Infection prevention and control programme
Te rōpū tohutohu rautaki ārai mate

Te Tāhū Hauora
Health Quality & Safety Commission

Peripheral intravenous catheter infections quality improvement initiative

Regional workshops – key findings

Background

Te Tāhū Hauora Health Quality & Safety Commission (Te Tāhū Hauora) reports healthcare-associated *Staphylococcus aureus* bacteraemia (HA-SAB) as a quality and safety measure. The rate of HA-SAB in district hospitals has been increasing steadily since 2017. Many HA-SAB events are preventable, especially those relating to intravascular devices, which account for the majority of all HA-SAB events. An analysis of the-then DHB HA-SAB source data for 2017–2021 showed that peripheral intravenous catheters (PIVCs) as a device-related source increased from 34 percent in 2017 to 46 percent in 2020. HA-SAB reduction was identified as a focus item for the National Quality Forum in 2022.

The Te Tāhū Hauora infection prevention and control (IPC) team are planning a national quality improvement initiative to reduce bloodstream infections associated with PIVCs in hospitals.

Scoping for the initiative included four regional in-person workshops that were held in May 2023. The aims of these meetings were to:

1. share local PIVC-related quality improvement activity
2. identify and understand the factors contributing to PIVC-associated infections in Aotearoa New Zealand
3. generate ideas for improvement.

Attendees

Up to three participants from each health district were invited to attend one of four workshops held in Auckland, Wellington, Christchurch and Hamilton. A total of 55 participants represented the following groups:

- infusion therapy/vascular access
- infection prevention and control
- infectious diseases and clinical microbiology
- phlebotomy
- anaesthetic technicians
- junior doctor clinical skills training
- private surgical hospitals
- Accident Compensation Corporation (ACC) treatment injury prevention
- nursing management

- clinical nursing education
- patient safety, quality and risk.

Workshop programme

Each workshop had a similar agenda. At the start of the workshop, Te Tāhū Hauora staff provided a background on the initiative. ACC staff presented initial findings from an internal review of the Know Your IV Lines (KYIVL) programme, and a representative from each district gave a 5-minute lightning talk on a quality initiative in their district related to PIVC management. Many presented on their organisation's involvement with the KYIVL programme.

This was followed by group activities using a liberating structures approach. Participants were assigned to a table based on their role and organisation. This resulted in a multi-disciplinary representation at each of the three or four tables. Each group worked through two activities in which they were asked to consider a question related to PIVC-related infections in their workplace. Participants discussed ideas and suggestions within their group and then shared with the rest of the groups. Although the questions were the same for all four workshops, there were some small differences in how the groups approached the questions and presented their feedback.

The workshops were designed to capture participants' expertise and experiences with PIVC management. The Te Tāhū Hauora IPC team analysed the information gathered. Information written on Post-it notes was transcribed to a digital version. Similar ideas were grouped to create primary and secondary themes. A quality improvement approach was used to summarise the findings from the workshops into an Ishikawa diagram to capture factors contributing to PIVC infections and a driver diagram to capture ideas for change.

Identifying factors that contribute to PIVC-related infections

In the first group activity, participants identified as many factors as possible that contribute to PIVC-related infections in their workplace and used Post-it notes to capture each factor. The groups were then asked to cluster the ideas into themes.

The group work from the four workshops generated 503 Post-it notes, with 94 factors identified that contributed to PIVC infections. The most frequent factors are shown in Figure 1.

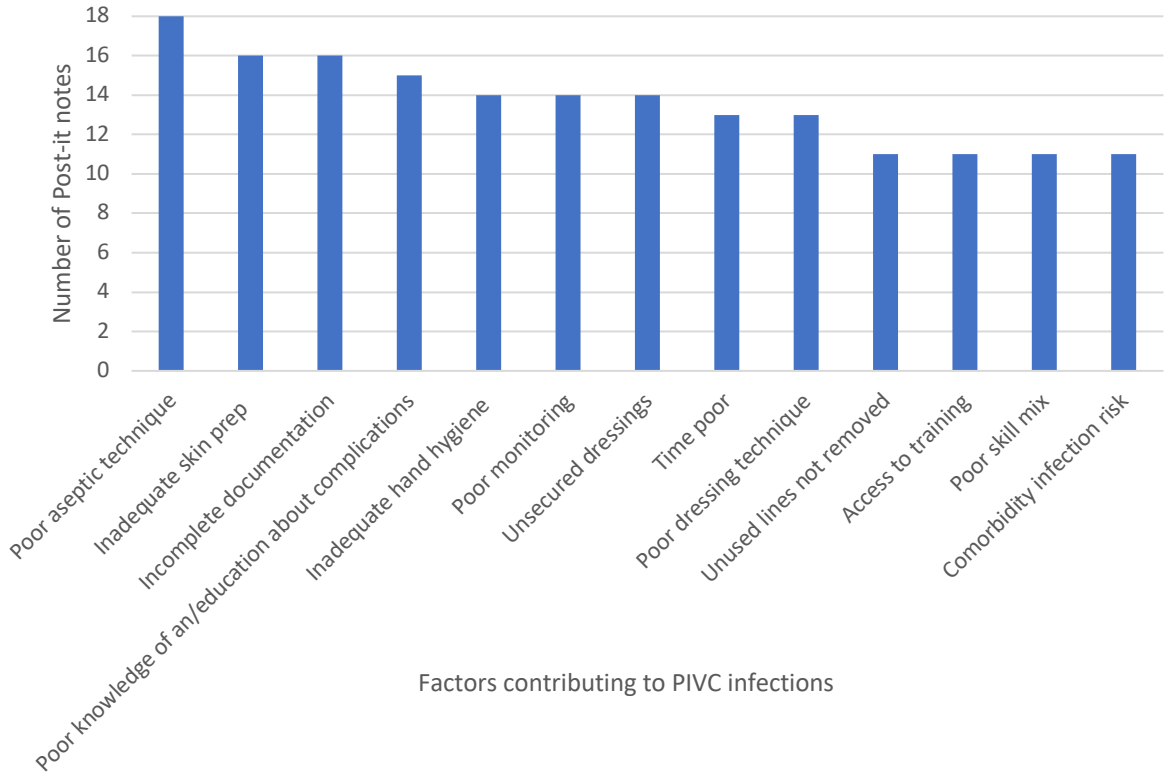


Figure 1: Number of Post-it notes for the most frequently suggested factors

The themes identified from each group were combined for each region (Table 1).

Table 1: Factors contributing to PIVC infections - Summary of themes

Region	Factors contributing to PIVC infections - Themes arising from groupwork
Northern	• Lack of knowledge, skills, competency, training, education • Poor insertion technique, asepsis, competency, location • Lack of clarity around dwell time – just in case • Cultural factors: leadership, confidence, 'just leave it in' mentality, multi-disciplinary team • Lack of standardisation of policy and procedures nationally, Lippincott • Equipment-related issues: extension sets, PIVC kits, dressings • Poor monitoring of the site • Patient-related factors • Staffing factors: shortages, junior staff, Clinical Nurse Educator pulled to the floor, lack of time

Region	Factors contributing to PIVC infections - Themes arising from groupwork
Te Manawa Taki (Midland)	• Documentation: lack of, duplication, lack of standardisation • Policy and procedures: lack of standardisation; Lippincott is currently the main source but not used by medical staff • Equipment: non-standardised (capability), lack of access to, not available where needed, poor securement of devices • Education: need undergraduate focus, no education package available, educator role and scope of practice not always clear • Quality control with governance and processes: lack of governance, measurement difficult because of lack of standardisation of processes, inability to monitor and compare • Skills and resourcing: vascular access team, lack of team/skills/resources, lack of prioritisation
Central	• Insertion • Monitoring • Shared responsibility • Line removal • Equipment issues • Management and governance
Te Waipounamu (Southern)	• Training: skills, insertion, maintenance • Documentation • Patient engagement • Safety culture • Patient factors • Workforce and time pressures: overloaded with considerations • Inconsistency and expectations around process • Leadership, culture and accountability

The Te Tāhū Hauora IPC team combined the themes from the four regional groups to develop an Ishikawa/fishbone diagram that illustrates the factors contributing to PIVC-related infections in Aotearoa New Zealand (Appendix 1). The theme ‘Practice’ accounted for the highest number of Post-it notes (Figure 2).

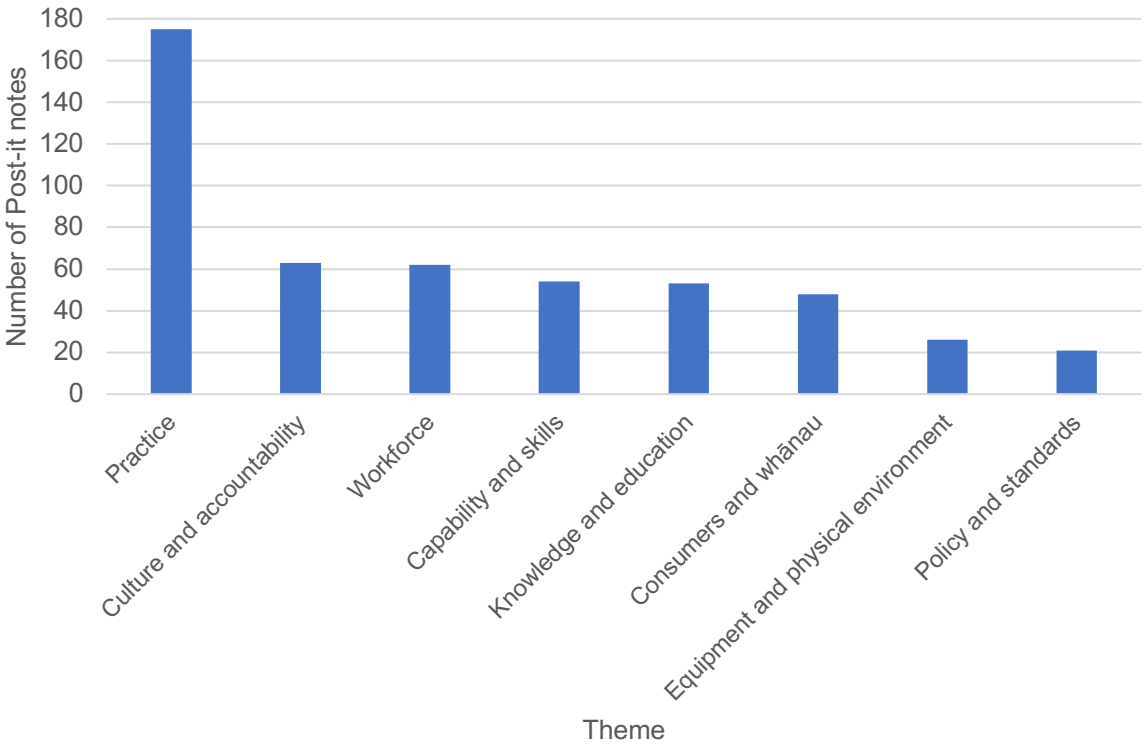


Figure 2. Number of Post-it notes for each theme relating to the factors contributing to PIVC infections

Change ideas

In the second group activity, the teams suggested change ideas or interventions to improve PIVC management. Across the four workshops, a total of 405 Post-it notes were used to suggest change ideas. These were categorised into themes, drawing upon the morning's work (Figure 3).

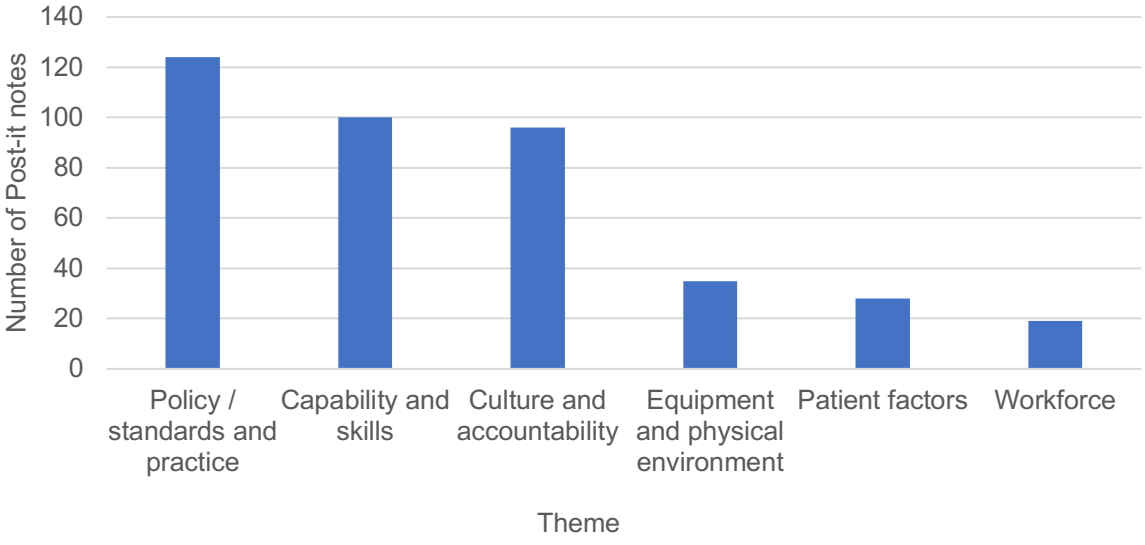


Figure 3: Number of Post-it notes for change ideas categorised by identified themes

The change ideas suggested by the workshop participants have been used to inform the improvement interventions for this initiative. Appendix 2 shows the draft driver diagram with primary and secondary drivers identified. The numbers of different change ideas for each secondary driver is shown in Figure 4.

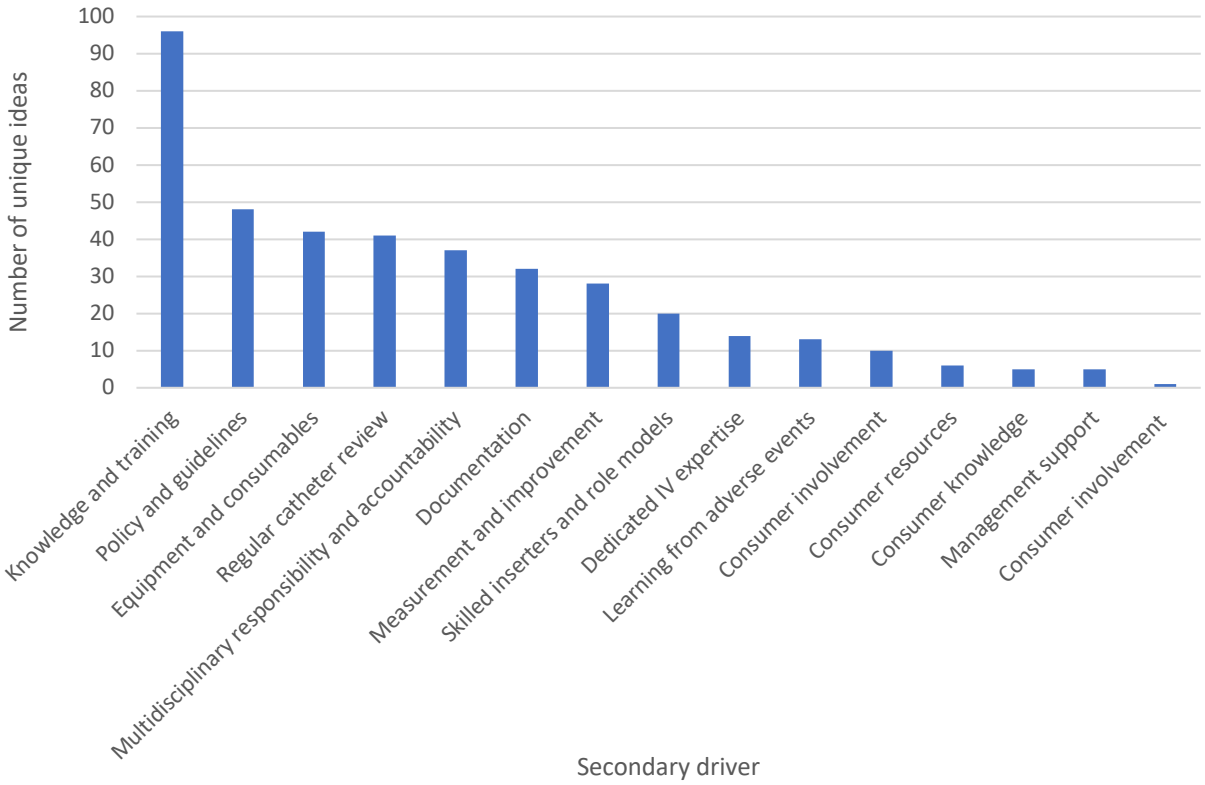


Figure 4: Number of unique change ideas categorised by secondary driver

Work is still in progress on mapping change ideas for these drivers. We invite comment and feedback on this driver diagram.

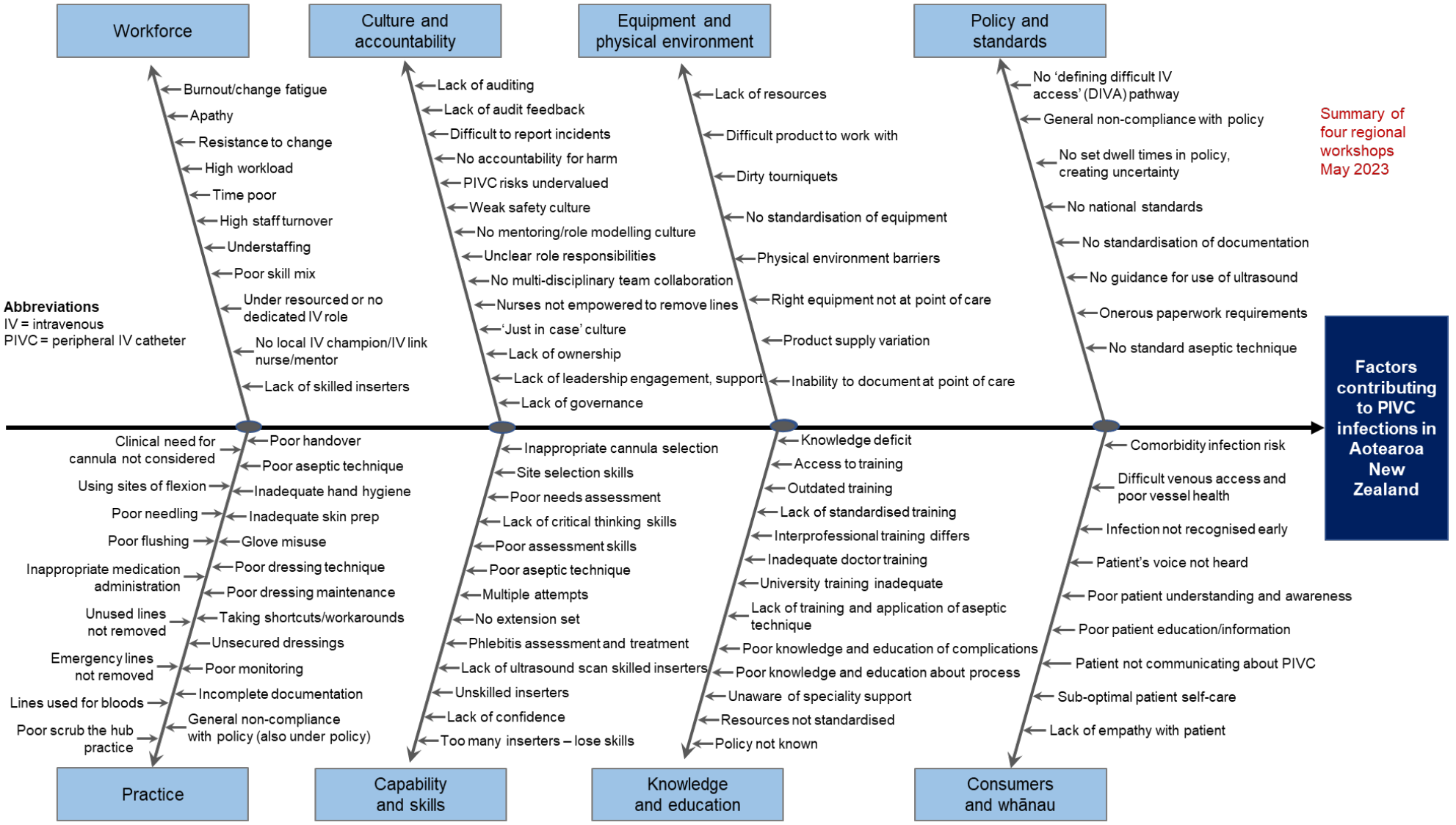
Next steps

A PIVC advisory group will be established during July and will meet for the first time in August 2023. The PIVC quality improvement initiative will be progressed through the work of this advisory group and the Te Tāhū Hauora IPC team. This work will continue to develop the change ideas within the driver diagram.

We may seek further feedback from workshop participants in upcoming months. We will provide progress updates via our website and IPC newsletter.

Please contact IPC@hqsc.govt.nz with feedback or questions.

Appendix 1: Ishikawa/fishbone cause and effect diagram summarising regional workshop output



Appendix 2: Driver diagram – primary and secondary drivers