Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL | The Silverman Institute For Health Care Quality and Safety

# Conversion of Paper Research Chemotherapy Orders to Electronic Orders in Oncology Management System (OMS)

TAP TO GO BACK TO KIOSK MENU

## Introduction/Problem

The Oncology Management System (OMS) is an electronic order entry system for chemotherapy. Research chemotherapy orders were still on paper. Every medical center participating in chemotherapy research studies through Dana Farber/Harvard Cancer Center consortium are required to have electronic chemotherapy order entry.

## Aim/Goal

The primary goal of the project was to convert all research chemotherapy orders from paper to an electronic ordering system (OMS) for all inpatients and outpatients. In doing so the team's aim was to:

- Reduce transcription errors with the use of pre-defined order sets.
- Improve patient safety with better system error checking and interaction checking where possible.
- Improve clinical outcomes by providing better transparency to all treatments a patient has received.
- Improve workflow efficiency and communication between providers (RRNs, RPhs, MDs).

## The Team

- **Robin Joyce**, MD OMS Faculty Lead
- **Will Decaneas**, Administrative Director
- **Rena Lithotomos**, Pharm.D, MSHI, Clinical Coordinator OMS
- **Kevin McKeon**, RPh., BCOP, Clinical Lead OMS
- **Angela Burnham**, Pharm.D, Clinincal Coordinator OMS
- **Jenn Espiritu**, Pharm.D, BCOP, CCTO Clinical Pharmacy Coordinator
- **Joanna Kemp**, RN, BSN, OCN Nursing Director, Clinical Trials Office
- **Peggy (Margaret) Stephan**, M.S., RPh., Director of Pharmacy
- **Heena Patel**, RPh., Research Pharmacy Supervisor
- **Steve Maynard**, C.Ph.T., Pharm Supervisor
- **Lois Hurst**, Information Systems Programmer II
- **David Grosso**, Systems Evolution Inc. (SEI)

## The Interventions

- The team identified the paper orders that need to be converted, met with the principal investigators of the protocols and prioritized which paper orders needed to be converted.
- Developed a set of system requirements needed to enhance the OMS system to accommodate Research Chemotherapy medication orders.
- Worked with our information systems team to design, develop, and test the new system enhancements, focusing on both the back-end building Research Oncology order sets as well as the front-end ordering tools.
- Implemented a new process for building, reviewing, and approving order set in OMS.
- Staff training was provided to all users (RRNs, RPhs, MDs).
- We continue to meet as a team to discuss future enhancements and further refinements to the system.

## Results/Progress to Date

Completed Enhancements:

1. OMS system upgraded to accommodate research oncology orders and the processes they require, including research nurse verification of the orders, modifiable drug rounding parameters based per protocol, development of dose reduction tables, utilization of the regimen notes function to convey that a patient was cleared to be treated mid-cycle.
2. Standardized the research order set in OMS.

## Lessons Learned

- When converting from a paper process to electronic, it is difficult to identify which parts of the process checks were in place because the process was done on paper. It can be hard to identify which elements in the paper process are still critical and must be maintained, changed or eliminated going forward in the new electronic process.
- Initially we focused on a few simple order sets and protocols, which allowed us to test and refine our high-level system requirements and processes. Once we were able to establish these and enhance the system to accommodate requests, we were better prepared to incorporate more complex order sets.
- While the current system covers nearly 90% of all Research oncology order sets, there are some areas that still need further development causing some order sets to remain on paper. Those areas are as follows:
  - Oral chemotherapy dispensed initially as an outpatient prescription or an inpatient on initial admission is crashing eMAR system during inpatient use.
  - Certain protocols mandate use of Adjusted body weight to calculate the dose, regardless of the patient's BMI, but the OMS calculator allows providers to use Adjusted body weight for dose calculation for patients with BMI > 30 only. A request was submitted to the IT team to have the ability to better control the BMI setting.
  - The research nurse (RRN) verification for inpatients currently only requires verification on Day 1 of therapy. For subsequent days, e.g. 2,3 4..etc the system does not alert the RRN to verify. While a manual verification process is in place, a request to the IT team was submitted to correct this.
  - Dose adjustments to the order frequency are required in certain research protocols, due to an OMS limitation, the system does not allow the frequency to be altered for chemotherapy orders. An IT request was submitted to allow OMS team to control altering the frequency at the template level. Extra regimens are currently built for a workaround to this issue.

## Next Steps

- Continue converting paper orders to electronic order sets in OMS. While 90% of research chemotherapy order sets have been converted to the new system there are still 24 protocols that are still on paper.
- Continue to work closely with the IT team for OMS enhancements.

***For more information, contact:***

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