ECPR M…
SIM…
ICU…
VIDE…

MEGMO

Ashley Hodge MBA, CCP, FPP
Associate Chief, Perfusion Services,
CT Surgery Quality and Safety Officer

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No Disclosures

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Goals

- Perform a high fidelity ECPR simulation scenario in a multidisciplinary setting
- Evaluate change between pre and post-simulation surveys to staff
- Effectively debrief the MCS specialist from the first person view.
- Improve ECLS initiation time of ≤ 30 minutes

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Team

- 4 CT Surgeons
- 6 Perfusionists
- 9 Dedicated OR-RN
- 8 MCS Specialists 24/7
- 14 RN bedside specialists
- 10 CTICU MDs
- 12 CTICU APNs

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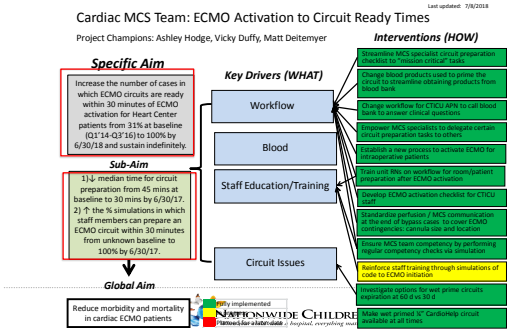

Interventions

- October 2015
  - Team Split
- February 2016
  - MCS trained on priming
- April 2016
  - Bedside nurses received ECMO training
- March 2017
  - Simulation training with whole CTICU
- Q3 2017
  - Mega code simulation with google glass recording
- September 2018
  - New RN training class

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CTICU Nursing Skills Day

- RN skills day occur quarterly in the CTICU
  - All skills day include a mock code scenario
- Q3 in 2017 was dedicated for a mock code that progressed to ECPR to ECMO activation and initiation

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CTICU Nursing Skills Day

- Collaboration amongst
  - RN
  - RRT
  - APN
  - CTICU Attending
  - MCS Team
  - Dispatching Center
  - Blood Bank
  - Cardiovascular Perfusion
  - Cardiothoracic Surgery OR Nursing
  - Cardiothoracic Surgeon

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Agenda

- Pre-Survey
- 1 hour lecture on ECMO activation and initial patient management that focused on patient and room readiness
- Mock ECPR scenario
  - Debrief
    - Real Time with whole multidisciplinary team
    - Individual with ECMO Specialist from the first person
  - Post-survey

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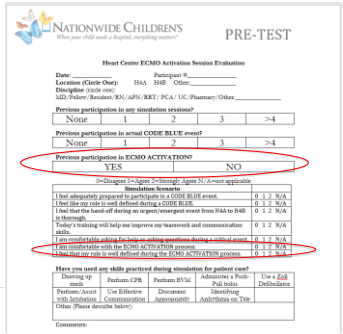

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PRE-TEST

Heart Center ECMO Activation Session Evaluation

Date:____ Participant #:_____
Location (Circle One): H4A H4B Other:_____
Discipline (circle one):
MD/Fellow/Resident/RN/APN/RRT/ PCA/ UC/Pharmacy/Other:_____

Previous participation in any simulation sessions?

None	1	2	3	>4

Previous participation in actual CODE BLUE event?

None	1	2	3	>4

Previous participation in ECMO ACTIVATION?

YES	NO

0=Disagree 1=Agree 2=Strongly Agree N/A=not applicable

Simulation Scenario	
I feel adequately prepared to participate in a CODE BLUE event.	0 1 2 N/A
I feel like my role is well defined during a CODE BLUE.	0 1 2 N/A
I feel that the hand-off during an urgent/emergent event from H4A to H4B is thorough.	0 1 2 N/A
Today's training will help me improve my teamwork and communication skills.	0 1 2 N/A
I am comfortable asking for help or asking questions during a critical event.	0 1 2 N/A
I am comfortable with the ECMO ACTIVATION process.	0 1 2 N/A
I feel that my role is well defined during the ECMO ACTIVATION process	0 1 2 N/A

Have you used any skills practiced during simulation for patient care?

Drawing up meds	Perform CPR	Perform BVM	Administer a Push-Pull bolus	Use a Zoll Defibrillator
Perform/Assist with Intubation	Use Effective Communication	Document Appropriately	Identifying Arrhythmia on Tele	
Other [Please describe below]:				

Comments:

Agenda

PATIENT INFORMATION:

HPI: Johnny Smith is a 1 month old infant who was initially admitted at 15 days of life with respiratory distress. At that time, found to have cardiomyopathy. After stabilization with milrinone infusion in the CTICU, patient was successfully transitioned to enteral heart failure regimen. Discharged home at 25 days of age.
Over the preceding 36 hours, has had progressive loss of appetite, increased spitting up. Over the past 8 hours, taking decreased PO and with small emesis with every feed. Has been somewhat fussy, but otherwise acting normally.

MEDS: carvedilol, enalapril, spironolactone, furosemide, aspirin
ALL: NKDA

Practitioner sign out: Admitted to H4A yesterday. Clinically, he was warm and well perfused. Mildly tachypneic with normal work of breathing. Overnight / This Morning, has been more fussy, modest increase in RR. Not interested in taking PO at all, so IV fluids started 6 hours ago.

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Agenda

SUMMARY FOR SIMULATION OPERATOR

Expected Simulation Run Time: 80 minutes

Debriefing Time: 45 minutes

Age: 1 month
Weight: 4 kg
Complete Scenario Progression (for operator only):

- **H4A: Ectopy → VT → VF → CPR & Intubation → ROSC → Transfer to H4B**
- **H4B: Ectopy → VT → VF → CPR → ECMO Activation → Cannulation/initiation → Stabilization**

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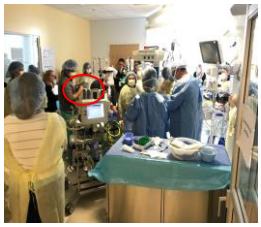
Megacode



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Pre and Post-Survey Questions

	Pre Survey			Post Survey			
Survey Questions	Disagree	Agree	Strongly Agree	Disagree	Agree	Strongly Agree	p-value
Adequately prepared for code blue	0	28%	72%	0	12%	88%	0.0003
Role well-defined for code blue	0	32%	67%	1%	17%	81%	0.03
Thorough handoff H4A to H4B	23%	57%	20%	7%	49%	44%	<0.0001
Improve teamwork & communications	1%	13%	86%	0	9%	91%	0.34
Comfortable asking for help	0	28%	72%	0	17%	83%	0.05
Comfortable with ECMO activation	34%	41%	25%	1%	46%	52%	<0.0001
Role well-defined for ECMO	22%	43%	35%	3%	30%	68%	<0.0001

Post Survey Questions	Disagree	Agree	Strongly Agree
Training better prepared me to manage similar situation real patient	0	15%	85%
Developed better understanding medications used	1%	17%	82%
Expanded clinical knowledge and critical thinking	0	17%	83%
Group discussion/debriefing provided insights collaboration	0	23%	87%

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MCS Specialist Evaluation

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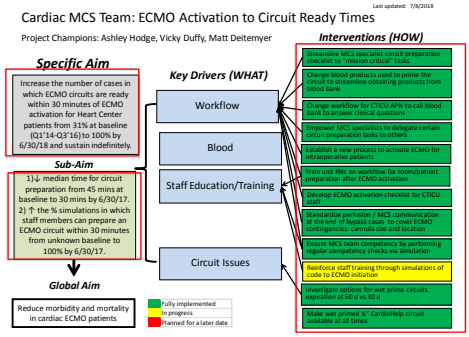

Google Glass for MCS Specialist

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First Person Video During ECMO Prime

- Difficult to capture ECMO specialist role independently of room recording during a megacode
- Allows for first person video assisted debriefing throughout the activation process
- Identifies variability among staff
- Able to individually identify
  - Strengths
  - Areas for improvement
  - Areas that may have been overlooked
  - Time saving measures

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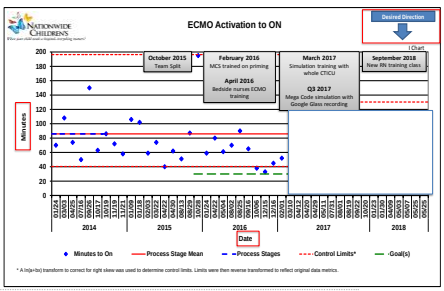
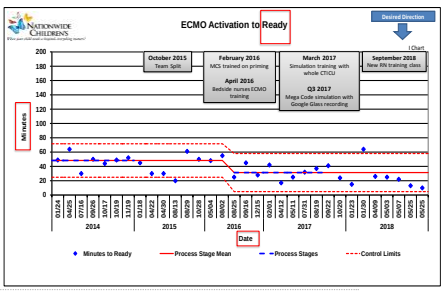
In All Seriousness….

- First person video debriefing was well received among the MCS team despite some initial hesitation
- Ability to review and debrief from the first person was a unique and valuable tool for our simulation team
- Our CTICU simulation team will begin using additional first person video debriefing for unit-wide megacode simulation from various views of the multidisciplinary team

Team Feedback

"Recently I participated in an ECMO simulation where my role was the charge nurse. I am a newer charge nurse on the unit and have not been in charge during an ECMO activation. Within two weeks after the ECMO simulation, I was in the role of charge nurse when a patient arrested onto ECMO. To say that the simulation helped prepare me as a charge nurse for the ECMO activation would be an understatement."





Data- Future Directions

- Multiple events occurring concurrently
  - Data has been broken down independently
  - Creates projects inside of projects

Thank You!

ECPR MEGACODE SIMULATION IN A CARDIAC ICU WITH FIRST PERSON VIDEO DEBRIEFING

Ashley Hodge MBA, CCP, FPP
Associate Chief, Perfusion Services,
CT Surgery Quality and Safety Officer