

National reporting of neonatal patient safety incidents – can it make a difference?

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PATIENT SAFETY

Working together

An important aspect of safety culture and learning is the feedback provided to staff and patients, or their families, following the reporting and often lengthy investigatory process. This is particularly relevant when serious incidents have occurred. Staff submitting reports may not always be aware of the connection when new initiatives result following the reporting of an incident, particularly when there has been a time lag between the report and the changes. This short article aims to demonstrate how a single incident reported to the National Reporting and Learning System (NRLS) has generated widespread involvement and collaboration across the neonatal community and how reporting offers the potential for front-line patient safety improvements for newborns and their families.

In July 2014 a patient safety report to the NRLS highlighted an outcome of death in an infant following extravasation of parenteral nutrition administered via an umbilical venous catheter (UVC). This case of abdominal tamponade was initially mistaken for possible necrotising enterocolitis (**FIGURE 1**) and by the time it was realised that this was a case of extravasation, the infant had suffered an unrecoverable period of hypoxic ischaemia due to severely compromised ventilation.

All incidents reported as having a severe outcome or outcome of death are reviewed by the national clinical review team within the Patient Safety Domain in NHS England. These reviews are undertaken to ascertain any lessons for national learning or to guide whether a wider search of the NRLS needs to be undertaken to understand more about the number of relevant reports and/or causation of the harm or issue reported. This incident was discussed at the Patient Safety Domain's fortnightly 'virtual response meeting'. Although it was agreed that extravasation is a rare but known risk of umbilical venous catheterisation and therefore a national alert was probably unwarranted, a decision was made to contact the reporting NHS trust to ascertain whether there were any lessons for national learning.

In determining possible learning at a national level arising from the index case, discussions between clinicians at the reporting trust and the patient safety team led to an awareness of contemporaneous initiatives being undertaken elsewhere in the country. The neonatal team in Southampton had been aware of, and indeed auditing, harm and near misses relating to UVCs.¹ By this time the British Association of Perinatal Medicine (BAPM), through its existing safety and sharing forum, highlighted a second case of extravasation injury also involving a UVC and resulting in serious harm. A national online survey was designed

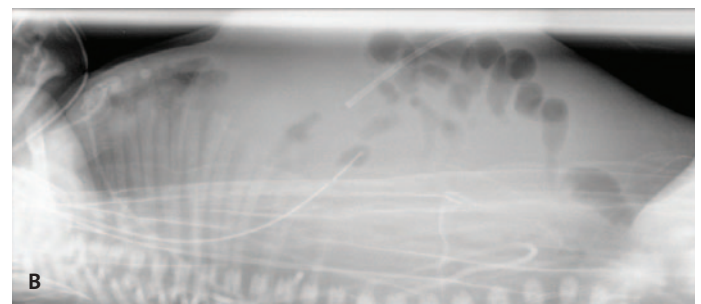


FIGURE 1 The case of abdominal tamponade that was initially mistaken for necrotising enterocolitis. A) An abdominal radiograph at approximately five hours after first onset of abdominal distension, showing the UVC tip at T12 level and ascites. B) A lateral abdominal radiograph at approximately nine hours after first onset of abdominal distension, showing gross ascites and marked abdominal distension with UVC *in situ*.

through a joint collaboration between patient safety leads in NHS England and clinicians. The survey aimed to understand current clinical practices in relation to UVCs and to gauge the range and estimated incidence of complications.

The web-based survey was sent to Operational Delivery Network clinical leads and directors for further dissemination to all UK neonatal units in September 2014. Although many units did not respond and data from just 72 units could be analysed, the survey nevertheless identified significant variation in practices. It also highlighted that 38% of respondents representing their units were aware of at least one adverse incident involving extravasation injury relating to a UVC in the previous five years.²

Of concern was the finding that UVC extravasation appeared to be more prevalent than previously recognised. Data provided by

the Neonatal Data Analysis Unit (NDAU) at the request of the Patient Safety Domain showed that in 2013, 8,746 UVCs were inserted in 164 English neonatal units alone, comprising a total of 37,100 line days (personal email communication, Professor N Modi, December 2014). Although the number of incidents in relation to line days demonstrates the relative rarity of serious UVC complications, the nature of the complications and the potentially devastating impact on infants and their families led those involved to conclude that further work needed to be carried out to try to improve safety and prevent further recurrences.

As a result, BAPM agreed to lead a working group in conjunction with the Patient Safety Domain within NHS England to improve the care and safety of infants requiring any type of central venous catheter. The working group is formed by clinicians who have been involved in UVC related incidents, trainees, nursing representatives, radiologists, surgeons and Bliss staff. The group aims to develop, consult on and produce a framework for practice by late 2015. It is anticipated that the framework will consist of three headline statements and 20 generic principles to improve safety while allowing for local implementation.

The parents of the infant whose case generated the initial incident report were very keen that lessons would be learnt and changes implemented where necessary to avoid any repeat of the circumstances which lost them their baby.

The survey of UVC practices was published within just six months of being conducted. This rapid dissemination of the findings has facilitated prompt feedback to those who generously responded; it has also heightened awareness with a timely reminder of the potential for harm that can ensue with these everyday catheterisation procedures.

This brief overview provides an illustration of the work that has been undertaken in response to a single neonatal incident report

notified to the NRLS. It demonstrates the wide-reaching potential benefits that can arise from patient safety reporting. However this cannot be done without the collaboration of many others willing to examine and critically appraise and review current accepted practices, and develop safer strategies that implement changes for improvement.

Widespread reporting and sharing the learning from cases offers an effective and powerful opportunity to prevent harm to other babies. Coordinated leadership to promote the reporting of serious incidents locally for wider national learning is key to achieving the ultimate aim of reducing harm and optimising outcomes for infants and their families.

Acknowledgement

The authors extend sincere thanks to the parents of the infant whose case triggered this work and who gave their written consent for publication of the case and the X-ray images. Thanks to all colleagues who generously responded to the survey and offered further information. The authors are indebted to Professor Neena Modi, Daniel Gray and the Neonatal Data Analysis Unit for their willingness to share data on UVC insertions; the BAPM Executive Committee for agreeing to lead this important work and to Lisa Nandi for her expertise in the production of the framework. Thanks also to colleagues within the Patient Safety Domain of NHS England for their support in bringing this work to fruition.

References

1. **Saboo A., Sharma A., Edelman J., Salter C.** Umbilical venous catheter extravasation – a retrospective study and quality improvement programme. [Abstract] *Arch Dis Child Fetal Neonatal Ed* 2014;99:Suppl 1 A75.
2. **Hollingsworth C., Clarke P., Sharma A., Upton M.** National survey of umbilical venous catheterisation practices in the wake of two deaths. *Arch Dis Child Fetal Neonatal Ed* 2015 doi:10.1136/archdischild-2015-308327 [Epub ahead of print].

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In collaboration with BAPM, *Infant* journal is keen to help improve patient safety and raise awareness of issues affecting neonatal patients, their families and staff by devoting a specific section to patient safety in each edition of the journal. Anyone can submit an article so if you have ideas for highlighting safety aspects to improve care, please do let us know.

- Have you implemented an initiative locally which has demonstrable benefits for improving safety?
- Are you developing a new initiative which might benefit from a wider application?
- Do you have experience in any human factors-related improvement that you'd be able to share?



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