

# IMPLEMENTATION OF A COVID-19 HOSPITALISED PATIENT MONITORING SYSTEM TO SUPPORT CASE MANAGING CAPACITY ACROSS VICTORIA

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## Background

Coronavirus disease (COVID-19) is a significant public health challenge requiring a coordinated response between government, healthcare systems and the community. Maintaining access to hospital services during the COVID-19 pandemic is an essential component of state planning. To monitor the impact of the pandemic on hospital capacity and inpatient status the Department of Health (DH) relied on daily phone calls to patients and their doctors. This system was likely to become unsustainable as COVID-19 case numbers increased.

The Victorian healthcare-associated surveillance system (VICNISS) has monitored healthcare associated infections in Victoria since 2002 and has established relationships with infection prevention specialists and hospital management in addition to well developed information technology systems for data collection and reporting.

## Aim

- To rapidly develop and implement a surveillance system to capture required data related to hospitalised COVID-19 patients in Victoria
- To improve accuracy and timeliness of data collection through engagement of hospital staff (usually infection prevention)
- To provide self-service reports as required for both DH and the hospitals

## Methods

- DH requested VICNISS to develop an enhanced surveillance system through use of existing operations
- Extensive dialogue with DH to determine data requirements for monitoring hospitalised COVID-19 patients
- Build online data entry form (web form) using existing secure online user portal

## Results

VICNISS were engaged in early-March 2021, with the system functioning within two-weeks (Figure 1). After a four-week transition period, it fully replaced the existing DH manual process of calling hospitals.

A reporting module in the existing VICNISS platform was developed for daily and weekly reporting by authorised staff in hospitals (acute and sub-acute).

Data specifications and definitions were established, and captured patient demographics, COVID-19 status at the time of admission, daily location, ventilation status and mode of separation (Figure 2). The module enabled facility-level reporting through optional automated reports.

A simple process for health services to register and manage users for access to this module was built on VICNISS' existing system.

Health services were notified of new surveillance module, education was provided via webinar presentation and other supportive resources such as instructions and frequently asked questions were made available on the VICNISS website.

VICNISS followed up with facilities through phone calls on data discrepancies, queries and/or failure to report.

DH processed surveillance data daily for capture in the state notifiable disease database.

Figure 1: System Components and Operation of COVID-19 Hospitalised Patient Monitoring System<sup>1</sup>

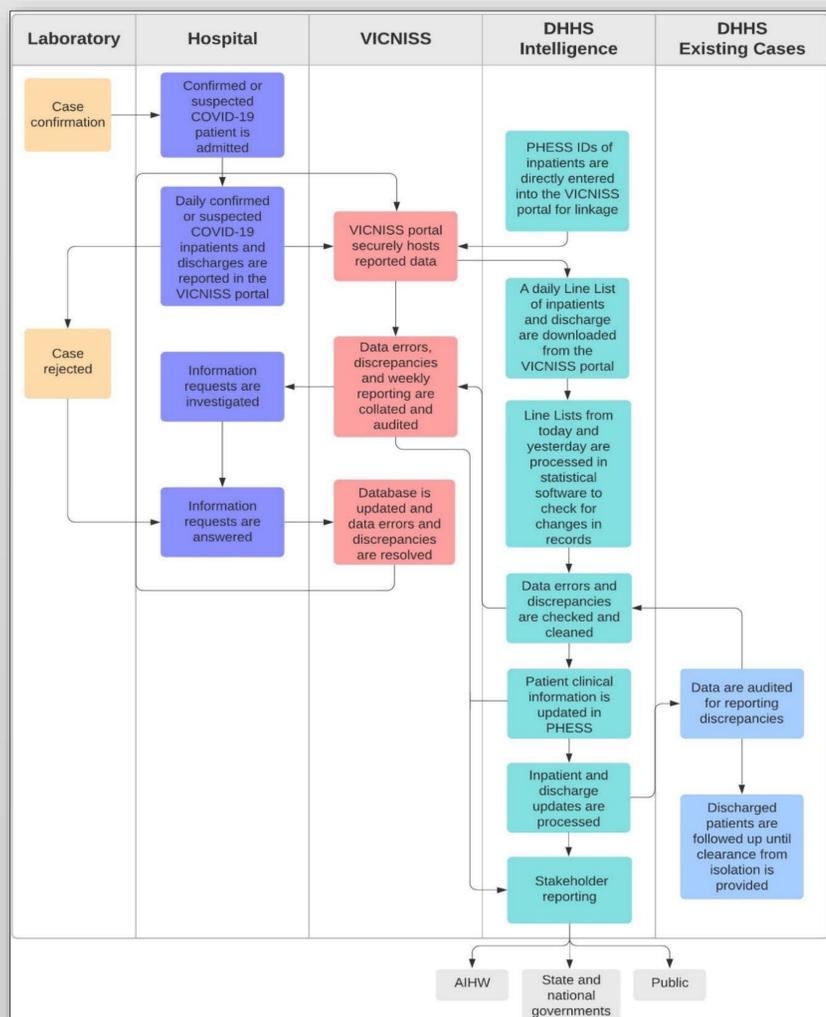


Figure 2: COVID-19 Patient Monitoring Data Collection

The screenshot shows the 'MANAGE EVENT' web form. 
   
**PATIENT:** Facility (Saint Elsewhere Hospital), MRN (UR No.), Sex, Date Of Birth, First Name, Family Name.
   
**EVENT DETAILS:** Admission Date, Confirmed Date, Was transferred from acute facility? (Yes/No), Discharge Date, Discharge Status (dropdown).
   
**DAILY LOG:** A table with columns: Date, Patient Location, and a dropdown for Record Status.
   
**COMMENT:** A text area for notes.
   
A 'Coronavirus Disease 2019 (COVID-19) Patient Monitoring' pop-up window is also visible, showing a summary for a patient with MRN 9156341, Family Name Simpson, Confirmed Date 17/02/2021, Last Log Date 10/03/2021, and Last Recorded Status HITH.

## Conclusion

In March 2020 a system that successfully captures data to inform Victoria's COVID-19 case managing capacity was rapidly developed and implemented. This was achieved through leveraging an existing platform used by hospitals for Infection Prevention and Control surveillance activities such as *Staphylococcus aureus* bacteraemia and surgical site infections.

A limitation was the reliance on hospital staff to enter data daily, including weekends. This would likely prove unsustainable if COVID-19 case numbers were to increase significantly.

In January 2021, the system was developed further to include an algorithm to determine acquisition of the COVID-19 infection, i.e. definite hospital-acquired, probable hospital acquired, community-acquired or indeterminate acquisition.

This project has paved the way for ongoing collaboration with DH and has already been utilised to develop other enhanced Victorian surveillance modules, for example, Surveillance Testing of Healthcare Workers for COVID-19.

## References

1. An evaluation of enhanced surveillance of hospitalised COVID-19 patients to inform the public health response in Victoria. S Curtis, Z Cutcher, J Brett, S Burrell, M Richards, D Hennessy, R Gang, C Lau, S Rowe. Commun Dis Intell (2018) 2020;44 (<https://doi.org/10.33321/cdi.2020.44.98>) Epub 24/12/2020

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