



CAPTURE ME...Medication Dosing Guidelines for NAS Infants

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Aim Statement

To develop a new neonatal abstinence syndrome (NAS) medication protocol to improve the medical therapy of these infants and as a result to decrease the length of stay (LOS) for NAS infants in the NICU.

Background

UMass Memorial is a 49-bed Level III NICU in central Massachusetts with an overall NAS admission rate of 6-7% of all NICU admissions who have an average length of stay (LOS) of approximately 40 days.

The UMass Memorial NICU joined the iNICQ 2013 VON Quality Improvement Initiative for NAS. Due to a large interest in our NICU, the team was divided into three sub committees: medication policy development, parent/staff communication and improving nursing inter-rater reliability of Finnegan scoring. The medication policy committee members included neonatologists, neonatal nurses, neonatal nurse practitioners and the NICU pharmacist.

Method

The medication policy adherence committee reviewed current literature, attended monthly NAS webinars and evaluated the current NAS medication policy to address the issues of prolonged LOS, prolonged time to capture after admission and need to initiate Phenobarbital sooner as an adjunctive therapy to Morphine.

Time to capture was defined as the number of days from initiation of Morphine dosing until the first wean.

The team reviewed the current medication guidelines, implemented changes, and reviewed each case retrospectively to give immediate feedback to staff and recognize trends quickly.

Method Continued

Changes to Protocol Implemented:

- ❖ Q4 dosing of Morphine to Q3 dosing
- ❖ Increase the initial starting Morphine dose
- ❖ Institute Phenobarbital Guidelines
- ❖ Staff and Pharmacy education
- ❖ A copy of the guidelines placed in the each baby's chart for easy reference.

Medication Guidelines for NAS

On admission:

- NAS Scores 8-10: Start Morphine at 0.04mg/kg/dose po Q3 hours
- NAS Scores 11-13: Start Morphine at 0.06mg/kg/dose po Q3 hours
- NAS Scores 14-16: Start Morphine at 0.08mg/kg/dose po Q3 hours
- NAS Scores 17+: Start Morphine at 0.1mg/kg/dose po Q 3 hours
- Maximum dose 0.14mg/kg/dose po Q3 hours
- If infant requires ↑ in dose after admission for scores >10, will ↑ by 0.02-0.04mg/kg/dose po Q3 hours
- Order Q 4 hour vital signs and no CR monitor or POX, but order pulse ox when prone.

Phenobarbital:

- Load with Phenobarbital (dose of 20mg/kg po divided as 10mg/kg/dose x 2 doses) only when maximum dose of Morphine is reached and second drug therapy is required. To be followed by initiation of maintenance dose of 5mg/kg/day po.
- Also start Phenobarbital when unable to wean Morphine for 1 week.
- Adjust Phenobarbital for weight gain ONLY if unable to wean Morphine.
- Obtain levels weekly until stable then Q 2weeks.
- Ideal goal level of 10-20

Weaning:

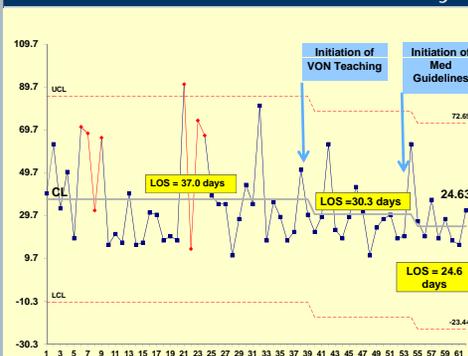
- When good control is achieved "captured", do not wean for 48-72 hours.
- Wean Morphine first if also on Phenobarbital.
- Wean Morphine for mean score ≤8 in past 24 hours. Maintain current dose if mean score 8-10, increase dose if mean score ≥10.
- Wean Morphine dose by 0.01-0.02mg/kg/dose.
- Increase dose back to previous dose (per Kg) if scores ≥10 x 3 doses.
- D/c Morphine once dose is ≤0.02mg/kg/dose.
- Monitor NAS scores x 48 hours after Morphine d/c'd. D/c NAS scoring if mean scores ≤8. D/c home 24 hours after scoring d/c'd.

Discharge:

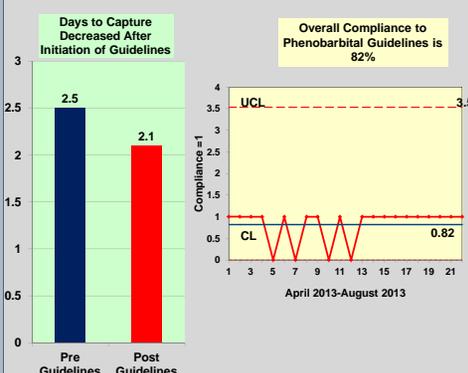
- No need to obtain Phenobarbital levels.
- As part of sign out and dictated D/C summary alert PCP not to weight adjust or increase Phenobarbital.
- Recommend PCP cut dose by half at 2 weeks post discharge & d/c completely at 1 month.

Results

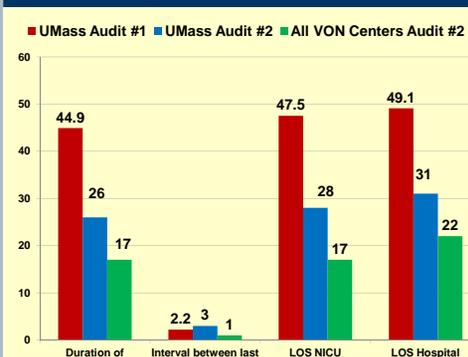
NICU LOS Decreased to 24.6 days



Capture and Compliance Metrics



VON Audits for NAS Treatment



Results

Initial data demonstrates that

- Overall NICU LOS decreased from a baseline of 37.0 days to 24.6 days since the guidelines were implemented.
- Average time to capture for the baseline infants was 2.5 days which decreased to 2.1 days during implementation of the new medication guidelines.
- There were no definitive guidelines for Phenobarbital usage in the past and compliance with indications for starting Phenobarbital with the new medication guidelines is 82% (18/22).
- 20% (3/15) of infants needed to increase dose after 7-10 days of treatment even after consistent Finnegan scores <8 and successful initial wean.

Discussion

- These data demonstrate that the NAS medication group new guidelines at UMassMemorial NICU has resulted in decreased LOS for NAS infants.
- This program allowed for data collection and implementation of a PDSA cycle using higher initial doses of Morphine to reduce the time to capture for NAS infants during their initial treatment period, resulting in better controlled infants.
- Next steps include collection of data compliance with medication protocols and feedback to prescribing providers to get compliance to 100%. Also, exploring phenomenon of infants needing to increase dose on day 7-10 after initial success.

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