

A modified WHO 'sign out' to improve neonatal safety following caesarean section

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BACKGROUND

The World Health Organisation (WHO) Surgical Safety Checklist has been shown to reduce perioperative maternal morbidity and mortality worldwide¹. Whilst the maternity 'sign out' checklist has a section pertaining to labelling of the baby and taking cord bloods and/or gases it does not address immediate neonatal care needs. As such, the paper checklist used at Northwick Park Hospital was adapted to include three neonatal specific questions relating to thermoregulation, monitoring blood glucose and completing the 'keeping mothers and babies together' post-natal record.

Figure 1. Amended Paper WHO Maternity Surgical Safety Checklist used in Northwick Park Hospital

Figure 2. Additional three neonatal specific questions added to the Paper WHO Maternity Surgical Safety Checklist

RESULTS

In May 2023, a re-audit of the weekly term admissions and monthly neonatal morbidity and mortality meetings at Northwick Park Hospital was carried out

Findings

- The new process was well received.
- Compliance with completing the amended 'sign out' checklist was 73%. The main limitation being the delay in receiving the new maternity perioperative safety checklist from the printers. In the interim an additional form with the three new questions was designed and printed to be used and attached to the existing safety checklist
- From January 2022 – October 2022 there were 124 term admissions to NNU. 18 of these were infants born via ELCS. 6 were deemed avoidable, of which 3 were deemed to be secondary to incorrect or substandard immediate neonatal care relating to a failure to recognise the risk of hypoglycaemia/a failure to thermoregulate.
- From November 2022 – May 2023 (following introduction of the amended 'sign out' checklist) there were 65 term admissions to NNU. 9 of these were infants born via ELCS. 2 were deemed avoidable, of which none were deemed to be secondary to incorrect or substandard immediate neonatal care relating to a failure to recognise the risk of hypoglycaemia or a failure to thermoregulate.

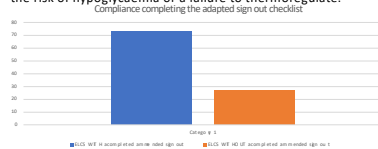


Figure 3. Bar chart showing compliance with completing the amended 'sign out' by obstetricians using the paper checklist

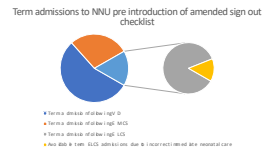


Figure 4. Pie chart showing term admissions to NNU prior to the introduction of the amended 'sign out'

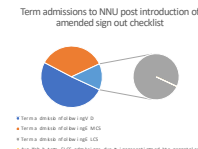


Figure 5. Pie chart showing term admissions to NNU post introduction of the amended 'sign out'

METHOD

1. Review of current practice

In October 2022, an audit of the weekly term admissions and monthly neonatal morbidity and mortality meetings at Northwick Park Hospital was carried out

10 month period
124 term admissions
17 born via Elective caesarian section (ELCS)
6 deemed avoidable
3 deemed avoidable due to incorrect or substandard immediate neonatal care

3 'avoidable' admissions secondary too incorrect immediate neonatal care reviewed in detail
Case 1 – Infant A
ELCS 37/40 – maternal HTN, CKD, GBS
Admitted to NNU with likely sepsis and respiratory distress
Infant at risk of hypoglycaemia for which protocol not followed. Infant noted to have T35.8 having not been nursed in a heated cot.

Case 2 – Infant B
ELCS 37/40 – SGA
Admitted to NNU with hypoglycaemia. Infant at risk of hypoglycaemia for which protocol not followed.

Case 3 – Infant C
ELCS 37+2/40 – maternal T2 DM on insulin and metformin
Admitted to NNU with hypoglycaemia. Infant at risk of hypoglycaemia for which protocol not followed.

Causes for avoidable admission
1. Hypoglycaemia – infant at risk of hypoglycaemia and protocol including early feeding not followed
2. Thermoregulation – infants not being nursed in heated cots as per protocol
3. 'Keeping mother and babies together' post delivery bundle not being filled out

2. Implementing change

Adaptation of the maternity sign out checklist

Addition of three neonatal specific questions to the 'sign out' checklist which is to be completed before leaving theatre. The additional neonatal questions added to the sign-out checklist were finalised following a multidisciplinary approach and were felt to cover all immediate neonatal care concerns

3. Measuring outcome

Checklist quality was evaluated by measurement of checklist completion and active participation. Results of the modified 'sign out' checklist were obtained through the ongoing review of term admissions and neonatal morbidity and mortality meetings.

AIM

The aim was to reduce avoidable admissions to NNU following ELCS at term.

CONCLUSION

A modified maternal WHO surgical sign out checklist with specific neonatal safety questions reduced the number of poor neonatal outcomes in term babies born via planned ELCS. This has contributed to overall enhanced safety of newborn babies following ELCS at term. We have extended the checklist for use in all caesarean sections and propose that other maternity units across the country adopt the modified checklist to further understand the potential benefit in neonatal safety.

References:

1. Haynes AB et al (2009). A surgical safety checklist to reduce morbidity and mortality in a global population. N Engl J Med, 360, 491-9