Introduction of a Neonatal Early Warning Score Chart

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Background:

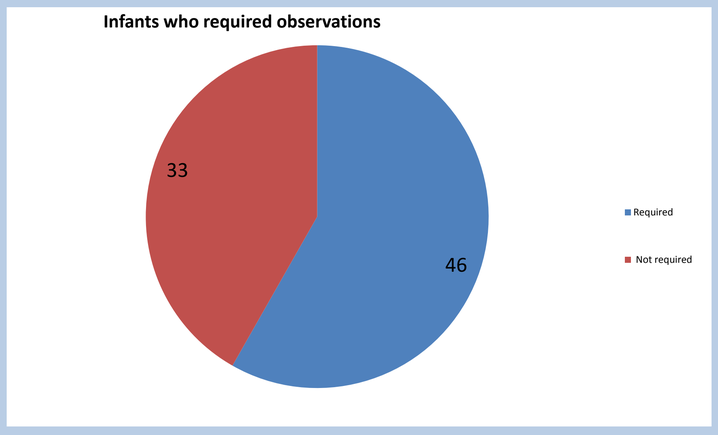
- Early warning scores are used in adult and paediatric settings internationally and nationally.
- They are acknowledged as vital in improving patient outcomes.(Mortensen et al. 2017; Ojha et al. 2023)
- Lack of a standardised chart with a trigger and escalation protocol was identified in Postnatal ward (PNW).

Method:

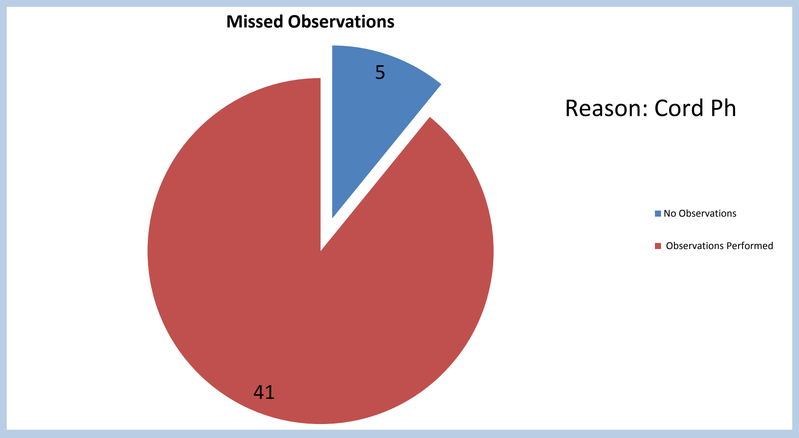
- Development of a new observation chart with escalation protocol to include-temperature, heart rate, respirations, oxygen saturation, neurological status, blood glucose, parental concern.
- Consultation with others who have previously successfully introduced this chart in other hospitals.
- Collaboration with ADOM, Clinical Nurse Managers, Midwives, Clinical facilitator, Clinical placement co-ordinator, Neonatal Consultant.
- Co-operation : Staff information sessions.
- Consolidation: checking-in with midwives, getting feedback on chart. Pilot audit undertaken.

Pilot Audit findings

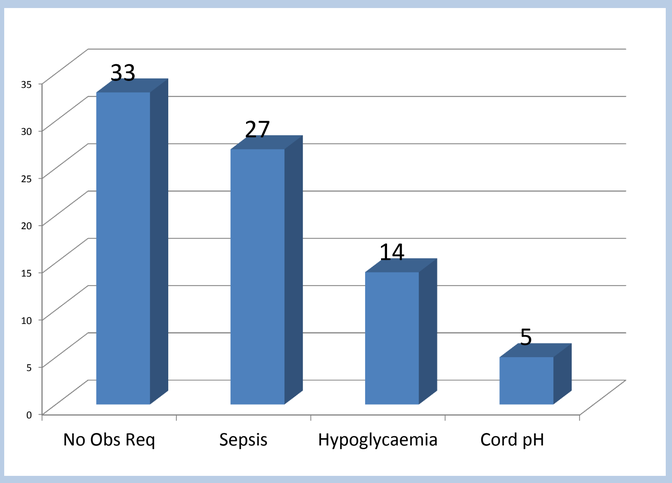
How many infants required observations ?



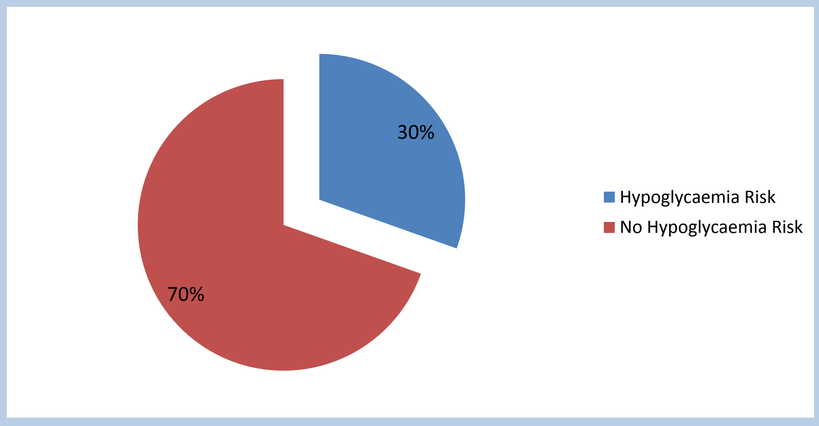
How many infants had an observation requirement but had no observation performed?



Reasons for Observations



Hypoglycaemia risk factors



100% of these babies had 3 pre feed blood glucose checks
13 of 14 of these babies did not have their blood glucose checked at 48 hrs

Criteria for Observations

UHW Neonatal Early Warning Score (NEO-EWS)

If the neonate has any of the risk factors identified below, the neonate's vital signs (routine monitoring) should be recorded 6 hourly for 24 hours and again at 36 hours prior to discharge.

Sepsis Risk Factors	Hypoglycaemia Risk Factors	Subgaleal Haemorrhage Perinatal Stress/Lactic Acidosis Parent Concern Risk Factors
Labour at < 37 weeks gestation	Infants of mothers with Diabetes Mellitus (Gestational or pre-existing Diabetes)	Instrumental delivery
Maternal GBS colonisation – current / historical or GBS status unknown	Prematurity – 36+0-36+6 weeks gestation	Meconium stained liquor
GBS bacteriuria in current pregnancy	Growth restriction infants (birthweight <2.5kg)	5 min APGAR < 7
PROM ≥18 hours	Large for gestational age infant (birthweight >4.5kg)	Cord pH < 7.24
Maternal pyrexia (>38°C) within 24 hours of delivery	Maternal Beta Blockers e.g.Labetalol	Cord Lactate > 4.0 mmol/l
Inadequate Intrapartum Antibiotic Prophylaxis for GBS o Given < 4 hours pre-delivery o Vancomycin (severe Penicillin allergy) o Clindamycin (severe allergy with maternal renal impairment)	Hypothermia – Temperature < 36.5°C	Significant parental concern about infant behaviour or feeding

NEO-EWS Chart

Temp Normal temp range 36.5-37.4°C	≥38		NICU Team
	37.5-37.9		Recheck <1 hour
	36.5-37.4		Normal
	36.1-36.4		Thermal care
	≤36		NICU Team
Heart Rate Normal 100-160/min	≥180		NICU Team
	160-179		Repeat <1 hour
	100-159		Normal
	81-99		Repeat <1 hour
	≤80		NICU Team
Respiration Rate Normal 30-60/min	≥81		NICU Team
	61-79		Repeat <1 hour
	31-60		Normal
	21-30		Repeat <1 hour
	<20		NICU Team
O2 Sats Normal 95 – 100 %	90-94		Repeat <1 hour
	95-100		Normal
	≤90		NICU Team
Chest Recessions	Yes		NICU Team
Grunting	Yes		
Nasal Flaring	Yes		
Cyanosis	Yes		
Apnoea	Yes		
Neuro Obs Alert/Normal Sleep			Normal
Parent Concern/Irritable/Floppy/Jittery			Check Glucose
Lethargic/Drowsy/Seizure			Contact NICU Team
Excessive vomiting / Abdominal distension	Yes		Check Glucose Contact NICU Team
Green bilious vomit	Yes		
Jaundice <24 hr	Yes		
Blood Glucose			Act if <2.8 mmol/l
Total Yellow Zones			
Total Red Zones			
Staff initials			

Neonatal Observation Chart BPM January 2024 / Adapted from Saolta UHG

Conclusion:

- Need for commencement of observations within 30 minutes of birth.
- Need for improved communication process for identification of infants who fulfil criteria for observations.
- Time of birth reminder on chart and 48 hour reminder for blood glucose.

Sustainability:

Plan to reduce neonatal admission rate and ensure safe mother /infant rooming–in practices by:

- Monitoring blood glucose levels in infants of mothers with gestational insulin dependant diabetes on the PNW,rather than in NICU,using this chart.
- Introduction of a sepsis calculator to calculate sepsis risk , while safely monitoring infant observations on PNW.

References:

British Academy Perinatal Medicine (2023) Framework: NEWTT2-Deterioration of the Newborn: A Framework for Practice. https://www.bapm.org/resources/deterioration-of-the-newborn-newtt-2-a-framework-for-
Practice

Mortensen N, Augustsson JH, Ulriksen J, Hinna UT, Schmölzer GM, Solevåg AL. Early warning- and track and trigger systems for newborn infants: A review. Journal of Child Health Care. 2017;21(1):112-120. doi:10.1177/13674935166891

Ojha S, MacAllister K, Abdula S, et al. Healthcare professionals' views to inform revision of the BAPM newborn early warning trigger and track system
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