Government of **Western Australia**
Department of **Health**

Review of breaches in use of Personal Protective Equipment (PPE) at State Supervised Quarantine Facilities (SSQFs)

February 2021

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Contents

Acknowledgements

We would like to acknowledge and thank all health care workers and others involved in the COVID-19 pandemic response. Throughout the course of our Review, it was evident that the multi-agency response to these incidents was rapid, efficient, and well-coordinated. Thank you to the teams involved who generously gave their time to support delivery of this Review within a tight timeframe.

Executive summary

This Review was conducted in response to alleged breaches in the use of Personal Protective Equipment (PPE) associated with a traveller entering WA on 2 January 2021 and attending a State Supervised Quarantine Hotel (SSQF). These alleged breaches occurred within the context of heightened concern related to the B.1.1.7 strain of SARS-CoV-2, which has recently emerged from the United Kingdom (UK) and for which there is evidence of a heightened risk of transmission.

This Review has two parts. Part 1 investigates the breaches which involved a nurse providing health care services to the hotel guest within the SSQF and a St John Ambulance (SJA) Officer involved in the transfer of the same hotel guest to Royal Perth Hospital on 5 January 2021. Part 2 considers the infection prevention and control (IPC) protocols, governance and accountability associated with these quarantine facilities, with the intention of identifying areas in which existing practices could be strengthened and future breaches prevented.

This Review has identified many strengths across the current system and also some recommendations for improvements that can now be actioned to reduce future public health risk in the hotel quarantine system in WA. Our staff are our greatest asset, and we greatly appreciate the efforts of our frontline workers that continue to work incredibly hard to protect the health of our community. This Review has been conducted in the spirit of continuous improvement and focusses on system factors and how staff working in SSQF can be best supported to undertake safe practices in the interest of their health and that of the broader WA community.

This Review has concluded with the following 11 recommendations.

Recommendations – Part 1	
1	Establish an IPC central oversight function with responsibility for delivery and monitoring of IPC policies and Standard Operating Procedures, training and audit and assurance activities.
2	Health services in SSQFs to consider simplifying existing PPE Standard Operating Procedures.
3	All agencies staffing SSQFs to specifically document 1.5 metre physical distancing requirements in existing IPC Standard Operating Procedures and teach this as part of training.
4	SHICC to coordinate the development of an interagency Standard Operating Procedure for ambulance transfers to SSQFs, in conjunction with SJA, EMHS and Healthcare Australia.
5	SJA to review the location of PPE within ambulances to best accommodate appropriate physical distancing for both rear and side loading of patients.[1]
Recommendations – Part 2	
IPC practices and protocols used across SSQFs	
6	The newly established IPC central oversight function should encourage standardisation of IPC practice across all agencies working within SSQFs.
7	The newly established IPC central oversight function should strengthen and facilitate standardisation of IPC training across SSQF agencies for both healthcare workers and non-health care workers.
Governance and accountability	
8	IPC roles and responsibilities should be clearly documented for all SSQF staff.
9	Existing compliance checks should be expanded to all SSQF staff.
10	Introduce new means of audit and assurance.
11	Implement a formal PPE breach surveillance system and use data collected to drive continuous improvement.

[1] This Recommendation has already been accepted by SJA with a due date for delivery of 5 March 2021.

Background

WA Health pandemic response

The State Health Incident Coordination Centre (SHICC) and Public Health Emergency Operations Centre (PHEOC) are tasked with coordinating the health response to the COVID-19 pandemic. The SHICC has overall responsibility for the COVID-19 hotel quarantine management program. Within SHICC, there are two separate teams involved in management of SSQFs – the Facilities and Movements team, who manage logistics, and the Quarantine Management Team, who are responsible for the health and wellbeing of guests within SSQFs, including managing arrangements for the health care services provided within SSQFs.

PHEOC is led by the Deputy Chief Health Officer (Public Health) and includes two different teams, PHEOC Strategy and Public Health Operations (PHOps). PHOps are responsible for all COVID-19 contact tracing activities within WA, including those for returned travellers residing in SSQFs, and also monitor higher risk returned travellers in self-quarantine for COVID-19 symptoms on an opt in basis. PHEOC provides public health risk assessments in the event that breaches in Personal Protective Equipment (PPE) are reported to SHICC relating to the SSQFs.

Another team, PHEOC IPC is part of the PHEOC Strategy team and provides advisory services on IPC to the SHICC such as advice on policy, as well as PPE training for staff working at SSQFs. These services are provided at the request of the SHICC. PHEOC IPC also provides advice to PHOps as required.

State supervised quarantine facilities (SSQFs)

A total of twelve hotels have been requisitioned for the purpose of quarantine over the course of the pandemic by SHICC under Section 182 of the *Public Health Act 2016*. There are currently nine hotels managed as SSQFs, though this number has fluctuated over time.

There are a range of staff and agencies who provide services to SSQFs. Within the hotel there are hotel administration, management, cleaning contractors and food and beverage staff. Additionally, SHICC contracts security services to provide additional services. At the time of this Review there were four security companies on the panel contract for SSQF, with three currently being used. Their role is to provide security at the hotel for quarantine guests. Other agencies also support SSQFs, including WA Police, Australian Defence Force (ADF) personnel, and non-emergency transport staff.

Primary health care services are provided at all nine SSQFs by two agencies – the East Metropolitan Health Service (EMHS) Quarantine Hotel Outreach Service, which operates from seven SSQFs, and Healthcare Australia, which operates from the remaining two. Additionally, St John Ambulance (SJA) is responsible for transfers of hotel guests that require medical assessment or treatment to hospital.

PathWest performs routine COVID-19 testing for all hotel guests in quarantine in SSQFs, which currently occurs within 48 hours of arrival and day 12 of their quarantine stay. This process is coordinated by the SHICC Quarantine Management Team.

Overview of IPC in relation to COVID-19

The Centers for Disease Control and Prevention in the United States of America defines IPC as measures that 'prevent or stop the spread of infection in healthcare settings'.[2] COVID-19 can be spread through several mechanisms including respiratory droplets and aerosols, as well as by touching surfaces or objects that are contaminated with the virus (fomites), and more rarely through

[2] Centres for Disease Control (CDC). 2021. Infection Control. Accessed 18 January 2021. Available from: https://www.cdc.gov/infectioncontrol/index.html.

faeces. In the context of COVID-19, key IPC measures that reduce transmission include physical distancing, respiratory etiquette, thorough effective environmental cleaning, regular hand hygiene using soap and water or use of approved alcohol-based hand sanitisers, and the wearing of appropriate PPE. Additionally, good ventilation plays a role in risk mitigation, though there is not yet a consensus as to what degree, or whether this may change with the emergence of new more highly transmissible strains. Importantly, IPC prioritises a hierarchy of controls, with use of PPE as the last line of defence.

Different means of exposure to COVID-19 introduce varying degrees of risk, with exposure of health care workers to COVID-19 being both an occupational health and safety risk to staff as well as a potential risk to public health in the event of ongoing transmission. PPE breaches affecting healthcare workers who have been exposed to positive COVID-19 cases are much higher risk than PPE breaches that occur day to day within an SSQF.

Many new variants of COVID-19 have been reported since the beginning of the pandemic, with a recent variant B.1.1.7 of particular interest due to reports of higher transmissibility of this strain. Internationally, as this variant has only been recently described, its full implications are yet to be known including impacts on existing hotel quarantine management practices.

About this Review

On 5 January 2021, SHICC and PHEOC were made aware of two alleged PPE breaches at an SSQF. They were both in relation to the same returned traveller from the UK who subsequently was found to be infected with the highly transmissible (B.1.1.7) variant of SARS-CoV-2. The first alleged breach related to an EMHS employed nurse who responded to the guest in hotel quarantine. The second alleged breach was related to an Ambulance Officer who was transferring the same hotel guest from the hotel to hospital.

Scope

The scope of the Review as defined in the Terms of Reference aligns with two separate sections of this document as follows.

Scope	Section
1. The two PPE breaches that occurred at the SSQF and causal factors for the breaches.	Part 1
2. Current infection prevention and control protocols used within SSQFs, inclusive of transfers to and from hospital.	Part 2
3. Governance and accountability for infection prevention and control protocols and practices for the care of returned travellers housed in SSQFs.	

Out of scope for this Review was:

- Examination of the IPC protocols and practices of organisations working in SSQFs that did not have direct involvement with the PPE breaches examined, for example WA Police, Healthcare Australia and PathWest.
- IPC protocols, processes and training for staff which apply at the entry point to WA, Perth Airport or other regional airports
- Other hotels outside of the remit of WA Health that also form part of the COVID-19 response, including State Welfare Incident Coordination Centre hotels.

Methodology

This review was conducted by the Patient Safety and Clinical Quality Directorate within the WA Department of Health. An initial set of stakeholders was identified and interviewed, with additional

stakeholders identified through the course of these interviews. Closed circuit television (CCTV) footage of both incidents was reviewed, as well as over 70 documents including medical records, call logs and transcripts, meeting agendas and minutes, relevant emails from stakeholders, and IPC protocols and guidelines from the range of agencies involved. While all of this material has been considered, only findings from these documents of relevance to the objectives of this Review have been referred to within this report.

Nine interviews were conducted with 11 stakeholders directly associated with the incidents or responsible for governance over the SSQF. EMHS and SJA had conducted their own individual reviews, and the outcomes of those reviews were considered as part of this broader Review (see **Attachment 1**).

Part 1 was conducted using root cause analysis (RCA), which is a technique used to assess the antecedent causes of a problem back to its original 'root' and commonly used to analyse serious clinical incidents within WA Health.[3] Once a detailed timeline of events, root causes and contributing factors were developed, experts in IPC, nursing, and occupational health and safety from a combination of WA Health and SJA were asked to individually review this documentation in order to provide advice on systems-focussed recommendations for improvements based on their relevant expertise.

Part 2 used evidence collected as part of the RCA to describe IPC protocols and practices and assess governance and accountability arrangements for the care of travellers housed at SSQF. Where agencies were not involved with the two incidents investigated within Part 1 of this Review, their practices were not considered in detail. In developing recommendations and as outlined within the Review Terms of Reference, the Reviewers have also considered existing national and interstate reviews of hotel quarantine programs, including the *National Review of Hotel Quarantine*[4] (published 23 October 2020 - Halton Review) and the *Victorian Hotel Quarantine Inquiry*[5] (published 21 December 2020 - Coates Review). The *Australian Health Protection Principal Committee (AHPPC) statement on Australia's National Hotel Quarantine Principles*[6] (published 24 December 2020) was also reviewed. Of relevance is that a key finding of the Coates Review[8] was that the Victorian Hotel Quarantine Program was implemented without sufficient emphasis on IPC, which ultimately resulted in the second wave of COVID-19 cases that affected Victoria in July 2020. In response to this series of reviews, the WA Department of Premier and Cabinet (DPC) is collating responses from the various agencies involved in the pandemic response, including SHICC and PHEOC. As part of this, the agencies have reviewed each recommendation where they are considered to be the lead agency, assessed the applicability and utility in the WA context, and highlighted which recommendations will be prioritised for implementation locally. This feedback has been provided to the DPC in mid-January 2021 and was requested by the Reviewers but was not available at the time of this Review.

As terms such as 'policies', 'procedures', and 'guidelines' can be used interchangeably, throughout this Review the term 'policy' is used to refer to a high-level series of recommendations around IPC processes and practices, 'standard operating procedure' (SOP) is used to describe implementation of policy within an agency, and 'protocols' is used to describe both policies and SOPs.

[3]WA Health. Clinical Incident Management Policy 2019. Available from: https://ww2.health.wa.gov.au/-/media/Files/Corporate/Policy-Frameworks/Clinical-Governance-Safety-and-Quality/Policy/Clinical-Incident-Management-Policy-2019/Clinical-Incident-Management-Policy-2019.pdf.

[4]Australian Government Department of Health, National Review of Hotel Quarantine 23 October 2020. Australian Government Department of Health (Halton Review).

[5]Victorian Government, COVID-19 Hotel Quarantine Inquiry, Final Report and Recommendations. Parliamentary Paper no. 191. 21 December 2020. Victorian Government. (Coates Review).

[6]Australian Health Protection Principal Committee (AHPPC) statement on Australia's National Hotel Quarantine Principles. 24 December 2020. Available from: https://www.health.gov.au/news/australian-health-protection-principal-committee-ahppc-statement-on-australias-national-hotel-quarantine-principles.

Part 1 – Findings and Recommendations

Part 1 of this Review establishes the facts and context relating to the two PPE incidents, determines their root causes and contributing factors, and makes recommendations to ensure that the risk of similar incidents is minimised.

Findings

Event Timeline

At 5.25pm on 2 January 2021, an 86-year-old female entered WA at Perth Airport from the UK. From history provided to PHOps, she first reported symptoms of aching arms on the 29 December 2020, meaning that commencement of her infectious period was five days prior to her departure from the UK on 1 January 2021. During the flight from London and at the airport in Dubai the guest required medical assistance, however was deemed fit to fly. On arrival at the airport the guest called her daughter to inform her that she was unwell. She was transferred by Public Transport Authority bus for 14-day quarantine as per the SSQF management process for international arrivals.

Incident 1

On day 2 of the 14-day hotel quarantine period (3 January 2021), the hotel guest was tested for COVID-19 as per the standard testing procedure for guests in SSQFs. Later that day, the hotel guest's daughter contacted the EMHS Hotel Quarantine Outreach Service regarding concerns for her mother's health. In line with the guest's ongoing management plan, daily welfare checks were carried out on 3 January 2021 (face to face) and on the 4 January 2021 by telephone. On 5 January 2021, the guest's daughter again contacted the onsite nurse to advise that her mother was experiencing generalised aches, pains and a headache.

Handovers to the next shift usually occur at 7 am, however the nurse rostered on for the day shift (Nurse 2) informed the night shift nurse (Nurse 1) that she was running late. Consequently, Nurse 1 decided to perform the visual welfare check prior to handover. The EMHS protocols aim to minimise unnecessary face to face contact, so the nurse attempted to call the hotel guest by phone however she did not answer. Nurse 1 donned a face mask and gloves and did not take a PPE trolley, all of which was in line with existing EMHS SOPs. The nurse reported checking the patient's COVID-19 status prior to her undertaking the welfare check with the patient. At this point in time, the hotel guest's COVID-19 test result had not yet been finalised and she was not known to be COVID-19 positive.

Nurse 1 arrived at the hotel room at 7:18 am. The hotel guest took some time to come to the door and when the door was opened, was having trouble hearing the nurse, so the nurse leaned into the room to speak with her. The guest advised she had a headache, so the nurse dropped paracetamol into her hand. The nurse also performed a temperature check, which requires a health care worker to be within 30 centimetres of the patient, but not necessarily in physical contact. During the visit the nurse touched her mask on several occasions. After the check was completed, the nurse noted there were no bins within the hotel corridor and asked a security guard where these were located, however the only bin available was behind a closed door. Nurse 1 subsequently removed her gloves and put them in her pocket, with no immediate hand hygiene undertaken. She returned to the team room after this and provided a handover to Nurse 2, who was approximately 20 minutes late for the day shift.

Incident 2

At 8:32 am on 5 January 2021, PHOps was notified of the guest's COVID-19 positive test result. At 9:44 am the hotel guest was assessed face to face by a nurse and GP from the EMHS Hotel Quarantine Outreach Service and clinical observations were taken. The EMHS GP rostered on decided to admit the hotel guest and consulted with PHOps at 10:30am. It was agreed to transfer

the guest to hospital due to anticipated difficulty in assessing and monitoring the guest remotely due to hearing impairment and it was considered she would benefit from regular face to face assessment. Ambulance transfer was organised via 000 call to SJA, the Emergency Physician in Charge (EPIC) at RPH was informed, and the SHICC Quarantine Management Team and EMHS were notified of the transfer by email. The 000 dispatch operator was informed of the guest's COVID-19 positive status.

The ambulance that arrived from SJA was a standard ambulance that had been dispatched at 10:42 am. Both crew members were aware that the hotel guest had been confirmed as COVID-19 positive. On the way to the SSQF, the call card was reviewed as per standard procedure, and based on this the plan was discussed that to reduce the chance of spread of the virus the driver would not make any physical contact with the patient and therefore would not require PPE. The vehicle ventilation system was set to appropriate level for a patient with COVID-19 and the team attempted to review online SJA guidelines for COVID patients to refresh their knowledge, however they were unable to access the information before arrival at the scene.

Upon arrival at the hotel, the ambulance stopped to speak to a security guard, and Ambulance Officer 1 rolled down her window to ask where to park. The security guard did not mention hotel SOPs or a need to wear a face mask. The ambulance arrived at the loading bay in front of the hotel, both Ambulance Officers disembarked, and Ambulance Officer 1 assisted Ambulance Officer 2 with donning of his PPE. Ambulance Officer 1, who was driving the ambulance, did not wear any form of PPE, as it had been planned whilst driving to the scene that, in line with SJA SOPs (the *SJA Interim COVID-19 guidelines*) she would stay well away from the hotel guest and only don PPE if the hotel guest required assistance from them both. Nurse 2 gave a verbal handover and presented the Officers with the paperwork. Ambulance Officer 1 asked Nurse 2 if she had been in physical contact with the hotel guest before taking the paperwork, and on the basis of discussion it was deemed 'clean' so Ambulance Officer 1 took it. The crew requested Nurse 2 bring down the hotel guest wearing a mask and gloves, so that they didn't have to enter the hotel. Nurse 2 re-entered the hotel to bring the hotel guest down in a wheelchair to the loading bay. As Ambulance Officer 2 assisted the hotel guest to transfer from the wheelchair into the side door of the ambulance, Ambulance Officer 1 stood a distance from the guest without having any physical contact. It was difficult to verify from witnesses or CCTV footage the exact distance, and the Reviewers cannot confirm that this distance was closer to the hotel guest than 1.5 metres. A security guard was noted from the CCTV footage to step in to speak with the Ambulance Officer and following this, the Ambulance Officer stepped away from the hotel guest but then stepped back in to open the door to the front passenger side of the ambulance to retrieve a face mask. At the same time the hotel guest was transferring into the ambulance through the side door, so Ambulance Officer 1 was now within 1.5 metres of the hotel guest for several seconds.

Concurrent events

At 8:32 am on the 5 January 2021, PHOps were informed that the hotel guest had tested positive and commenced contact tracing activities including an interview of the guest. The hotel guest informed staff that she had been attended by a nurse that morning who did not wear a mask. Consequently, PHOps requested CCTV footage from the hotel via SHICC. PHOps noted that due to the positioning of CCTV only Nurse 1 could be seen within the corridor not the guest. However, it was determined that several breaches of IPC had occurred because:

- Nurse 1 touched her mask several times during the encounter
- Upon leaving the guest, Nurse 1 placed her gloves in her pocket and did not immediately perform hand hygiene.
- Nurse 1 must have entered within 1.5 metres of the hotel guest due the dimensions of the door and providing medication. PHOps spoke to the hotel duty manager who stated that the doors are between 820mm to 900mm wide and self-closing. In order for the door to remain

open the guest must have been keeping it open. Therefore, it was considered that the case must have been in close proximity to the nurse. Whilst within 1.5 metres, neither suitable eye protection nor a gown was worn. However, Nurse 1 was noted to have a gown tucked under her arm on CCTV.

The primary guideline used by PHOps to support contact tracing is the *CDNA COVID-19 Series of National Guidelines (SONG)*[7]. PHOps applied the PPE breach risk assessment tool available in the *CDNA COVID-19 SONG*[8] (version 4.0) and upon discussion between two senior Public Health Physicians, the decision was made to quarantine Nurse 1 for a 14-day period.

Incident 2 was observed by a security guard. The security guard and hotel duty manager individually reported the incident to SHICC, who requested CCTV footage and then consulted PHOps for an opinion. This is in line with SHICC practices regarding the reporting of incidents at SSQFs, including observed breaches in PPE. Upon observing the CCTV footage, and using a similar process as previously outlined for Nurse 1, PHOps assessed Ambulance Officer 1 to be a close contact and therefore required quarantining for a 14-day period.

Context

SOPs of relevance to each agency involved are summarised below, with additional information available in **Attachment 2.**

Relevant EMHS Standard Operating Procedures (SOPs)

The EMHS Quarantine Hotels Outreach Service *Face to Face Guidelines*[9] describe four types of consults: visual welfare checks, medication or item delivery, medical review, and face to face consults. IPC protocols for visual welfare checks and medication or item delivery state that staff should wear a mask and gloves and maintain a 1.5 metre distance between the guest and the health care worker. Face to face medical reviews necessitate full PPE, which is defined as gown, gloves, mask and eyewear. At the time of the incident on 5 January 2021, the protocol stated that the nurse's trolley which includes all PPE as well as bin bags and wipes, should be taken to consults requiring full PPE – which excludes visual welfare checks and medication delivery. Interviewees stated that the different combinations of PPE recommended for different types of clinical encounter had been introduced into the SOP on direction from SHICC.

Relevant SJA Standard Operating Procedures (SOPs)

SJA uses IPC and PPE guidelines specific to COVID-19, the *SJA COVID-19 Interim Guidelines 2020.*[10] On the day of the PPE breaches, 5 January 2021, Version 3.1 of these *Guidelines* included a graded approach and assessment, which specifically stated that 'only one officer in close contact is advocated'. In the event that the graded assessment cannot be implemented, the *Guideline* stated that PPE necessary for aerosol generating procedures should be adopted, as is outlined in the *Standard and Transmissions Based Precautions Guideline.*[11] The *Guideline* did not specifically mention that a close contact was defined as being within 1.5 metres.[12] Some interviewees stated that the graded assessment had been introduced into the SOP following direction from SHICC to

[7]Communicable Diseases Network Australia (CDNA). CDNA National Guidelines for Public Health Units: Coronavirus Disease 2019 (COVID-19). Accessed 17 January 2021 (most recent version 4.2, updated 29 January 2021). Available from: https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm

[8] Previous version of the SONG (note most recent version is 4.2 released 29 January 2021): Communicable Diseases Network Australia (CDNA). CDNA National Guidelines for Public Health Units: Coronavirus Disease 2019 (COVID-19). Updated 23 December 2020. Available from: https://www1.health.gov.au/internet/main/publishing.nsf/Content/7A8654A8CB144F5FCA2584F8001F91E2/$File/COVID-19-SoNG-v4.1.pdf

[9]East Metropolitan Health Service. Quarantine Hotels Outreach Service. Face to Face Guidelines. Version date 8/09/2020. Accessed 19 January 2021.

[10]St John Ambulance. COVID-19 Interim Guidelines. Version 4.1 accessed 18 January 2021 here. St John Ambulance WA

[11]Standard and Transmission Based Precautions. May 2020 St John Ambulance WA.

[12]This guideline has been amended subsequent to the incident. See **Attachment 1**.

minimise COVID-19 exposure and PPE use where not essential, however this detail was contested by SHICC so could not be conclusively verified.

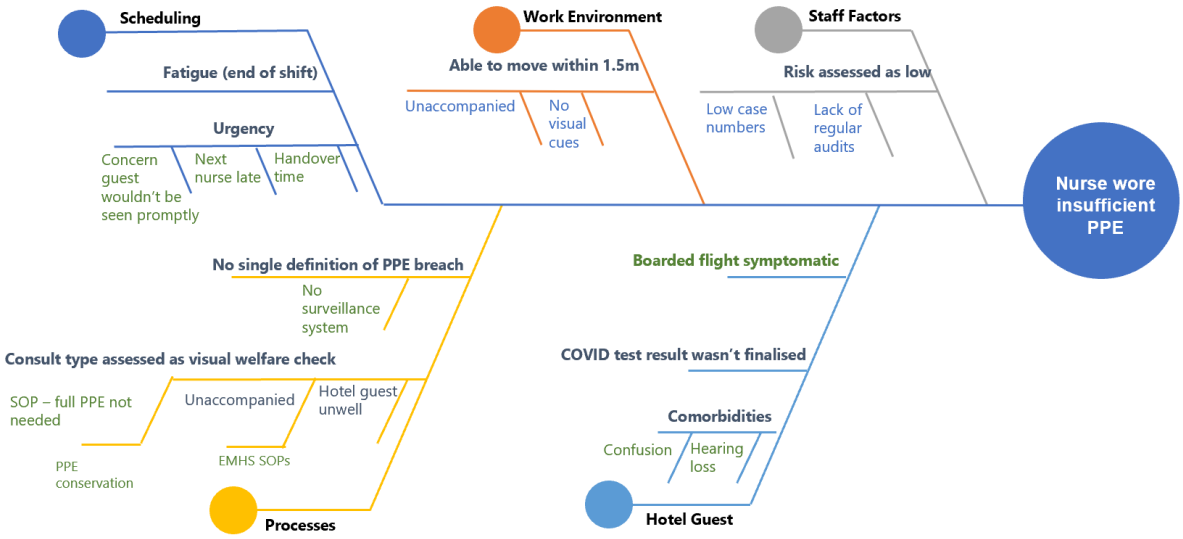
Policies used by PHOps

Due to the current rapid accumulation of new knowledge in relation to COVID-19, the COVID-19 guidelines are frequently updated. Contact tracing frequently requires an assessment of the adequacy of PPE worn by health care workers who have come into contact with cases, and the SONG includes information regarding risk assessment of health care worker contact with cases with regards to PPE. The most recent version of this guideline used by PHOps on the day of the incident (version 4.0) was updated on 23 December 2020, and included a key change related to a new definition of a close contact as a "person who has had face to face contact of any duration". Previously, a close contact was defined as a minimum 15 minutes face to face contact. Since the date of the incident, further updates to the SONG have been published.

Discussion and recommendations

Root causes (in blue text) and contributing factors (in green text) for both incidents are summarised in **Figures 1 and 2** below, with additional detail available in **Attachment 3**.

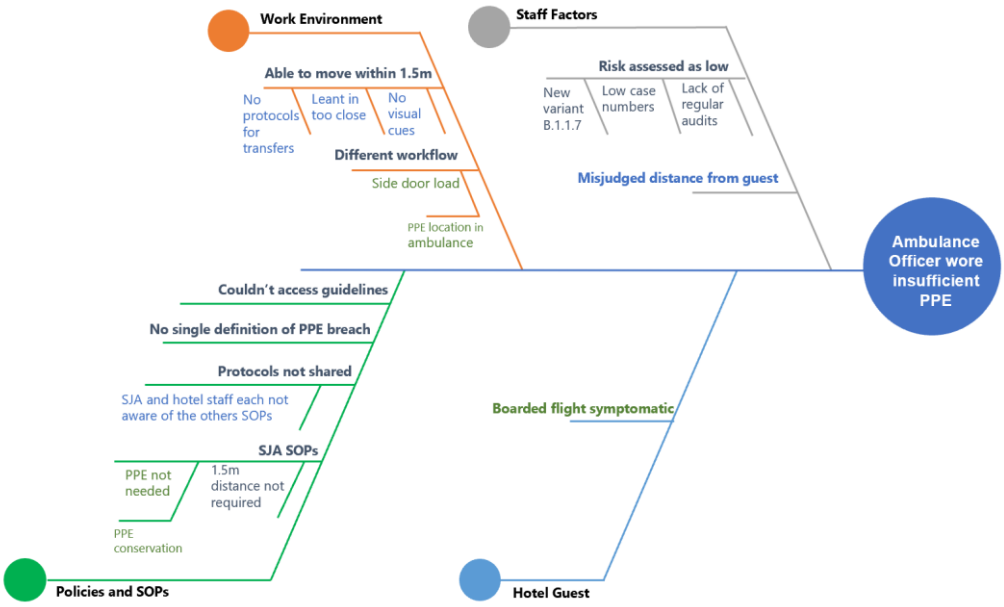
Figure 1. Cause and effect diagram - Incident 1



Contributing factors to incident 2 demonstrated that nuanced differences in SOPs of different agencies can introduce confusion which could be mitigated through greater transparency and alignment of SOPs across agencies. Central oversight is required to ensure that IPC procedures align, with a shared understanding of key elements across all agencies working in SSQFs. Under the existing governance structure, this expertise exists within the PHEOC IPC team and represents an expansion of existing functions. Existing resources with the PHEOC IPC team may not be sufficient and some of the proposed recommendations may need to be prioritised accordingly.

Recommendation 1: Establish an IPC central oversight function with responsibility for delivery and monitoring of IPC policies and Standard Operating Procedures, training and audit and assurance activities.	
1	An IPC central oversight function should be established, which is adequately resourced and has suitable expertise in IPC, tasked with activities outlined in **Recommendations 6 and 7** below. **(Coates Recommendation 10, 21 and 24)**

Figure 2. Cause and effect diagram - Incident 2



Some commonalities are apparent across both incidents. In both instances, the healthcare worker intended to remain greater than 1.5 metres away from the guest, however unexpectedly became too close, meaning that additional PPE was necessary but was either not readily accessible or was not donned. For both incidents, the agency's SOPs for specific scenarios stated that it was appropriate for staff to maintain physical distancing and in doing so, wear less than the full PPE required for encounters within 1.5 metres. SJA SOPs stated that no PPE was required in this situation, whereas EMHS Hotel Quarantine Outreach Service SOPs required a mask and gloves. In interviews staff from both agencies consistently stated that these protocols had been adopted in response to guidance from SHICC related to the need to minimise COVID-19 exposure and use PPE judiciously. One interviewee stated that this environment was noticeably different to the hospital environment where PPE use was not as obviously monitored.

Recommendation 2: Health services in SSQFs to consider simplifying existing PPE SOPs.	
2	The newly established IPC central oversight function should work with SHICC and agencies providing health care services within SSQFs (EMHS Hotel Quarantine Outreach Service, Healthcare Australia, SJA and PathWest) to review existing SOPs to simplify and standardise the number of different combinations of PPE recommended for different categorisations of clinical encounters, including PPE requirements if a distance of over 1.5 metres is maintained. **(Coates Recommendation 29)**
Recommendation 3: All agencies staffing SSQFs to specifically document 1.5 metre physical distancing requirements in existing IPC SOPs and teach this as part of training.	
3	Central oversight team to work with all agencies involved with SSQF to ensure that the requirement to maintain a minimum of 1.5 metre distance is explicitly stated in existing IPC policies; use of visual cues is encouraged (eg use of traffic cones, tape to mark distances or barricades); and distancing is explicitly taught as part of COVID-19 IPC training.

Specific SOPs for ambulance transfers which address issues such as the lead agency in managing the scene, visual cues to maintain safe distancing (eg traffic cones) and site orientation for ambulance crews on arrival should be developed to ensure that all SSQF staff involved in hospital transfers have a shared understanding of procedures.

Recommendation 4: SHICC to coordinate the development of an interagency SOP for ambulance transfers to SSQFs, in conjunction with SJA, EMHS and Healthcare Australia.	
4	The SOP should include site orientation from the SSQF upon ambulance arrival, visual identification to assist with identification of who is leading scene management, visual cues to maintain safe distances and types of PPE to be worn by staff involved including those maintaining a distance of 1.5 metres. **(Coates Recommendation 37 and AHPPC Principle 10)**

In relation to incident 2, the location and accessibility of PPE within an SJA vehicle was identified as a contributing factor to the root cause. Additionally, protocols for PPE use by SJA and onsite clinical teams need to reflect the potential for sudden patient deterioration and that two Ambulance Officers may need to have close contact with the patient.

Recommendation 5: SJA to review the location of PPE within ambulances to best accommodate appropriate physical distancing for both rear and side loading of patients.[13]	
5	PPE should be accessibly from multiple locations in the vehicle with SOPs and training to outline which location should be accessed for each workflow.

Additionally, it was noted from CCTV footage that the nurse both touched her mask and did not doff her gloves in accordance with existing IPC protocols. Recommendations relating to this issue are addressed in **Part 2**.

Both SJA and the EMHS Hotel Quarantine Outreach Service have also individually commissioned internal reviews and have implemented or planned a number of changes subsequent to the reporting of these incidents. These changes are summarised in **Attachment 1.**

Part 2 – Findings and Recommendations

Part 2 of this Review considered the IPC practices and protocols used within SSQF, inclusive of transfers to and from hospital. **Attachment 2** provides more detail on the arrangements for IPC protocols and processes for different agencies.

Findings

IPC protocols, policies and SOPs

PHEOC IPC has produced an overarching policy, *IP&C Guidelines for State Quarantine Facilities*[14] (current at 24 December 2020), which are referred to when requisitioning a new hotel and are available online. Agencies employing hotel staff, security contractors, cleaning, and food and beverage staff are required to follow these guidelines. Additionally, agencies employing security contractors, cleaning staff and other staff in SSQFs are required to develop their own company IPC SOPs that guide the implementation of this policy at the agency level. There is no central process currently for review of the SOPs that have been put in place by hotels, though hotel and security staff are trained and regular inspections of IPC practices in SSQFs of these staff do occur.

In regard to health care workers, the Department of Health has *Information for clinical teams attending to guests who are undergoing 14 day quarantine in hotels and other accommodation*[15]

[13] This Recommendation has already been accepted by SJA with a due date for delivery of 5 March 2021.
[14] PHEOC Infection Prevention and Control. 24 December 2020. Infection prevention and control guidelines for state quarantine facilities. Accessed 17 January 2021. Available from: https://ww2.health.wa.gov.au/-/media/Corp/Documents/Health-for/Infectious-disease/COVID19/COVID19-IPC-advice-for-state-quarantine-facilities.pdf.
[15] WA Department of Health, Information for clinical teams attending to guests who are undergoing 14 day quarantine in hotels and other accommodation. 23 December 2020. WA Department of Health

which is available online. EMHS and Healthcare Australia are responsible and accountable for providing IPC SOPs for their staff working at SSQFs. SJA has its own IPC policies and SOPs specific to COVID-19 which are regularly updated (see p. 7-8). Through the root cause analysis process, multiple interviewees from SSQF health services expressed confusion about hotel layouts, red and green zones and access and egress points, and expressed a desire for greater centralised input into and standardisation of agency SOPs.

Generic advice for non health care workers is available on the WA Health internet site in the *Advice for use of personal protective equipment for non-healthcare workers in community settings*[16]. Specific advice for those engaged in transport is also available from the document *Infection prevention and control information for public and private transport*[17].

IPC governance and accountability

In the context of this Review, governance and accountability was generally agreed by stakeholders to sit with SHICC for SSQF hotel and security staff, and with the clinical agencies who provide outreach, specimen collection or ambulance transfer services (EMHS Hotel Quarantine Outreach Service, Healthcare Australia, SJA and PathWest). Responsibility for IPC for services that are contracted by SHICC and provided within SSQFs sits with the contractor (for example, security services). Expertise around IPC sits within PHEOC IPC however responsibility for engagement of these services sits with SHICC. The key contact for the EMHS Quarantine Hotels Outreach Service within SHICC is the Quarantine Management Team, and weekly meetings are held between teams to discuss changes in quarantine legal directions, communication issues, individual cases of concern, and any other new issues arising. SJA also liaises directly with SHICC with communications conveyed to PHEOC IPC if required.

Currently, the need for IPC training is usually identified by hotel and security staff through weekly facility meetings. Importantly, IPC expertise can be requested by SHICC from PHEOC, although the IPC Team is not embedded within SHICC.

Responsibilities around IPC are not articulated within existing letters of requisition of the Hotels, nor are they articulated within contracts with security providers.

Supply of PPE

Agencies employing hotel staff, security contractors, cleaning, and food and beverage staff are responsible for supplying staff with PPE. SHICC supplies PPE to the EMHS Hotel Quarantine Outreach Service, Healthcare Australia, ADF personnel and contractors servicing SSQFs. This supply is closely monitored by SHICC. SJA are responsible for the supply of PPE for all SJA personnel.

IPC training for non-health care workers in SSQFs

SHICC holds weekly meetings with each SSQF, at which IPC training is a standing item. If the SSQF identifies a requirement for staff training, the SHICC Facilities and Movements Team will make a formal request to the PHEOC IPC team to provide this training. This has highlighted that a number of staff identified that they had not received face to face training prior to commencing working at a SSQF, and some had only watched a video. The training provided by PHEOC IPC includes information on what is COVID-19, how is it transmitted, use of PPE, other IPC measures, and demonstration with Glitterbug cream and ultraviolet light. Additionally, the training video *Donning and doffing PPE: A guide for hotel and security staff* covers the donning and doffing of face masks, gloves and eyewear/ face shields (available here on YouTube).

[16] WA Department of Health. Advice for use of PPE equipment for non-healthcare workers in community settings. 23 November 2020. WA Department of Health.
[17] WA Department of Health. Infection prevention and control information for public and private transport 2020. WA Department of Health.

IPC training for health care workers in SSQFs

EMHS, Healthcare Australia and SJA are responsible and accountable for providing IPC training for all their staff working at SSQFs. Prior to the incidents on 5 January 2021, the protocols and training requirements had been developed by these services without advice from PHEOC IPC. Importantly, communications between these clinical agencies and PHEOC IPC are coordinated by SHICC, rather than directly between agencies.

Face to face training in IPC is provided for all EMHS Quarantine Hotels Outreach Service staff upon commencement in the role by the Royal Perth Bentley Group Organisation and Learning Development Team. After this, staff work two supernumerary shifts in the RPH COVID-19 clinic to become accustomed to frequent use of PPE, during which practice is assessed prior to commencing work in SSQFs. Upon commencement at the SSQF, staff work a supernumerary shift and then a straddle shift so that they are accompanied by a senior nurse all shift. There are currently no schedules for refresher training in IPC or PPE. The current training provided occurs within a hospital setting rather than the hotel setting which are significantly different environments, with different facilities and access to support and equipment.

SJA provides staff with access to a Learning Management System which includes courses on IPC such as 'Hand Hygiene and Infection Prevention and Control – Paramedics', 'Use of Honeywell Respiratory Mask', and 'Hospital Support Manager (COVID-19)'. Paramedics participate in an annual two-day Continuing Education Program (CEP), which teaches the existing PPE guidelines and during which all participants are required to don and doff PPE. Ambulance Officers attend the same face to face training. Ambulance Officers also attend an annual CEP, which covers PPE guidelines and during which all participants are required to don and doff PPE. Video resources are also available to staff, including 'Introduction to IPC', 'Donning and Doffing Honeywell Mask', and 'Donning/ Doffing PPE Tutorial', the latter which includes P2 mask fitting and fit check.

Inspection, audit and assurance activities

Where possible weekly inspections of IPC and PPE practices are undertaken by PHEOC IPC at each hotel and staff are identified who had not had training prior to commencing working at a SSQF. An inspection of each of the nine SSQFs is conducted weekly (dependent on resourcing) by the PHEOC IPC team and an inspection sheet completed. The inspections assess compliance against a set of standards and identifies training needs. The inspections do not consider reasons for non-compliance or assessment of system improvement. Results of inspections are fed back to SSQFs during weekly facilities meetings with SHICC, however there is no further follow up as to whether recommendations have been implemented. Further overview of current inspections, audit and assurance activities is outlined in **Attachment 4**.

Inspection, audit, assurance and improvement activities for IPC are currently determined and led by EMHS and Healthcare Australia for their respective staff, and EMHS clinical nurses are trained to conduct in situ audits. Additionally, it was recently agreed between PHEOC IPC and SHICC that weekly audits would now include healthcare workers from these agencies.

SJA provides staff with training on IPC and PPE use, and is responsible for inspection, audit, assurance and quality improvement activities related to staff IPC practices.

Fomites (surfaces and objects) are a less predominant means of transmission in comparison to respiratory droplets, however in the context of new variants it is unknown to what degree. There are a multitude of cleaning agencies and contractors currently providing cleaning services to SSQFs, and there are no assurance activities that currently target hotel cleaners or the quality of cleaning practices.

Reporting of PPE breaches

A process of incident reporting within SSQFs has been developed by SHICC, with hotel and security staff regularly encouraged to report observed breaches in IPC processes including use of PPE. Similar to clinical incidents, a culture of reporting of incidents within SSQFs is a positive sign of good awareness of IPC practices and a strong culture of safety. Incident 2 was independently reported to SHICC by both a security guard and hotel duty manager, which is in line with current reporting processes and emblematic of a positive reporting culture. It is important that staff working within SSQFs continue to feel empowered to be able to report incidents observed without fear of retribution. Additionally, the *IP&C Guidelines for State Quarantine Facilities*[18] outline the need for reporting breaches to SHICC, though what constitutes a PPE breach is not clearly defined.

Discussion and Recommendations

High level policies have been developed by PHEOC IPC and SHICC that cover staff working across the various agencies involved in WA SSQFs. For both health services and non-health agencies working in SSQFs, it is the responsibility of the agency to develop local SOPs that detail how these policies will be implemented. At present there is some central oversight of IPC policies, for example PHEOC IPC have previously provided advice into SJA guidelines. However, other clinical agencies working within SSQFs have developed SOPs with limited to no input centrally. There is currently no single agency with oversight of the IPC SOPs used by all other agencies. A root cause identified for incident 2 related to the lack of knowledge agencies had with regards to each other's individual IPC SOPs in relation to differing PPE requirements when maintaining a distance of over 1.5 metres.

It is recommended that an IPC central oversight team (PHEOC IPC) should review the IPC and PPE protocols and practices for all agencies working at the SSQFs to ensure standardisation, currency and accuracy as well as relevance to the context of the SSQF. This includes EMHS, SJA, Healthcare Australia, PathWest, WA Police, Australian Defence Force, hotel staff, security contractors, guest transport, cleaners and any other staff contracted to support the SSQFs.

Additionally, a consistent theme within interviews across both health services involved with SSQF highlighted that there was a lack of transparency of hotel SOPs with regards to IPC practices, including layout of clean and dirty zones within hotels as well as hotel procedures for ambulance transfers. Collaboration between agencies including the sharing of SOPs should be encouraged where possible.

Recommendation 6: The newly established IPC central oversight function to encourage standardisation of IPC practice across all agencies working within SSQFs.	
6	The IPC central oversight function (**Recommendation 1**) should commence and/or strengthen the following activities: 1. Review all agency-specific IPC SOPs and work with relevant agencies to ensure they are current, accurate and relevant to the SSQF environment. These reviews should be performed as soon as possible and repeated at regular intervals whilst SSQFs continue to exist. 2. Coordinate regular meetings with SSQF health services, to share expertise, encourage collaboration and standardisation of practice, and allow for direct communication between clinical staff and PHEOC IPC.[19] 3. Communication of significant changes to national guidelines to key stakeholders in a timely fashion.

[18] PHEOC Infection Prevention and Control. 24 December 2020. Infection prevention and control guidelines for state quarantine facilities. Accessed 17 January 2021. Available from: https://ww2.health.wa.gov.au/-/media/Corp/Documents/Health-for/Infectious-disease/COVID19/COVID19-IPC-advice-for-state-quarantine-facilities.pdf.

[19] SSQF health services are defined as EMHS Hotel Quarantine Outreach Service, Healthcare Australia, SJA, PathWest, and any other services introduced into the SSQF environment that provide clinical services to hotel guests.

Currently, the need for training is identified by hotel staff and reported to the SHICC Facilities and Movements Team, who then request that PHEOC IPC provide training. It is recommended that the training needs of SSQF staff, inclusive of key competencies should be determined by staff with appropriate IPC expertise. This function would best sit with the proposed central oversight team (PHEOC IPC). A standard training schedule should be developed inclusive of updates to relevant guidelines and tailored to the current pandemic context. The Coates review, in its assessment of Victorian hotel quarantine arrangements stated that '*it was not appropriate that the contracts placed responsibility for training and supervision in relation to PPE and infection prevention and control on the contractors in the manner they did'* (p 205).[20]

There is currently no way of ensuring that staff are appropriately trained prior to commencing work within an SSQF. Donning and doffing PPE in the correct sequence is a process that requires practice and repetition to achieve competency, therefore training inclusive of demonstrations of competency should be held at regular intervals. Refresher training should be a required standard for all staff working to support SSQFs, including not just clinical staff but also hotel staff, security contractors, cleaners, guest transport, WA Police, Australian Defence Force, and others. Multidisciplinary scenario-based training, similar to that routinely held within hospitals (eg CPR training) may be useful in this context.

Some clinical teams are currently undergoing training in a hospital environment, which is different to the SSQF environment. Training should be tailored to the SSQF environment. Additionally, physical distancing requirements should be an integral part of the IPC and PPE training for all staff working in the SSQFs but particularly those staff, such as clinical staff, who will have planned interaction with guests as part of their clinical role.

This Review encountered several instances where training needs for health care workers supporting SSQFs had not been communicated to the PHEOC IPC team, resulting in a divergence in practice across different teams involved in the response. The IPC central oversight team should take steps to standardise training across all agencies as much as possible.

Recommendation 7: The newly established IPC central oversight function to strengthen and facilitate standardisation of IPC training across SSQF agencies for both healthcare workers and non-health care workers.	
7	Features of this work program should include: a) A schedule and specified content for induction and refresher training based on national standards for IPC and PPE should be established for all agencies servicing SSQF (both clinical and non-clinical). b) Delivery of the training to be through the IPC central oversight team if possible. Alternatively, this team may review existing training modules and advise on content for organisations such as SJA which have existing training programs. c) Training should be provided prior to commencing work at an SSQF, with a preference for face to face training including competency checks if reasonable within the context of COVID-19 case numbers. d) Training should be provided to staff from all agencies working within SSQFs, including cleaners. e) All training should be documented and logs regularly audited by the IPC central oversight function for compliance. f) All IPC training for staff working within SSQFs should be specific to the hotel context, and include clean and dirty zones, access and egress, requirements for physical distancing and discrepancies between hotels.

[20] Victorian Government, COVID-19 Hotel Quarantine Inquiry, Final Report and Recommendations. Parliamentary Paper no. 191. 21 December 2020 (Coates Review).

	(Coates Recommendation 25, 27 and AHPPC Principle 5)

With multiple agencies and staff working across various SSQFs, it is essential that there is clarity on roles, responsibilities and chains of authority for all personnel working on-site. This aligns with Recommendation 14 from the Coates review[21], which outlines the need to ensure that individual quarantine facilities have provided role clarity to all staff working on site.

Recommendation 8: IPC roles and responsibilities should be clearly documented.	
8	SHICC should ensure that roles and responsibilities for IPC are clearly documented for all agencies working within SSQFs, inclusive of hotel staff, security agencies, guest transport, the EMHS Hotel Quarantine Outreach Service, PathWest, Healthcare Australia, and SJA. **(Coates Recommendation 13, 14, 17 and 18 AHPPC Principle 6)**

As part of a continuous quality improvement process, hotel quarantine programs should apply a comprehensive assurance process, which includes regular audits as well as inspections to determine competency and compliance with IPC practices and PPE use. Existing weekly IPC inspections should be strengthened by including more regularly scheduled and random compliance checks, to be led by the IPC central oversight team. There are no assurance activities currently targeting cleaners in both use of PPE and quality of cleaning practices (eg surface swabbing). In Victoria, the Coates Review[22] identified that the multitude of cleaning contractors used within the Victorian quarantine system posed an unacceptable risk.

It is recommended that audits and compliance checks must cover all types of staff working at the SSQF, including clinical staff and cleaning staff, and accommodate the different shift arrangements for the various types of staff. Additionally, there needs to be improved certainty that rectification plans for identified issues are carried out within a defined timeframe.

Recommendation 9: Existing compliance checks should be expanded to all SSQF staff.	
9	Weekly scheduled and un-announced compliance checks of IPC and PPE to be conducted at each SSQF by the IPC central oversight team, and to be expanded to include all agencies and staff working at the SSQF and accommodate different shift arrangements. Cleaners should be targeted as a priority. **(Coates Recommendation 28 and 31 and AHPPC Principle 11 and 12)**

Other aspects of achieving end to end assurance should be considered, in line with recommendation 31 of the Coates Review[39] and Recommendation 1 of the Halton Review[40]. Examples include the use of additional face to face auditing of appropriate PPE use and other IPC practices across all staff working within SSQFs, and regular retrospective audits using CCTV footage. CCTV proved useful in assessment of both instances, however is not currently available within 2 SSQFs. Additionally, in the event of a PPE breach CCTV may be useful to support staff in understanding events. An investigation into the recent cluster at the Hotel Grand Chancellor in Queensland that involved a hotel cleaner and hotel guests was hindered by a lack of CCTV footage in the hotel. Installation of CCTV in SSQFs that do not currently have this could be considered as a potential means of mitigation. It is important to ensure that such processes are introduced with the intention of encouraging continuous improvement and do not become punitive in nature.

[21] Victorian Government, COVID-19 Hotel Quarantine Inquiry, Final Report and Recommendations. Parliamentary Paper no. 191. 21 December 2020. Victorian Government. (Coates Review)

[22] Victorian Government, COVID-19 Hotel Quarantine Inquiry, Final Report and Recommendations. Parliamentary Paper no. 191. 21 December 2020. Victorian Government. (Coates Review)

Recommendation 10: Introduce new means of audit and assurance.	
10	Adoption of audit activities within SSQFs should be considered by the central oversight IPC team as an adjunct to existing inspection practices. Such activities should be guided by epidemiological and IPC expert advice and could include activities such as regular scheduled competency checks of individual staff targeting every agency working within or in support of SSQFs. **(Coates Recommendation 31)**

A culture of safety which encourages collaboration and speaking up when health risks are observed should be fostered. The Coates Review[23] (Recommendation 26) outlined the need for hotel site managers to foster a culture of safety conducive to open collaboration and speaking up if concerns are identified. Additionally, a consistent definition of a PPE breach is needed, as well as documentation of processes to risk assess and respond to the breach. All such breaches that occur in SSQFs are currently reported to SHICC with advice sought from both PHEOC IPC and PHOps to determine the significance of the breach in the context in which it occurred. However, this data should be collected and regularly analysed for trends, in order to inform areas of risk and better target future audit activities.

Recommendation 11: Implement a formal PPE breach surveillance system and use data collected to drive continuous improvement.	
11	It is recommended that a formal surveillance system is developed by SHICC to record breaches in PPE occurring in SSQFs, inclusive of a standard definition of PPE breach. This data should be collected and analysed within a central system to assist with identifying any trends and how and where to apply improvement activities. Reports on logged breaches should be generated on a regular basis and tabled at the relevant meeting(s). **(AHPPC Principle 11 and 12)**

Conclusion

This Review demonstrated significant evidence of continuous improvement processes that had been applied within and across teams over time. In the spirit of continuous improvement, teams should continue to apply learnings from national reviews, including the Halton[24] and Coates[42] Reviews. The response to the COVID-19 pandemic continues to evolve, meaning that services must be agile and able to rapidly implement changes in line with any new relevant national recommendations. The safeguards that exist are not impermeable. A systems approach understands that humans are fallible and errors, while never encouraged, are to be expected. There are also system issues which contribute to the circumstance of the incident which can be addressed.

This Review has demonstrated a rapid, collective and considered response to both of the incidents, which mitigated the potential risk of virus transmission to the community. Relevant teams mobilised quickly to undertake their responsibilities in risk assessment, management and response. The Reviewers would like to acknowledge and thank the staff working at the frontline, whether that be within SSQFs, hospitals, supporting the public health response or elsewhere, for the work they continue to lead day after day to protect the WA community.

[23] Victorian Government, COVID-19 Hotel Quarantine Inquiry, Final Report and Recommendations. Parliamentary Paper no. 191. 21 December 2020 (Coates Review)

[24] Australian Government Department of Health, National Review of Hotel Quarantine 23 October 2020. Australian Government Department of Health (Halton Review).

This document can be made available in alternative formats on request for a person with disability.

Attachment 1. Changes implemented by St John Ambulance and the East Metropolitan Health Service Hotel Quarantine Outreach Service

The EMHS and SJA have individually commissioned internal reviews and have implemented or planned a number of changes subsequent to the reporting of these incidents.

EMHS Hotel Quarantine Outreach Service Response	
Changes implemented	
1	All staff have completed a review of the Personal Protective Equipment (PPE) donning and doffing video and have completed face to face refresher training.
2	Full PPE to be used for all guests with visual or hearing impairment.
3	Common hotel-based scenarios have been developed for scenario testing, and these are reviewed as part of daily handover processes. These scenarios will deal with circumstances similar to this incident, where what is thought to be a visual welfare check becomes a face to face consult, necessitating a different form of PPE.
4	Current IPC guidelines have been updated to better tailor to the SSQF environment, with review underway from PHEOC IPC.
5	The PPE trolley is now to be taken to all consults, inclusive of visual welfare checks and medication drops.
Changes in progress	
1	Introducing regular spot audits of PPE use that may assess donning, doffing or two step cleaning of equipment in either an actual or simulated environment. Introduction of iPads and conversion of an audit tool to a web-based form to enable electronic capturing of the full audit trail. From this an automated dashboard will be produced, that will enable regular review of staff compliance and frequency of audit.
2	Development of videos for SSQF-specific PPE requirements.
3	Several operational changes including two members of nursing staff rostered on day shifts; checklists for face to face assessments to ensure all staff are aware of PPE requirements; development of criteria around face to face assessments to minimise use of these; and ‘buddying’ of nurses with nurses at other hotels for night shifts to discuss the need for a face to face assessment and if so, have the buddied nurse on speaker phone whilst the consult is conducted.

SJA have updated the *SJA COVID-19 Interim Guidelines (January 2021)*[1] as a result of this incident, and they now include a section on PPE (Version 4.0). This now supersedes all other SJA guidelines related to PPE. It states that the P2/N95 masks should now be used by SJA personnel while driving. It confirms that PPE should be worn where personnel are within 1.5 metres of patients suspected or confirmed to have COVID-19, and for all patients in a quarantine hotel or in self quarantine (including asymptomatic individuals). It continues to advocate for only one officer coming within close contact of the patient.

SJA Response	
Changes implemented	
1	The *COVID-19 Interim Guidelines*[2] have been updated to include a section on PPE (version 4). This explicitly states that PPE must be worn if within 1.5 metres of patients meeting certain criteria.
2	Reintroduction of P2/N95 masks to be used by all Ambulance Officers whilst in an ambulance.
Changes in progress	
1	Instructional video to be developed to visually mark 1.5 metres in the ambulance environment using visual cues (to be completed by 5/3/21).
2	Review the location of PPE in ambulances (to be completed by 5/3/21).

[1] St John Ambulance. COVID-19 Interim Guidelines. Version 4.1 accessed 18 January 2021 here. St John Ambulance WA.
[2] St John Ambulance. COVID-19 Interim Guidelines. Version 4.1 accessed 18 January 2021 here. St John Ambulance WA.

Attachment 2. Current IPC policies and Standard Operating Procedures used within State Supervised Quarantine Facilities

This attachment provides additional information on health services available within SSQFs and other policies and SOPs relevant to IPC that were in place at the time of the incidents on 5 January 2021. Importantly, some agency SOPs have subsequently been revised.

EMHS Hotel Quarantine Outreach Service

The EMHS Quarantine Hotels Outreach Service is staffed by General Practitioners (GPs) and nurses, with onsite medical cover from 10 am to 5 pm, on call GP support from 5-10 pm and on call support from Royal Perth Hospital (RPH) Acute Medical Unit and the Emergency Department between 10 pm and 10 am. The *EMHS Quarantine Hotels Outreach Guidelines v2.3*[6] include high level information on infection prevention and management and recommend use of droplet and contact precautions. The PPE required for these encounters is specified as gloves, disposable gown, surgical mask (P2/N95 in the event that aerosol-generating procedures are used), and protective eyewear. The *Guidelines* detail standards for initial health screening by EMHS which occurs within 24 hours of check in. After that, routine follow ups from a nurse occur on days 3, 7 and 10, during which general welfare and symptoms are checked. Additionally, ad hoc follow ups may occur at any time during the quarantine period at the request of the hotel guest, advice or request from SHICC or PHOps or as part of a clinical management plan as determined by the staff. Staff are advised that these should be read in conjunction with the *RPH COVID-19 Infection Prevention and Management Guidelines*,[1] which outline additional detail related to transmission-based precautions, though it is predominantly aimed at hospitalised patients.

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Other guidelines that were in place at the time of the incident on 5 January 2021 included the *Workplace Instruction Infectious Precaution PPE*[2] which was last amended in May 2020 and outlines available PPE, attending to a patient and donning and doffing instructions. The *Instructions* stated that when driving a vehicle that all PPE must be removed and when moving back into close contact with a patient, PPE needs to be reapplied. Additionally, *Scene Management - COVID-19 (12 January 2021)*[3] advises SJA personnel to don an enhanced level of PPE once a risk assessment has been undertaken and to minimise all non-essential contact with the patient. These two documents do not make specific reference to transfer of patients to and from SSQFs.

SJA requisitioned three Specialised Isolation Ambulances (SIA) to facilitate the transport of both confirmed COVID-19 patients and patients with a very high degree of potential to be carrying COVID-19. The SIA vehicles have been equipped and modified to reduce the risk of transmission to health care workers. In particular they have a barrier that completely separates the driver from the patient care area. Effective from 28 June 2020, the SIA were no longer being actively staffed each shift and were therefore not mobilised for this hospital transfer.

[1] Royal Perth Bentley Group. 9 December 2020. COVID-19 Infection Prevention and Management Guideline. Accessed 15 January 2021.

[2] Workplace Instruction -Infectious Precaution PPE. April 2020. St John Ambulance WA.

[3] Scene Management - COVID-19. 12 January 2021. St John Ambulance.

Staff member	Guideline name	Guideline author	Content	Local SOPs	PPE supplied by	Means of engagement	IPC roles and responsibilities documented?
SSQF – non-health care services							
Hotel staff	*IP&C Guidelines for State Quarantine Facilities*[4]	PHEOC IPC	Guidance on: • General risk mitigation • What isolation means • Use of PPE • Check in arrangements for guests • Meals and other deliveries • Guests requiring room movements • Cleaning • Maintenance and waste • Reporting breaches • Management of guests at the end of their isolation period	Developed by individual agency	Individual agency	Letters of requisition under Public Health Act 2016	No
Security contractors						Contract with SHICC	No
Cleaning contractors						Contracted by hotel	No
Equity Transport	*Infection prevention and control information for public and private transport*[5].		Unknown			Unknown	Unknown
PTA bus drivers						Unknown	Unknown
WA Police	*Infection control advice for WA Police during the COVID-19 pandemic*[6]		• Managing routine home checks • Managing non-compliant residents in quarantine or			N/A	N/A

[4] PHEOC Infection Prevention and Control. 24 December 2020. Infection prevention and control guidelines for state quarantine facilities. Accessed 17 January 2021. Available from: https://ww2.health.wa.gov.au/-/media/Corp/Documents/Health-for/Infectious-disease/COVID19/COVID19-IPC-advice-for-state-quarantine-facilities.pdf.

[5] WA Department of Health. Infection prevention and control information for public and private transport 2020. WA Department of Health.

[6] WA Department of Health. Infection control advice for WA Police during the COVID-19 pandemic. Using personal protective equipment. Accessed 14 February 2021. Available from: https://ww2.health.wa.gov.au/-/media/Files/Corporate/general-documents/Infectious-diseases/PDF/Coronavirus/COVID19-PPE-Advice-for-police.pdf.

			suspected/ confirmed to have COVID-19 • Donning and doffing PPE				
ADF	*Advice for use of personal protective equipment for non-healthcare workers in community settings*[7].		Includes information on: • Physical distancing • Hand hygiene • Donning and doffing PPE		SHICC	Unknown	Unknown
Others					Individual agency	Unknown	Unknown
SSQF – health care services							
EMHS Hotel Quarantine Service	*Information for clinical teams attending to guests who are undergoing 14 day quarantine in hotels and other accommodation*[8]	PHEOC IPC	This document provides high level information related to standard and transmission-based precautions, and associated PPE requirements.	Quarantine Hotels Outreach Service Guidelines v2.3[9] Quarantine Hotels Outreach Service. Face to Face Guidelines.	SHICC	Briefing note between EMHS Chief Executive and SHICC Incident Controller	No
Healthcare Australia				Unknown	SHICC	Contract with SHICC	Unknown
St John Ambulance				*SJA COVID-19 Interim Guidelines 2020*[10]	SJA	N/A	N/A
PathWest				Unknown	Unknown	Unknown	Unknown

[7] WA Department of Health. Advice for use of PPE equipment for non-healthcare workers in community settings. 23 November 2020. WA Department of Health.
[8] WA Department of Health, Information for clinical teams attending to guests who are undergoing 14 day quarantine in hotels and other accommodation. 23 December 2020. WA Department of Health
[9] East Metropolitan Health Service, Quarantine Hotels Outreach Service Guidelines. Version 2.3. Accessed 15 January, 2021. East Metropolitan Health Service.
[10] St John Ambulance. COVID-19 Interim Guidelines. Version 4.1 accessed 18 January 2021 here. St John Ambulance WA

Attachment 3. Root causes and contributing factors for incidents

This attachment describes the root causes and contributing factors outlined in **Figures 1 and 2** (p. 8-9) of the Review.

Incident 1

Root causes

The following root causes were identified in association with incident 1:

1. **Root cause 1.** Due to low case numbers in the general community and in the hotel quarantine environment in general, Nurse 1 assessed the personal risk of transmission as low. Fatigue may have also been a factor as the incident occurred at the end of a night shift. Consequently, she did not strictly follow protocols for PPE used required when unable to physical distance more than 1.5 metres and was noted to touch her mask, put her gloves in her pocket and not perform immediate hand hygiene.
2. **Root cause 2.** There were no visual cues or physical barriers to demarcate the space 1.5 metres from the hotel guest. Additionally, there were no other staff present to remind nurse 1 that PPE was required. This meant that the nurse was able to move within 1.5 metres of the hotel guest.

Contributing factors

The following contributing factors have been identified as influencing the likelihood of the incident occurring:

1. **EMHS IPC protocols.** EMHS standard procedures for several types of consults do not require the use of full PPE, including taking a trolley for access or disposal of PPE with the health care worker. The nurse did not take a trolley with her to assess the hotel guest as the consult was a visual welfare check. Upon arrival to the hotel guest's room, it was apparent that the guest was unwell, necessitating a different form of consult that would usually require PPE. As a result, Nurse 1 did not have all available equipment with her in assessing the hotel guest.
2. **Sense of urgency.** Nurse 1 was at the end of a night shift, the next nurse was late, and she was asked to see a hotel guest for a visual welfare check at handover time. This led to a sense of urgency to finish the consultation with the guest and get to handover, resulting in less time being taken to don additional PPE when the guest required additional face to face attention.
3. **Comorbidities.** The hotel guest had difficulty hearing and was reported by EMHS and PHOps to be confused, resulting in communication difficulties. Nurse 1 leaned closer to the hotel guest to enable more effective communication.
4. **Lack of consistency in defining significant PPE breaches.** There are no consistent guidelines for what constitutes a breach of PPE across all SSQF agencies. From a contact tracing perspective, a breach in PPE is determined based on a case by case assessment using the CDNA COVID-19 SONG[28] as a guideline. Combined with the risk assessment matrix for COVID-19 exposure to health care workers in PPE (p. 40, Table 2a), any health care worker with any form of exposure to COVID-19 with no PPE or a surgical mask only is considered to be a high risk exposure.

5. **IPC practices are not frequently audited nor training refreshed.** As the IPC practices of healthcare workers are not frequently audited, and there are no regular refreshers in use of PPE, there are no regular reminders to staff of what constitutes best practice. As case numbers are comparatively low and face to face checks minimised, opportunities for regular practice in the use of PPE are currently limited.
6. **The hotel guest entered WA despite being symptomatic.** The hotel guest was symptomatic prior to leaving the UK. There was no evidence available to the Reviewers to suggest that testing was performed prior to departure. These symptoms were not predominantly respiratory in nature and so may have been mistaken for something else. Consequently, the hotel guest was able to board the plane and enter into WA. Neither airport screening upon entry into WA, nor day 1 health screen within the SSQF identified COVID-19 symptoms.

Incident 2

Root cause analysis

The following root causes have been identified in association with incident 2:

1. **Root cause 1.** The security guard was not aware of the *SJA COVID-19 Interim Guidelines* [1] so recommended that Ambulance Officer 1 should have a mask on when transferring a patient. This resulted in Ambulance Officer 1 moving towards the ambulance to open the passenger door and retrieve her mask following instruction from the security guard. The hotel guest was being loaded into the side door of the ambulance simultaneously by EMHS Nurse 2, and the side door was situated next to the passenger door. Consequently, the hotel guest came within 1.5 metres of Ambulance Officer 1.
2. **Root cause 2.** There were no visual cues or physical barriers present to demarcate the space 1.5 metres from the hotel guest. This meant that Ambulance Officer 1 and the hotel guest were able to move within 1.5 metres of one another without a visual reminder to undertake appropriate distancing.

Contributing factors

The following contributing factors have been identified as influencing the likelihood of the incident occurring:

1. **Workflow.** As the hotel guest was ambulant and loaded through the side door, as opposed to the rear of the vehicle, Ambulance Officer 1 was required to enter into the same 1.5 metre zone to retrieve the mask from the ambulance.
2. **PPE storage locations in the ambulance.** The most readily accessible location for PPE was the front passenger door, however this was within 1.5 metres of the location at which the hotel guest was loaded into the ambulance.
3. **IPC protocols.** The *SJA COVID-19 Interim Guidelines*[2] (v3.1 on 5/01/2021, current version 4.0) graded assessment recommended that if possible, only a single ambulance officer should approach a patient and lead the transfer (and therefore wear full PPE), whilst the other observes from a distance, without any need for PPE. The version of this guideline that was available on the day of the incident did

[1] St John Ambulance. COVID-19 Interim Guidelines. Version 4.1 accessed 18 January 2021 here. St John Ambulance WA.
[2] Version available at 5/01/2021 was v3.1. St John Ambulance 2020. COVID-19 Interim Guidelines. Available from: http://clinical.stjohnwa.com.au/.

not specifically mention the distance as being 1.5 metres. Additionally, the ambulance crew had difficulty in accessing the guidelines enroute to the scene.

4. **Communication/Information management.** Command and control of emergency management guides agencies to provide relevant information and reporting to the Incident Controller for coordination. Ambulance guidelines for PPE are available to agencies via SHICC. Hotel protocols are not available to SHICC and are not visible to the ambulance service.
5. **Defining a PPE breach.** There is no consistent definition of what constitutes a PPE breach, plus it is difficult to objectively define the subset of PPE breaches with greatest public health risk. The significance of a breach in a healthcare worker in the context of COVID-19 exposure changed with updates to the COVID-19 SONG made on 23 December 2020, with close contacts defined as any form of face to face contact rather than 15 minutes as had been previously defined. Not all agencies or associated staff were aware of these changes on 5 January 2021.
6. **The hotel guest entered WA despite being symptomatic.** The hotel guest was symptomatic prior to leaving the UK. There was no evidence available to the Reviewers to suggest that testing was performed prior to departure. These symptoms were not predominantly respiratory in nature and so may have been mistaken for something else. Consequently, the hotel guest was able to board the plane and enter into WA. Neither airport screening upon entry into WA, nor day 1 health screen within the SSQF identified COVID-19 symptoms.

Attachment 4. Inspections, audits and assurance processes

An inspection of each of the nine SSQFs is regularly conducted by the PHEOC IPC team and an inspection sheet completed. It is intended by the PHEOC IPC team to conduct these on a weekly basis. Where weekly inspections cannot be carried out at all SSQFs due to limited resources, hotels are prioritised based on the result of previous inspections i.e. if issues were identified at a previous visit then that hotel will be prioritised for a subsequent inspection. The inspections assess staff and training, guest check-in area, check-in process, quarantine floors, food, rubbish and laundry and health care staff. As reported by PHEOC IPC, the inspections capture what is occurring at that point in time only. During visits, the PHEOC IPC Team also speak to other staff on site at the SSQF, such as WA Police, Australian Defence Force and transport staff, and ask them if they have had PPE training and to describe donning and doffing processes. These inspections previously did not include healthcare workers working for the EMHS Hotel Quarantine Outreach Service or Healthcare Australia, however not long before the incident on 5 January these inspections were broadened out to include these clinical services also.

In the event that non-conformances are observed, recommendations are made to the SHICC Facilities and Movements Team to raise with the individual SSQF. These recommendations are then discussed by SHICC with the relevant SQFF at the weekly facilities meeting. If IPC practices are observed to need improvement whilst PHEOC IPC staff are conducting an inspection, feedback is provided to the relevant staff member on site at the time of the inspection.

The most recent inspection of the SSQF at which this incident occurred was on 29 December 2020. There were no follow-up actions documented on this date and no additional staff identified to require training. At the previous inspection on the 11 December 2020, a PPE session was undertaken with hotel staff and cleaners and six security staff reported only having received video training for PPE not face to face training. The undertaking of the training of the security staff was not listed as a recommendation on the inspection sheet. On the 3 December 2020, it had also been noted that the majority of the security guards had only seen the PPE training on video and had not received face to face training. As a follow-up further training was held on 11 December with 30 hotel and security staff.