

Implementation of a Non-Pharmacologic Sleep Bundle to Reduce Delirium

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Problem

Delirium is a preventable condition developing during a hospital stay resulting in impaired cognition, fluctuating mentation, inattention, altered perception, & disorganized thinking. Delirium has an intensive care unit (ICU) prevalence of up to 84%. Chart audits from the Medical Cardiovascular Intensive Care Unit (MCVICU) at an urban teaching hospital showed 14.28% (N=21) of patients screened positive for delirium. Use of the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) screening was inconsistent in recent months resulting in an inability to establish a clear baseline. Additionally, the MCVICU lacks a policy and standardized procedure to attenuate the effects of sleep disturbance. *The evidence supports an association between sleep quality and delirium; however, a cause-and-effect relationship has yet to be established.* Implementation of a non-pharmacologic sleep promotion bundle (NSPB) to enhance sleep and consistent screening using the CAM-ICU may influence the rate of patients screening positive for delirium.

Purpose & Project Goals

The purpose of this quality improvement initiative is to implement a NSPB to promote sleep, encourage consistent CAM-ICU screening to detect delirium, and increase documentation of CAM-ICU scores in the electronic medical record (EMR) to trend delirium rates.

Process Goals:

- Completion of CAM-ICU screening for 100% of patients.
- Provide sleep hygiene interventions to 100% of participants.

Outcome Goal:

- Following implementation of the NSPB, the documented rate of delirium in the MCVICU will be reduced by 100%.

Methods

Setting: The MCVICU is a 22-bed unit that admits 1,500 patients annually.

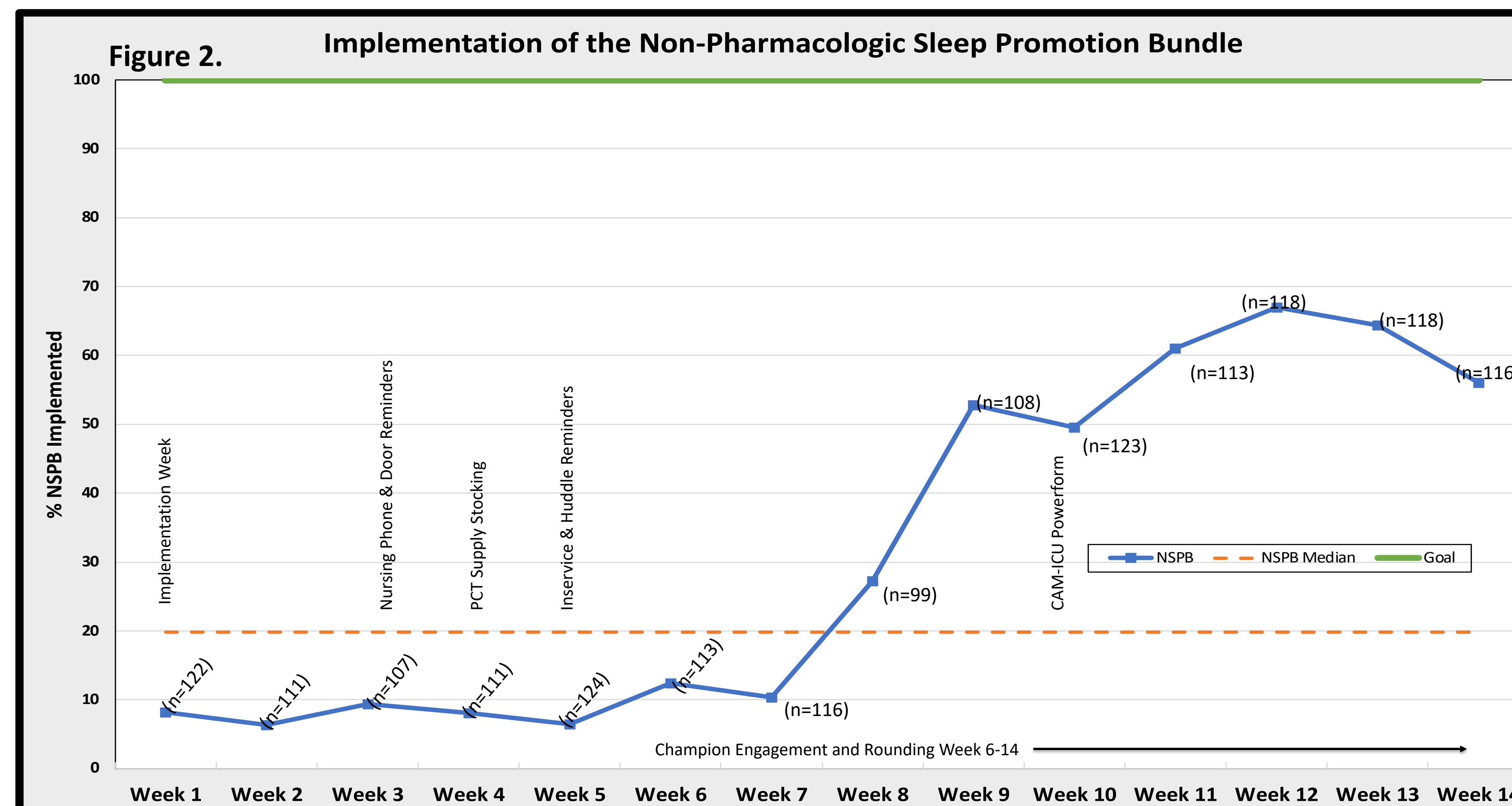
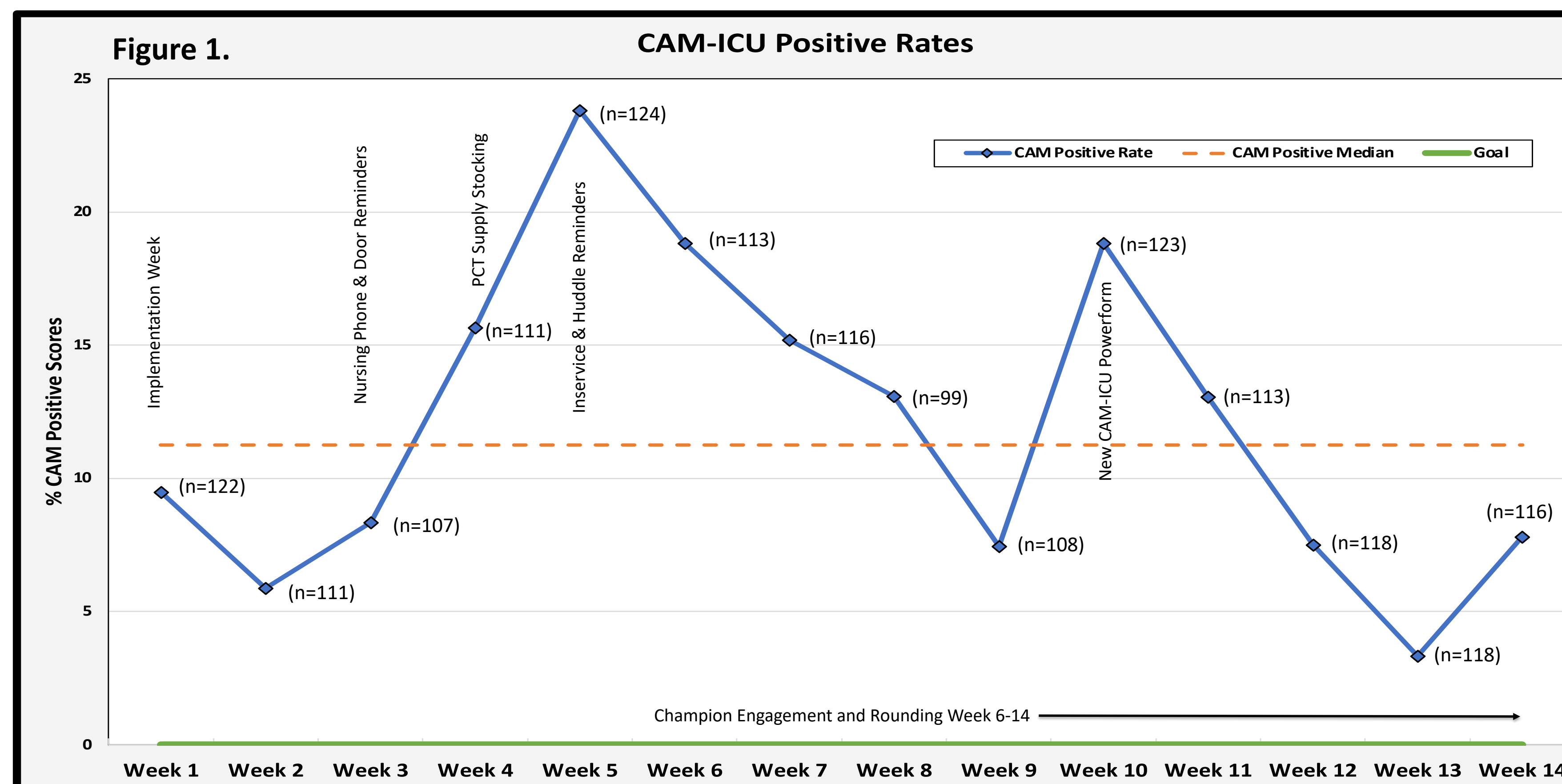
Population: Adult patients (>18 years old); nursing staff (N=72).

Implementation Strategies:

- Education
 - Briefed stakeholders and all nurses, bedside and champions, on the project during one-on-one sessions.
- Intervention
 - Nurses perform CAM-ICU screening on each shift.
 - NSPB applied to all patients between 23:00 and 05:00 nightly. Scan QR Code for interventions.
- Data Measurement
 - Weekly chart audits on each patient.
 - Run charts updated weekly.
 - All data securely stored in REDCap.



Figures



Results

Implementation of NSPB: In the early weeks, bundle implementation fluctuated between 6.3% (n=7) to 12.4% (n=14). During weeks 8 through 14, bundle use increased to 27.3% (n=27) to 66.9% (n=79). A shift in the data occurred from weeks 8 to 14 suggesting special cause variation (View figure 2).

CAM-ICU Documentation: Fluctuations between 61.3% (n=68) to 87% (n=94) throughout implementation. Among patient participants with CAM-ICU positive score indicative of delirium (N=84), scores peaked at 23.8% (n=20) during the fifth week. The rate decreased to 3.33% (N=99; n=3) at week 13. Trend from weeks 5-9 suggests special cause variation for this change.

Total Patients Impacted: A total of 1,604 charts were audited with 72.4% of charts (n=1,161) with documented delirium screening, 31.4% (n=504) received the NSPB intervention, and 12% (n=139) of patient participants had a positive CAM-ICU screen (View figure 1).

Discussion

Nurse driven sleep promotion measures were applied to all patients in the MCVICU and CAM-ICU scores were tracked to establish a trend in the delirium rate. The process and outcome goals, while not met, demonstrated improvement. NSPB usage was as high as 66.9% during implementation. During the early weeks of implementation, a relatively low adherence was observed, but the project lead implemented phone and door reminders, in-services and huddle education, and patient technician stocking of NSPB supplies to *coach the change*. Throughout weeks 8 to 14, the data reflect a shift likely due to increased unit engagement including management documentation audits and champion rounding on night shifts.

At baseline, CAM-ICU documentation ranged from 23.8% to 42.6%, increasing to 61% to 87% throughout implementation. CAM-ICU positive scores decreased throughout implementation. The initial increase of CAM-ICU positive scores may reflect the actual rate of delirium in the unit due to increased consistency with screening.

During week 10, an increase in CAM positive scores may be reflective of decreased NSPB use during that week or implementation of a new CAM-ICU power-form. Lastly, 58.3% (n=42) of the nursing staff reported less than 2 years of experience, emphasizing the need for coaching and education for implementation process and outcome goals to be met.

Limitations: Staff retention, temporary staff, level of patient acuity, age of nursing staff and degree level, and the effect of time may have limited project outcomes.

Conclusions

- Implementation of a NSPB may positively influence patient outcomes.
- Increased use of NSPB and a downward trend in CAM-ICU positive rate *cannot infer causality based on numerous competing variables*.
- Embedding the CAM-ICU in the medical record may further progress screening initiatives.
- Coaching the change and use of unit champions improve staff buy-in, accountability, and adherence to NSPB initiative.
- Sustainability is supported by the CAM-ICU embedded in EMR, unit champions, and leadership participation.

Acknowledgements & References

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Please Scan for References.

