Improving Order Sets at Boston Medical Center
Creating a standard process to increase quality and utilization

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**Background**
Using order sets within an electronic medical record (EMR) has been shown to improve outcomes, including in-hospital mortality, adherence to evidence-based guidelines, and reduction in human error.

However, we found that order set usage was low at Boston Medical Center for various reasons, including:

- Low quality/incorrect order sets
- Difficulty finding the correct order set
- Physician unaware order set exists
- Unclear who to contact for help

The ‘GI Bleed’ (GIB) order set, in particular, had several incorrect and irrelevant orders despite being a potentially high-use order set, and was therefore chosen as a pilot case for improvement.

**Aim**
Design a reproducible, generalizable process to improve Epic Order Set quality and usage at Boston Medical Center by improving usability, and increasing adherence to clinical guidelines.

**Actions Taken**
- **Tracked order set usage** at baseline
- **Conducted resident survey** regarding reasons for low order set usage
- **Performed Root Cause Analysis** for low order set usage
- **Outlined standardized process** to improve any order set used at Boston Medical Center
- **Tested process** on the underutilized GIB order set as pilot case

Changing an order set in the BMC EPIC EHR System

**Results**

**Figure 1. GI Bleed Order Set Usage**

<table>
<thead>
<tr>
<th>Order Set usage (per month)</th>
<th>Aug-Nov ‘14</th>
<th>Apr-Jun ’15</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>104</td>
<td></td>
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</tbody>
</table>

Changes to the GIB order set (Figure 2) included:
- **Removed orders** that were irrelevant, medically incorrect, or already used in a general order set
- **Added orders** that were clinically indicated
- **Added links** to evidence-based medicine resources

The final order set was concise, had standard-of-care orders selected as defaults, contained options for STAT orders, and contributed to evidence-based medical education.

After making these changes, order set usage increased from an average of 20 times per month to 104 times per month, a **420% increase**. (Figure 1)

**Discussion**
- The GIB Order set pilot process resulted in a high quality end product
- Created a reproducible, generalizable process to increase usage of order sets to improve quality of patient care
- Demonstrated that implementing a high quality, easy-to-use interface created a more sustainable impact on order set usage than the previous more costly awareness campaigns

**Future Directions**
- Implement an Awareness Campaign for revised order sets and for increased sustainability
- Create a more defined collaborative role between Residents and EPIC teams
- Expand the process to other order sets across specialties

**References**
1. The Impact of Standardized Order Sets on Quality and Financial Outcomes. David J. Ballard, MD, MSPH, PhD; Gerald Ogola, MS, MPH; Neil S. Fleming, PhD; Dave Heck, MD; Julie Gunderson, RN, BSN, MM; Raaj Mehta; Roger Khetan, MD; Jeffrey D. Kerr, MD