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### Standardization of Discharge Instructions for Mild Traumatic Brain Injury/Concussion in Children Presenting to ED: A QI Project

Niralee K. Rana  
*Rowan University*


Nicole Gerber MD  
*Weill Cornell Medicine/NewYork-Presbyterian*

Michael Alfonzo MD  
*Weill Cornell Medicine/NewYork-Presbyterian*

Snezana Osorio MD  
*Weill Cornell Medicine*

Deborah Levine MD  
*Weill Cornell Medicine/NewYork-Presbyterian*

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Niralee Rana, BS,<sup>1</sup> Nicole Gerber, MD,<sup>2</sup> Michael Alfonzo, MD,<sup>2</sup> Snezana Nena Osorio, MD,<sup>3</sup> Deborah Levine, MD<sup>2</sup>

<sup>1</sup>Rowan-Virtua School of Osteopathic Medicine, <sup>2</sup>Departments of Emergency Medicine and Pediatrics, Weill Cornell Medicine/NewYork-Presbyterian, <sup>3</sup>Department of Pediatrics, Weill Cornell Medicine



## Background

- Mild traumatic brain injuries (mTBI) or concussions comprise high rates of emergency department (ED) visits.
- Concussion diagnoses used less in young children with variability in parental education and discharge instructions.
- Lack of discharge guidance may increase parental anxiety, negatively impact recovery, and increase ED visits

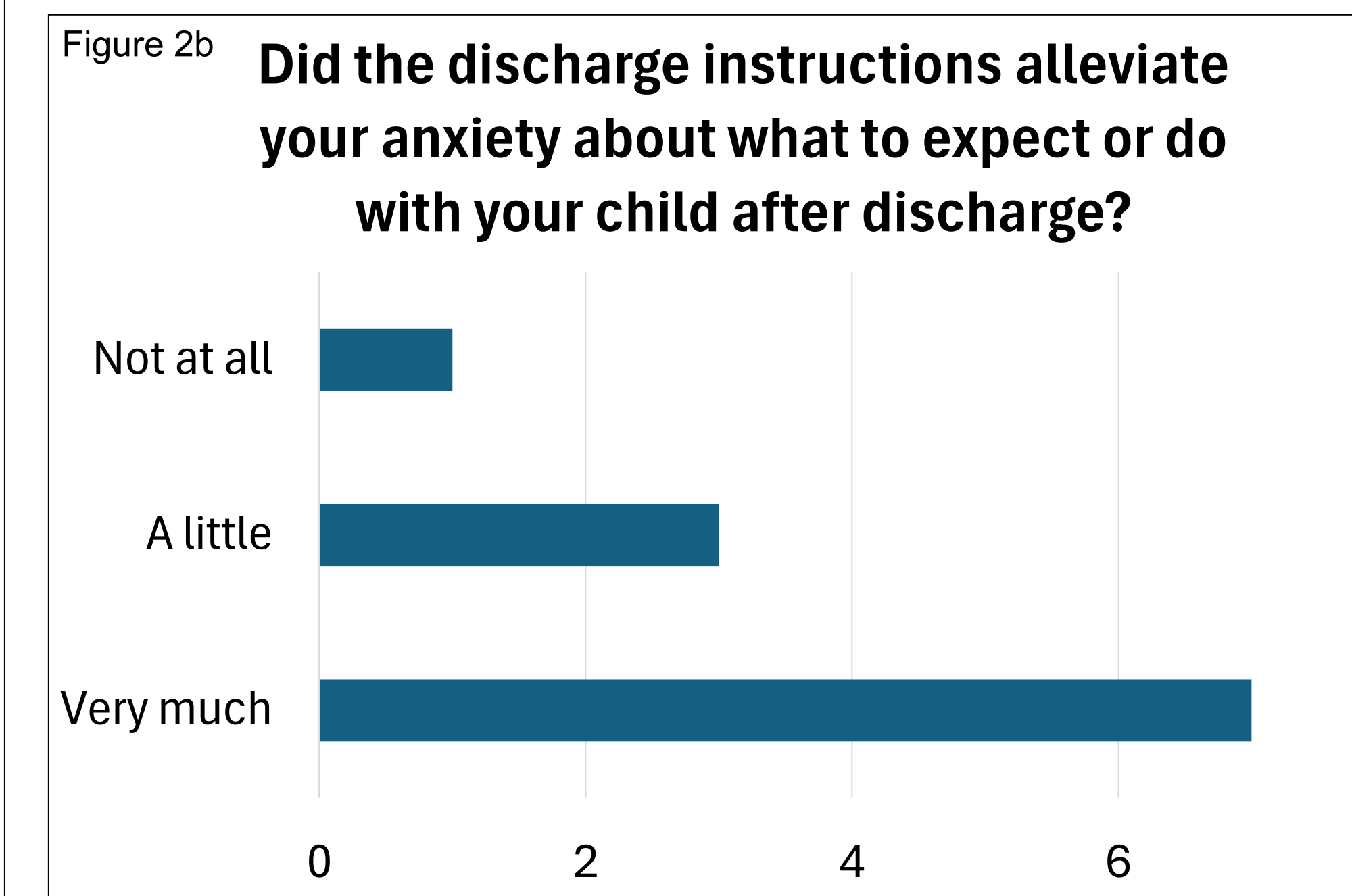
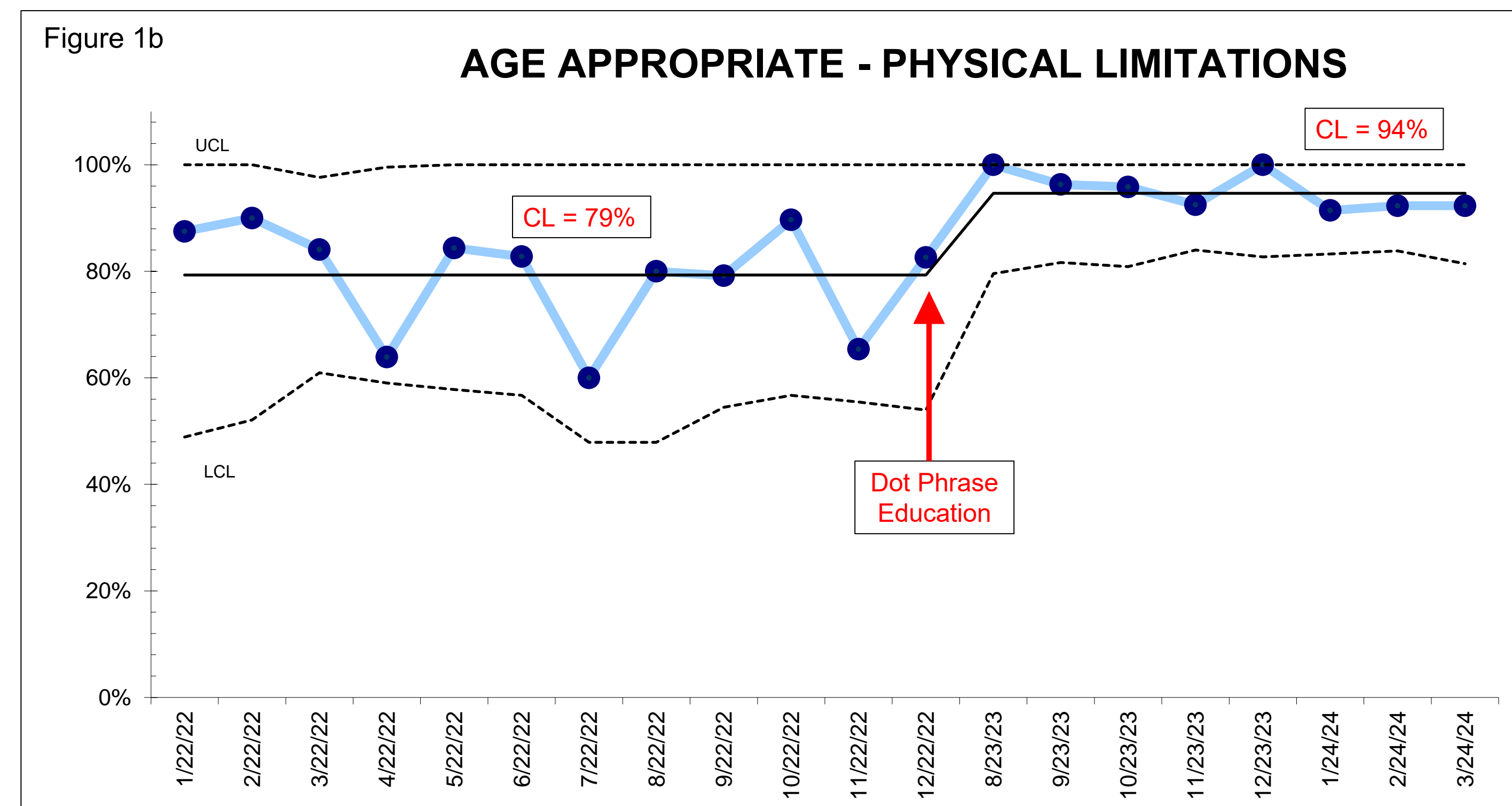
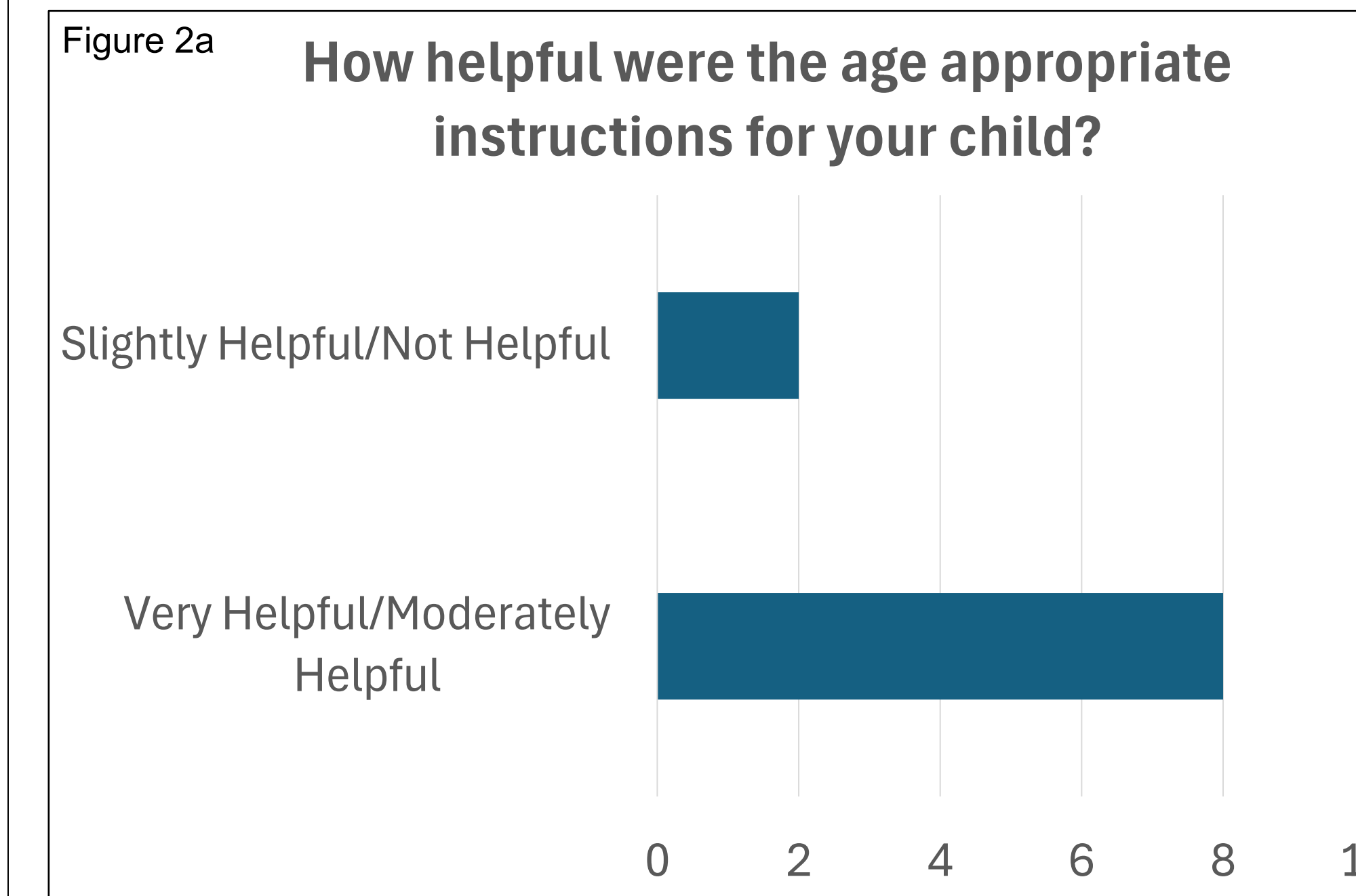
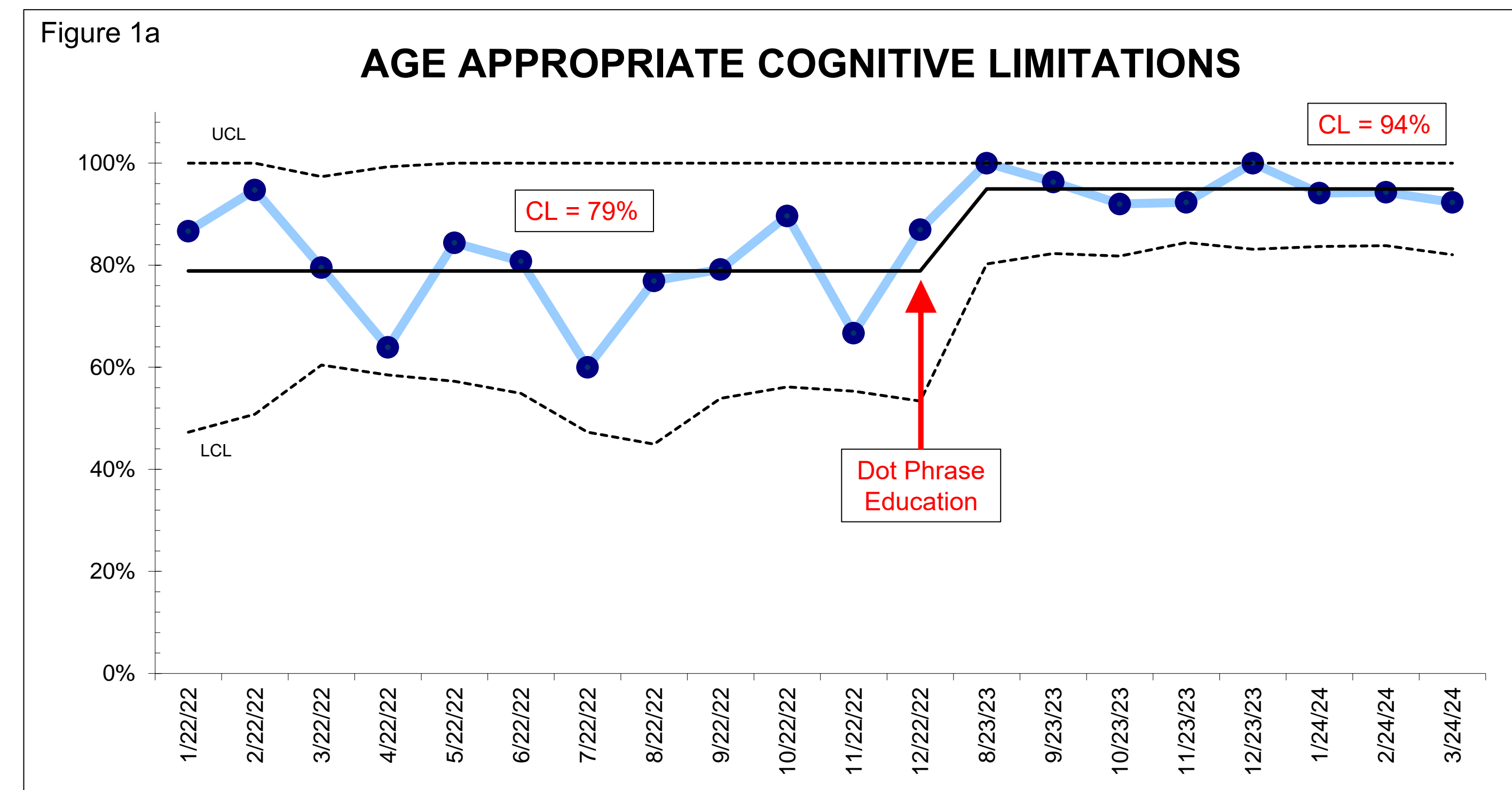
## Objectives

- To increase the proportion of ED patients discharged with age-appropriate instructions for mTBI by 50% by June 1, 2024.
- To determine the impact age-appropriate instructions have on decreasing parental anxiety.

## Methods

- Patients 0-18 years with mTBI/concussion included.
- Multidisciplinary team developed the key driver diagram.
- Key interventions: Development of EMR smart phrases with standardized discharge instructions (based on CDC guidelines) for: children 0-5yrs and ≥ 6yrs.
- Preliminary data collected via EMR: Oct to Sept 2023, followed by smart phrase education: Aug 2023 to Mar 2024.
- Process measures: % patients receiving discharge instructions with head injury specific precautions, age-appropriate physical/cognitive limitations, and clinical diagnosis of concussion.
- Balancing measures: Head CT utilization
- Data analyzed using statistical process control "P" charts (API rules for special cause variation).

## Results / Findings



Race/Ethnicity	Received Age-Appropriate Physical Limitations	Percent	Received Age-Appropriate Cognitive Limitations	Percent	Age-Appropriate Smart Phrase Used	Percent	Total
Asian	23	48.9%	22	46.8%	21	44.7%	47
Hispanic	43	58.9%	42	57.5%	40	54.8%	73
Non-Hispanic Black	24	77.4%	21	67.7%	20	64.5%	31
Non-Hispanic White	97	67.4%	95	66.0%	81	56.3%	144
Other	22	75.9%	23	79.3%	20	69.0%	29
Unspecified	22	66.7%	23	69.7%	20	60.6%	33
		$\bar{x}$ = 65.9% $\sigma$ = 10.69%		$\bar{x}$ = 64.5% $\sigma$ = 11.14%		$\bar{x}$ = 58.3% $\sigma$ = 8.48%	

## Results

- In 976 patients, we observed an improvement in the percentage of patients who received age-appropriate instructions for both cognitive and physical limitations from a mean of 79% to 95%, following the implementation of our smart phrases (Fig 1a-b).
- Parental surveys during Feb – Mar 2024 indicated 63% of parents found discharge instructions were very helpful in alleviating their stress and 80% of parents found age-appropriate discharge instructions very helpful while watching over their child in their recovery period (Fig 2a-b).
- There was no increase in head CT utilization.

## Conclusion/Future Research

- Creating age-appropriate standardized EMR discharge smart phrases for physical and cognitive recovery led to increased incorporation of discharge instructions from the Pediatric ED.
- Parental surveys provided feedback and illustrated the impact of age-appropriate discharge instructions on parents/guardians caring for children during recovery from mTBI or concussions.
- Disparities in use of smart phrase across racial/ethnic populations will be further investigated and incorporated into educational curriculum. Increasing the use of translated instructions according to patients' preferred language can aid in eliminating barriers and tackling parental anxiety (Table 1).