

**ENHANCING NURSING**  
**STUDENTS' MEDICATION**  
**SAFETY COMPETENCIES**  
**WITH A PEDIATRIC**  
**MEDICATION SIMULATION**  
**EXPERIENCE**

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# BACKGROUND AND PROBLEM

- ◉ Medication administration is a major nursing responsibility in the acute care setting.
- ◉ Medication errors have been reported to occur in as many as 47.5% of administrations (Holland, et al., 2012).
- ◉ Errors have been identified at all points in the process (Gonzalez, 2010; Kaushal, Bates, Landrigan, McKenna, Clapp, Federico, et al., 2001).
- ◉ Decreasing medication errors is a national safety goal (IOM, 2011).
  - Evidence in support of the best education practices to address this important issue is scant.
- ◉ Traditional methods for ensuring medication administration and safety competencies have become increasingly inadequate as opportunities to develop skills are in increasingly short supply (Butler & Veltre, 2009; Harder, 2010; Leigh, 2008).
- ◉ To facilitate development of knowledge, skills and attitudes (KSA's) we developed and evaluated a medication administration safety competency simulation experience for a baccalaureate-level pediatric nursing course.

# PURPOSE

- ◉ Describe outcomes of a pediatric medication administration safety competency simulation in pre-licensure students in a baccalaureate nursing program.

# FRAMEWORK

- ◉ “Simulation promotes student learning while promoting a humanistic outlook toward patients” (Jeffries, 2007, p.15).
- ◉ Social Cognitive Theory (Bandura, 1977)
  - Efficacy
    - Performance accomplishments
    - Vicarious experience
    - Verbal persuasion
    - Emotional arousal
  - Simulation may decrease performance anxiety and support increased self-confidence in psychomotor skills and critical thinking. Research supports a relationship between participation in simulation and increased levels of student self- efficacy--a factor which may promote smoother transition to the professional role (Leigh,2008).

# METHODS

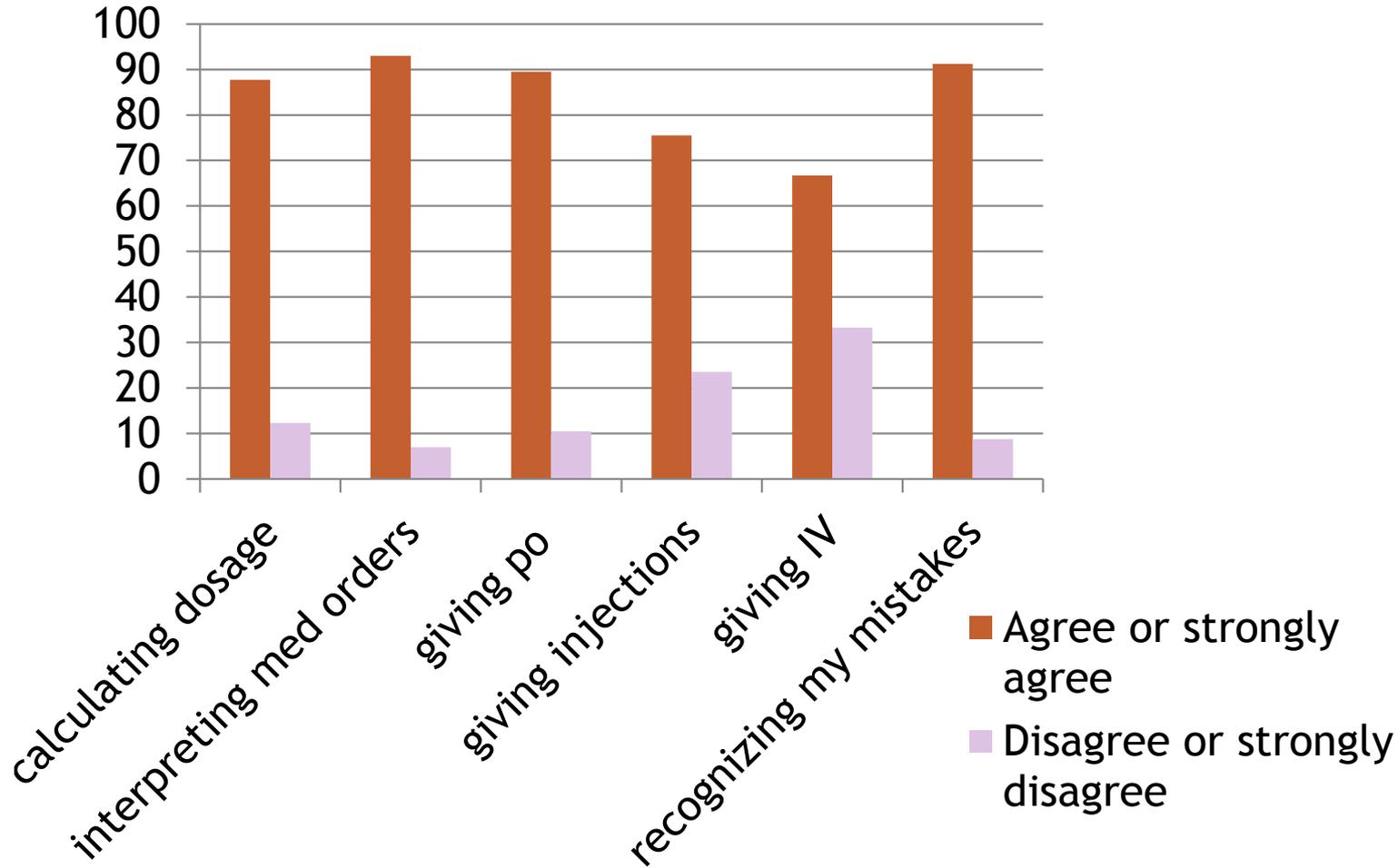
Four cases based on QSEN and Pediatric Literature:

1. Bacterial Meningitis and dehydration
  2. Respiratory distress
  3. Bronchiolitis and congestive heart failure
  4. Well child immunization
- ⦿ Use of critical thinking skills, pharmacotherapy knowledge, developmental parameters, team functioning, family centered care, and nursing science.

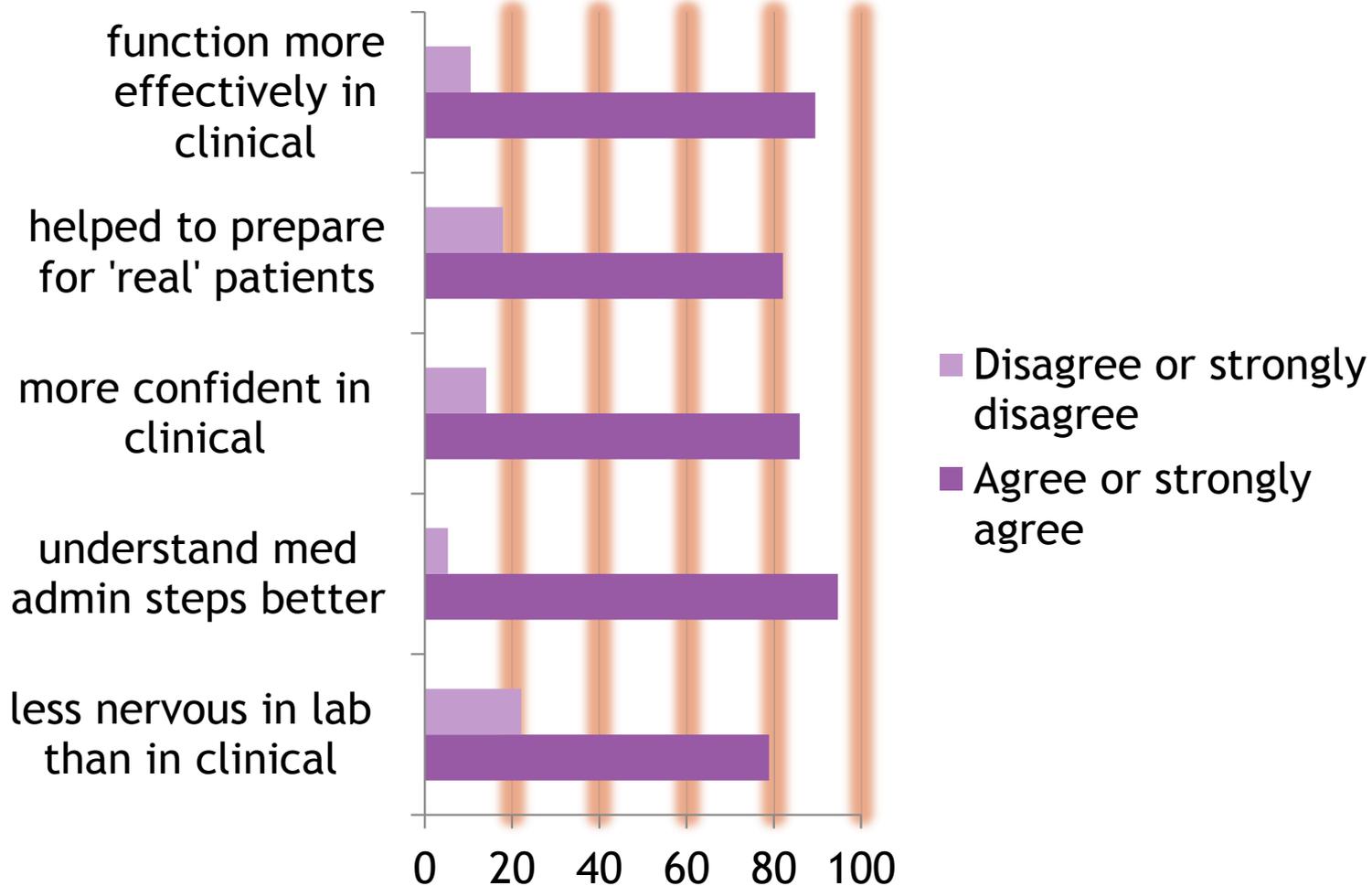
# PROCEDURE

- ◉ Groups of two to three students
- ◉ Four stations
- ◉ High and low fidelity mannequins
- ◉ Students interpret and validate orders
- ◉ Calculate safe doses and review effects
- ◉ Delegate tasks
- ◉ Educate parents
- ◉ Assess patients
- ◉ Safely administer medications
- ◉ Students returned to clinical the following week and completed surveys two weeks later.

# ***AFTER THE SIMULATION I FEEL MORE CONFIDENT IN THESE ACTIVITIES (%)***



# PERCEPTIONS AFTER COMPLETING SIMULATION (%)



# QUALITATIVE DATA

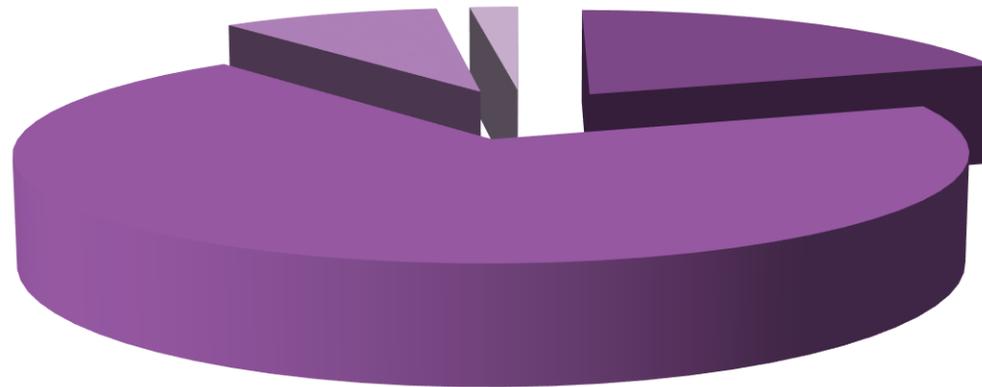
- What did you find most helpful for your learning during the medication simulation?
  - “I think having a variety of scenarios helps us develop our practice because if we felt lacking in confidence at the first station then by the time we got to the last we felt adequate enough. I think having a lot of practice helps.”
- What did you find most difficult about the medication simulation?
  - “The pressure that comes with doing it right is stressful, but it is good practice.”
- What did you find least helpful for your learning?
  - “It was nerve wracking. I could see it on my classmate’s faces. Doing it more often would be helpful.”

# QUALITATIVE DATA

- What was the medication simulation experience like for you?
  - “Helped me learn.” “Prepared us for clinical experience.” “I felt more confident...like an RN.”
- Tell us anything else you would like to share about the medication simulation experience.
  - “It was a good experience considering we could not give meds at my clinical site.” “We need more simulations.” “It was challenging, but that’s what we need.” “Need more simulations on IVAC pumps and piggybacks.” “Good overall.”

# AGE DISTRIBUTION

Age Range



- 18-20 yrs
- 21-29 yrs
- 30-39 yrs
- 40-49 yrs

# OTHER RESULTS

- 107 students have participated in the simulation to date.
- 57 completed the follow-up evaluation and questionnaire
- 38% were in the 2<sup>nd</sup> degree track
- 14.3% reported ESL
- 100% had given at least one medication in the clinical setting prior to the simulation
- 55% had given at least one medication to a pediatric patient in the clinical setting prior to the simulation
- Most difficult for students: “...trying to act and think quickly in a critical situation.”... “The pressure that comes from doing it right is stressful but it is good practice.....It was very helpful.” “I was super-nervous giving medications in pediatrics because of the dose ranges that need to be calculated. However after the med simulation I felt more confident.”

# IMPLICATIONS

- Even simple scenarios promote confidence.
- More opportunities to practice the complex process of safely giving medications are needed.
- Simulation scenarios help students transfer KSA's to the clinical environment.

◉ Thank you!

◉ Questions?

◉ A special thank you to Dr. Mary Ann Scharf and the staff of the Nursing Skills Lab.



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