

# NONVERBAL COGNITION PROJECT (NCP)



V. Alvarenga, CNS, MSN, CRRN, RN, L. Anderson, M.A., CCC-SLP, Y. Aramoni, M.A., CCC-SLP, A. Battung, BSN, RN, S. Calahan, MS, CCC-SLP, T. Huang, BSN, RN, C. Iniguez, RA, M. Light, BSN, RN, CRRN, A. Macabuhay, BSN, RN, CBIS, C. Nieto, RN, A. Ornelas, J. Paguio, BSN, RN, CRRN, L. Rodriguez, NA, J. Ronquillo, BSN, RN, CBIS, A. Solomon, RN, CRRN, E. Thompson, BSN, RN, S. Varghese, RA

## Background

- Falls are a significant public health concern with potentially fatal consequences and significant burden for individuals, families, and health care facilities
- 700,000 to 1,000,000 people in the U.S. fall in the hospital each year
- About 250,000 of those falls result in injury and about 11,000 in death
- Several studies pointed out that MORSE Fall Risk Assessment was not developed for inpatient rehabilitation centers but for acute hospitals
- MORSE score only screens verbal cognition and over-identifies a patient's fall risk, which results in reducing focus on highest risk patients (*91% of non-fallers are high risk based on MORSE score*), reducing independence, and unnecessary restriction of low-risk patients
- Nonverbal cognition is not objectively assessed in most fall risk assessments
- Analysis at Cleveland Clinic Rehabilitation Hospital Edwin Shaw in 2020 showed that 96% of their patients who had unassisted falls demonstrated nonverbal cognitive deficits
- Attention and executive function appear to play an important role in the higher order cognitive control of gait, posture, and balance—slower gait velocity, greater gait variability, and perform more poorly on tasks of stepping

## Aim/Purpose

The purpose of the NCP is to design and implement a Unit 1 North Fall Prevention Project (in collaboration with speech therapists) that focuses on decreasing the number of falls and understanding the correlation between the nonverbal cognitive deficits of patients and their risk for fall.

### GOALS:

- Unit 1 North's fall rate per 1,000 inpatient days will be 2.0 or less from February to December 2024
- Unit 1 North will reduce its annual (2024) number of falls by 20%
- Unit 1 North will reduce its annual (2024) unwitnessed falls by 10%

## Problem Statement

In 2023, Unit 1 North had a total of 21 falls. 57% of these falls (12 out of 21) were unwitnessed/unassisted. Unit 1 North also had fall rates of 1.62 to 7.49 per 1,000 inpatient days from January to December 2023.

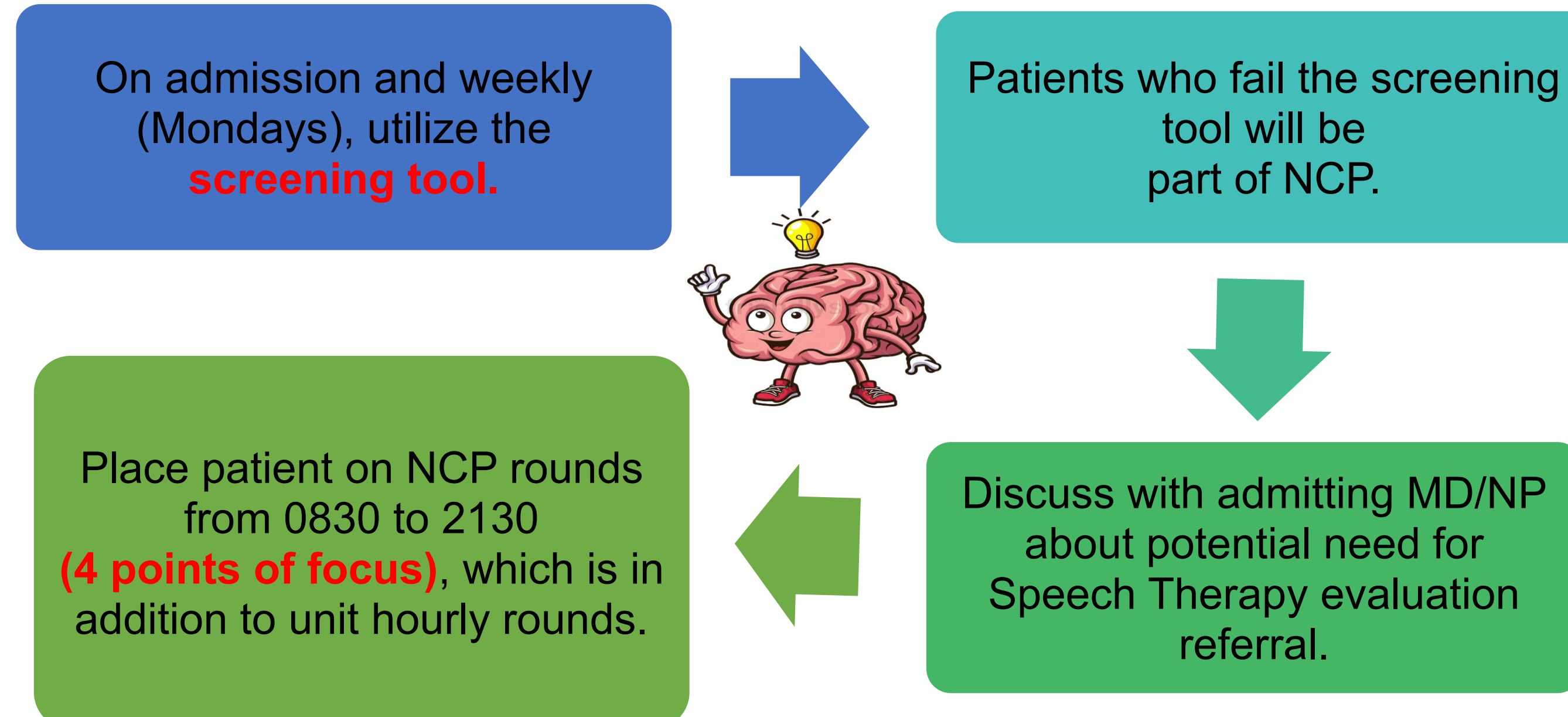
The analysis of post-fall documentation and monthly falls report showed that 67% (14 out of 21) of patients who fell had low and moderate MORSE scores. Also, 73% (8 out of 11) of patients with unwitnessed falls exhibited some cognitive deficits. 63% (5 out of 8) of these unwitnessed falls had low MORSE scores.

## Methods

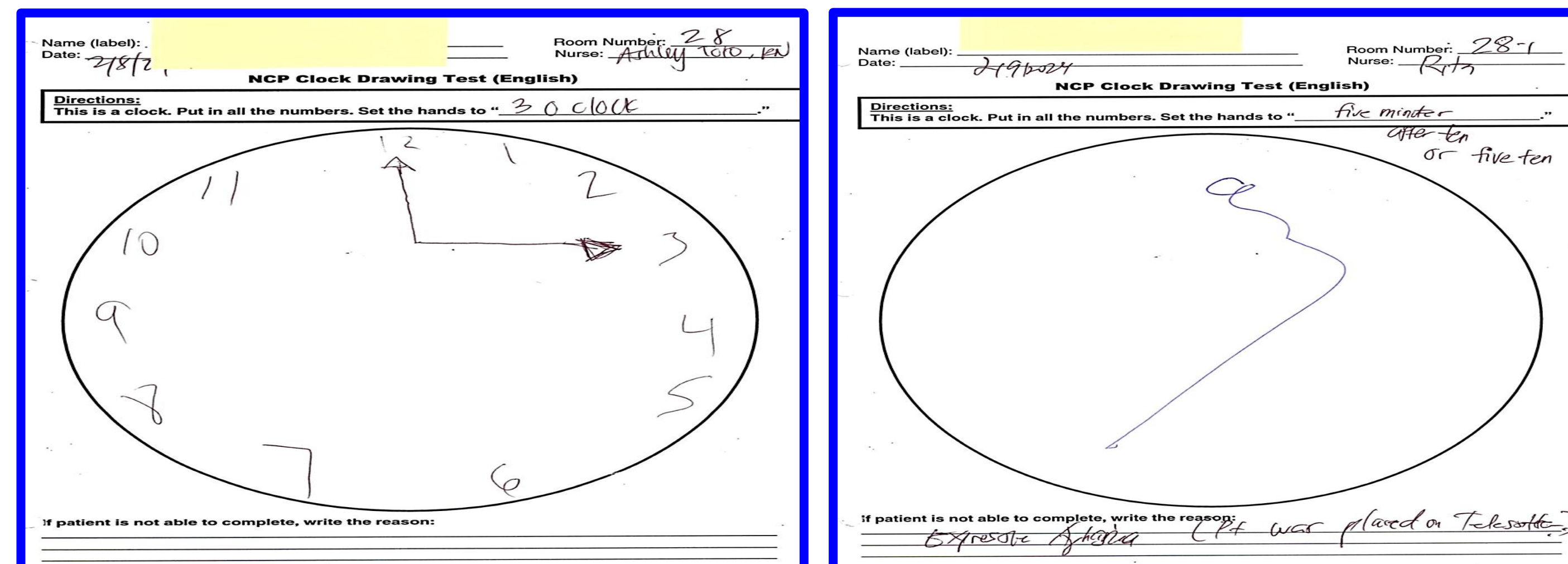
UPIC members examined peer-reviewed articles using the following key terms: *MORSE fall scale, fall prevention, quality improvement, fall risk assessment, long-term care*. Some databases used were: CINAHL, the Cochrane Library, and PubMed. From combining and tailoring interventions from several studies, NCP was developed.

A screening tool with grading rubric has been utilized to identify patients who would benefit from NCP. A comprehensive audit tool for reviewing falls pre- and post-implementation of NCP has been developed. In addition, NCP in-services were conducted among Unit 1 North staff in January 2024.

## Structure/Process



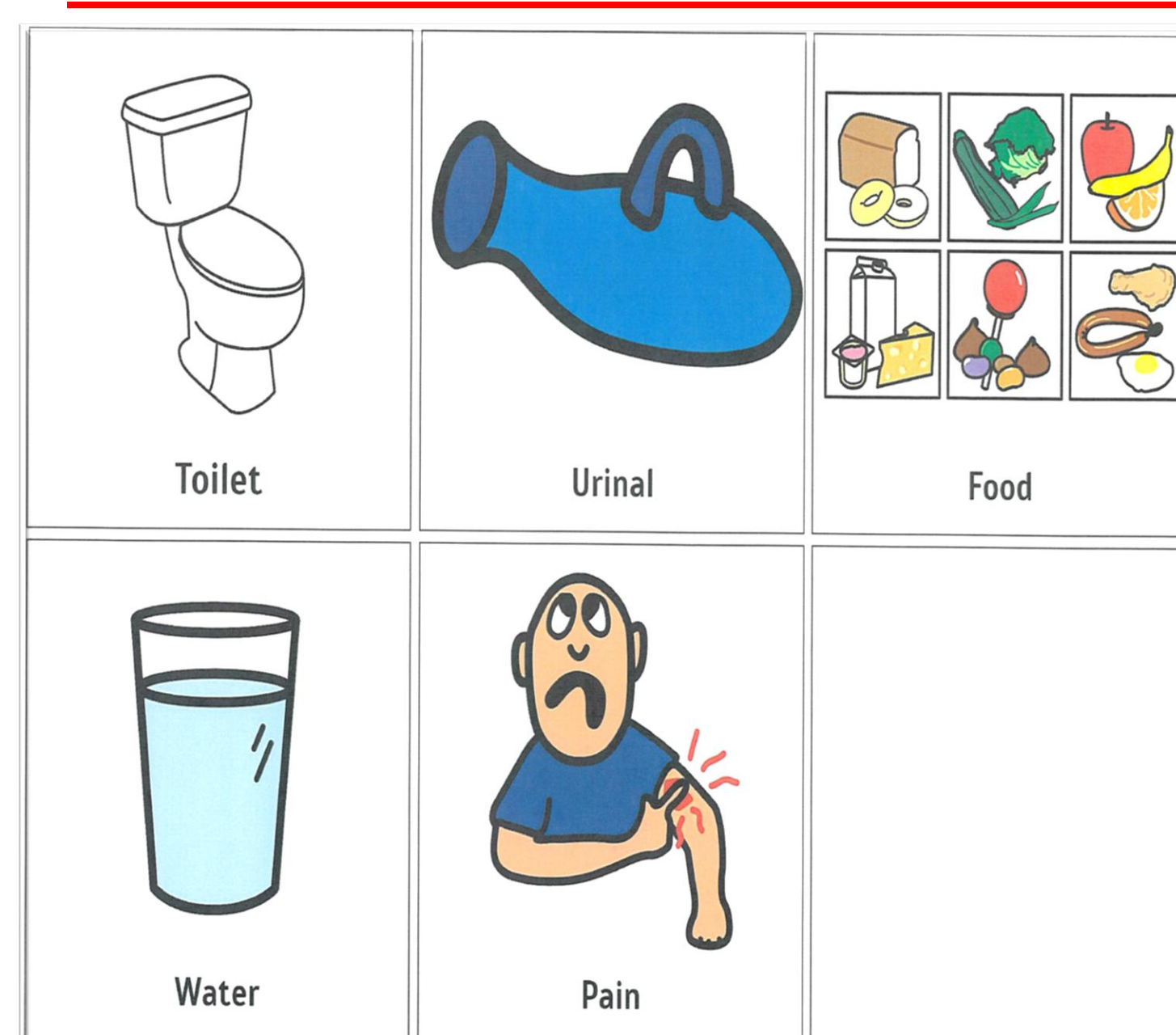
### SCREENING TOOL: CLOCK DRAWING TEST (CDT)



### 4 FOUR POINTS OF FOCUS

- Present the **picture communication board**
- Review/reinforce the glow in the dark/high visibility **Think First Safety Script** with patient and patient's family/caregiver with each encounter to provide simple, friendly, and repetitive reminders
- Turn on/activate **bed and/or wheelchair alarms**
- Ensure that **call light** is appropriate and within the patient's reach

### PICTURE COMMUNICATION BOARD

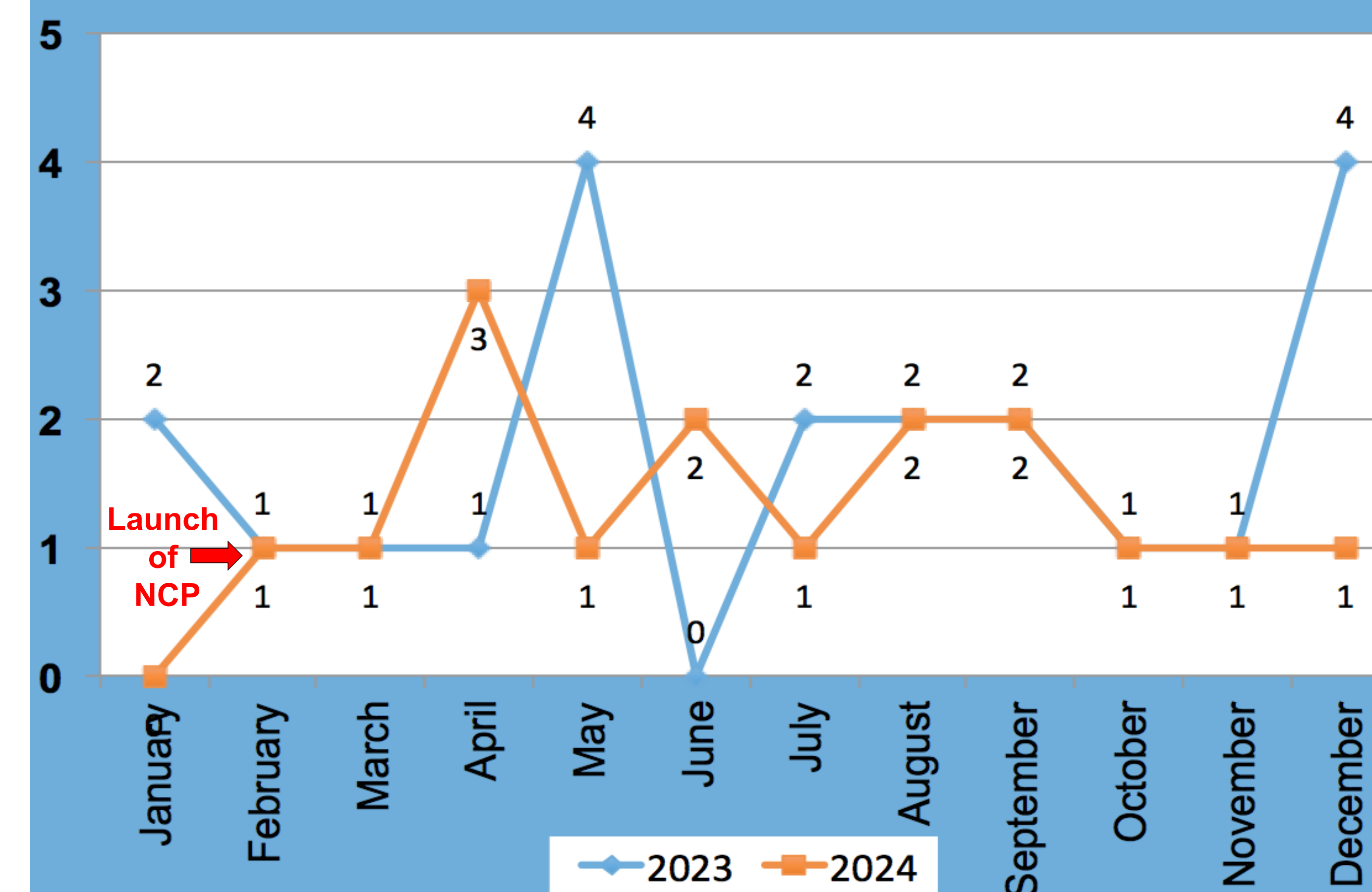


### THINK FIRST SAFETY SCRIPT



## Results

### Falls Report (2023 and 2024)



### Unwitnessed Falls and NCP Status (2023 and 2024)

|                        | 2023 | 2024 |                 |
|------------------------|------|------|-----------------|
| Falls                  | 21   | 17   | 19% ↓ Goal: 10% |
| Unwitnessed Falls      | 11   | 8    | 33% ↓ Goal: 20% |
| Cognitive deficits/NCP | 8/11 | 2/8  | 75% ↓           |

## Conclusion

- Falls within inpatient traumatic brain injury rehabilitation are a significant and complex clinical issue
- Patients with non-intact nonverbal cognition are at high risk for falls
- NCP piloted on **February 5<sup>th</sup> 2024**
- Unit 1 North's maintained a fall rate of **2.0 or less** per 1,000 inpatient days in 2024
- Upon implementation of NCP, Unit 1 North had a total of **17 falls**. 47% of these falls (8 out of 17) were unwitnessed/unassisted. 25% of the unwitnessed falls (2 out of 8) were NCP patients.
- Unit 1 North reduced its annual (2024) number of falls by **19%** and unwitnessed falls by **33%**
- NCP patients and their family/caregivers reported that they were strongly informed and trained regarding safety and fall prevention measures prior to discharge

## Implications for Practice

- Fall prevention initiatives should target times of high patient activity and situations where there is decreased nursing capacity to observe patients
- There is a need to develop and validate a sensitive and specific fall risk assessment tool for inpatient rehabilitation centers
- Many staff members are unaware of the role of nonverbal cognition on risk for falls
- The CDT has been challenging to administer among patients who lack understanding of the analog clock and with certain limitations, such as, limited education/literacy, decreased vision, and decreased hand function
- The Pappadum/Pizza Test (alternative screening tool) was proposed by speech therapists and will be utilized for patients who are unable to complete the CDT

