



Supporting the Implementation of Personal Protective Equipment Auditing in Health Care Settings

October 22, 2021



Objectives

- Provide a refresher on best practices for personal protective equipment (PPE) use
- Discuss the importance of auditing as a tool for practice improvements in health-care settings in addition to other supports (e.g. education, removal of barriers, etc.)
- Introduce new auditing resources

Note: Although the presentation focuses on health-care settings, the information may also be beneficial to other settings (e.g. shelters, retirement homes)

How to Implement Auditing in your Organization

Plan



Audit



Evaluate and Strategize



Implement Strategies



Improve and Sustain



Step 1

Step 2

Step 3

Step 4

Step 5



Step 1: Plan



Familiarize Yourself with the Best Practices for PPE

- Before every patient, resident or client interaction, a point of care risk assessment (PCRA) as outlined in Public Health Ontario's Routine Practices and Additional Precautions in All Health Care Settings should be performed. This risk assessment helps identify the PPE that should be used for the interaction.
- Health-care workers who are required to wear PPE are trained in the use, care, and limitations of PPE, including the proper sequence of donning and doffing PPE. For more information, see Public Health Ontario's Recommended Steps for Putting on and Taking Off PPE.

Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Routine practices and additional precautions in all health care settings. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2012. Available from: <https://www.publichealthontario.ca/-/media/documents/b/2012/bp-rpap-healthcare-settings.pdf?la=en>

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Recommended steps: putting on personal protective equipment (PPE) / taking off personal protective equipment (PPE) [Internet]. Toronto, ON: Queen's Printer for Ontario; 2021 [cited 2021 Sep 15]. Available from: <https://www.publichealthontario.ca/-/media/documents/ncov/ipac/ppe-recommended-steps>



Public Health Ontario Resources to Support PPE Auditing

Resources

- **Observational Tools:**
 - Supporting the Use of PPE in Health Care Settings
 - Auditing of PPE Use
- **At a Glance:**
 - Implementing Personal Protective Equipment Audits in All Health Care Settings



Who Should be Involved in your PPE Auditing? (1/3)

- Organizations should identify at least one person to oversee implementation who will:
 - Have the support of the organizational leadership
 - Be well respected and able to access high-level administrative resources
 - Ideally have broader experience in quality and safety
- It is important for there to be early and ongoing engagement with decision-makers and influential health-care workers in the planning process



Who Should be Involved in your PPE Auditing? (2/3)

- A working group or committee can be established to champion the auditing program, consisting of:
 - Coordinator
 - Trainer
 - Observer



Who Should be Involved in your PPE Auditing? (3/3)

- Both observers and trainers should attend practical training sessions to learn when and how to perform PPE auditing
- Basic training for both observers and trainers should include:
 - the importance of preventing health-care associated infections,
 - how transmission occurs,
 - the proper technique for donning, doffing and using PPE,
 - considerations in the selection of appropriate PPE for the task at hand,
 - other considerations such as proper disposal of PPE.



Why, When, and Who Should be Audited?

- To achieve immediate and long-term improvement
- Should include a snapshot of practices across all staff types
- Auditing should take place at regular intervals throughout the year **plus** whenever there is a change to equipment or a process, or when rates of healthcare-associated infections are increasing
- All shifts and all types of staff such as nurses, environmental service workers, volunteers, students, physicians, dietary staff, porters, etc.



A Culture of Safety and Transparency

- Acknowledge that there are many barriers beyond the individual that can affect compliance
- Encourage a judgement and blame-free environment where staff are able to identify areas of improvement and share without fear of punishment
- Encourage collaboration across disciplines to identify unsafe practices and seek solutions to patient safety problems

Step 2: Audit



Audit Types

1. Auditing items that support the use of PPE in Health Care Settings
2. Auditing the use of PPE in Health Care Settings



Audit Type 1

Auditing Items that Support the Use of PPE in Health Care Settings

- Administrative Factors
- Training Factors
- Supply Factors

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Supporting the use of personal protective equipment (PPE) audit [Internet]. Toronto, ON: Queen’s Printer for Ontario; 2021 [cited 2021 Sep 15]. Available from: https://www.publichealthontario.ca/-/media/documents/f/2021/form-supporting-use-of-ppe-audit-health-care.pdf?sc_lang=en

Supporting the Use of Personal Protective Equipment (PPE) Audit

Legend: NA = Not applicable.

1 - GENERAL INFORMATION

ASSESSOR INFORMATION

IPAC Lead (or designate) / Assessor (print name): Signature: Date (yyyy/mm/dd):

2 - FINDINGS

ADMINISTRATIVE

- Policy and procedures on PPE are current (i.e. reviewed on an annual basis), including training and procurement Yes No N/A
- PPE requirements such as training and testing have been communicated/documentated to the agency as well as contracted employees Yes No N/A
- Appropriate staff, including agency and contracted staff, have current fit test results for N95 respirators Yes No N/A
- Audit results are communicated to staff and used to develop education refreshers and messaging Yes No N/A

Administrative Score:	Number of Yes responses	<input type="text"/>
	Number of Yes and No responses	<input type="text"/>

TRAINING

- All new staff have received training at orientation including a demonstration/practical review (number for this month) Yes No N/A
- All temporary/agency staff are oriented to PPE and IPAC practices and resources (number for this month) Yes No N/A
- All temporary/agency staff are assigned a "buddy" for the first few shifts to orient them on site-specific practices (number for this month) Yes No N/A
- All staff receive an annual refresher training and/or when a deficiency has been observed (number for this month) Yes No N/A
- All visitors/caregivers receive PPE training (number for this month) Yes No N/A
- IPAC leads or shift change leads provide PPE reminders and audit results at huddles / team meetings Yes No N/A

Training Score:	Number of Yes responses	<input type="text"/>
	Number of Yes and No responses	<input type="text"/>

SUPPLIES

- ABHR is available in donning and doffing PPE areas and at point-of-care areas Yes No N/A
- PPE is accessible and available in different sizes, and also stored safely Yes No N/A
- Disinfectant wipes are available Yes No N/A
- Waste and laundry bins are available and are not overfilled (hands-free if possible) Yes No N/A
- Isolation carts/PPE carts are not used to store patient supplies Yes No N/A
- Responsibility for restocking and cleaning carts, and emptying waste or laundry bins is identified Yes No N/A

Supplies Score:	Number of Yes responses	<input type="text"/>
	Number of Yes and No responses	<input type="text"/>

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Audit Type 2

Auditing the use of PPE in Health Care Settings

- General Information
- Observed Staff Member
- Compliance

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Auditing of personal protective equipment (PPE) use [Internet]. Toronto, ON: Queen’s Printer for Ontario; 2021 [cited 2021 Sep 15]. Available from: https://www.publichealthontario.ca/-/media/documents/f/2021/form-auditing-ppe-use-health-care.pdf?sc_lang=en

Auditing of Personal Protective Equipment (PPE) Use

*Note: Use one form per observed individual.

Legend: NA = Not applicable. Not applicable can be marked if practices/techniques were not observed (e.g., auditor was not present during donning [putting on] or doffing [taking off] PPE).

Clear all form fields

*Note: Please save file before clearing fields.

1 - GENERAL INFORMATION

OBSERVER INFORMATION

Observer name: Room and/or area:

Location: Type of precautions (check box that applies):

Date (yyyy/mm/dd): None (Routine Practices) Contact Droplet/Contact

Time (HH:MM): Airborne Other:

Droplet

OBSERVED INDIVIDUAL

(Select one individual and check box)

RN/RPN Radiology/Lab Technologist Physiotherapist Pharmacist

Personal Support Worker Food Services Dietitian Care Coordinator

Physician Environmental Services Rehabilitation Assistant Agency Staff

Nurse Practitioner Support Worker Social Worker Other (e.g., Family):

Student Occupational Therapist Volunteer

ROOM SETUP

If applicable, precaution signage visible before entering the room or bed space. Yes No N/A

PPE Supplies available and accessible at the point of use with clear separation between clean and dirty. Yes No N/A

Room Setup Score:	Number of Yes responses	<input type="text"/>
	Number of Yes and No responses	<input type="text"/>

2 - COMPLIANCE (SEQUENCE AND TECHNIQUE)

DONNING (PUTTING ON PPE)

If individual entered a precautions room without donning appropriate PPE, provide feedback and mark relevant misses. Otherwise, continue observation.

Indicate the individual's order of donning by numbering the boxes 1 to 5 and confirm use of the correct technique.

Correct PPE Donning sequence	Sequence observed	Most commonly missed techniques	Yes	No	N/A
(1) Hand hygiene	<input type="text"/>	Minimum duration 15 seconds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Gown	<input type="text"/>	Gown tied at neck and back	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3a) Mask	<input type="text"/>	Mask nose piece pinched	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3b) N95 respirator	<input type="text"/>	N95 respirator seal check performed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Eye protection	<input type="text"/>	Fits over brow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Gloves	<input type="text"/>	Gloves fit over cuff of gown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Correct PPE donning sequence is performed Yes No N/A

Donning Score:	Number of Yes responses	<input type="text"/>
	Number of Yes and No responses	<input type="text"/>

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How Many Observations are Needed for Meaningful Results?

- It is important to have a large enough sample size to be meaningful
- Not collecting enough data means the rates are not reliable
- For 100 beds, it is estimated that 56 observation sessions of 20 minutes each is needed to collect enough data for reliable compliance rates (approximately 200 observed opportunities)
- The time frame for the audit period should be no less than a 2 week period
- Note: There is still a benefit to undertaking auditing if these numbers cannot be achieved

Picard C, Edlund M, Keddle C, Asadi L, O'Dochartaigh D, Drew R, et al. The effects of trained observers (doctors) and audits during a facility-wide COVID-19 outbreak: a mixed-methods quality improvement analysis. *Am J Infect Control*. 2021;49(9):1136-41. Available from: <https://doi.org/10.1016/j.ajic.2021.03.011>



What Types of Biases May Affect Auditing Results?

- Selection bias
- Observer bias
- Observation bias (i.e., the Hawthorne Effect)



What Types of Feedback Should be Given?

- Feedback can be provided by health-care workers, management
- Immediate versus planned
- Feedback should be
 - Specific, Timely, Non-threatening
- The auditor should be open to feedback from the person being observed
 - May identify barriers to compliance



Step 3: Evaluate and Strategize

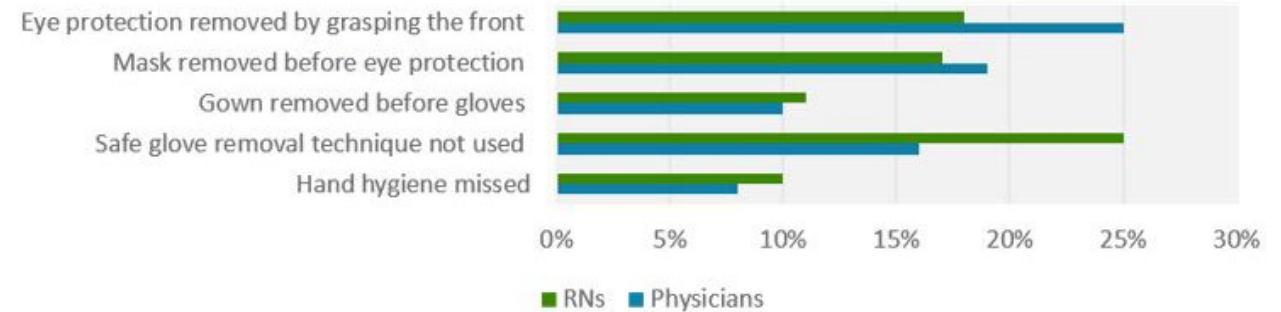


How Can the Audit Data be Analyzed?

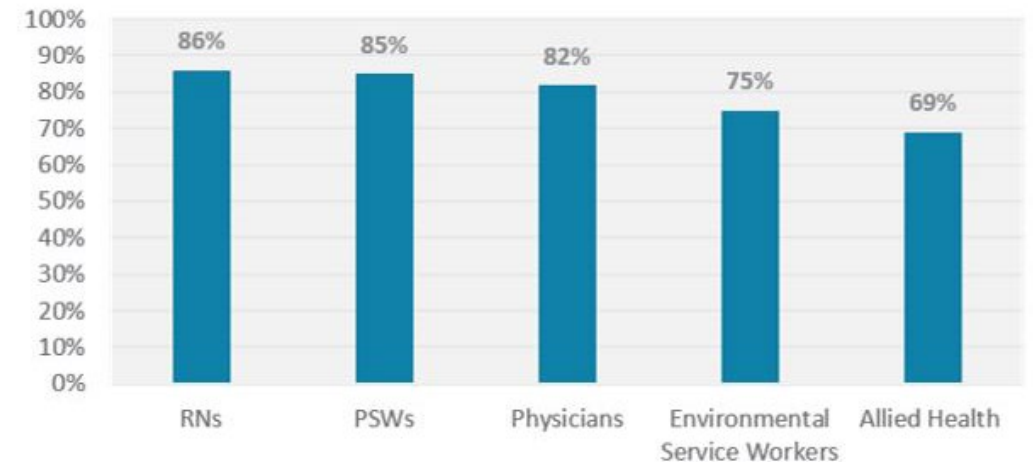
Crude versus Specific

- Time
 - Example: Jan 2020 versus to Jan 2021
 - night shift versus day shift
 - before and after an intervention
- Health care worker type
 - Example: physician versus nurse
- Single observation category
 - mask removal
 - PPE availability
 - hand hygiene step

Most Common PPE Doffing Errors
Jan to Dec 2020



Rate of Correct Safe Mask Removal Technique
by Staff Type, Jan to Dec 2020





How Can the Audit Data be Analyzed? (continued)

- Breakdown of compliance rates supports the development of **targeted and appropriate interventions to improve compliance**
- Example:
 - Nurses removing mask properly – 70%
 - Physicians removing mask properly – 70%
 - Respiratory Therapist removing mask properly – 90%
- Example:
 - Appropriate mask removal in physicians in January 2021 – 70%
 - Appropriate mask removal in physicians in January 2020 – 55%

How are Compliance Rates Calculated ?

Compliance calculation:

$$\frac{\text{\# times masks were removed properly/specific HCW/staff category}}{\text{\# observation of mask removal/specific HCW/staff category}} \times 100\%$$

Example:

$$\frac{26 \text{ appropriate mask removals in physicians}}{37 \text{ observed mask removals in physicians}} \times 100 = 70\%$$

How Can Audit Data be Presented?

Options for displaying data:

- Graphs
- Tables
- Infographics
- Email, in-person, or posting (e.g. huddles, leadership meetings, joint health and safety committee meetings)

Rate of Correct Safe Mask Removal Technique by Staff Type 2020

RNs	86%
Physicians	82%
PSWs	85%
Allied Health	69%
Environmental Service Workers	75%

Rate of Correct PPE Practices Pre- and Post-Quality Improvement Project Implementation





What Can the Audit Data Be Used For?

- Share with staff to promote improvements with best practices
- Identify practices that may require an intervention to improve compliance
- Assess the impact of interventions to improve compliance
- Monitor compliance with best practice over time
- Promote a culture of a safe and healthy workplace

Identify Practices that May Require an Intervention for Improvement

Area for Improvement/Barrier	Strategy/Action	Responsibility	Timeline
No ABHR at donning area	Arrange placement of ABHR at all donning locations	Environmental Services Lead	Within 1 week
Waist ties not being fastened	Reminder to staff at team huddles	IPAC Lead/shift change lead	To start immediately
New staff not following doffing sequence	Provide additional training Assign a “buddy” or safety champion for a shift	Supervisor	Within 1 week



Implement Strategies





Strategies

- Strategy A: Set Goals as a Team
 - E.g. identify deficiencies, improvement huddles, share feedback
- Strategy B: Deliver Training to Staff
 - Vary educational/training methods – ongoing, education materials, shadowing, train-the-trainer
- Strategy C: Remind Staff of Key Practices
 - Reminder systems, signal words for missed practices
- Strategy D: Structure the Environment
 - Evaluate and adapt flow and the environment



Step 5: Improve and Sustain





Improve and Sustain

1. Communicate with and involve staff as much as possible in the process
2. Use qualitative feedback (stories, anecdotes) to review what is and isn't working along with your quantitative bench markers
3. When making decisions about what to do next, consider a “Start Stop Continue” discussion with the team.
 - Start: What should the team start doing?
 - Stop: What should the team stop doing?
 - Continue: What should the team keep doing?
4. Celebrate successes and improvements!

Personal Protective Equipment Resources

Public Health Ontario:

- Technical Brief: [IPAC Recommendations for the Use of PPE for Care of Individuals with COVID-19, 6th revision](#)
- Poster: [Recommended steps for putting on and taking off PPE](#)
- Lanyard Card: [Putting on and Taking off PPE](#)
- Videos: [Putting on Full PPE](#) and [Taking off Full PPE](#)

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Additional precautions signage and lanyard cards [Internet]. Toronto, ON: Queen's Printer for Ontario; 2020 [cited 2021 Sep 15]. Available from: <https://www.publichealthontario.ca/en/health-topics/infection-prevention-control/routine-practices-additional-precautions/additional-precautions-signage>

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Putting on full personal protective equipment [video recording on the Internet]. Toronto, ON: Queen's Printer for Ontario; 2021 [cited 2021 Sep 15]. 2 min. Available from: <https://www.publichealthontario.ca/en/videos/ipac-fullppe-on>

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Taking off full personal protective equipment [video recording on the Internet]. Toronto, ON: Queen's Printer for Ontario; 2021 [cited 2021 Sep 15]. 1 min. Available from: <https://www.publichealthontario.ca/en/videos/ipac-fullppe-off>



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