Clinical Safety & Effectiveness
Cohort 16 Team #5

Improve reporting of Code Blue for All Inpatient Units
The Team

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  — James Barker, MD, Medical Director for Clinical Services
AIM Statement

• The aim of this project is to increase the completion and submission of Code Blue audit forms for the Resuscitation Committee for all Code Blue events from 60% to 90% compliance between March 6\textsuperscript{th} through May 15, 2015.

• The process begins when a patient goes into cardiac arrest and ends when the resuscitation committee evaluates each Code Blue case using the audit forms completed by each department.
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<tr>
<th>January</th>
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<td>Interventions Implemented</td>
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Background

- UHS policy doesn’t require calling a **Code Blue overhead**.
  - leads to differences in procedures and outcomes

- Not calling codes overhead leads to inconsistencies in patient care and a lack of accountability in regards to the audit forms.
Importance

- Our project is important because it standardizes the Code Blue process in order to ensure:
  - optimal resuscitative care throughout the hospital,
  - that ACLS guidelines and Joint Commission standards are followed,
  - data to guide resource allocations related to personnel, equipment and supplies used during resuscitations
  - data for research questions
  - that morbidity/mortality can be uniformly tracked from a metrics standpoint
  - Provide information to help answer questions from family members, and to continue patient care
  - reduce the risk of medical litigation
**Start:** Patient with cardiopulmonary arrest

Staff member calls Code Blue. Gives name, situation and location.

Floor team assists

PBX Operator calls Announcement overhead

PBX Operator Activates Everbridge

Code team finds the location

Does the floor team need assistance?

Assignment of roles to floor respondents:
- Recorder
- Someone to draw up drugs (RN)
- Someone to push drugs (RN)
- Person to provide airway (RT for bagging patient, qualified resident to intubate)
- Physician to do procedures (lines, etc.)

Yes: Team leader?

PCC responds (unit patient care coordinator)

Yes: Lead is physician, or team lead from a nearby department

No: If there is no physician or in case of a non-patient: then its the MCCU Resident

Yes: Team documents arrival, then leaves.

No: Team documents arrival, then leaves.

According to UHS Policy Code Blue responders team consist of:
1. Designated Medical Critical Care Unit (MCCU Resident)*
2. Designated Hospitalist*
3. Designated Anesthesia Resident*
4. Respiratory Therapist
5. Pharmacy technician
6. Unit patient care coordinator (PCC) or designee
7. STARS Supervisor/Nursing Supervisor (s)
8. Staff Nurse (s)
9. Protective Services (As needed)

* Must be ACLS and/or PALS qualified

Assignment of roles:
- Recorder
- Someone to draw up drugs (Pharmacy)
- Someone to push drugs (RN)
- Person to provide airway (RT for bagging patient, qualified resident to intubate)
- Physician to do procedures (lines, etc.)

Patient is taken care of.

Code Blue paperwork is filled: Code Blue physician notes, Nursing Note, RT note, pharmacy note and then flowsheet

End: Resuscitation Services Committee receives audit forms
Little or no submission of resuscitation audit forms

People

- Don’t know who is in charge of submitting form
- No standard way of filling out flow sheet
- Form is not done in real time
- Pharmacy role confusion for tackle box
- Don’t know where to submit to

Supplies/Equipment

- Form design is too complex
- Form not clear to read (recopied many times over)

Procedures/Policies

- There is no job breakdown of responsibilities
DATA & INTERVENTIONS
Pre-intervention Data

- **Denominator:** # of Code Blues called overhead as documented by operator system (Everbridge) for floors 5, 7 and 9 of the Sky Tower
  - These floors were selected due to the difficulty of getting the reports
- **Numerator:** # of audit forms completed that matched with codes reported in Everbridge.
- Audit forms are tracked by:
  - Quality Risk Management
  - Resuscitation Committee
### Pre-intervention Data by Units: August 14-January 15

<table>
<thead>
<tr>
<th>Tower</th>
<th>Units</th>
<th>% audit forms completed (events total)</th>
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<tbody>
<tr>
<td>Sky</td>
<td>10NR/10SU</td>
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<tr>
<td></td>
<td>9ACU/9ICU</td>
<td>31% (16 events)</td>
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<td>8ACU/8ICU/8FIMRI</td>
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<td>7ACU/7ICU</td>
<td>0% (1 event)</td>
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<td></td>
<td>6ACU/6ICU</td>
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<td></td>
<td>5ACU/5ICU</td>
<td>73% (26 events)</td>
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<td></td>
<td>EC</td>
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<tr>
<td>Rio</td>
<td>9-Med overflow</td>
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<td></td>
<td>8-CAU</td>
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<td></td>
<td>6-Hem-Onc/Infusion Ctr/CDU</td>
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<td>5-Pedi Dialysis</td>
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<td>4-Women’s Health/L&amp;D/Newborn</td>
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<td>Horizon</td>
<td>Cath Lab</td>
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<td></td>
<td>Non-invasive Cardiology</td>
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<td></td>
<td>Endoscopy</td>
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<td></td>
<td>Radiology/Interventional Radiology</td>
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<td></td>
<td>Rehab (Reeves)</td>
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<td></td>
<td>9-Pedi</td>
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<td>7-Psychiatry</td>
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- Acquiring and analyzing the reports was somewhat difficult and thus we only requested information for these 3 floors.
PLAN: Intervention

• Guided by the results from the cause and effect chart we determined that the biggest issues were found in a lack of knowledge of who, how and where to submit the audit forms to.

• Thus our plan consisted in educating unit directors and managers about the audit forms, and making front-line staff aware of the audit form process.
DO: Implementing the Change

March 6:
Memo sent to UHS directors and educators through Dr. Bryan Alsip

Intermittently:
Face to face meets with directors, PCCs, nurse educators and charge nurses

Last week of March:
First announcements on Crash Carts delivered

April 1:
Baskets with goodies, forms and more announcements were delivered to 7 units

As needed:
Face to face follow-ups with directors, PCCs, nurse educators and charge nurses
Intervention: 
*Crash Cart Reminders*

A total of 100 announcements were placed across the Hospital, in the same area as the crash carts to give personnel a visual cue for signing the audit forms.
Some units like Pedi ICU (left) and Neuro ICU (below) had already posted them...
Intervention: **Nurse Bait**

7 baskets were prepared and placed on different units. The baskets included a sign with the importance of submitting audit forms (left), the forms themselves (right), and both healthy, and not-so-healthy snack.
We hand-delivered one basket at each of the following Sky Tower floors:

- Ground - ED & Trauma
- 5 - MICU
- 6 - Surgical ICU
- 7 - PEDI ICU
- 8 - Neuro ICU
- 9 - Cardiology, Transplant ICU
- 10 – Hem/Onc, Ortho, GYN, Surgery
RESULTS & CONCLUSION
Interventions Strengths

• Strong:
  – Standardizing process
  – Involvement of leadership
  – Removed unnecessary steps

• Intermediate:
  – Enhance communication
CHECK: Results

University Health System - Pre & Post Intervention Data
% Audit Forms Completed on Code Blues - p-Chart

- Overall, we increased the submission rate from an average of 61% to 69%
- On 7 out of 10 weeks we had higher submission rates than the pre-intervention average
### Pre and Post-intervention Data for All Units

<table>
<thead>
<tr>
<th>Tower</th>
<th>Units</th>
<th>Pre-data: % audit forms completed (events total)</th>
<th>Post-data: % audit forms completed (events total)</th>
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</thead>
<tbody>
<tr>
<td>Sky</td>
<td>10NR/10SU</td>
<td></td>
<td>100% (3 events)</td>
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<tr>
<td></td>
<td>9ACU/9ICU</td>
<td>31% (16 events)</td>
<td>42% (7 events)</td>
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<td>8ACU/8ICU/8FIMRI</td>
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<td>0% (1 event)</td>
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<td></td>
<td>5ACU/5ICU</td>
<td>73% (26 events)</td>
<td>82% (17 events)</td>
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<td>EC</td>
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ACT: Sustaining the Results

- **Dr. Garvin**, now has access to Everbridge so as to monitor code blues called overhead as part of her role as Chair of the Resuscitation Committee

- **Ms. Dalia Leal**, assistant at the Quality & Process Improvement Office, now keeps track of audit forms submitted and will soon be trained on Everbridge

- **Sidney Nau**, cross checks both Dalia’s and Dr. Garvin’s lists to determine which units have not submitted audit forms and follows up with them

➢ *Ms. Dalia Leal and her Code Blue notebook*
Return on Investment

• This project’s main return on investment is quality.
  – This is the first step to standardizing care regarding Code Blue events

• However, return on investment could be seen in:
  – Providing information on resource allocation of personnel, equipment and materials for Code Blue events
  – By ensuring ACLS guidelines are appropriately followed thereby decreasing hospital mortality rates
Conclusion

• Gained deeper insight into one of the many processes that take place in our hospital everyday
  – Strengths vs. Weaknesses
  – Partnerships vs. Barriers

• Current Steps:
  – Standardizing Everbridge reports (lack of location information)
  – Code Blue Subcommittee just for reviewing audit forms

• Next steps:
  – Analyzing data from forms to study the outcomes of Code Blue events (i.e. mortality rates)
    • Focus groups are going to take place so as to study the integration of code blue forms within MIDAS tool
  – Process for false alarms
  – Studying the barriers for Code Blue rapid responders
References


• Accessed April 1, 2015: http://www.hasc.org/hospital-emergency-codes
Thank You