



Utilization of Multi-Bed Ward Rooms and Inpatient Placement in Hospitals During COVID-19

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Summary

This document was developed by the *Ontario Health (Toronto Region) COVID-19 Hospital Operations Table*. The table provided recommendations on the utilization of multi-bed ward rooms (three beds or more) and patient placement in ward rooms as hospitals plan for ramping up scheduled surgical and procedural work and patient volumes. The table membership included representation from acute care, rehabilitation, complex care, and mental health facilities. See Appendix A for a list of table members.

The recommendations in this document have been adapted for the provincial context and apply specifically to multi-bed inpatient ward rooms. The recommendations do not apply to areas where space is configured differently, such as in the emergency department, post-anaesthetic care units (PACUs), step-down units, or intensive care units (ICUs). Semi-private rooms can typically accommodate for physical distancing and are not the main focus of this document.

This document offers evidence-informed recommendations on physical and spatial infection prevention and control (IPAC) measures that should be implemented in a progressive manner amid the COVID-19 pandemic, with the goal of ensuring the safety and protection of patients and health care workers. The recommendations include the following:

- Maximize the number of private and semi-private rooms with dedicated washrooms
- Wherever possible, four-bed rooms should only be occupied by two patients
- Additional private/semi-private space should be explored for additional capacity
- With the guidance of hospital IPAC programs, patients who are colonized or infected with the same organism may be cohorted in multi-bed rooms
- Monitor patient flow, emergency department capacity, and access to care for non-COVID activity before utilizing multi-bed ward rooms
- If multi-bed ward rooms are necessary, enhancements to IPAC standards should be considered

1. Introduction

COVID-19 inpatient outbreaks continue to challenge hospitals, including acute care, complex continuing care, rehabilitation, and mental health facilities, despite attempts to optimize IPAC practices. A fundamental challenge to outbreak mitigation efforts includes ongoing exposures among inpatients, which is compounded by shared patient rooms.

During the first wave of the COVID-19 pandemic, hospitals were limited to essential care to preserve capacity for COVID-19 patients. This reduction in activity reduced hospital occupancy, allowing hospitals to preferentially place patients in private and semi-private rooms (or to only use one bed in a multi-bed room) to minimize nosocomial spread of COVID-19. However, as the pandemic has evolved, hospitals are seeing both a new baseline of COVID-19 cases and increasing emergency admissions as a result of deferred access. In addition, bed capacity and the ability to utilize private and semi-private rooms will now be further challenged with planned steps for the gradual increase of scheduled surgical and procedural activity to address the backlog of cases accrued over the first phase of the pandemic and ongoing care needs. Superimposed on these increased demands is the possibility of additional future waves of COVID-19 community spread, which may coincide with the upcoming respiratory virus season in the fall. All of these factors will put tremendous pressures on hospital bed capacity and create the potential for significant ED pressures (i.e., high number of no bed admits; hallway medicine) and

cancellation of operating rooms if the appropriate utilization of private, semi-private and multi-bed ward rooms are not appropriately planned.

Several studies have documented a beneficial relationship between private rooms and reduction in infectious adverse outcomes. While private rooms are certainly the current standard for new hospital planning and design¹, the majority of hospitals in Ontario have multi-bed ward rooms and shared washrooms and must consider competing priorities when determining the appropriate room placements for patients using a holistic approach. When there are only a limited number of private and semi-private rooms, it is prudent to prioritize them for those patients who have infections that easily transmit to other patients within shared spaces, and for those who are at increased risk of adverse outcomes resulting from hospital-acquired infections. This document offers hospitals a systematic approach to increase private room capacity and reduce ward rooms in existing facilities in Ontario, acknowledging that hospitals must consider competing priorities when determining the appropriate room placements.

2. Background

The placement of patients in hospital rooms (private, semi-private, and multi-bed wards) is a complex process involving multiple patient factors and competing demands including age, gender, requirements for isolation (e.g., immunosuppression, infectious and communicable diseases), mental status, and psychosocial factors, as well as staffing needs, patient safety concerns (e.g. falls risk), access to care and patient flow, patient/family requests, and insurance/reimbursement factors. This situation becomes even more complex during the COVID-19 pandemic, particularly as we begin to ramp up surgical and non-urgent activity and in parallel focus on preventing nosocomial transmission of COVID-19 in hospitals through enhanced outbreak prevention measures (i.e., use of private rooms for persons under investigation/suspect cases, universal masking, screening, active surveillance, appropriate personal protective equipment and guidance on safe use).

COVID-19 easily transmits between patients in shared patient rooms, and the risk of spread is difficult to mitigate within shared accommodations. Patients with suspected or confirmed COVID-19 are typically placed in private rooms on droplet and contact precautions. However, the diagnosis can be missed early in admission due to atypical presentations and minimally symptomatic presentations as well as false negative test results. Furthermore, patients presenting to hospital for other reasons can be incubating illness and develop infection within 14 days after admission to hospital. Long-stay patients can also acquire COVID-19 from health care workers and essential visitors. Anecdotally, and based on the table's collective experience, when a patient develops a droplet-borne infection such as COVID-19 while in a shared patient room, nosocomial spread to the other patients in the same room is a frequent occurrence, as well as transmission within other shared spaces such as washrooms.

While maintaining placement of patients in semi-private and private rooms and converting multi-bed ward rooms to semi-private or private rooms is recommended to minimize hospital outbreaks, it is recognized that doing so will be a significant challenge during this next phase of the pandemic considering concurrent pressures such as planned surgical and procedural ramp-up and the upcoming respiratory virus season. The ability of hospitals with older physical plants (which typically have smaller room size and a much higher concentration of ward beds) to achieve reduced occupancy targets, as outlined in [A Measured Approach to Planning for Surgeries and Procedures During the COVID-19](#)

¹ Canadian Standards Association. CSA Z8000-18: Canadian health care facilities. Ottawa, ON: The Association; 2018.

[Pandemic](#), and allow ramp-up of additional surgeries and procedures will be significantly compromised if multi-bed ward rooms are converted to semi-private rooms. The reduction in ward beds may result in surgical cancellations and significant patient flow challenges, with primary impact to emergency departments and the broader health system need to take these implications into consideration as hospitals work to reduce COVID-19 exposures among inpatients.

3. Recommendations

Hospitals' IPAC considerations for COVID-19 must be carefully balanced with structural and operational factors. The following recommendations are intended to be used in a progressive manner based on the hospital's physical plant and the number of space contingency options available:

- 1) Where possible, hospitals should maximize the number of private and semi-private rooms with dedicated washrooms available for inpatient care. This includes potentially opening up existing surge capacity and space to achieve this goal.
- 2) Existing four-bed rooms should be occupied by two patients where possible. If a third or fourth person must be added to a room, this should be done when no other private or semi-private room space is available and when there is at least 2 m between beds.
- 3) Hospitals should explore new potential internal capacity to create additional private/semi-private space (i.e., restoring closed clinical units that may have been converted to non-patient space; conversion of offices to patient rooms) to achieve this goal. Note: this may require financial/capital investment and regional support to create new space and expand capacity of private/semi-private rooms.
- 4) If necessary, cohorting patients who are colonized or infected with the same organism in multi-bed rooms can be used as a strategy to maximize bed utilization and confine care to one area. This may only apply to specific antibiotic-resistant organisms or communicable diseases and must be considered only with the guidance of hospital IPAC programs.
- 5) Given the older physical plant design of many Ontario hospitals, it is recognized that some hospitals may need to maintain a certain baseline of ward rooms to maintain patient flow, emergency department capacity, and access to care for non-COVID activity. Factors to be considered at the hospital level when considering the need to utilize some multi-bed ward rooms include:
 - a. Hospital assessment of infectious risk based on community disease prevalence and hospital outbreak, in addition to mitigation plans
 - b. Increasing emergency department pressures (increasing number of "Admit no beds" or patients with isolation needs waiting in the emergency department for inpatient beds)
 - c. High ICU occupancy and reduced ability to move patients to inpatient units
 - d. High PACU occupancy and inability to move patients to inpatient beds
 - e. Surgical cancellations (due to no inpatient beds being available) and increased number of patients waiting in operating rooms to be admitted to PACU
- 6) Multi-bedded ward rooms should be used only if the above conditions apply; however, if required to maintain hospital operations and access to care (acute inpatient bed, ICU, PACU, OR), then the following enhancements to standards should be considered when placing patients in multi-bed rooms:

- a. Patients should be placed at least 2 m apart (measured at the head of bed) if physically possible
- b. Enhanced environmental service cleaning (minimum of twice daily cleaning) of entire multi-bed ward room and associated bathrooms must occur
- c. Dedicate equipment use to one patient, where possible. If resources don't allow for this, ensure shared equipment is thoroughly cleaned and disinfected after each use. Avoid bringing shared supply sources into patient rooms (e.g., medical supply carts)
- d. Minimize the number of supplies/patient belongings in patient rooms
- e. Ensure HVAC systems are in good working order with adequate number of air changes for a health care setting. Ensure HVAC system filters are appropriately rated for the health care setting and are on a preventative maintenance schedule
- f. Implement curtain changing as part of the routine bed space turnover protocol or when visibly soiled. Consider the installation of wipeable protective privacy barriers between beds to facilitate cleaning. The barriers should remain in place throughout the patients' stay to facilitate cleaning and disinfection and patient separation
- g. Ensure dedicated toileting facilities (e.g., commodes) to avoid sharing of washrooms
- h. Sufficient alcohol-based hand rub should be available at point of care for each patient bed within the room

4. Conclusion

The recommendations provided in this document outline a progressive approach to patient placement and the utilization of multi-bed ward rooms during the COVID-19 pandemic. The recommendations are grounded in IPAC principles and emphasize careful consideration of multiple patient factors as well as and the physical and operational structure of the hospital to determine optimal patient placement. This progressive approach will balance patients' needs for timely and safe care while protecting other patients, hospital staff, and the community.

Appendix A. Ontario Health (Toronto Region) COVID-19 Hospital Operations Table

| Name | Title(s) and Institution(s) |
|-------------------------|---|
| Dr. Dan Cass (Co-Chair) | Executive Vice President and Chief Medical Executive, Sunnybrook Health Sciences Centre |
| Jane Merkley (Co-Chair) | Executive Vice President, Chief Nursing Executive and Chief Operating Officer, Sinai Health System |
| Dr. Alon Vaisman | Infection Prevention and Control, University Health Network |
| Dr. Daniel Ricciuto | Chief and Medical Director, Quality and Patient Experience, Lakeridge Health |
| Janet Newton | Vice President Clinical and Site Lead of Toronto Western Hospital, University Health Network |
| Dr. Jeff Powis | Medical Director of Operational Excellence and Innovation, and Medical Director of Infection Control, Michael Garron Hospital |
| Dr. Jennie Johnstone | Physician Co-Lead, Infection Prevention and Control, Sinai Health System; Assistant Professor, Laboratory Medicine and Pathobiology and Dalla Lana School of Public Health, University of Toronto |
| Dr. Jerome Leis | Medical Director, Infection Prevention and Control, Sunnybrook Health Sciences Centre |
| Judy Van Clieaf | Vice President Clinical and Chief Nursing Officer, The Hospital for Sick Children |
| Dr. Kevin Katz | Medical Director, Infection Prevention and Control and Research & Innovation, North York General Hospital |
| Dr. Matthew Muller | Medical Director, Infection Prevention and Control, St. Michael's Hospital |
| Dr. Michelle Science | Infectious Diseases Consultant, The Hospital for Sick Children |
| Sonya Canzian | Executive Vice President, Programs, Chief Nursing Executive and Chief Health Disciplines, Unity Health Toronto |
| Dr. Susy Hota | Medical Director, Infection Prevention and Control, University Health Network; Associate Professor, University of Toronto |