Can you improve the performance of your code team?

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And the PICU staff…
To quote Dickens…

It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness…

And we will definitely get back to these points!!
Imagine if you will…

An aviation team interviewing a code blue team
In your code blue scenarios…

‘Is everyone involved standing in the same place each time?’

‘Is the equipment and supplies available in the same fashion each time?’

‘Do individuals assume standard roles?’

‘Are standardized procedures and instructions used?’

‘If things go wrong, does a systematic checklist get used to correct the error?’

‘is the most junior person on your team acknowledged with credibility if s/he reports something is wrong?’
They’d be back to exercise and vitamins… (in no time!)
The best of times…

- Lots of expertise
  - Team of experts vs. expert team

- Good people who want to do the right thing
  - Intentions vs actions
  - site wide improvements recently implemented

- Survey
  - Perceptions vs realities
  - we can do better
System Strengths

• Resuscitation training
  – BLS, PALS, ACLS
• Team credentials established
• Patient customized medication sheets
  – Emergency meds pre calculated and confirmed on admission
Site wide improvements

- Resuscitation notification process
- Crash cart reduction & standardization
- Reduced drug wastage and standardized drug kits
- Resuscitation record updated
- Communication strategies (site wide distribution/media site)
- Site mock codes

### RESUSCITATION NOTIFICATION PROCESS

<table>
<thead>
<tr>
<th></th>
<th>Dial “33” on the telephone &amp; STATE the following information below:</th>
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<tbody>
<tr>
<td>B</td>
<td>CODE BLUE OR Newborn Resuscitation Team (Infant BCWI/Neonatal ONLY)</td>
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</table>
| C | Infant or Child  
  Adult  
  Obstetric  
  STAT (Dial 7588 for a 2nd Team)  |
| D | C&W Buildings:  
  - Ambulatory Care Building (ACB)  
  - Children’s Hospital (CH)  
  - Shaughnessy Building (SHY)  
  - Women’s Hospital (WH)  
  - Mental Health (MH) |
| E | Department and Physical Location:  
  - Area name, clinic name & room number |
| F | Ask Operator to Repeat Information |

Please call SECURITY & PROTECTION SERVICES (dial 899) and initiate a 911 call (dial 9 – 911) for CODE BLUE in the following areas:

- Heather House
- Child and Family Clinic
- Surrey Hill Health Center
- Parking lots or separate areas
- Child and Family Research Institute
- Critical Care
- Obstetric
- Ortho Centre
- Brock Centre

The nearest crash cart to your location is: ________________
Alternative location: ________________

In the event of telephone system failure (no dial tone), use the ALTERNATIVE TELEPHONE/STENOFOON DIRECTORY as outlined in the Emergency/Disaster Management response:

CODE BLUE Newborn Resuscitation Team – Protocol #21

1. From a dialled phone: pay phone on cell phone, use 911 – 219 9112 (do not dial 9 for outside line)
2. From a MINITEL dial 911 – Push 6 to talk, release to listen, “O” to end the call.

Accessing 911

From a dialled phone, pay phone or cell phone, use 911 (do not dial 9 for outside line)
Policy Updated

- Engagement of practice leader to clean up numbers of code blue policies…
  - there were 8 that we knew about!
  - More show up all the time in individual programs… as do additional crash carts!
  - WOP… cleaning up this process.

Goal = one policy for code blue site wide
Site wide mock codes

- How will we know we have made an improvement?
  - Improved performance (roles, communication, activation) during real resuscitation situations

- What changes ideas do we have?
  - Regular schedule of mock codes (wards & PICU)
  - Process improvements (templates, roles defined, engagement of hospital staff, evaluation and data collection)

<table>
<thead>
<tr>
<th>Mock Code Schedule 2011</th>
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<tr>
<td>(Wednesdays - sometime between 13 and 1500)</td>
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<td>February 23, 2011</td>
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Improvements

• Majority of scheduled mocks have been completed (improvement from ~ 50% anecdotally)
• Attitude towards participation improved (and continues to do so)
• Value of ‘insitu’ mocks and using simulator have been identified by various teams
• Improvements in team work and communication have been the most recognized benefit of mock codes both on ward and in PICU
Improvement Ideas

• Roles
  – Role clarity
  – ↑ situational awareness by asking for help
  – In the PICU → getting CN and A&R to bedside

• Communication
  – Closed loop
  – Use of SBAR

• Treatment delays
  – Time to establish stable airways (intubation)
  – Calling resuscitation team

• Procedures/skills
  – Vascular access
  – ECLS activation

• By the Mock Code facilitators:
  – ‘acceptance’ of the realism of the situation
  – Orientation to the simulation (some participants still ‘pretending’ to give meds, call physicians, etc.) to reinforce expectations and enhance realism
Challenges with mocks

• Making it a priority/mandatory learning experience (not getting lost in the ‘busyness’)

• Realism
  – People assigned to ‘role’ needs to participate otherwise role confusion occurs
  – Improvements gained in having people perform in ‘true’ roles

• Participation
  – Continues to be culture of ‘optional’ by some team members
  – Increase numbers of participants

• Feedback/debriefing
  – Identifying and closing performance gaps

• Timing
  – Creating opportunities for night shift scenarios
Resuscitation Questionnaire

• In a resuscitation situation:
  – I am comfortable with my role on the resuscitation team
  – I am comfortable and confident with documentation
  – I am able to accurately prepare medications
  – I am able to effectively provide chest compressions
  – I am able to effectively maintain an airway and ventilate a patient
  – I am comfortable in identifying patients who are deteriorating
  – I can mobilize a resuscitation team to a patient’s bed spot
  – I am familiar with PALS algorithms
Resuscitation Questionnaire

• In the resuscitation situations that I have been involved in the PICU there was:
  – Clear roles and responsibilities established ✓
  – Clear messages delivered ✓
  – Closed loop communication occurring ✓
  – Knowledge sharing amongst the team
  – Individual awareness of each members limitations
  – Appropriate interventions
  – Re-evaluation and summarizing occurring
  – Respect amongst team members
Resuscitation Questionnaire

• Which skills would you most benefit to review:
  – Bag/mask ventilation
  – Ventilation with ETT
  – Chest compressions
  – Medication preparations
  – Vascular access
  – Communication
  – documentation
The worst of times…

- Repeat the same mistakes
  … and failure to recognize how ‘could be better’
  – Same issues surfaced during codes (patient safety events and moral distress)

- Team of experts vs. expert team
  – Lots of expertise… yet, team functioning could improve
  – Critical mistakes were made

- Process
  – Standardization required!!
Age of wisdom…

- Resuscitation research
- Resuscitation education
- Simulation
What we know…

- Crisis event simulation identifies targets for educational interventions to improve outcomes  
  Daniels, et al. Simulation in Healthcare, 2008

- Simulation is associated with improvements in survival rates following cardiopulmonary arrest  
  Andreataa, et al. Pediatric Critical Care Medicine, June 2010

- Performance improvement, quality of care and maintaining competency should be the focus of education of resuscitation teams
Age of foolishness…

• What are we waiting for ??
• We know what works and…yet…some bad habits still prevailed
Team Survey

• Quiz designed to highlight the update on new PALS guidelines and close some performance gaps
  – Prize was a new PALS card!
• questionnaire
  – plan was to compare self ratings to observations
Observations

- **Self ratings**
  - Always or almost always comfortable with
    - Role
    - Documentation
    - Chest compressions
    - a/w and ventilation
    - Identifying patients who are deteriorating
    - Mobilize resusc team to bedside
    - Familiar with PALS algorithm

- **What we observed**
  - Roles were often ambiguous and people were multitasking outside their particular assumed role
  - Documentation didn’t meet the standard and processes were deviated from
  - Chest compressions (rate and depth deviations from BLS standards)
  - Medications
    - Dribble epi (diluted)
    - Meds to patient posed issues
Observations

• Survey
  – In resuscitation situations that I have been involved in... usually and most of the time
    • Clear roles and responsibilities
    • Clear messages
    • Knowledge sharing
    • Aware of each team members limitation
    • Appropriate interventions
    • Re evaluation and summarizing
    • Respect amongst team

  not very often
    • Closed loop communication

• What we observed
  – Roles need standardization
  – Communication was less than ideal as an observer
  – Not all on the same page
  – Summarizing ought to be more frequent
  – Respect is never an issue when you are observed but gossip and post event recall by team members suggests respect doesn’t always operate when adrenaline is pumping through your viens...
Observations

• Survey
  – Skills most beneficial to review…
    • Bag mask ventilation
    • Vascular access
    • Communication

• What we observed
  – All resuscitation skills had performance issues/gaps that required addressing
  – Simulations revealed system weaknesses that required addressing
Who do we need?

- Standard code team organization was required
  - Physician team leader
  - Airway/Ventilation
  - Compressions (and compression relief)
  - Bedside Nurse
  - Recorder
  - Med/fluid nurse #1
  - Med/fluid nurse #2
  - Team leader nursing
  - Runner
  - Communication relay
Standardized Roles

- Standard roles defined
- Placement determined by priority of proximity to patient
- Standard placement of each team member to keep them focus on their role
Name tags everyone...

Team Leader Nursing

Team Leader – Nursing
Who? Charge Nurse

- Ensures Crash Cart retrieved and positioned outside room
- Attaches defibrillator pads & cable to patient
- Ensures roles are assigned
- Support code team roles
- Delegates to runners to ensure adequate supplies
- Delegate notification of parents
- Liaise with members outside room (OR team, ECLS team) and assigns a ‘setup area’ for preparation of pump/OR supplies
- Fill in gaps as required
Standard Roles

• Standard roles assigned in the pre-brief
• Time provided for team members to familiarize self with role
Closing gaps... role clarity and fixing some challenges

Bedside Nurse (Set Up)

- Assess patient - **determine resuscitation team needed**
- Pull **call bell**
- Address most life threatening issue (Starts manual ventilation or compressions as appropriate)
- Establish access (push port)
- Medication and fluid administration as per physician team leader direction

Bedside Nurse (set up)
Who? Patient’s nurse or break relief nurse
Reduce delays...

- Get the right people to the scene
  - Standard process
  - Assigned to 'communication' team member
  - Job aide created

**UNIT CLERK CHECKLIST for CODE BLUES:**

- Confirm & overhead announce location of the Code Blue
- **IF REQUESTED, DIAL 33 AND CALL AN ECMO CODE:**
  - [Once that is done, the people listed below are automatically paged by paging and notified of ECMO]
  - **Called back at:**
    - ICU attending
    - Cardiac Surgeon
    - Perfusionist
    - ECLS OR nurse
    - OR charge nurse
    - Blood bank
    - ECLS Team Leader

- **FOR ALL CODES:**
  - Call break room and notify of Code Blue
  - Call KT back from break (41-01002)
  - Call porters and care aides to unit
  - If not in unit, notify charge RN (41-01008) and A&R (41-01009).
  - Call any other services if requested:
    - Service called
    - Called back at
    - ____________
    - ____________
    - ____________
    - ____________

- Notify ICU MD as callbacks are received.
- Do not allow entry of new parents into unit during a code
- Have parent contact information available for charge RN
Why fight the crash cart?

• Configuration of monitor/defibrillator
  – Awkward for staff to work
  – Poor visualization by team leader when team accessing drawers

• ** team performance was hindered by crash cart orientation
Make it your friend!!

- Orientation of monitor/defibrillator adjusted
  - Monitor positioned towards patient
  - Drawers facing out facilitated better access by team
  - Med team better access to cart
The case against practice creep?

• What was ‘dribble epi’ all about?
  – epinephrine to 1: 100 000
  – Close the gap
    • Validation of understanding (quiz)
    • conversations
Use of Simulation

• Experiential Learning
• High fidelity simulation
  – PALS scenarios
  – Recreate deteriorating child and arrest scenarios (case based specific to our unit)
Use of Simulation

• Focus on low incidence, high risk situations
  – Cardiac
  – ECLS
• Teamwork competencies improved
• Communication
• Reflection
• Requests for additional simulation work
Moving forward… Audits

- Quality review
  - Audits for quality during mock scenarios

- Inform the project
Moving forward… training video

• Specific code blue roles reviewed
  – Zoom in on each role
• Positive examples of communication
• Focused on team function
Lessons Learned

• Things take time… change requires patience and persistence
  – Would you just leave the monitor the way it is!!
• Low incidence, high risk scenarios
  – Most valued simulation learning
  – Realistic high fidelity simulations – appreciated most
• Communication, communication, communication
  – Skill development of communication skill = improved outcomes and respect amongst team
• Small changes = some big wins
  – Positive feedback reinforced utility
• Debrief requires a skilled facilitator
  – Quality questions
  – Performance gaps
  – Reflection and critical thinking
Thank You!!

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