

Position Paper – Neonatal Unit Mortality**2013 - 2016****1.0 Executive Summary**

The purpose of this paper is to provide the Executive Team with key mortality data and supplementary narrative to enable an assessment of the patient safety concerns identified by the neonatal clinicians relating to an apparent increase in the number of neonatal deaths during 2015/16 and 2016/17 (year to date).

2.0 Background

The Trust provides a range of paediatric and neonatal services. The neonatal unit has 20 cots and provides critical care, high dependency care, special care and transitional care for newborn babies.

The Trust provides a Local Neonatal Unit service (Level 2 care) providing short term ventilation. The Neonatal Unit provides care to 27/40 gestation; any baby born below this criterion is transferred to the nearest Level 3 unit. The critical care and high dependency care cots are interchangeable and can therefore flex according to the needs of the unit.

In June 2015, the Neonatal Unit identified 3 deaths during a 2 week window. These cases were subject to individual case review by the specialty. Due to these deaths occurring within short succession, and that no neonatal deaths had been reported by the Neonatal Unit during 2014/15, an additional Executive Serious Incident Panel was held on 3 July 2015. The summary of care provided to the 3 babies can be found in Appendix 1.

A comprehensive case review was undertaken in February 2016 following the deaths of 10 neonates (including one who died shortly following transfer). A Consultant from Liverpool Women's Hospital was present during this review (See Appendix 2).

2 of the neonatal deaths reported in 2015/16 occurred in February and March 2016 and are therefore missing from this comprehensive case review.

An action plan was drafted by the specialty. Within this, a further 'deep dive' was undertaken by the Neonatal Unit Manager to consider the nursing interventions prior to the neonatal death and included a further review of the health record, vital signs monitoring, feeding charts and blood gas results (See Appendix 3).

This nursing review led to further discussions regarding other possible, contributory factors including the medical devices used, infection control practices and staffing establishment and skill-mix.

These reviews were not received at the Trust's Quality, Safety and Patient Experience Committee.

In June 2016, following the death of triplet 1 and 2, the specialty highlighted their concerns regarding an apparent increased mortality rate. The babies have been subject to a case review; as an outcome from this, all x-rays undertaken are to undergo Radiology peer review.

Using the data available from the Badgernet database, this analysis aims to investigate the validity of these concerns.

The analysis has three aims:

1. To review the **significance** of any increase in mortality levels in the Neonatal Unit during 2015/16 and whether this represents normal variation or a significant change that breaks with long term trends.
2. To evaluate **activity** levels in the NNU during 2015/16 as a possible contributory factor. Was the unit under more pressure of work during the period?
3. To evaluate certain measures of **acuity** in NNU during 2015/16.
Was the condition of neonates admitted to the unit more acute than in previous years?

3.0 Key Issues/Gaps in Assurance

3.1 Mortality Data

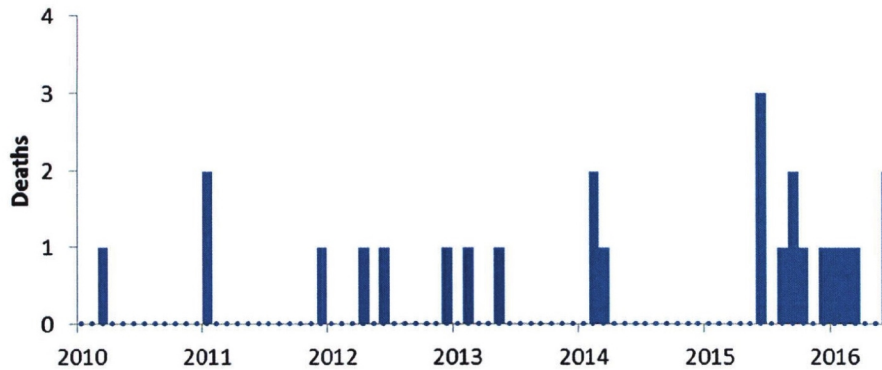
Data discrepancies between the differing systems in place has led to a number of challenges in obtaining an accurate account of the Neonatal Unit activity over time. Having reviewed the outputs from Meditech, BadgerNet (neonatal specific electronic patient record), HED (Healthcare Evaluation Data) and that recorded within the Trust's Bereavement Office, the actual number of deaths occurring within the Neonatal Unit recorded from January 2010 up to and including June 2016 is as follows:

Actual number of deaths in the Neonatal Unit:

Year	Number of NNU Deaths
2010	1
2011	3
2012	3
2013	2
2014	3
2015	8
2016 YTD	5
Total	25

Since July 2016, there has been an increase in the number and frequency of mortalities on the Neonatal Unit which is visible in the clustering of deaths on the far right of the graph below as compared to the relatively sparse incidence of previous years.

Monthly deaths in NNU since 2010



Another way to visualise the data is to plot the time between deaths on the Neonatal Unit. The key points of the graph below are:

- The long term average since March 2010 is a space of **94.8** days between deaths
- From June 2015, this fell to an average space of **31.3** days between deaths.
- 11 out of 12 deaths after 08/06/14 were below the long-term average number of 'days since last mortality'.

Days between deaths on NNU

