Does Simulation Impact Nurses' Performance in Neonatal Resuscitation? MetroHealth Kathryn Rudd DNP RNC-NIC NPT & Julie Medas MSN APRN-CNS

BACKGROUND

Patient safety in the neonatal intensive care environment is understudied. However, teamwork and communication are reportedly integral components, or prerequisites, for supporting a culture of patient safety. Teamwork and communication in clinical practice are reported to improve with simulation and structured learning strategies. There is limited research about simulation efficacy for improving neonatal resuscitation through enhanced communication.

The Joint Commission reported that between 1995 and 2004 there were approximately 3000 sentinel events that were attributed to poor communication (Aggarwal et al., 2010). The Institute of Medicine (IOM) recommends that health care professionals utilize interprofessional training as patient safety strategy to address poor communication (IOM, 2003). TeamSTEPPS core competencies for team leadership skills include directing and coordinating activities of team members, assigning team performance, assigning tasks, developing team knowledge and skills, motivating team members, planning and organizing, and establishing positive team atmosphere (Aggarwal et.al., 2010).

Based on an institutional needs assessment and literature review specific to quality improvement strategies for neonatal resuscitation, an improved neonatal resuscitation program (NRP) course was developed and implemented. The revised course included NRP simulation cases, communication education with TeamSTEPPS strategies, and documentation training of the clinician guided revision of the resuscitation form. The education, training, and simulation exercise was guided by the National League for Nursing/Jeffries Simulation Framework and the TeamSTEPPS program.

REFERENCES

Aggarwal, R., Mutton, O.T., Derbrew, M., Hananef, D., Heydenburg, M., Issenberg, B.,...Reznick, R. (2010). Training and simulation for patient safety. Quality and Safety in Health Care, 19(Suppl 2), 134-143. Institute of Medicine. (2003). Health professions education: A bridge to quality. Washington, DC: National Academies Press. Institute of Medicine. (2010). The future of nursing: Leading change, advancing health. Report Brief. Jeffries, P. R., & Rogers, K. J. (2009). Theoretical framework for simulation design. In P, R, Jefferies (Ed.), Simulation in Nursing

PURPOSE

This project was designed to evaluate the perceived level of confidence, satisfaction and communication skills in nurses performing neonatal resuscitation following the revised NRP Provider course.

METHODS

exercise.

group design.



The MetroHealth System, Cleveland Ohio

Setting: The setting was a Neonatal Intensive Care Unit (NICU) and Labor & Delivery area in the Northeast region of Ohio. The NICU is a level IIIB, which provides care for not only critically ill neonates and infants but comprehensive care for neonates, 1000 grams or less or 28 weeks gestation age or less (AAP, 2012b).

Intervention: The project was structured so that during the implementation phase education was provided on the newly designed resuscitation documentation form. Prior TeamSTEPPS training had already occurred within the previous year for all staff.

<u>Sample</u>: A purposeful sample of nurses (n=61) volunteered to participate in the training and simulation

<u>Data Collection</u>: Demographic information was collected and the Student Satisfaction and Self-Confidence in Learning Scale (NLN, 2005) was used in a nonrandomized descriptive evaluation with a posttest one-

The results in an equivalent is a series of sustainents about your attitu- ting your simulation activity. Each item represents a statement about your attitu- d self-confidence in obtaining the instruction you need. There are no right or w- sme of the statements and disagree with others. Please indicate your own person arking the numbers that best describe your attitude or beliefs. Please be truthful of what you would like for it to be. This is anonymous with the results being con-	de toward y rong answe al feelings and descri npiled as a	our satis rs. You about ea be your a group, n	sfaction will pro- ich stater attitude i ict indivi	with lea bably ag ment bel as it real idually.	ming gree v low b lly is,
Mark: 1 = STRONGLY DISAGREE with the statement 2 = DISAGREE with the statement 3 = UNDECIDED - you neither agree or disagree with the statement 4 = AGREE with the statement 5 = STRONGLY AGREE with the statement					
Satisfaction with Current Learning	SD	D	UN	Α	S.
1. The teaching methods used in this simulation were helpful and effective.	O 1	O 2	03	04	o
The simulation provided me with a variety of learning materials and activities to promote my learning the NRP curriculum.	01	02	03	04	C
3. I enjoyed how my instructor taught the simulation.	O 1	O 2	O 3	04	C
 The teaching materials used in this simulation were motivating and helped me to learn. 	01	O 2	O 3	04	0
5. The way my instructor(s) taught the simulation was suitable to the way I learn.	01	02	03	04	0
Self-confidence in Learning	SD	D	UN	Α	S
I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	01	O 2	O 3	04	C
I am confident that this simulation covered critical content necessary for the mastery of NRP curriculum.	O 1	O 2	03	04	C
 T am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting. 	01	O 2	03	04	0
9. My instructors used helpful resources to teach the simulation.	01	02	03	04	C
 It is my responsibility as the student to learn what I need to know from this simulation activity. 	O 1	O 2	O 3	04	0
 I know how to get help when I do not understand the concepts covered in the simulation. 	O 1	O 2	O 3	04	0
	O 1	O 2	O 3	O 4	0
12.1 know how to use simulation activities to learn critical aspects of these skills.					-

The MetroHealth System - Code Pink Delivery Resuscitation Record/Physician Order Sheet																						
Name (Last name/Mother's First name):						Sex: Female	Male	Estimated Gestation	nal Age:													
Date:		Time Code Pink (CPT) called:	(PT Arrived at:		Delivery Time:		CPT received baby	at:	(min: s	secs of life)										
REASON FOR CODE PINK CALL (check all that apply)																						
Abrupti	o placenta 🛛 🗆 🤇	Category II FHR w/ab	osent or minim	al variability for g	reater than 30 min. i	prior to delivery Category III FHR. Chorioannionitis																
□ Cord prolapse □ Delivery outside L&D: □ Eclampsia/p								'Mag.''	□ Emergency c-section □ General anesthesia				(Patient label)									
□ Gestational age less than 36 0/7 weeks □ Gestational age 42 0/7 weeks and greater							□ IUGR □ IV opiates within 2 hours of delivery						APGARS									
Known major congenital anomalies Macrosomia Maternal hemodynamic instability							□ Multiple ge	gestation IN Non-vertex presentations I Operative vaginal delivery						Color	HR	RR	Tone	Activity	Total	2= completely pink		
Particulate MSF Placenta previa Pre-existing DM with poor glycemic control							□ Shoulder dy	/stoc1a	U Other:	DOCT DECUC	CITATION	CADE	4							0= blue/pale Heart Rate (HR)		
CODE PINK TEAM MEMPERS: muint all names & single titles leader must sign form									Code discontinue	PUST RESUS	CHAHON	CARE:	1 min							2= greater than 100 bpm 1= less than 100 bpm		
CODE PINK TEAM MEMBERS: print all names & circle title; leader must sign form							(min: sees of life	eu oy ream Leau	a at		5 min							0= absent Respiratory Rate (RR)				
Leader (ML/NF): Leader signature (ML/NF):							Transferred to NICU at (time)											 2= good, crying 1= weak, cry, hypoventilation 				
Recorder (MD/NP/RN):					via transport isolette											0= absent Tone						
2 ^{ad} Recorder (MD/NP/RN): clock time/mins: secs of life (circle) Name:					Routine Care baby remained with mother in L&D											2= active motion 1= some flexion						
3 rd Recorder (MD/NP/RN): clock time/mins: secs of life (circle) Name:						Time: (mins: secs of life)											Activity 21 cov active withdrawal					
Other:									Other:				20 min							1= grimace		
TIME In:	Dry/stimulate	Respiratory Effort	Heart Rate	Color D. Dink	WNI - Within	Activity Or Abcont	FiO ₂ Protorm 35	Ventilation B: Blow by	Breath Sounds	SpO2%	Chest Comp.	Epinephrine	Fluid	ume Tama:	Includ	ing hut	not limit	Comme	nts			
of life)	√: Dry/stimulate	normal limits	Range of 10	A: Acrocyanosis	normal	G: Grimace	wks. and less	C: CPAP	B: Bilateral	right hand	√ = Assess-	Dose in (ml)	NS/PE	BC	> Intu	bation: S	ize, tape	at cm, CO	2 detecto	r, etc.		
	W: Wipe B: Bulb	Ø: Absent G: Gasping		C: Cyanosis W: Pale	limits/AGA Ø: Absent/limp	C:Cry A: Active	@%	M: PPV Mask ET: PPV ET	E: Equal D: Diminished	Actual Reading NC: (values not	ment &	Route: ET or UVC	Route	nt (ml) if other	> UV(Csize an ersignifi	d depth cant asse	sment fin	dines			
	C: Catheter	A: Assisted		I: Improving	I: Improving		greater than	P: Positive CC	2 R: Right	correlating)	Stop		Than	UVC:	≻MR.	SOPA						
		1: Improving/					35 wks. @ 21%	change Stop : Ended	L: Left	Stop: Kemoved					>SBA	ĸ						
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RESULTS

The analysis found 49% of the nurses were confident in their resuscitation skills, 50% were satisfied with the simulation experience, and 47% reported communication needed to be improved for an effective resuscitation process.

Demographics

- Age: Participants were between 21-70 years of age, with majority between 41-60 years (57.4%).
- Education: Majority, 57% were baccalaureate prepared, 28% associate degree and 20% diploma.
- Experience: 55% have less than 5 years and 24.6% have more than 20 years with remaining 20.4% between 5-20 years.



IMPLICATIONS

This project contributes to social change by demonstrating enhanced NRP training within a simulated environment results in integration of communication and teamwork skills essential to improve the process of neonatal resuscitation. Further investigation of this effect on other disciplines involved in NRP or within the interdisciplinary team attending deliveries may be warranted. As code documentation moves to the electronic medical record, repeating this project using electronic documentation may be beneficial.

Education (pp. 21-34). New York, NY: National League for Nursing., National League for Nursing. (2005). Student satisfaction and self-confidence in learning. Retrieved from