

Engaging clinicians to identify factors contributing to bloodstream infections associated with peripheral intravenous catheters

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Introduction

The rate of healthcare-associated *Staphylococcus aureus* bacteraemia has been increasing in Aotearoa New Zealand since 2017. Over two-thirds of these events are related to vascular access devices. No nationally standardised approach to the management and monitoring of peripheral intravenous catheters (PIVCs) exists, and there is no clear picture of current practices in Health New Zealand – Te Whatu Ora hospitals.

Te Tāhū Hauora Health Quality & Safety Commission conducted an initial stocktake of PIVC practices and held regional workshops with subject matter experts from multiple disciplines to understand current practices and clinician experiences.

Aim

To understand the current state and deficits of PIVC management in public hospitals from the perspectives of a wide range of clinical groups to inform a national quality improvement initiative.

Methods



In August 2023, following the workshops, clinicians participated in a survey on PIVC management using an interactive platform called ThoughtExchange (www.thoughtexchange.com).



ThoughtExchange allows participants to share thoughts, experiences and ideas anonymously. Participants can look at conversations, add comments and rate others' contributions multiple times throughout the survey period.



An Exchange was conducted with clinicians in three cohorts: general (emergency, anaesthesia, infection prevention and control, infectious diseases, clinical microbiology, ambulance), **resident medical officers** and **women's health**.



Participants were asked: 'What factors do you think contribute to infections arising from peripheral intravenous catheters, and how can we prevent these infections?'

Results

A total of 216 people responded: general (n = 149), resident medical officers (n = 49) and women's health (n = 18).

Participants contributed **269 thoughts**, rated on a scale of 0-5. The total rating score was 4,034, indicating good engagement.

The most talked about factors that contribute to PIVC infections were poor asepsis, long dwell times or idle lines and inadequate monitoring (Figure 1).

The **most highly ranked thoughts** (score option 0-5) related to inadequate monitoring, poor hand hygiene, long dwell times or idle lines, site selection and unnecessary insertion (Figures 2 and 3).

Acknowledgements

Thank you to everyone who participated in these Exchanges.

Figure 1: PIVC ThoughtExchange – themes by total thoughts

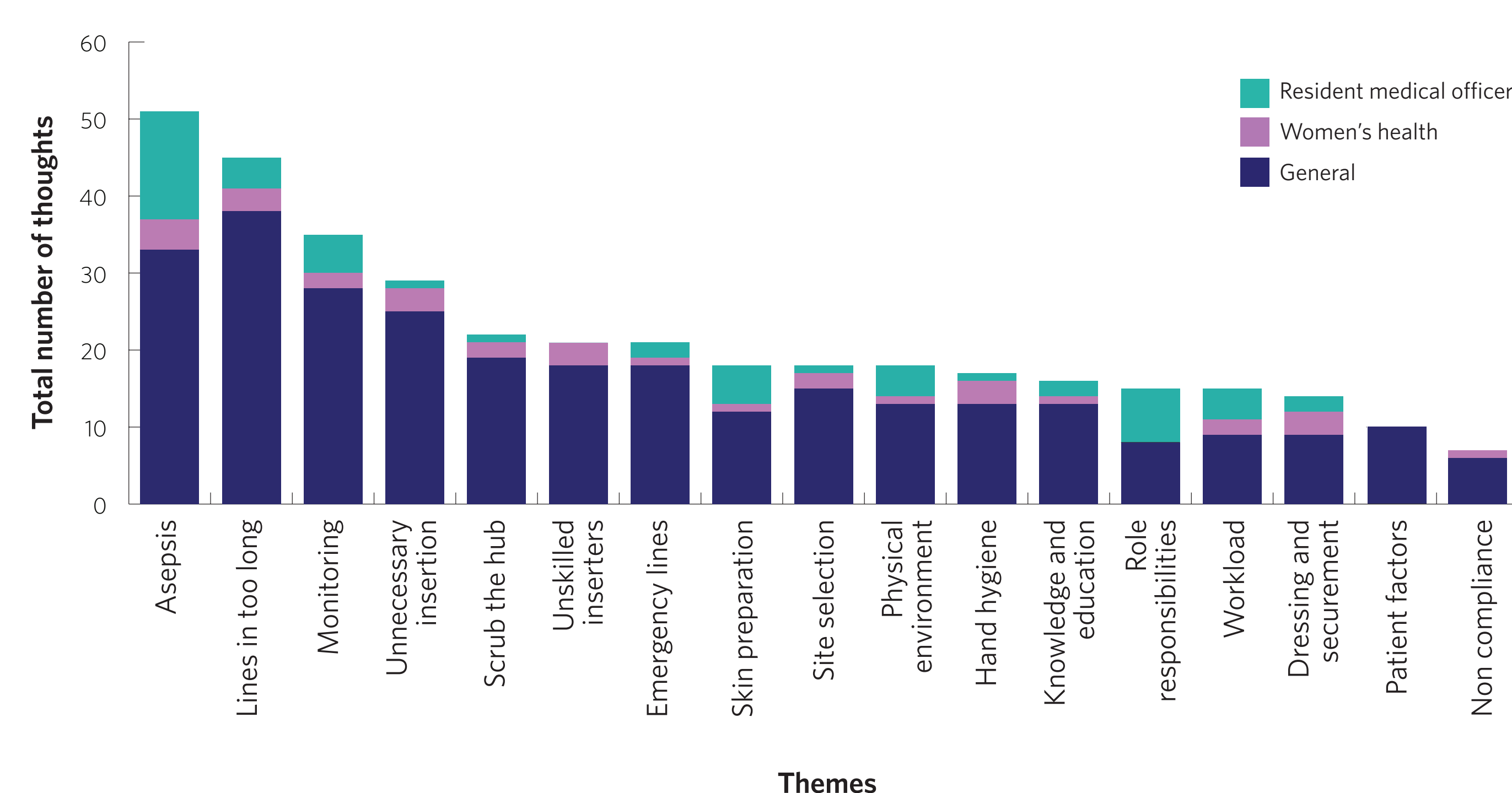


Figure 2: PIVC ThoughtExchange – top five themes by star rating

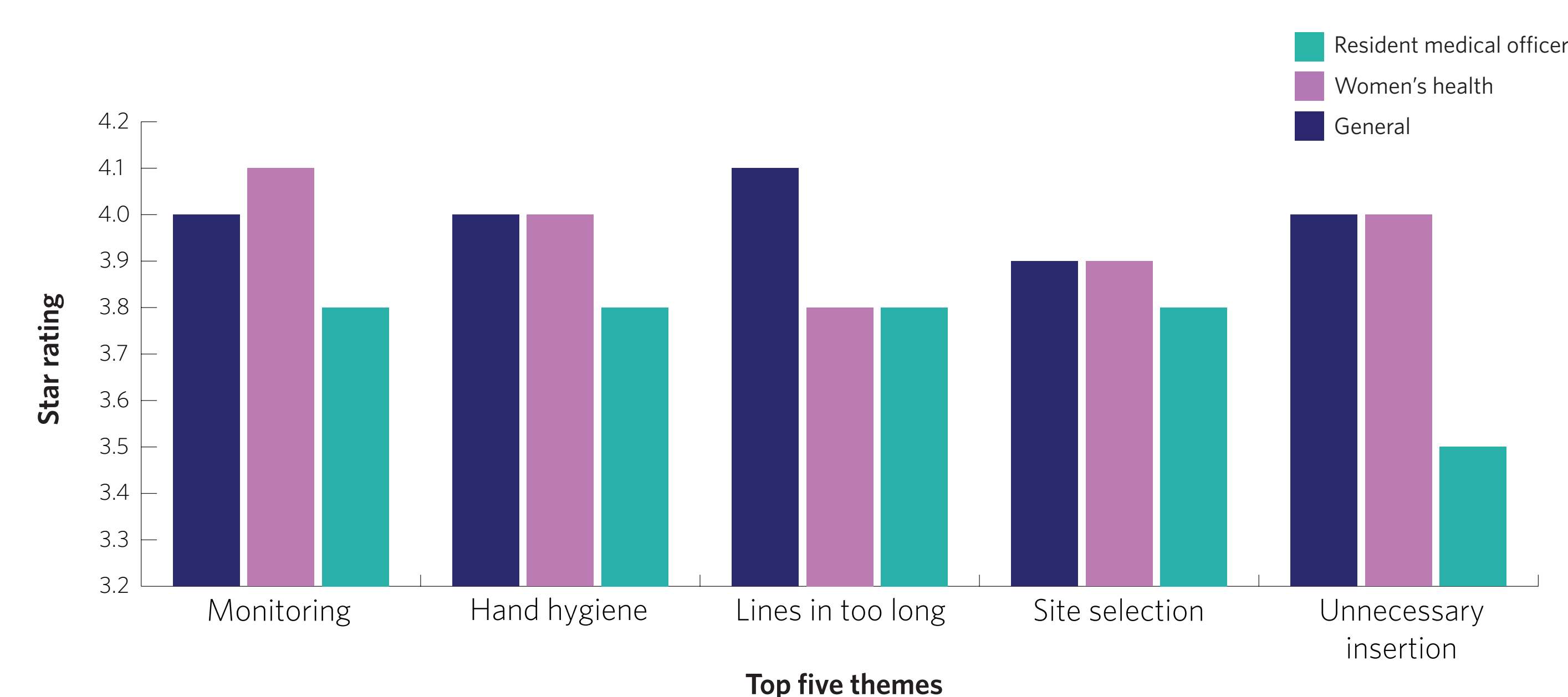


Figure 3: PIVC ThoughtExchange – highest-ranked thoughts (general)

| Participant thought | Star rating |
|---|---------------------------------|
| PIVC that are not removed as soon as no longer indicated and left idle are a factor. I believe staff are hesitant to remove PIVC due to resource constraint. Time/expertise is needed to replace PIVC esp patients with difficult IV access. | 4.3 ★★★★★ (22) Ranked #1 of 214 |
| Lack of appreciation of the invasive nature of an IV and complacency around asepsis when inserting or accessing the device. Breaks in technique may have serious consequences. | 4.3 ★★★★★ (20) Ranked #2 of 214 |
| Staff knowledge of the ongoing infection risk PIVC pose for a patient is insufficient. PIVC are not seen as a serious infection risk. Staff understanding this risk in more depth may be more motivated to remove PIVC as soon as no longer indicated and take signs of phlebitis seriously. | 4.2 ★★★★★ (23) Ranked #3 of 214 |
| PIVCs placed in ED "just in case" but not used and yet still left in place when transferred to the ward. Creates an unnecessary risk that PIVCs will not be removed and will be unmonitored on the wards. | 4.2 ★★★★★ (22) Ranked #4 of 214 |
| Poor observation by clinical staff. Regular observation for signs of infection to ensure early removal of device. | 4.2 ★★★★★ (22) Ranked #5 of 214 |

Conclusion

- » This novel interactive survey platform allowed for interaction with a broader range of health care professionals than usually captured by traditional means.
- » It also provided findings consistent with those from a district survey and regional workshops held in mid-2023.
- » Te Tāhū Hauora Health Quality & Safety Commission is planning a national quality improvement initiative to reduce bloodstream infections associated with PIVCs, and the findings from the Exchanges will inform this initiative.

References

- Barratt R, Clendon G, Gibson B, Roberts SA. 2022. Sources of healthcare-associated *Staphylococcus aureus* bacteraemia in New Zealand acute hospitals. *New Zealand Medical Journal* 135(1563): 29-35

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