



Incorporating Combined Near-Peer and Peer-to-Peer Teaching into the Pediatric Clerkship to Increase Student Exam Performance and Preparation for Residency

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- Most medical schools utilize a “See one, Do one, Teach one” teaching structure
 - Medical schools are very good at part 1 and 2, but can we improve on part 3?
 - How do we more consistently provide students the opportunity to practice their teaching skills?
- How do we approach education when there is a large experience gap between instructors and students?
- Shelf exams focus on “this vs. that” diagnoses and the next best step in treatment
 - Can we organize topics that focus on highlighting the differences between conditions to help with answering shelf exam questions?
- Residents are an underutilized resource in the education of medical students
 - Can we create a program that utilizes residents as facilitators of student learning to leverage the benefits of near-peer teaching while also improving the teaching skills of residents?

- Peer-to-peer teaching and the use of near-peer teaching to supplement medical student learning has been an area of great interest in medical education for some time.
 - Studies have found that the use of peer teaching strategies helps prepare physicians for their future role as educators while also benefiting the participants both academically and professionally (Cate & Durning, n.d.; Crowe, 2001; Gregory et al., 2011; Yu et al., 2011).
 - Other studies have shown the qualitative benefits of group peer tutoring sessions (Crowe, 2001).
 - Valuing the group process
 - Appreciating the tutor role
 - Applicability in the future
- The traditional definition of near-peer teaching is learning facilitated by “senior trainees,” which is often interpreted as senior medical students teaching junior students (Bulte et al., n.d.).
- There has been a recent push by residency programs to utilize “Residents-as-Teachers” in conjunction with the ACGME’s inclusion of skills in education/teaching as part of their competency-based medical education. This makes the incorporation of resident teaching in the medical curriculum a worthwhile endeavor (Eno et al., n.d.; McKeon et al., 2019).

- Our program aimed to combine medical student peer teaching with senior resident group teaching facilitation to improve the academic performance of medical students in the third-year pediatric rotation.
- Using the NBME Pediatric Shelf exam breakdown as a guide, we produced a “Pediatric Clerkship Booklet” that contained 30 core pediatric topics.
- Each section was broken down into sub-topics to help guide student learning toward testable material.
- Students were tasked with preparing a five-minute presentation on one of these 30 topics to present to a group of four of their peers during an educational afternoon session in the presence of a third-year pediatric resident.
- After each of the presentations, the third-year resident would then facilitate a group discussion on the topic aimed at clarifying any important information and helping to frame the discussion toward both clinically- and examination-relevant information.

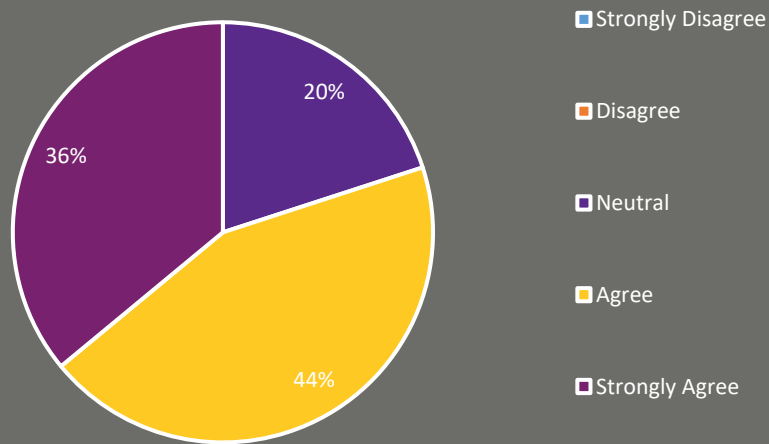
Example Learning Topics

4	Failure to thrive	<ul style="list-style-type: none"> -Normal vs. abnormal weight loss after birth -Weight → height → head circumference -Common causes (poor feeding vs. increased metabolic demand vs. absorption problem) -Presentation -Workup -Formula for Caloric Calculation
5	Fever in a newborn	<ul style="list-style-type: none"> -Common causes based on age (<21d vs. >21d) -Presentation -Risk factors -Work up -Treatment (abx options based on age)
6	Neonatal stooling	<ul style="list-style-type: none"> -Normal meconium timeline -Delayed meconium passage (hirschsprung's vs. meconium ileus) -Necrotizing Enterocolitis -Common presentation, physical exam finding, management, associated conditions
7	Neonatal respiratory disorders	<ul style="list-style-type: none"> -Respiratory distress syndrome vs. transient tachypnea of newborn, meconium aspiration -Diaphragmatic hernia, TE fistula, choanal atresia -Presentations -Risk factors (Pre vs post-term) -Diagnostic findings

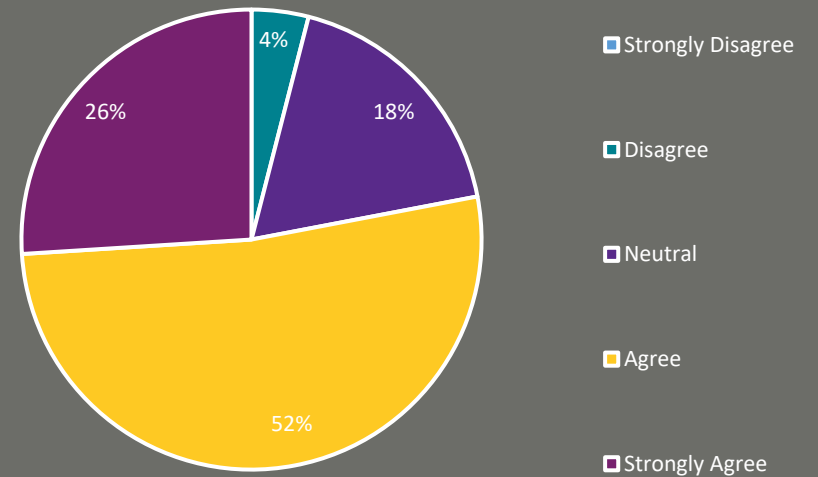
- At the end of the 8-week clerkship and after completing the pediatric NBME shelf examination, students were asked to complete an anonymous online survey about the academic afternoon.
- Students were asked for their opinions on whether they felt better prepared for the shelf and if the sessions facilitated their communications skills with residents and faculty.
- Students were also asked to provide written feedback about the sessions for areas of future improvement.
- In addition to these surveys, the average NBME scores for each cohort were collected by the Office of Data Analysis and Strategy and were compared to the previous years' grades to assess for improvement in the aggregate student performance on the NBME shelf.
- Data pre-intervention (2019-2022) and post-intervention (2023) were compared to assess the effectiveness and potential impact of this educational approach.

- 50 total responses were recorded from cohorts 1-5
- 79.2% of participants agreed or strongly agreed that this program supported communication with residents
- 79.1% of students indicated that they felt better prepared for the shelf after completing the sessions

Did student led teaching help facilitate communication with the residents?



Did student led teaching help you prepare for your shelf?

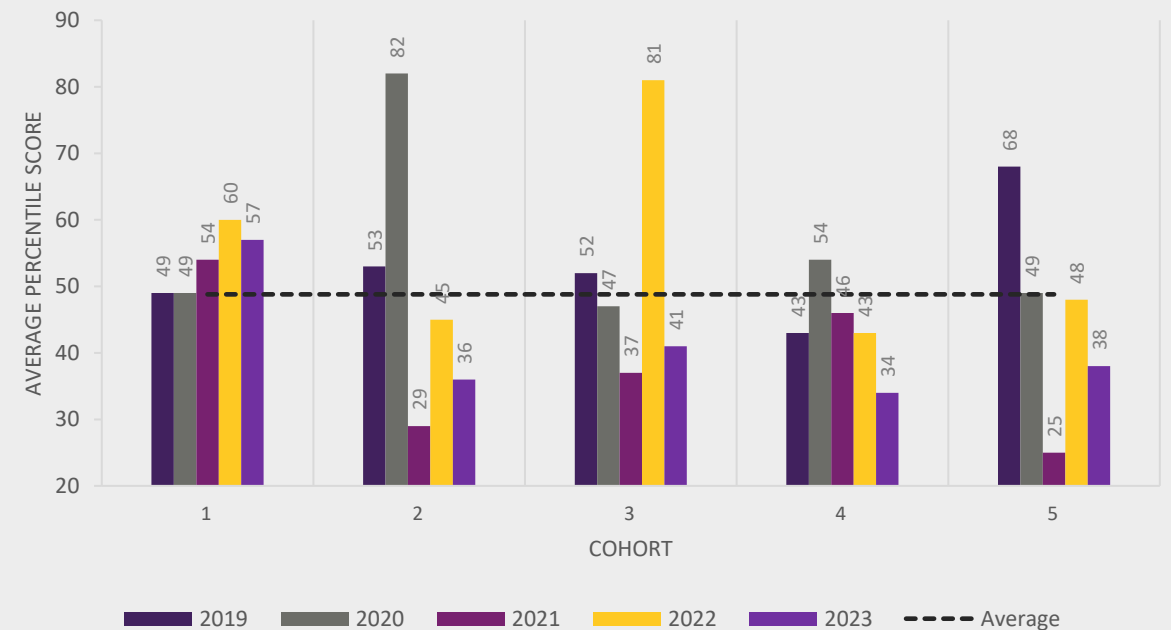


Preliminary results showed NBME examination scores remained stable with the 2023 cohorts performing $\pm 5\%$ against the average from their respective cohorts over the last 4 years

SHELF SCORE PERFORMANCE 2019-2023



SHELF PERCENTILE PERFORMANCE 2019-2023



- These results seem to indicate that peer-to-peer teaching sessions helped to facilitate student learning and aligned well with prior studies on the subject (Gregory et al., 2011; Yu et al., 2011).
- The program was subjectively enjoyable for medical students.
- The use of NBME scores as a metric limits the analysis of objective data as they utilize a scoring system that is unknown to the public.
- We did not collect resident feedback or assess their performance during these sessions.
- Due to time and scheduling constraints, students were only asked to cover one topic rather than covering all 30 topics.

- Our next steps include evaluating resident performance as teachers before and after involvement with the peer-teaching program, as well as expansion to other third year clerkships.
- We also feel that more data is necessary to assess the long-term positive impacts of this program on the performance of students and residents involved in the medical curriculum.

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