



UPDATE: COVID-19 Standards and Practices for Managing Code Blue Alerts/ Patients in Cardiopulmonary Arrest

Disclaimer:

This Quick Response Report was published on September 29, 2021 to update a previously-released report from June 22, 2021. Given the rapidly changing nature of the coronavirus pandemic, some of the references included in this report may quickly become out-of-date. We further caution readers that researchers at the Newfoundland and Labrador Centre for Applied Health Research are not experts on infectious diseases and are relaying work produced by others. This report has been produced quickly and it is not exhaustive, nor have the included studies been critically appraised.

Readers will note that some text below has been highlighted for emphasis.

Original Inquiry:

“How do other healthcare jurisdictions manage Code Blue/cardiopulmonary arrest protection levels for fully vaccinated healthcare workers?”

Definitions

- “A Code Blue alerts all staff to a medical emergency such as cardiac arrest. Now, all critical patient arrests are “Protected Code Blues” where the care team meticulously don and doff their Personal Protective Equipment (PPE) in controlled areas, to mitigate risk to themselves, their colleagues and their patients.” – Sinai Health, Mount Sinai Hospital ([LINK](#))
- “Fully vaccinated refers to a person who is: ≥ 2 weeks following receipt of the second dose in a 2-dose series, or ≥ 2 weeks following receipt of one dose of a single-dose vaccine; there is currently no post-vaccination time limit on fully vaccinated status” – CDC (US) ([LINK](#))

Summary

- The search results of this updated report indicate that Protected Code Blues remain in place among Canadian healthcare jurisdictions.
- Although not all organizations have publicly available guidelines specifically targeted towards fully vaccinated healthcare workers, those that do advise workers to continue wearing PPE regardless of vaccination status when engaging in Code Blue responses.

- The majority of organizations included in this report recommend that healthcare workers wear N95 respirators, eye protection, gowns, and gloves when responding to a Code Blue or performing an aerosol generating medical procedure.

Guidance

National or Sub-National Health Jurisdictions

CDC. **Interim Infection Prevention and Control Recommendations for Healthcare Personnel during the Coronavirus Disease 2019 (COVID-19) Pandemic.** September 10, 2021 ([LINK](#))

- **“Fully vaccinated HCP:**
 - Consistent with [guidance for the community](#) could choose not to wear source control or physically distance when they are in well-defined areas that are restricted from patient access (e.g., staff meeting rooms, kitchen).
 - **They should wear source control when they are in areas of the healthcare facility where they could encounter patients** (e.g., hospital cafeteria, common halls/corridors).”
- “Recommended infection prevention and control (IPC) practices when caring for a patient with suspected or confirmed SARS-CoV-2 infection:
 - **HCP who enter the room of a patient with suspected or confirmed SARS-CoV-2 infection should adhere to Standard Precautions and use a NIOSH-approved N95 or equivalent or higher-level respirator, gown, gloves, and eye protection** (i.e., goggles or a face shield that covers the front and sides of the face).
 - Procedures that could [generate infectious aerosols](#) [aerosol generating procedures, AGPs] should be performed cautiously and avoided if appropriate alternatives exist.
 - AGPs should take place in an airborne infection isolation room (AIIR), if possible.
 - The number of HCP present during the procedure should be limited to only those essential for patient care and procedure support.”

Alberta Health Services. **Novel Coronavirus (COVID-19) Frequently Asked Questions- Staff.** August 27, 2021 ([LINK](#))

- “AHS has completed a thorough review regarding the need for N95 respirator use by healthcare workers completing manual (hands-only) chest compressions...and has determined that **an N95 respirator is not required to initiate hands-only chest compressions on a patient with suspected or confirmed COVID-19.**”
- “Healthcare workers completing manual chest compressions are directed to continue to wear recommended PPE in alignment with our continuous masking directive, the point of care risk assessment, with the addition of Contact and Droplet precautions for patients with known or possible COVID-19.”
- “Healthcare workers responding to a cardio-respiratory arrest should:
 - call for help
 - place loose clothing/sheet over the mouth and nose of the patient, as airway source control while awaiting help; and,

- initiate hands-only chest compressions, until you are relieved by individuals who are wearing PPE including fit-tested N95 respirators.
- Only these relief individuals, wearing N95 respirators, should manage the airway and complete full CPR.”
- “Hands-only chest compressions are different than Cardio-pulmonary resuscitation (CPR). Fit-tested N95 respirators continue to be required for full CPR that includes management of the airway.”
- “Immunized healthcare workers are still required to adhere to existing PPE guidance, including continuous masking, continuous eye protection and IPC recommendations for COVID-19.”

Public Health Ontario. **COVID-19: Personal Protective Equipment (PPE) for Neonatal Resuscitation.** July 2021 ([LINK](#))

- “This technical brief provides guidance on personal protective equipment considerations during the neonatal resuscitation of babies born to mothers with suspect or confirmed COVID-19”
- “There is limited data on significant aerosol generation during neonatal resuscitation to consider it an aerosol-generating medical procedure... e. In theory, given the lower lung volumes and the lower pressures required to ventilate neonates, the risk is likely much lower than in adults.”
- “At this time, given the low risk of vertical transmission and the low risk of aerosol exposure from neonatal resuscitation, Droplet and Contact precautions can be used during neonatal resuscitation for babies born to mothers with suspect or confirmed COVID-19.”
- “In higher risk scenarios (i.e., critically unwell mother), healthcare workers involved in the direct airway management (i.e., intubation) of a neonate may choose to wear an N95 respirator; however, the aerosol risk is unlikely to extend beyond the individual involved in direct airway management and as a result, Droplet and Contact Precautions can be used by the rest of the delivery and support team unless otherwise indicated for maternal management.”

Public Health Ontario. **Interim Guidance on Infection Prevention and Control for Health Care Providers and Patients Vaccinated Against COVID-19 in Hospital and Long-Term Care Settings.** June 2021 ([LINK](#))

- “Modifications of Routine Practices during the pandemic, including the use of universal masking in health care settings, continue to apply to HCPs and patients regardless of vaccination status.”
- “HCPs must use Droplet and Contact Precautions as the minimum precautions when providing care to patients with confirmed or suspected COVID regardless of the HCP’s vaccination status.”
- “Both vaccinated and unvaccinated HCPs can provide care to suspected and confirmed COVID-19 patients with appropriate training and PPE.”

Public Health Ontario. **IPAC Recommendations for Use of Personal Protective Equipment for Care of Individuals with Suspect or Confirmed COVID-19.** May 2021 ([LINK](#))

- “Airborne Precautions should be used for aerosol generating medical procedures (AGMPs) planned or anticipated to be performed on patients with suspected or confirmed COVID-19.”
- “Fully immunized staff should continue to use Droplet and Contact Precautions when caring for patients with suspected or confirmed COVID-19.”
- “The medical procedures that are listed as AGMPs are supported by epidemiological data that indicate these procedures may significantly increase risk of infection to health care workers

within close range of the procedure and thus N95 respirators are required as a minimum level of respiratory protective equipment (as well as eye protection).”

- PPE recommendations in healthcare settings are provided in tables from pages 6-10 of the document.

BC Centre for Disease Control. **Personal Protective Equipment**. August 20, 2021 ([LINK](#))

- “Patients with suspected and/or confirmed COVID-19 disease require Contact and Droplet precautions to be used.”
- “Use a N95 respirator or equivalent with gown, gloves and eye protection (face shield or goggles) when performing aerosol generating medical procedures (AGMP) on patients suspected (patients with COVID-19 risk) or confirmed to have COVID-19.”
- A list of AGMPs Requiring a N95 Respirator for Suspected or Confirmed COVID-19 is available here: ([LINK](#)).

Shared Health Manitoba. **Personal protective equipment (PPE) resources Requirements for providing direct care**. September 10, 2021 ([LINK](#))

- Requirements for “Non-Suspect patients, residents or clients are those who do not meet the criteria for testing and/or those deemed “recovered” by Public Health (if not admitted) or by Infection Prevention and Control (if admitted).”
 - Hand hygiene, extended use of **procedure mask** for all patient interactions, extended use of **eye protection** for all patient interactions, per routine practices and additional precautions for **gloves** are required but gloves are not required for all patient interactions, and per routine practices and additional precautions (e.g. MRSA, scabies, blood and body fluid contact or excessive soiling.) for **gowns**. **N95 respirators** are to be used “if there is clinical concern of infection with airborne pathogen”, and “for [Aerosol Generating Medical Procedures \(AGMPs\)](#)”. “[Point of Care Risk Assessment \(PCRA\)](#) required for [N95 respirator] use in non-AGMP direct care. Extended [N95 respirator] use for repeat encounters with multiple patients (except intubation).”
- Requirements for “Patients, Residents and/or Clients who have been tested and the result is pending OR those who, based on clinical symptoms or exposure history, need to be tested for COVID-19.”
 - Hand hygiene, extended use of **procedure mask** for all patient interactions, extended use of **eye protection** for all patient interactions, per routine practices and additional precautions for **gloves** are required but gloves must be changed between each patient, and **gowns** are to be changed between patient encounters. **N95 respirators** are “required for [Aerosol Generating Medical Procedures \(AGMPs\)](#); extended use for repeat encounters with multiple patients (except intubation). Required to be provided for direct patient care; health care worker may choose to instead wear a procedure mask for non-AGMP care following completion of [Point of Care Risk Assessment \(PCRA\)](#).”

- “COVID-19 positive patients, residents or clients are those who have been tested and have a positive test result and who have not been deemed “recovered” by Public Health (if not admitted) or by Infection Prevention and Control (if admitted).”
 - Hand hygiene, extended use of **procedure mask** for all patient interactions, extended use of **eye protection** for all patient interactions, per routine practices and additional precautions for **gloves** are required but gloves must be changed between each patient, and per routine practices and additional precautions (e.g. MRSA, scabies, blood and body fluid contact or excessive soiling.) for **gowns**. **N95 respirators** are “required for [Aerosol Generating Medical Procedures \(AGMPs\)](#); extended use for repeat encounters with multiple patients (except intubation). Required to be provided for direct patient care; health care worker may choose to instead wear a procedure mask for non-AGMP care following completion of [Point of Care Risk Assessment \(PCRA\)](#).”

Saskatchewan Health Authority. **Infection Prevention and Control Recommendations Patient Placement and Precautions Table – Acute Care**. July 9, 2021 ([LINK](#))

- AGMP requirements when the patient is confirmed to have COVID-19, the patient is symptomatic or asymptomatic with risk factors present, or the patient is symptomatic with no risk factors present with a positive COVID-19 test:
 - N95 respirator;
 - Eye protection;
 - Gown;
 - Gloves;
 - “Perform in [airborne infection isolation room] or private room with door closed.”
- AGMP requirements when the patient has recovered from COVID-19; is no longer infectious; or has tested negative for COVID-19 with no new or worsening symptoms, and is no longer on Droplet/Contact Plus precautions:
 - “As per Point of Care Risk Assessment”
 - “At a minimum, a medical mask and eye protection is required.”

Regional Health Authorities and Hospitals

Hamilton Health Sciences. **COVID-19 Clinical Resources**. September 15, 2021 ([LINK](#))

- Personal Protective Equipment (PPE) Requirements: N95 masks, face shields or goggles, and fluid resistant gloves and gowns are required for aerosol generating procedures. Infographic here: [LINK](#).
- PPE is still required for vaccinated healthcare workers.
- Link to PPE poster “Got the shot! PPE still required” ([LINK](#))
- Link to PPE poster “Regardless of vaccine PPE still required” ([LINK](#))

Vancouver Coastal Health. **PPE Recommendations (for healthcare personnel participating in patient care)**. September 2021 ([LINK](#))

Aerosol generating medical procedures (AGMP) best practice guideline:

- When performing an AGMP for “patients with COVID symptoms, with a positive COVID test, or with risk factors where testing results are unknown” healthcare workers should wear:
 - N95 respirators;
 - Disposable or reusable gown;
 - Gloves; and
 - Disposable or reusable eye protection.

Systematic Reviews

- None found at this time.

Other Reviews

Fuchs et al. **Clinical recommendations for in-hospital airway management during aerosol-transmitting procedures in the setting of a viral pandemic.** 2021 ([LINK](#))

- “Staff members who are involved in airway management of a patient with suspected or proven COVID-19 infection should follow available recommendations. This includes correct hand-disinfection and single-use airborne PPE, consisting of a mask (whenever possible N95, KN95, or filtering face piece class 2 (FFP2) or higher), protective goggles, a hat, a gown, and gloves (optionally 2 pairs). This protective gear should be worn for all airway-related procedures, as well as while caring for COVID-19 patients, especially during AGP.”

Expert Opinion

- None found at this time that examined fully vaccinated healthcare workers.

Primary Research

The following articles are preprints and have not been peer-reviewed. They report new medical research that has yet to be evaluated and so should not be used to guide clinical practice.

MedRxiv. **Professional practice for COVID-19 risk reduction among health care workers: a Cross-Sectional Study with Matched Case-Control Comparison.** September 13, 2021 ([LINK](#))

- “When caring for COVID-19 patients, Health Care Workers (HCW) who declared wearing respirators, either for all patient care or only when exposed to aerosol-generating, had a lower risk of infection compared with HCWs who declared wearing mainly surgical masks. During care of non COVID-19 patients, wearing mainly a respirator was associated with a higher risk of infection. An increased risk was also found for HCWs who changed uniform in workplace changing rooms.”
- “The study period for the case-control studies was defined as the period between the 1st September 2020 and the 31st January 2021, corresponding to the second wave of the COVID19 pandemic in France, when recommendations for barrier measures had been issued [10], and PPE was widely available. The cut-off point was chosen in order to study the effects of sociodemographic factors, behavioral factors and professional practice before wide-spread vaccination of HCWs that started in January 2021.”

- “At the time of filling in the questionnaire, over two-thirds of respondents had received at least one dose of the COVID-19 vaccine.”

News Articles

CBC. **COVID-19 vaccine mandatory for New Brunswick health-care workers Sept. 7, memo says.** August 31, 2021 ([LINK](#))

- “Mandatory vaccines for New Brunswick health-care workers take effect Sept. 7, the same as for civil servants, according to an internal Horizon memo obtained by CBC News.”
- “[Healthcare workers] will also have to continue to wear a mask and the appropriate personal protective equipment in the workplace at all times, except when they're alone in an office or eating a meal, she said. All health-care workers are required to wear a mask in the workplace, regardless of their vaccination status.”

Methodology

Newfoundland and Labrador Centre for Applied Health Research (NLCAHR) COVID-19 Quick Response Reports are initiated by, and shared with, our partners in the provincial health system, including the four NL Regional Health Authorities, the Departments of Health and Community Services and of Children, Seniors and Social Development, and public health officials.

NLCAHR staff work with topic submitters to clarify the research question. We then search for related systematic reviews, meta-analyses, other reviews, interim and other guidance statements, primary research, expert opinion and health and science reporting.

We use several search strategies, with a focus on the following databases:

- [Alberta Health Services](#)
- [CADTH](#)
- [Canadian Pharmacists Association](#)
- [Campbell Collaboration](#)
- [Cochrane Collaboration](#)
- [Centre for Disease Control](#) (CDC)
- [Centre for Evidence Based Medicine](#) (CEBM)
- [Evidence for Policy and Practice Information and Co-ordinating Centre](#)
- [European Centre for Disease Prevention and Control](#)
- [Health Canada](#)
- [Joanna Briggs Institute](#)
- [MedRxiv](#)
- [National Institutes of Health](#) (NIH)
- [National Institute of Allergy and Infectious Disease](#) (NIAID)
- [National Library of Medicine](#)
- [Public Health Agency of Canada](#)
- [Trip Database](#)
- [World Health Organization](#)

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