From manual to electronic: an evaluation of current data handling systems for surveillance of healthcare-associated infections in Victoria

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VICNISS HEALTHCARE ASSOCIATED INFECTION SURVEILLANCE

Doherty Institute

Introduction

- Victorian healthcare associated infection (HAI) surveillance is coordinated by VICNISS Coordinating Centre.
- Public and private health services are required to submit surveillance data tailored to the activity and risk profile of their service.
- Surveillance modules include Staphylococcus aureus bacteraemia, ICU-Central line associated bacteraemia, surgical site infections, resistant organism surveillance and occupational health/immunity of the healthcare worker.
- We evaluated the degree to which electronic data are used for surveillance, including potential scope for improved efficiencies.

Methods

In May 2021, Infection Prevention and Control (IPC) managers were invited to participate in a voluntary, anonymised survey. The survey covered the following:
- Size and funding model
- Information about the infection prevention & control workforce
- Availability and use of electronic systems to support HAI surveillance

Results

Of 136 invitations, there were 77 responses (56.2%) from managers from 48 single hospital sites and 29 multi-hospital sites.

The survey responses are as follows:
1. Size and funding model of the health service (Table 1)
2. Mean Full Time Equivalent (FTE) of IPC programs was 1.5 (range from 0.1 to 12.0)
   - Of these, 20% of services spent 40% or more of their IPC FTE on HAI surveillance (Table 2)

3. Use of electronically extracted data to support HAI surveillance
   - 81% (n=65) of services had electronic data systems that could support HAI surveillance
   - Admission, discharge and demographic data (Figure 1)
   - Surgical site infection (SSI) surveillance (Figures 2 & 3)
   - Central-line bloodstream infection (CLABSI) surveillance
     - Of 65 respondents, 10 managed services with ICUs (8 single site, 2 with 2 sites, 1 with 3 sites). 100% of sites had line-days available electronically.
4. Barriers to using electronic tools to support HAI surveillance (Figure 4)

Table 1. Type and size of health service

Type of health service (n=77)	
Public	Private
66%	34%

Size of health service (n=77)		
≤100 beds	>100 to 500	>100 to 500
66%	25%	9%

Table 2. Resourcing for HAI surveillance* as % of health service IPC FTE

Resourcing HAI surveillance (n=77)				
% Resourcing for HAI surveillance	≤20%	21-40%	41-60%	>60%
As % of IPC FTE	34%	35%	13%	7%

* As prescribed by the Victorian Government Dept. of Health and coordinated by VICNISS

Fig 1. Demographic, admission & discharge data to support HAI surveillance, electronic availability and extraction (n=65 respondents)
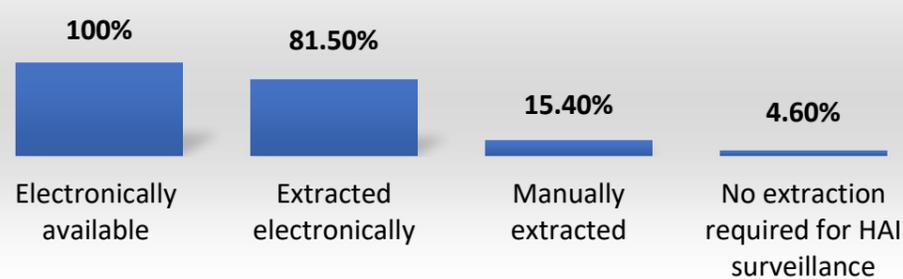
- Electronically available: 100%
- Extracted electronically: 81.50%
- Manually extracted: 15.40%
- No extraction required for HAI surveillance: 4.60%

Fig 2. Electronic availability and extraction of data to support surgical site infection surveillance (n=49 respondents)

- ASA score: 41%
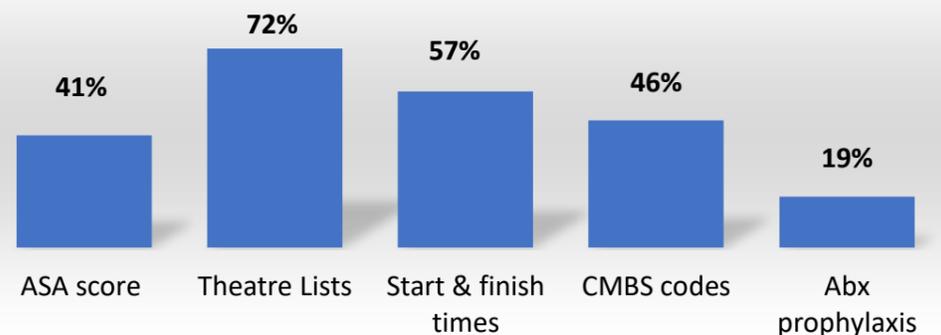- Theatre Lists: 72%
- Start & finish times: 57%
- CMBS codes: 46%
- Abx prophylaxis: 19%

Fig 3. Workforce manually entering data for SSI surveillance (n=49 respondents)

- IPC: 84%
- Clerical support: 2%
- IT support: 0%
- Uploaded to database: 8%
- Other: 6%
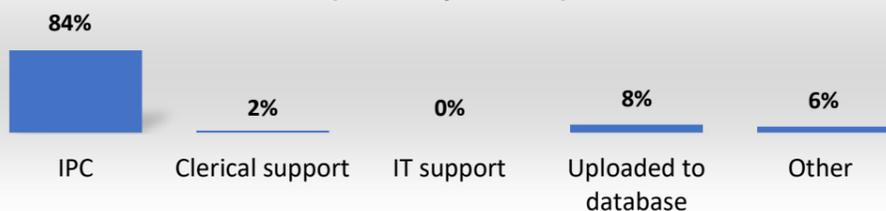
Fig 4. Barriers to using electronic tools to support HAI surveillance (n=38 respondents)

- Lack of IT support: 34%
- Not seen as a priority: 42%
- Data not available electronically: 34%
- Multiple IT systems unable to be merged: 39%
- Financial constraints: 16%
- Other: 21%
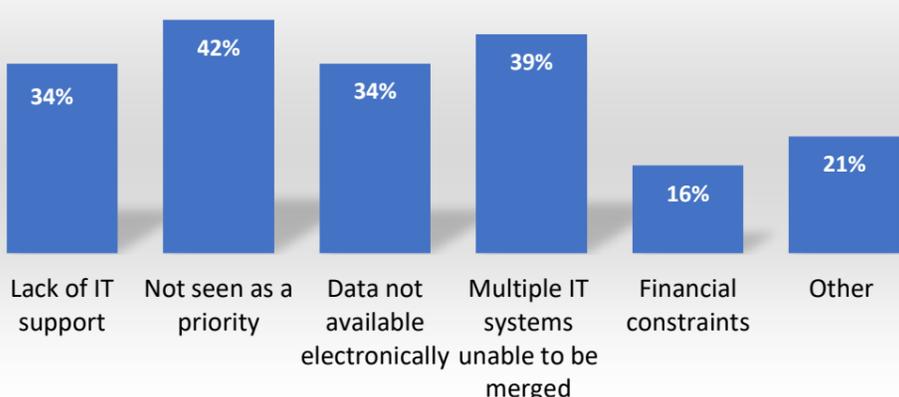
Conclusion

- Increasing automation and utility of electronic health record data can reduce time intensive data entry and increase efficiency of HAI surveillance, freeing IPC staff to focus on other core activities.
- 81% of Victorian health services have electronic data systems that can support HAI surveillance however integration of these systems is not widely utilised.
- 39% identified the inability to merge multiple in-house IT systems as the most common barrier to use of electronic data systems to support HAI surveillance.