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### System-based integrated comprehensive simulation program in pediatric residency education: our institutional experience

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## Background

- Simulation bridges the gap between evidence-based theoretical knowledge and clinical practice experience. It enhances the learner's ability to deal with real life patient situations which involve skill and critical thinking.
- It provides a safe environment to enhance pediatric residency training via hands-on experiences in various critical and stable clinical presentations.
- Addresses both technical and non-technical skills like team dynamics and communication.
- There is a gap in standardization of simulation education in residency programs.
- Objective:** Develop a comprehensive, system-based curriculum integrating simulation with traditional didactic learning sessions that improves learner's medical knowledge and clinical skills.

## Methods

- We created an 18-month academic calendar and assigned topics for simulation to coincide with what was being covered during residency didactic lectures. At our institution we have 4 hours weekly dedicated to didactics and we follow the American Academy of Pediatrics content specifications.
- 24 faculty members and fellows for multidisciplinary teams were trained as simulation facilitators and identified as the institutional simulation task force.
- Simulation sessions were conducted every six weeks (3-4 hours), and included emergency/non-emergency scenarios and procedural skills.
- Total time spent was about 50 hours throughout curriculum.
- We also added in monthly in situ simulations to include or nursing team with respiratory therapists and residents.

## Methods

- Simulations aligned with the American Board of Pediatrics (ABP) content and required ACGME task/procedure lists.
- Post-surveys used to evaluate participants' comfort levels in various clinical scenarios.

### Key Components of Simulations:

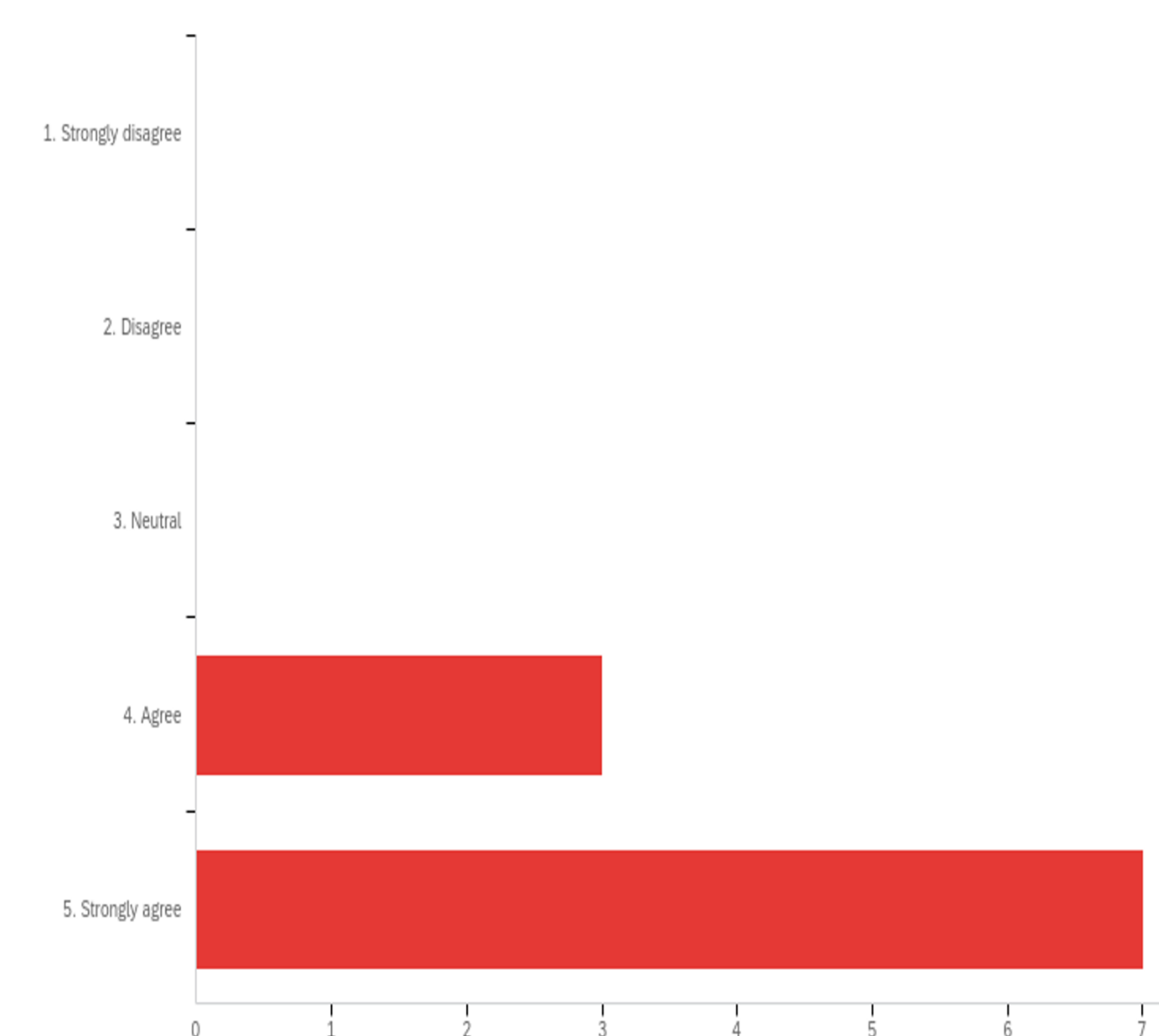
- Medical knowledge of critical actions.
- Team dynamics and communication skills.
- Acquired skills and pattern recognition.

### Curriculum example:

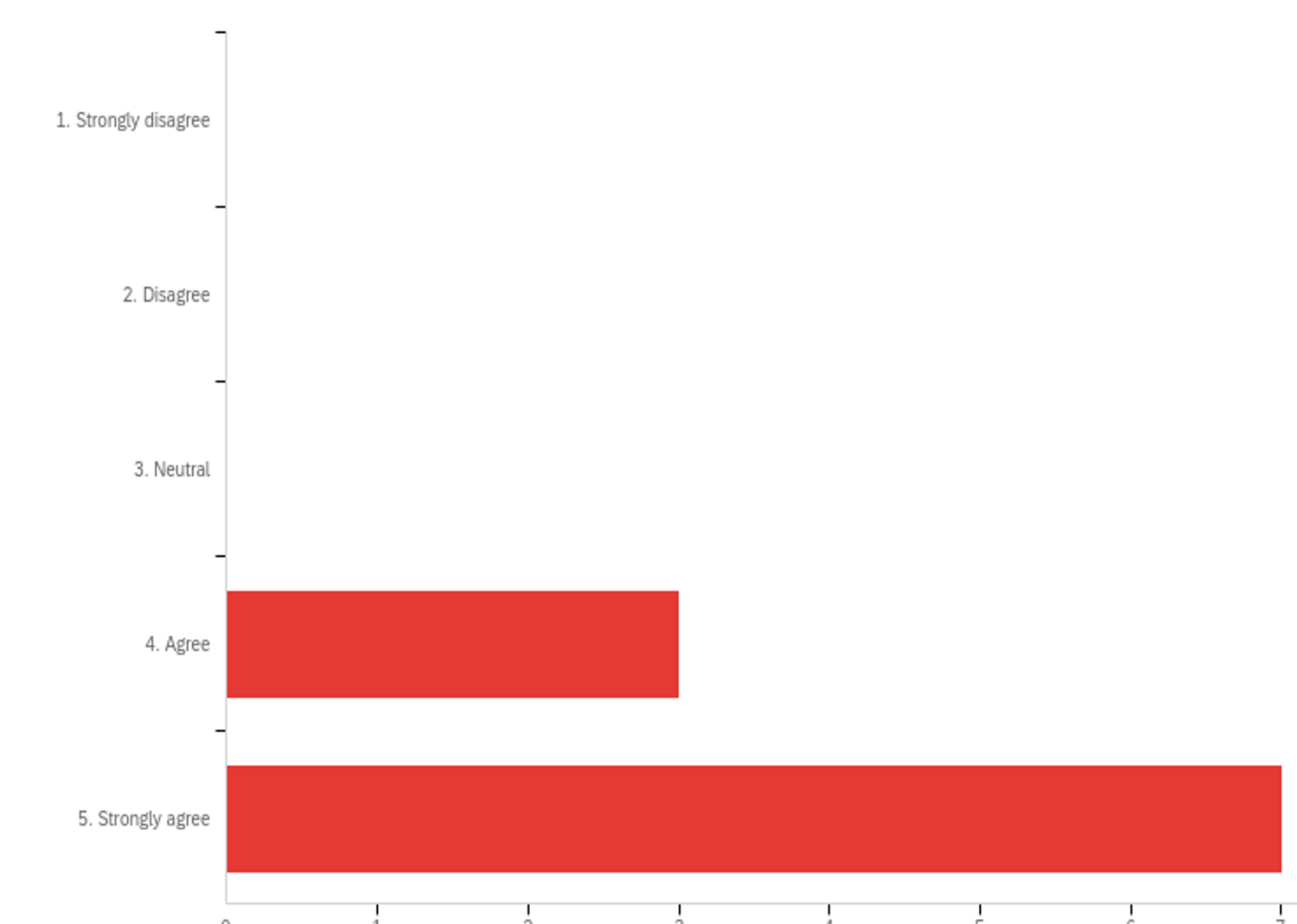
Block	Month of 18-month Program	Time Line	Domains	Academic Half days Exemplars	Skills	Sims	In-situ Sims	Notes/Faculty teaching
B2		7/30/24		CPT overview (1hr), CV/Resume writing/portfolio, All resident meeting (1hr)				
				YM: Coding/Billing (1 hr)				
	2	8/6/24	Mental & Behavioral Health	Autism, ADHD, Learning differences, Anxiety, Depression (4 hours)				
		8/13/24	Ortho/Sports Med	CPC Introduction and group split for new interns (1hr), Social Determinants of Health (1hr), Sport specialization (1hr), Sport concussions (1hr)				
		8/20/24		Wellness (1 hr)				
					splinting/casts (35-40 min), Rhythm Identification (35-40 min)	SVT (35-40min), Status Epilepticus (35-40 min)		
				Sim (3 hrs)				

## Results

Q7 - The simulation experience reinforced my knowledge or I gained new knowledge and skills.



Q8 - I will be able to apply the knowledge and skills practiced in the simulation to my job.



## Results

- 100% of residents reported simulations reinforced or introduced new medical knowledge and skills.
- Over 75% felt the skills gained improved their ability to provide safer patient care and felt more confident performing procedures with minimal supervision.
- Closed loop communication has been one of the main areas that constantly required focus.
- Being able to verbalize the shared mental model has facilitated every participate to have clarity and improved performance.
- Nursing staff have had a positive experience with bridging of areas with knowledge gaps.

## Conclusion

- Integrating simulation into a system-based curriculum enhances pediatric residency education.
- This approach leads to a more standardized and ensures an effective learning experience.
- The learner is well prepared to respond to code and emergency situations with emphasis on closed loop communication, professional skills, knowledge and confidence

## Study Limitations

- With learners being on different clinical rotations, we continue to work on schedules to capture all learners by changing weekdays simulations are performed.