Technology Foe: Simplifying complex clinical ordering workflows to reduce clinical and clerical burden.

Brent Helgren, MA.[1], Mark Klarich, MBA[2], Steven Haack[3], Angie Griffin[4], Megan Dulohery Scrodin, M.D.[5]

[1]Division of Endocrinology, [2]Division of Strategy, [3]Enterprise Project Management, [4]Clinical Systems Operations, [5]Division of Pulmonary and Critical Care

BACKGROUND

The electronic health record has made great strides with having patient information available. It has also increased the burden of ordering the proper tests for patients. The electronic health record requires clinicians to place orders for other specialties, tests, and labs. This ordering burden creates a unique challenge for referring clinicians when patients need to be seen by a specialty that is outside of their scope of practice. Pulmonary, pulmonary function lab and primary care were selected as specialties that could receive help from a simplification of ordering.

OBJECTIVES

Pulmonary was an identified specialty to reduce complexity and increase accuracy of diagnostic and return orders to reduce burden on referring clinicians. Redesign complex diagnostic testing to guide ordering based on patients' symptoms, diagnoses or other clinical needs. Improve the accuracy of internal consult orders by making consults easier to find and provide guidance to select the correct consult. Primary Care partnered with the project team to improve the ease and accuracy of follow up ordering by using time-based panels for common return visits.

PLANNING/RESEARCH METHODS

A team of subject matter experts were assembled to analyze current state system functionality. This team took part in direct observation, time studies, workflow analyzer and patient appointment reviews in pulmonary and primary care. Data collection occurred over a 90-day period. Care team members took part in workflow and system settings reviews to improve and provide direct feedback on system future state functionality. High referring Clinicians, who were less familiar with the subspecialty testing, were engaged to provide feedback on the new workflow and orders. Their engagement ensured that the design of the pulmonary function lab order would be intuitive for physicians and advanced practice clinicians that work in a different specialty. During the workflow analyzer and observations, it was recognized that primary care would be ordering similar tests for each patient at various time intervals. The data suggested that a significant amount of time was taken to populate the orders for each patient.

IMPLEMENTATION METHOD

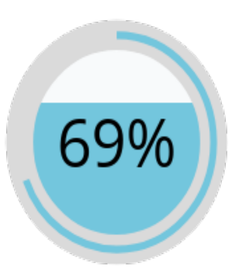
The project team developed a change management strategy using ADKAR and designed electronic health record orders through direct feedback for clinical team end users. Significant engagement from all members of the pulmonary care team had to review current state workflows and future state workflows. The electronic order redesign had a series of meetings that included physicians and advanced practice clinicians from within and outside of pulmonary and primary care, nurses, schedulers and diagnostic testing team members to test functionality of the proposed changes. Changes were evaluated and iterated on before a broader roll out to all end users. A comprehensive communication strategy was developed to ensure end users were informed of the change and how it would affect their routine. Upon completion, data was collected using workflow analyzers and direct observations to reinforce the change and the desired outcome was achieved. Workflow analyzers, direct observations and surveys were used to confirm the changes worked for all members within the referring and receiving practices.

RESULTS

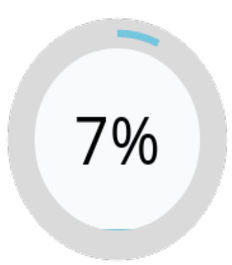
The implementation was successful by having the proper engagement of impacted teams. Gathered data reflects the following improvements:

- Reduction in 30-day retesting by 69%. The data suggests that the right order is being placed the first time and patients are receiving the proper test and not needing to be retested.
- A 7% increase in unique patient test completion in the pulmonary function lab.
- 80% of clinicians surveyed felt the redesign of the system was easier and more intuitive.
- 60% reduction in cognitive-clerical burden with time-based order panel designs.

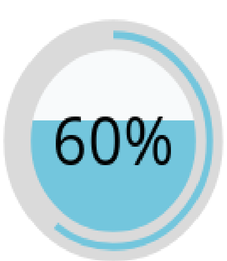
Overall, the project was a success. It has resulted in added resources to implement these changes across other specialties to continue the momentum of reducing administrative and cognitive workloads.



Reduction in 30-Day Re-Testing

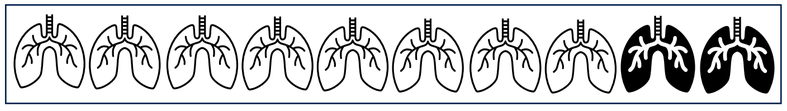


Increased Tests Completed Per Working Day (4 tests per day)



Reduction in Cognitive-Clerical Burden (Calculated via Epic Workflow Analyzer)

A/B Testing (old vs new design) - 8 of 10 providers thought new design was "easier and more intuitive"



CONCLUSIONS

The team discovered that electronic ordering is a complicated process for referring clinicians. By bringing their voices to the table during redesign, the team was able to create a simplified order that still met the needs of the practice, created added and prompt access for patients and reduced the patient's need for retesting.

CONTACT

Brent Helgren, Operations Manager – Helgren.brent@mayo.edu