends this information, along with a complete feed of the patient's clinical documents from the upstream general EMR, to the CoPath CPOE module, where this information is used (a) to manually accession specimens and (b) in case assembly

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Results, round 1

▸ A total of 17924 surgical cases were performed at UPMC-Shadyside in a six month interval, 4403 (25%) of which utilized CPOE

▸ There were 92 adverse events reported among CPOE-enabled surgeries (2%), as opposed to 127 adverse events among non-CPOE-enabled surgeries (1%)

▸ Adverse events due to missing/incorrect patient information, clinical history/procedure and clinician name or other registration issues were completely eliminated in CPOE-enabled surgeries

▸ However, adverse events related to missing/incorrect specimen information, discrepancy between specimen container and paper requisition and truncation of data received by CoPath due to inappropriate character usage during SurgiNet order entry showed sharp increases, together accounting for the vast majority of adverse events reported in CPOE-enabled surgeries
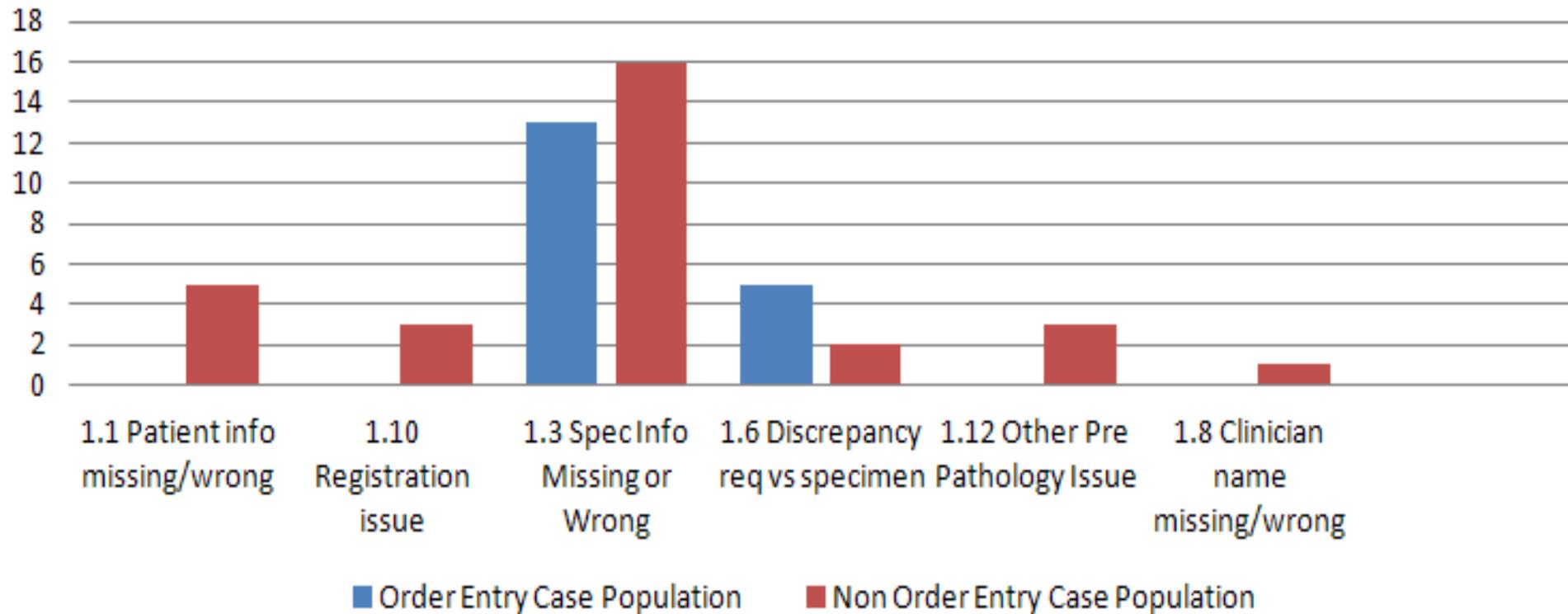
Results, round 2

▸ After this, nurses were trained in AP CPOE and the experiment was repeated …

… and this is what we saw

Post CPOE Implementation

Issues

▶ Due to the novelty of the system, it took longer for surgical pathology specimens to be ordered

    ▶ 2-5 minutes were commonly seen

▶ Though clinical history now always accompanied the requisition, the utility of that clinical history was questionable

▶ There were, especially early on, issues with requisitions being printed from the wrong printers, causing nurses to go chasing after them so that the specimen could be sent to pathology

Conclusions

▶ AP CPOE is feasible and has benefits similar to those seen in CP CPOE

▶ The vast majority (75%) of the errors and adverse events seen in our implementation of AP CPOE were eliminated with proper training of surgical nurses

    ▶ That being said, in effect we are turning surgical nurses into SP accessioners – a large expenditure of time and effort

▶ We will continue to monitor our CPOE system and continue to make improvements

▶ Though AP CPOE is novel at present, further developments in this field are expected

▶ Questions?

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