

BACKGROUND

- Medication errors are a well-defined cause of **preventable** adverse events in pediatrics
- Despite correct calculations of dosages, errors continue to occur during preparation and administration
- Emergency situations have a **tenfold increase** in errors
- Epinephrine and atropine have a very high potential for harm in patients **less than 10 kg**

Pediatric medication errors are 3X higher than adults

SOURCES OF ERRORS

- Weight-based **miscalculation**
- Adult formulation
- Lack of pharmacology training
- Medications administered in chaotic environment
- Transitions of care

JOINT COMMISSION RECOMMENDATION

Pre-printed Emergency Dosage Calculation Sheet

Found provider's using a patient-specific drug sheet during simulated pediatric emergencies obtained the correct dose **3X faster** and were **21.4% more accurate** compared to paper-based methods

Pediatric Weight-Based Emergency Reference Weight: 8 kg

| Medication | Route | Dose | Volume | Notes |
|------------------------------------|--------|------------|---------|---|
| Epinephrine (1:10,000) (0.1 mg/mL) | IV, IO | 0.01 mg/kg | 0.08 mL | Max single dose = 1mg; Repeat q 3-5 min |
| Atropine (0.1 mg/mL) | IV, IO | 0.02 mg/kg | 0.16 mL | May repeat once in 3-5 min; max cumulative dose = 1mg |

PROBLEM STATEMENT

- In a children's hospital, will education on the use of a pediatric emergency drug sheet increase PACU and endoscopy RN's **clinical preparedness** and **self-efficacy** during a pediatric resuscitation?

OBJECTIVES

- Familiarize RNs to drug sheet outside of an emergency
- Create a non-punitive environment where staff can practice skills without compromising patient safety
- Self-evaluate their practice for potential knowledge gaps in drug preparation

Practice without compromising patient safety

PROJECT DESIGN

- Prospective Cohort Study**
- Setting**
 - Large University Hospital
 - Pediatric Hospital Designation
 - Fall pediatric competency
- Population**
 - PACU and Endoscopy RNs
 - Range of ages and experience
 - Sample size 32

- Low risk**
- No economical benefits**

METHODOLOGY

Pre-Intervention Survey

- Evaluate current use of pediatric drug sheet and level of confidence in preparing and administering Epinephrine and atropine in patients less than 10 kg

Intervention

- PowerPoint presentation regarding basic epinephrine and atropine pharmacology
- Review location of sheet
- Work in groups to solve a case scenario in which a patient less than 10 kg requires epinephrine or atropine administration by using the pediatric drug sheet
- Return demonstration of dose in mL and mg
- Mock syringes supplied

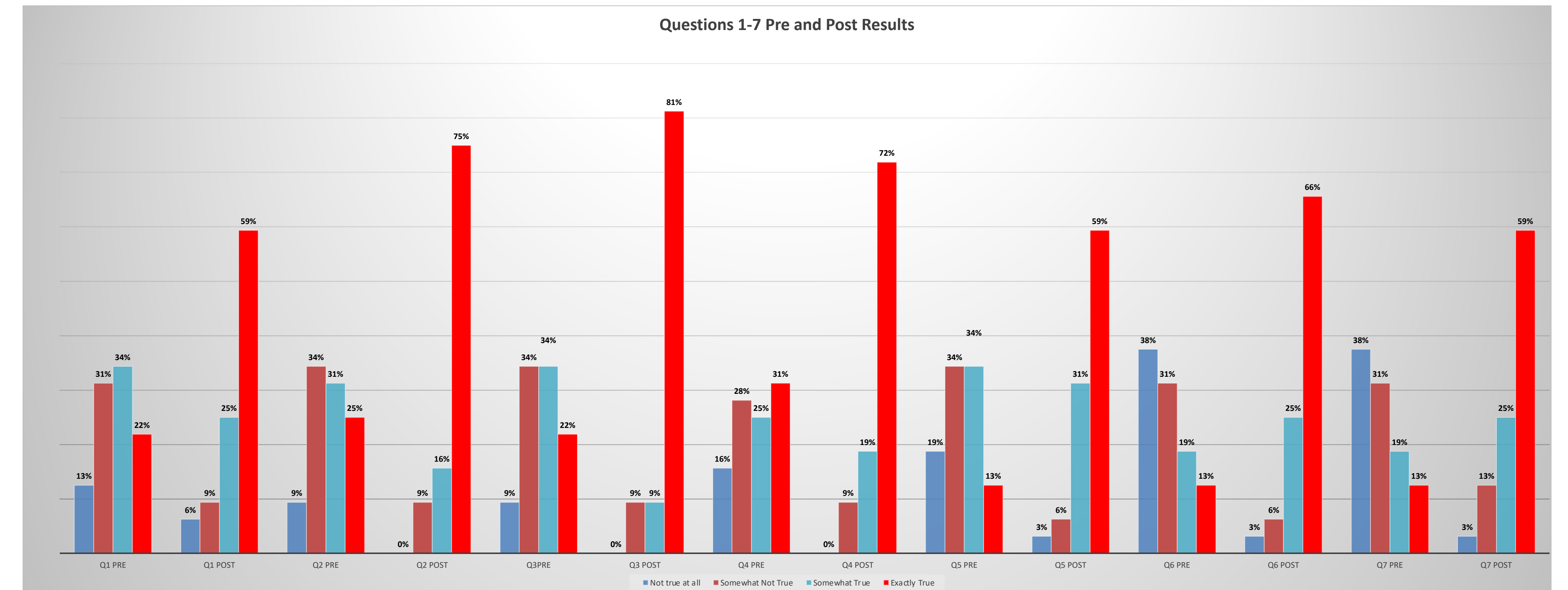


Post Intervention Survey

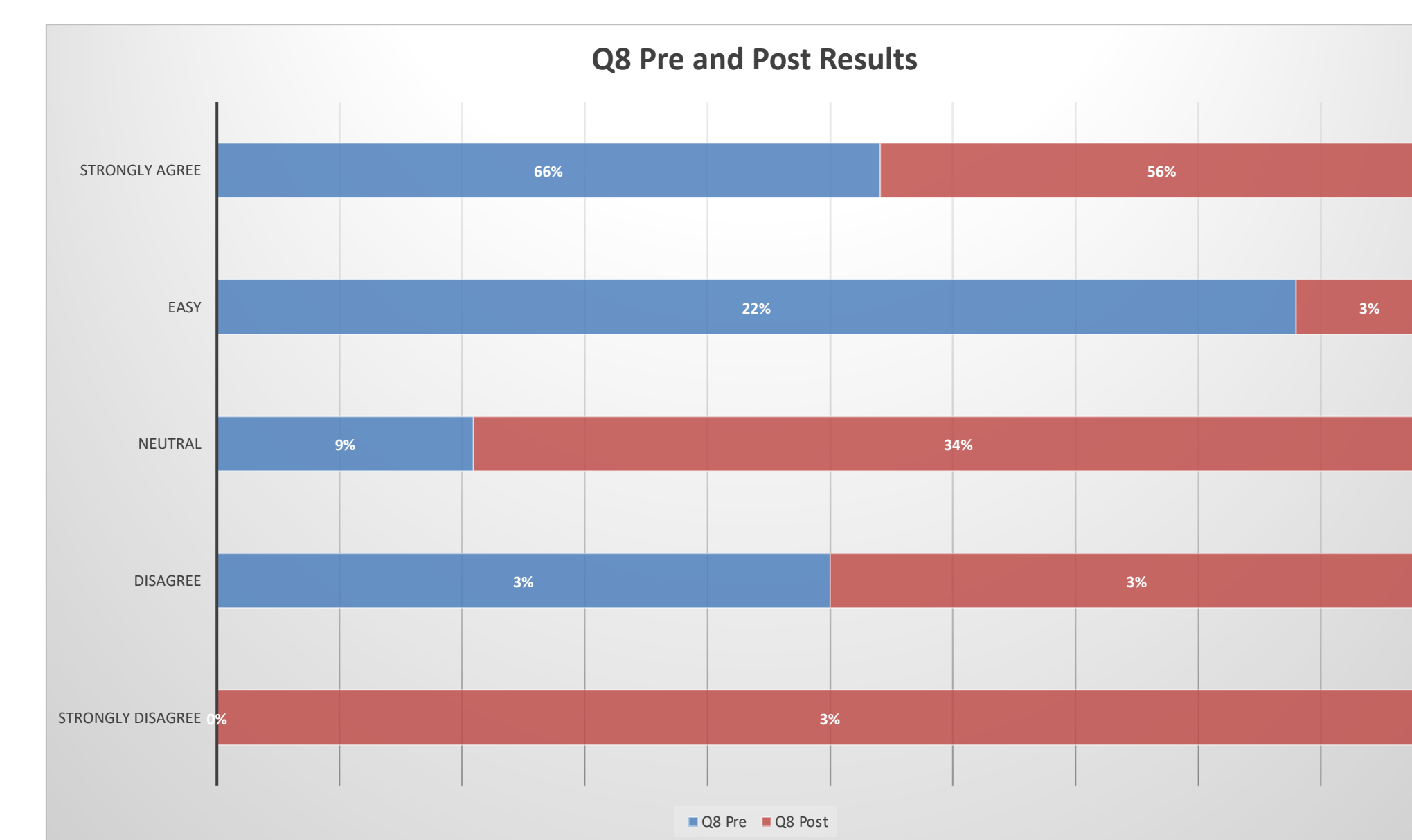
- 1-month Post-intervention Survey

RESULTS

- There are response percentages for questions 1-7. The higher the score the greater the self-efficacy, four being the highest score
- In the presurvey, the percentage for a score of 4, was always less than 50% of the participants, a score of four was greater than 50% in the post survey for all questions



- Below are response percentages for questions 8-10
- These questions correspond to the aim of a change in behavioral intention after an educational session



- Statistical analysis was conducted via SPSS. Descriptive statistics and an exact sign test were performed on pre- and post-data
- The exact sign data for questions 1-7 demonstrate a statically significant difference in median scores of the Likert scale in pre- and post-survey at a significance level of 0.05
- This statically significant change shows an **increase in clinical self-efficacy** for RNs after the intervention
- There was no statistically significant difference in median scores for a change in **behavioral intention**

RESULTS

- 100% of RNs were able to display clinical preparedness by appropriately using the pediatric drug sheet to prepare and "administer" correct doses of epinephrine and atropine, in mgs and mLs, for a pediatric patient weighing less than 10kg

DISCUSSION

- Although the RNs were already inclined to use the drug sheet, their self-efficacy in preparing and administering medications via the drug sheet was higher post implementation
- Future studies can ensure sustainability by conducting a 3-month post implementation survey to show the impact over a prolonged period of time.
- Our results highlight how crucial it is for healthcare institutions to provide cognitive aids and establish policies that promote patient safety by supporting nursing staff to translate knowledge into practice

Sustainability via Mandatory Annual Pediatric Competency Day

REFERENCES

- Scan QR code below to view references and more information

