



Adverse events associated with umbilical vascular catheters in the NICU: a retrospective cohort study

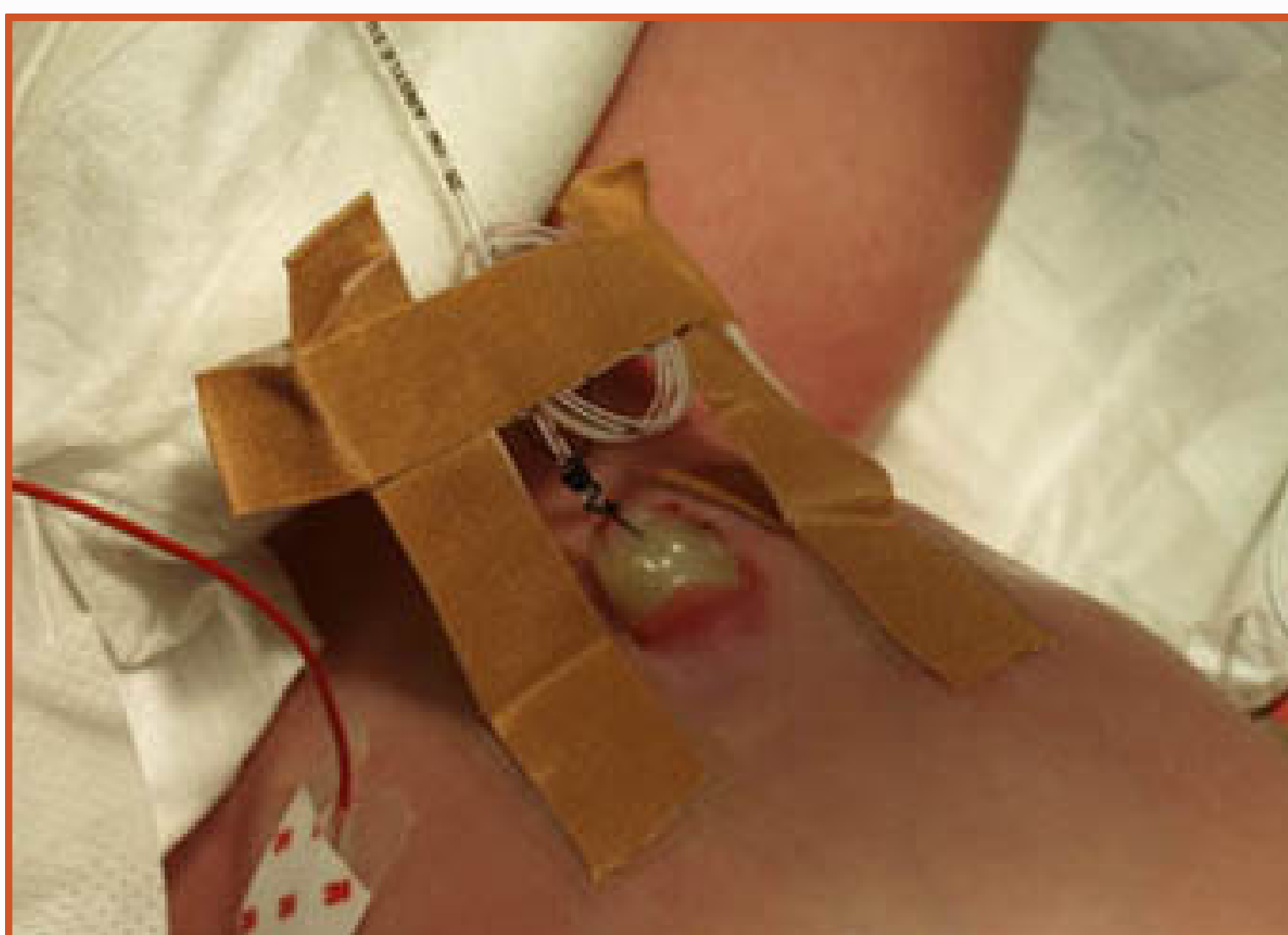
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Introduction

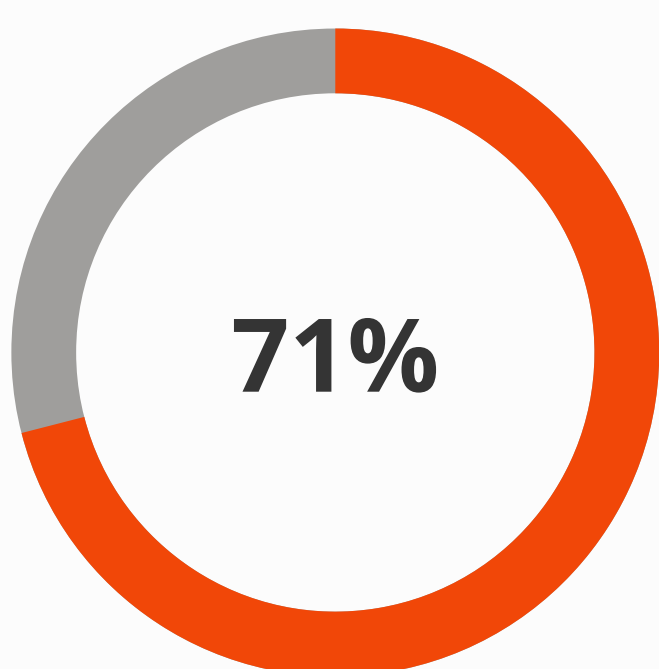
- Umbilical catheters are associated with mechanical, infectious, and thrombotic adverse events (AEs), with 13% of umbilical venous catheters (UVCs) and 9% of umbilical arterial catheters (UACs) associated with an AE.
- Current international guidelines recommended limiting catheter dwell time to reduce the risk of AEs, yet other factors may also increase risk that warrant further investigation.



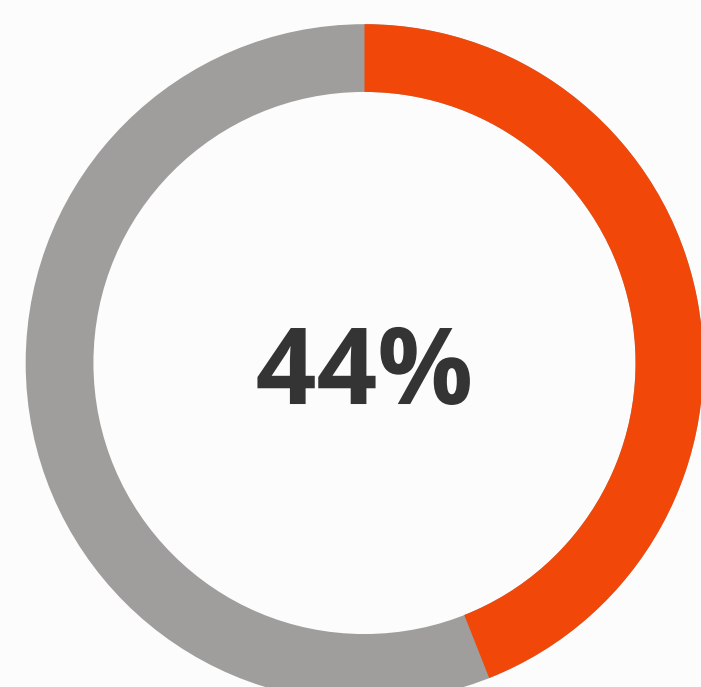
Evans, 2011

Results

- The dataset consisted of 236 infants with 245 UVCs and 249 UACs in 836 and 887 days of dwell time.



71% of UVCs were associated with an AE



44% of UACs were associated with an AE

- Malposition on 1st x-ray



- 2-2.6% clinical line sepsis (no CLABSI)

- A dwell of ≥ 7 days significantly increased the risk for UVC tip migration and all UAC AEs.

- Infants with a birth weight between 1000 - 2499 grams or born between 27-32 weeks' gestation had a significantly reduced risk for all UAC AEs.

Aim

- To determine the incidence and risk factors for AEs (all cause, and individual types) associated with UVCs and UACs in the NICU.

Methods

- A retrospective cohort study was conducted in an Australian NICU.
- Medical records, x-rays and electronic results were reviewed.
- Log binomial generalized linear models were used to estimate the incidence proportion (%), the Incidence Rate and the Incidence Risk Ratio.

Conclusion

- Ultrasound guidance may improve insertion success and limit the need for x-ray, catheter manipulation and replacement.
- Routine tip surveillance is necessary to monitor for UVC migration.
- The low umbilical catheter infection rate in this NICU may be due to insertion practices, the use of bacterial filters and infection prevention education rather than prolonged dwell time.
- Further investigation is required for why infants with a birth weight between 1000-2499 grams have reduced risk of an AE associated with UACs.

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