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Analyzing the Effects of Simulation on Emergency Nursing Education Outcomes: Mass Transfusion Protocol (MTP) and a Rapid Infusion Method.

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Disclosures

There has been no involvement in the past 24 months with healthcare entities other than our employer, Children's Medical Center.

No financial relationships with ineligible companies are reported by either the planners or presenters of this program.


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Macy is a Clinical Manager at Children's Health. She has 12 years as a pediatric emergency room nurse in various level 1 trauma facilities. She was formally the ED clinical Educator for 5 years.



Kristin Rollins, BSN, RN, CPEN

Kristin is a Clinical Educator for Children's Health. She has been a certified emergency room nurse for a level 1 trauma center for the last 17 years. She has been a clinical educator for 2 years.

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agenda

- 1 Background
- 2 Process & Education
- 3 Simulation
- 4 Outcomes, Barriers, and Lessons Learned

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Learning Objectives

1. Identify knowledge and practice gaps within your organization, which can be addressed by psychomotor learning in multidisciplinary simulations.
2. Develop and utilize simulation that will disseminate applicable education for multidisciplinary teams.
3. Identify methods of gathering data to support Kirkpatrick level 3 and level 4 outcomes.

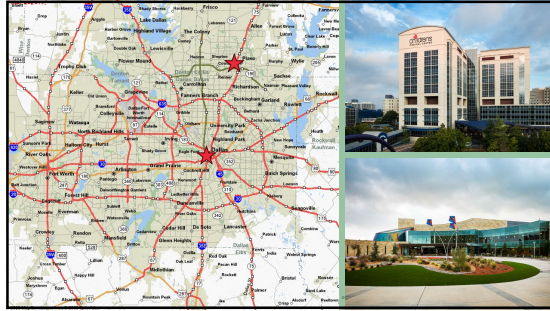
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Background

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Case Study

Scenario: 6-year-old M no PMH, arrived via POV by parent with GSW to L upper arm and chest. Mother reports injuries occurred 20 minutes ago in a drive-by shooting. Child reports pain to L arm. No medications or known allergies per Mom.

GENERAL: Anxious, Agitated
 AIRWAY: Intact
 CIRCULATION: Pale, cap refill 4 seconds, thready pulse
 Labs: POC Hgb- 7

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Join by Web: [PollEv.com/macyackermann332](https://pollEv.com/macyackermann332)

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What type of shock do you anticipate and what are priority interventions for this patient?

Nobody has responded yet.

Hang tight! Responses are coming in.

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Mass Transfusion Protocol - (MTP)

Products & Weight-Based Ratios

MTP Patient Guidelines	
□ Patient weight <10kg	1:1 ratio of RBCs, plasma, and platelets
□ Patient weight 10 – 40kg	2 RBCs, 2 plasma, 1 platelet Consider 5 cryoprecipitate every other pack starting with pack 2
□ Patient weight >40kg	5 RBCs, 5 plasma, 1 platelet Consider 10 cryoprecipitate every other pack starting with pack 2

MTP consists of RBC's, Plasma, & Platelets
Can also contain Cryoprecipitate if giving more than 1 pack.

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Gaps Identified

- Knowledge of MTP components & process
- Delayed initiation & escalation of MTP
- Comprehension of blood bank workflows
- Competence & comfort level in high-risk, low volume skill

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Process & Education-ADDIE


Analysis Phase

- Identify existing knowledge
- Consultation with blood bank
- Data Review
- Determine desired outcomes & timeline
- Consider training delivery options
- Barriers to train
- Determine evaluation techniques

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Process and Education – Design




Cognitive

- Didactic Approach
- Policy Review
- Produce and Create Quick Reference Guides



Affective

- Created "Day in the Life of Blood Bank, MTP Timer"
- Role Delineation
- Proper Communication




Psychomotor

- Quarterly Skill Stations
- In Situ Simulations
- MTP Drills

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Psychomotor Ability × Amount of Practice = Proficiency in Motor Skill

Psychomotor learning is the relationship between cognitive functions and physical movement, and it involves demonstration of physical skills such as movement, coordination, dexterity, grace, strength, and speed.

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Planning a Multidisciplinary Simulation Event



- Identify objectives for simulation
- Identify participating groups.
- Author simulation document
- Pilot simulation in the appropriate setting.
- Planning logistics
- Carrying out sessions
- Evaluated outcomes

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Development - Simulation

Multidisciplinary In Situ Simulation: A penetrating trauma w/ hemorrhagic shock



- Identify life threatening injuries, STOP the BLEED
- Participants completed trauma primary and secondary assessments
- Timely identify indications of hemorrhagic shock
- Early escalation and activation of MTP process
- Active participation of Blood Bank department to facilitate drill
- Appropriate rapid transfusion device selection
- Administration of MTP components by ED RN staff

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Process & Education - Simulation Development PLANO CAMPUS

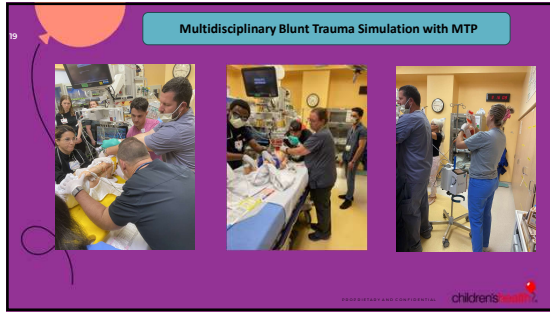
A Similar Trauma Simulation was developed for the Plano Campus after a second analysis was completed.

A Multidisciplinary Blunt Trauma In Situ Simulation:

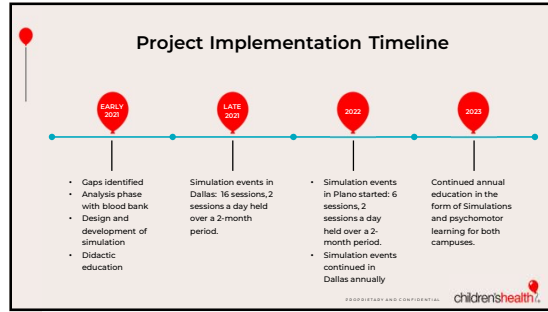
As part of the simulation, the blood bank and ER participated in an actual MTP drill.

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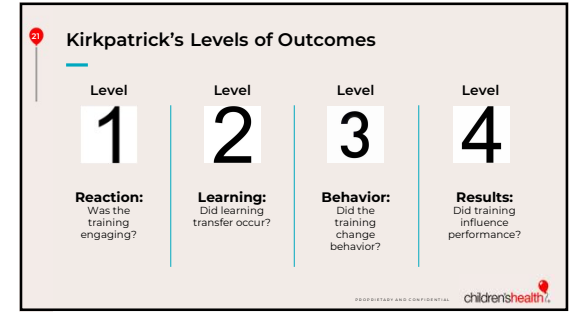
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Evaluation Methods

Quantitative/Qualitative:

- Surveys
- Quality Chart Reviews
- Quantitative Metrics
- Skill Competence

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Pre & Post Sim Survey Data for Dallas Campus

Confidence in my ability to assess and identify need for MTP

Confidence in my ability to carry out the necessary skills related to rapid transfusion

Confidence in my ability to provide safe care for patient experiencing hemorrhagic shock

Legend:
 1 Very confident
 2 Somewhat confident
 3 Little confidence
 4 Not confident at all

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Pre-Survey Plano Campus

Do you know where to find the Mass Transfusion Protocol?

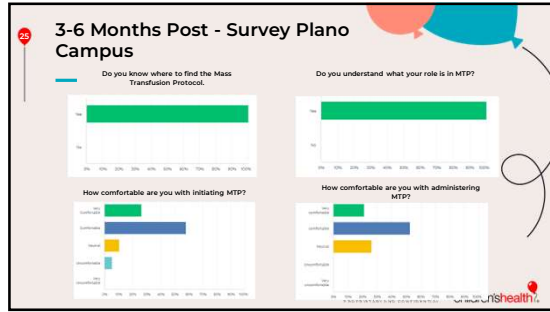
Do you know what your role is in MTP?

How comfortable are you with initiating MTP?

How comfortable are you with administering MTP?

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Quotes from Participants


- *"I enjoyed the pace being as fast as it would be in a normal critical care situation. Hands on experience using the Belmont and understanding the MTP process better was incredibly helpful. Please keep doing this!"* - ED RN
- *"I was really unsure about this event, but I can see now how important to really is to learn as a group. I am more confident in my team moving forward."* - Dr. Haverland, ED Attending
- *"I think in comparison to the rest of the hospital the ED is very competent on MTPs. The ED knows to get Emergency Release units first, fast, and then ask for MTP units; which take more time to set up. The floors ask for MTP when they really want some units fast but do not know to ask for the Emergency Release. It is always a smoother transition with the ED in comparison."* - Blood Bank Supervisor

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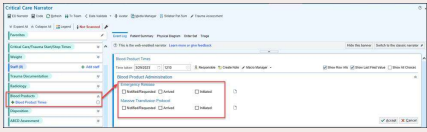

Sustainability

- ELECTRONIC MEDICAL RECORD CHANGES**
- CONTINUED EDUCATION THROUGH SIMULATION AND DIDACTIC**
- CONTINUOUS BLOOD BANK COLLABORATION**



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Documentation Changes - *Quantitative Metrics & Sustainability*

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Lessons Learned


- Individualized survey for each group participating.
- CME's and CNEs for better buy-in.
- Pre-education on skills required.
- Consider time/repeat of post survey.
- Providers need increased awareness of blood bank workflows.



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Resources



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Questions?

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