4-Minute Drills: Using In-Situ Simulation
What We REALLY Learned

Elizabeth Charitonuk MSN, RN
Kimberly Shank MSN, RN
Objectives

• Understand the impact of in-situ simulation at WellSpan Gettysburg Hospital

• State process improvements made as a result of in-situ simulation for emergency response and the impact on the Code process

• Identify challenges encountered with in-situ simulation
WellSpan at a glance

• 6 respected hospitals
• More than 130 patient care locations
• The regions only Level 1 Regional Resource Trauma Center
• More 15,000 employees
• More than 1,000 members of our medical group
• More that 126 million in charitable uncompensated care
WellSpan Service Sites
Meet WellSpan Gettysburg Hospital
Problem Statement

Emergency response, if not done frequently, is often disorganized with unclear processes and roles thus creating delays potentially impacting patient outcomes.
Understanding the Problem

• “Historically emergency response has been delegated to “code teams” with minimal attention to the immediate response and the process surrounding the care of the patient before their arrival. “

• Prior to 2013, nurses were deemed competent in emergency response during a non-interdisciplinary scheduled session. Skills were validated with return demonstration; however, staff stated that these sessions did not mirror what really occurred on their units.
Why Emergency Response Drills?

• IOM recommends patient safety training to include simulation wherever possible.

• Studies show that BLS skills of hospital nurses are poor and recommend that training is needed to increase skill levels.

• Simulation-based training has demonstrated improved performance at both the individual and the team level.

• Staff requested review of skills and equipment used during a code situation.

(Shear, Greenberg, & Tokarczyk, 2013)
Background

• Skills days
  • Introduction to the concept of simulation for learning
  • Non-punitive environment
• Planned “mock” events
  • Active participation with simulator response to intervention
• Unannounced “4-Minute Drills”
  • Buy in from key stakeholders
    • Senior Leadership
    • ED physicians
    • Anesthesia
    • Hospitalists
    • Nursing leadership
Goal

To increase staff confidence and competence with equipment and processes associated with the first 4 minutes of an emergency response situation in their environment.
Action Plan
Action Plan

• Communication
  • Staff meetings
  • Huddles
  • Shared decision making Councils

• Education
  • Non punitive
  • To be treated as a “Real” code
  • YES.....you are to call the code!
  • YES.....you really shock the patient!
  • Staff must stay for debrief
Scenario

• Patient arrives on your unit complaining of chest pain
• After 2 minutes, patient becomes unresponsive without a pulse (monitor shows V-tach)
• Scenario stopped after 4 minutes of unresponsiveness or after 1st appropriate shock - whichever comes first
• Debrief with focus on positive behaviors, skills, and process improvement
## Competency document

<table>
<thead>
<tr>
<th>Time</th>
<th>Correct Critical Actions</th>
<th>Incorrect Critical Actions</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prompt required</td>
<td>Obtain history/report if relevant</td>
<td>No history/report obtained</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assess ABC's primary/secondary assessment</td>
<td>Only partial ABC assessment obtained</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assess vital signs</td>
<td>No vital signs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Determine instability</td>
<td>Does not recognize instability</td>
<td></td>
</tr>
</tbody>
</table>

2. Call for help/get assistance

- Uses Call bell for help
- Yells out for help
- Uses Ascom to call for help
- Pushes Code button to call for help
- Delegates staff for help
- No history/report obtained
- Only partial ABC assessment obtained
- No vital signs
- Does not recognize instability

3. Mannequin becomes unresponsive

4. Staff establishes unresponsiveness | ≤ 30 seconds | Not done |  |
| | > 30 seconds |  |

5. Calls Code to operator | Identifies area/room number | Does not call |  |
| | | Does not identify area/room number |  |

6. Patient positioned/Backboard

- Patient in a flat/supine position
- Backboard placed prior to chest compressions
- Backboard placed shortly after compressions
- Patient not laid flat
- No backboard placed
- Prompt required

7. CPR initiated

- ≤ 60 seconds
  - "Hard and fast": rate 100/minute
  - 30:2 ratio with bag valve mask
- > 60 seconds
  - Inadequate rate/depth
  - No synchronization with bag valve mask

8. Respiration/Bag valve mask/facemask to O₂

- Time to 1st assisted ventilation ≤ 1 minute
  - Head chin tilt or jaw thrust
  - Mask positioned correctly
  - Established chest rise
  - Full expansion of bag
  - BVM attached to oxygen
  - Oxygen turned to 15 liters
- Time to 1st assisted ventilation > 1 minute
  - Absence of Head chin tilt
  - Mask positioned incorrectly
  - Chest rise not established
  - Bag partially expanded
  - BVM not attached to oxygen
  - Oxygen not turned to 15 liters

9. Airway Equipment

- Efficient use of airway equipment
- Challenges with use of airway equipment

10. Code cart arrival

11. Power on Defib machine

- Turn to Defib mode
- Turn to monitor

12. Pads placed

- Proper placement
  - No interruption in CPR
- Improperly placed
  - CPR interrupted to place pads

13. Connect pads to defibrillator

- No interruption in CPR
  - Efficient connection process
  - Equipment working properly
- CPR interrupted
  - Challenges with connection process
  - Equipment problems

14. Shock delivered Safety

- Visual "All Clear" Check
  - No visual "All Clear" Check
- Verbalize "All Clear" Check
  - No Verbalization of "All Clear" Check
- 1st shock ≤ 3 minutes
  - 1st shock > 3 minutes

Prompt required
Results

• Increased staff comfort and competence
• Decrease in response times for select data points including
  • Code cart arrival
  • Initiation of CPR
  • Initiation of airway maneuvers
  • Time to defibrillation
• Increased staff satisfaction with the competency
Results

AVERAGE TIME TO INITIATE CPR

- 1:13 (2014)
- 1:21 (2015)
- 1:08 (2016)
Results

MEDIAN TIME FOR CODE CART ARRIVAL

2014  2015  2016
Results

MEDIAN TIME TO DEFIB

- 2014: 4:00
- 2015: 3:47
- 2016: 3:28
Results

% OF DEFIB >= 4:00

- 2014: 53%
- 2015: 44%
- 2016: 22%
What we REALLY learned

• The more we listened to staff’s input, more opportunities were uncovered

• Responding to staff’s input increased engagement

• Process improvement opportunities were uncovered that impacted not only skills but time wasted
Process Improvement

• Step stools added to code cart
• Improvement of response times for coverage of other units
• Increased engagement of staff and physicians
• Increased teamwork and clarity of roles in emergency response
• Increased interdisciplinary education/collaboration
Step Stools Added to Code Carts
Process Improvements

• Equipment
  • Operation of monitor and defibrillator
  • Accessibility and use of ambu-bags
  • Reorganization of the code carts
  • Alarm management initiatives

• Great catches
  • Backup microphones
  • Code notification in Cardiovascular services
  • Education changes to switchboard operator orientation to facilitate rapid code notification
Process Improvements

• AEDs placed on ground floor of hospital
Process Improvements

• 4-minute drills expanded to other entities as a result of program success at WellSpan Gettysburg Hospital
  • WellSpan Surgery and Rehabilitation Hospital
  • WellSpan Good Samaritan Hospital
  • WellSpan York Hospital
  • WellSpan Medical Group
What made these Drills So Impactful?

• Brought the learning to the staff
  • Their unit
  • Their equipment
  • Their team

• Debrief….Debrief…Debrief
  • How do you think it went?
  • Celebrated the positives
  • Asked why....and what could be done to improve for delays
  • Followed through on suggestions
Challenges
Challenges

• Coordination of drill
  • Nursing Supervisor
  • Hospital Census
    • Emergency Department increasing volume
      • ED physician response
    • Inpatient surges
    • Staffing
• Interdisciplinary buy in
• Past experiences with simulation
What's Next?

• Moderate sedation competencies
• Mock stroke
  • First 10 minutes
  • Testing of standard work from onset of symptoms through administration of TPA
References

• Shear, T, Greenberg, S, Tokarczyk; Does Training with Human Patient Simulation Translate to Improved Patient Safety and Outcome? 2013 26:159-163.

Questions?