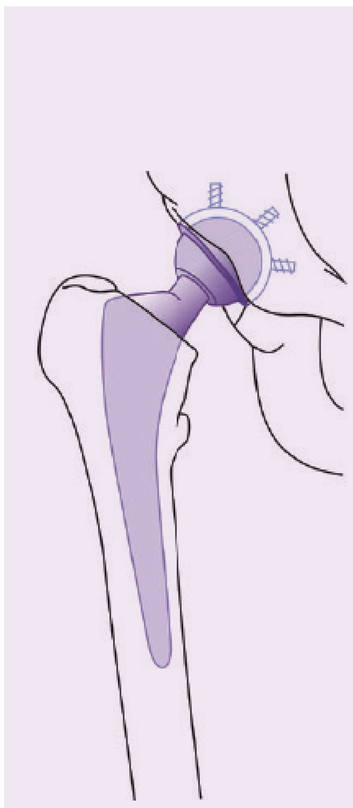
A move to light surveillance for New Zealand national orthopaedic surgical site infection reporting



Introduction

Since 2013, the Health Quality & Safety Commission New Zealand has collected orthopaedic surgical site infection (SSI) data for all publicly funded hip and knee arthroplasty procedures as part of its Surgical Site Infection Improvement Programme (SSIIP).

The outcome measure for the programme is the rate of SSI.

The process measures for the programme are:

- correct antimicrobial dosing
- antibiotic prophylaxis given on time
- duration of post-operative surgical antibiotic prophylaxis
- alcohol-based skin preparation.

Data collection by district health boards (DHBs) requires 35 mandatory data fields with an additional 10 data fields required for procedures resulting in an SSI. The data collection process is largely manual and labour intensive.

In 2019 the SSIIP showed a decline in the national SSI rate with a decrease from 1.18 to 0.89 (per 100 procedures), a 25 percent reduction over four years. This result, combined with high compliance rates for process measures and feedback about workload burden, led to an evaluation of the programme and introduction of the light surveillance reporting model.

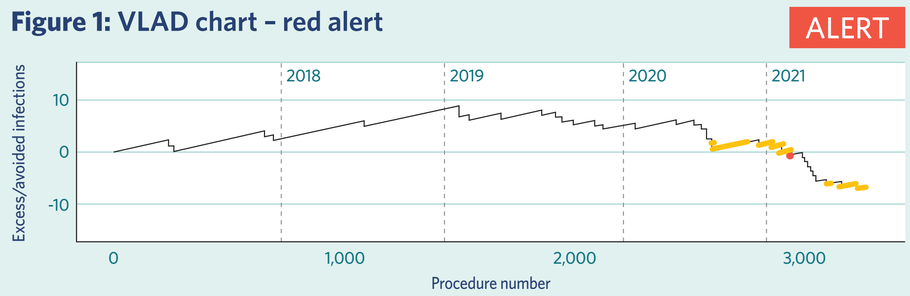
Intervention

Fourteen out of 20 DHBs have made the move to light surveillance. Light surveillance collects data for outcome monitoring only and process measure data is only collected for SSI cases. **This reduces mandatory data collection from 35 fields to 5.**

A detailed review of SSI cases prioritising deep and organ space, and superficial infections leading to readmission using a standardised investigation tool was introduced as a light surveillance requirement. Each quarter the Health Quality & Safety Commission hosts a learning community meeting with SSI champions, reflecting on usage of the SSI investigation tool. These meetings provide an opportunity to share information, network, solve challenges and discuss best practice and ideas for improvement.

Variable life-adjusted display (VLAD) charts were also introduced to support early identification of changes in SSI rates (see Figure 1).

Figure 1: VLAD chart – red alert



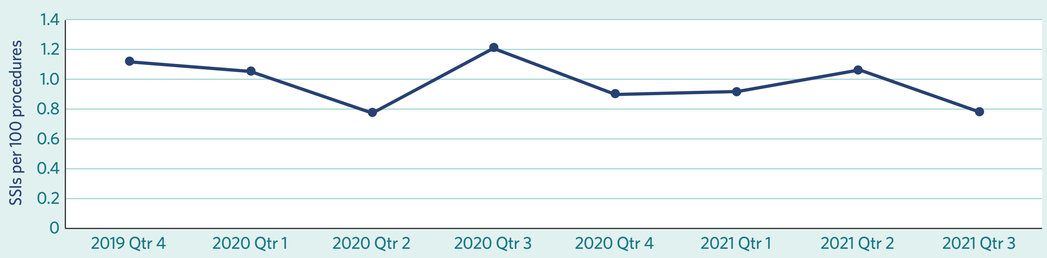
Analysis and outcomes

SSI data for the baseline period (quarter 4, 2019 to quarter 3, 2020) was compared with data for the light surveillance period (quarter 4, 2020 to quarter 3, 2021).

Outcome measure (SSI rate)

Overall, across all 20 DHBs, there was a decrease in the orthopaedic SSI rate for New Zealand from 1.1 per 100 procedures for the baseline period to 0.9 per 100 procedures for the light surveillance period, figure 2. This decrease was not statistically significant.

Figure 2: SSIs per 100 procedures across New Zealand

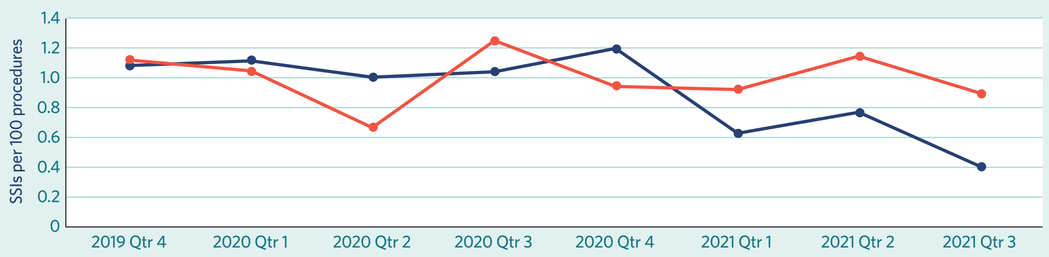


There were no significant decreases for either the light surveillance or the full surveillance DHB groups when comparing the before and after aggregated data using quarter 4, 2019 to quarter 3, 2020 as a baseline (Table 2, Figure 3).

Table 2: Aggregated DHB SSI rates (quarter 4, 2019 to quarter 3, 2020 compared with quarter 4, 2020 to quarter 3, 2021)

Surveillance type	Pre-implementation SSI rate	Post-implementation SSI rate	P-value
Full	1.06 (23/2,164)	0.77 (18/2,324)	0.175
Light	1.07 (72/6,756)	0.98 (67/6,850)	0.480

Figure 3: SSI rates for full and light surveillance DHBs



Process measures for SSI cases

There are early signs for light surveillance DHBs, of a statistically significant decrease for both antibiotic timing and antibiotic dose process measures for SSI cases. These measures will need to continue to be tracked over time.

There has been no change for process measures for SSI cases for full surveillance DHBs.

Table 3: Aggregated light surveillance DHB compliance rates for antibiotic prophylaxis (quarter 4, 2019 to quarter 3, 2020 compared with quarter 4, 2020 to quarter 3, 2021)

Surveillance type	Pre-implementation SSI rate	Post-implementation SSI rate	P-value
Dosing	94.9% (56/59)	87.7% (50/57)	0.01
Timing	94.9% (56/59)	82.5% (47/57)	< 0.001

Champions survey

In July 2021, a survey of SSI champions indicated that the move to light surveillance had resulted in a median **time saving of 16 hours per quarter**, with a range of 4–96 hours saved.

Conclusions

- DHBs have embraced the light surveillance option of data collection, as the reduction in resource requirements for data collection has freed up time to focus on in-depth reviews of SSI cases. The SSI investigation tool and VLAD report provide a systematic approach to monitoring results.
- Overall, across all 20 DHBs, there was a decrease in the orthopaedic SSI rate for New Zealand from 1.1 per 100 procedures for the baseline period to 0.9 per 100 procedures for the light surveillance period. This decrease was not statistically significant.
- There are early signs, for light surveillance DHBs, of a statistically significant decrease for both antibiotic timing and antibiotic dose process measures for SSI cases. These measures will need to continue to be tracked over time.

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Thank you to everyone who participated.

In relation to this presentation, I declare that there are no conflicts of interest.

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