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# The Maine Obstetric Medical Simulation (MOMSim) Program Identifies and Categorizes Latent Safety Threats Across Rural Hospitals

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# The Maine Obstetric Medical Simulation (MOMSim) Program Identifies and Categorizes Latent Safety Threats Across Rural Hospitals

Jeffrey Holmes, Micheline Chipman, Becky Hunt, Sarah Austin, Tracy McMillan, Emily Watson, Holly Selby, Leah Mallory.

## Introduction

- Maintaining team and system readiness for rare obstetrical emergencies is difficult for rural hospitals.
- Simulation coupled with Health Care Failure Mode Effect Analysis (HFMEA) has been shown to identify and categorize more latent safety threats (LST) than simulation alone.

## Objective

- Combine in-situ simulation with an HFMEA framework to identify and categorize common system wide LST and opportunities to improve patient safety.

## Methods

- In-situ, interprofessional simulation training was conducted at five regional rural hospitals.
- Teams participated in three high-fidelity scenarios (shoulder dystocia, hypertensive crisis/eclampsia, postpartum hemorrhage).
- Simulations were followed by a formal debrief that included systems evaluation and LST identification.
- HFMEA rubrics were completed for each site, which included the categorization and scoring of each LST.

## Results

- 74 distinct LST were discovered.
- 24 LST (32%) were shared by more than one hospital.
- The three most common LST shared by 5 hospitals were: inconsistent announcement of team roles, inconsistent closed loop communication and no checklist used for postpartum hemorrhage.

## Discussion

- In-situ simulation with an HFMEA framework identified common LST across a group of rural hospitals.
- Identifying themes may facilitate collaborative mitigation solutions and prospective readiness efforts.

In-situ simulation and an HFMEA framework identified common system wide opportunities to improve patient safety.



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Figure 1: HFMEA Scoring Criteria for LST

DEFINITIONS - PROBABILITY			
Frequent (4)	Occasional (3)	Uncommon (2)	Remote (1)
Likely to occur immediately or within a short period	Probably will occur may happen several times in 1 to 2 years	Possible to occur may happen sometime in 2 to 5 years	Unlikely to occur may happen sometime in 5 to 30 years

DEFINITIONS - SEVERITY		
	Impact on Patient	Impact on Staff
<b>Catastrophic (4)</b> Failure would cause death or injury	Injury resulting in escalation in level of care, permanent disability, death or surgical procedure	Injury resulting in permanent loss of function, requiring hospitalization, permanent or prolonged loss of ability to perform current duties
<b>Major (3)</b> Failure causes high degree of dissatisfaction	Non-life threatening delay in care or injury requiring medical attention without escalation in level of care, permanent disability, or death	Injury requiring medical attention, resulting in temporary loss of function or missed work time
<b>Moderate (2)</b> Failure overcome with process improvement, minor performance loss exists	Significant negative impact on patient/family experience; varies from stated goals for patient/family experience	Reliability a source of work-related stress and anxiety for staff, introduces inefficiency that impacts frequently performed tasks
<b>Minor (1)</b> Failure not noticeable to patient and would not affect delivery of the service	No significant negative impact on patient/family experience	Minor nuisance that is not a significant source of stress or anxiety for the majority of staff who encounter the problem

HAZARD SCORES					
		Severity of Effect			
		Catastrophic (4)	Major (3)	Moderate (2)	Minor (1)
Probability	Frequent (4)	16	12	8	4
	Occasional (3)	12	9	6	3
	Uncommon (2)	8	6	4	2
	Remote (1)	4	3	2	1

Table 1: LST by participating rural hospital

Site	Hospital 1	Hospital 2	Hospital 3	Hospital 4	Hospital 5	Total
# LSTs	20	26	30	26	28	130
# critical	9	14	12	14	15	56

Table 2: Number of common LST with examples

# sites	# LST	LST
5	3 (4%)	1. No Checklist for postpartum hemorrhage 2. Failure to use closed loop communication 3. Inconsistent announcement of team roles
4	7 (9%)	Example: Blood Loss estimated, not weighed
3	5 (7%)	Example: Potential delay in calling code blue
2	9 (12%)	Example: Staff not aware of treatment algorithm location
1	50 (67%)	Institution dependent

Graph 1: LST by category

