

Excellent Line Care on Critical Care: Lessons for Improvement

Dr J Bowen and Dr J Hunter, Nottingham University Hospitals Trust

Introduction

Vascular access devices are a necessity of critical care, however are frequently linked to healthcare-associated infections¹. Nottingham University Hospitals Critical Care (NUH-CC) has been recognised as an outlier in the number of ICU-acquired bloodstream infections by ICNARC data². While there are multiple possible contributing factors, the larger issue of line care warranted review.

Methods

Two PDSA cycles were completed to review lines in NUH-CC. Snapshots of current indwelling lines for patients across Adult Intensive Care and High Dependency, totalling 200 lines, were reviewed over a four-week period at two instances.

Data included where lines were inserted, documentation of insertion, daily site monitoring and whether the line was still required.

Concurrently, junior medical staff were surveyed to explore attitudes and perceived barriers to improve line insertion and documentation.

Results:

202 lines reviewed: 93 arterial lines, 123 cannulas, 85 central venous catheters (CVCs), 4 midlines/PICC lines and 9 vascaths. 63% had been inserted on NUH-CC.

The main barriers to excellent line care on NUH-CC are:

- documenting line insertion (especially cannulas)
 - 26% of all line insertions were not documented
 - 35% all cannula insertions were not documented
- reviewing lines regularly
 - 19% lines had not been documented on the latest review
- Identifying unnecessary lines
 - 13-17% lines were no longer necessary and could be removed

Staff report:

- 16% felt it was difficult to document lines effectively
- Pre-printed stickers are very useful, but frequently unavailable
- Distractions, lack of space for documentation, and human error were common reasons for substandard documentation
- Education in expected standards for line care would be useful

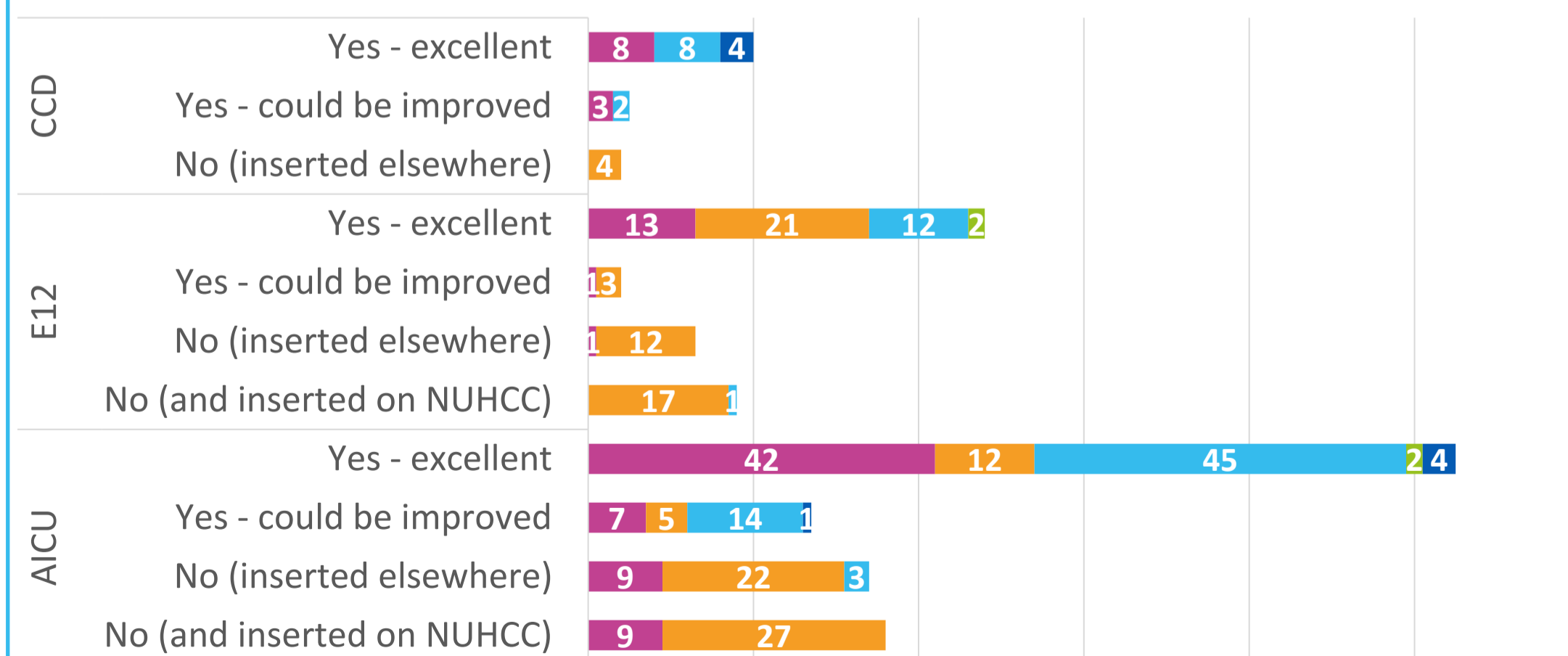
Conclusions

Issues regarding documentation and regular review of lines (including removal of superfluous lines) prevent NUH-CC from achieving consistently excellent line care. Staff appreciate having pre-printed stickers for documentation, but their frequent absence impedes their wider use.

This project identified a role for additional education of junior medical staff, towards improving line documentation and prompting timely line removal. A focus group is to be conducted to do this and create an easily accessible tutorial. Work at a larger organisational scale should be considered to improve availability of insertion stickers and efficiency of daily proformas to empower effective documentation.

Quality of line insertion documentation across units

Arterial Line Cannula CVC PICC or Midline VasCath



References

- National Institute for Health and Care Excellence [NICE]. (2014). *Quality statement 5: Vascular access devices* [Quality standard [QS61]].
- Intensive Care National Audit and Research Centre [ICNARC]. (2022). *Quarterly Quality Report: Queen's Medical Centre, Adult Intensive Care Unit*. 1 April 2021 to 30 September 2021. Case Mix Programme.

With thanks to Dr G Gibbon and all involved with data collection.