

AT A GLANCE

Implementing Personal Protective Equipment Audits in Health Care Settings

October 22, 2021

Introduction

The purpose of this document is to provide considerations for health-care settings to develop or improve their personal protective equipment (PPE) auditing. It provides:

- An overview of the implementation steps of a PPE audit process to support infection prevention and control (IPAC) best practices as well as improvement initiatives;
- Considerations and strategies to improve any identified gaps or barriers for the safe and effective use of PPE;
- Information on how to conduct PPE audits and how to utilize and evaluate data from the two PPE audit forms provided:
 - Form 1: [Auditing of PPE Use](#)
 - Form 2: [Supporting the Use of PPE Audit](#)

About PPE Audits

Personal Protective Equipment (PPE)

PPE is the last tier in the [hierarchy of hazard controls](#)¹ that protects workers and includes the availability, support and appropriate use of physical barriers between the health-care workers (HCW) or other staff members (will herein be referred to as "staff"). It also includes an infectious agent/infected source to minimize exposure and prevent the transmission of infection. Examples of PPE barriers include gloves, gowns, facial protection (including medical grade masks and N95 respirators) and eye protection (including goggles, face shields, masks with visor attachments and some safety glasses). The health-care organization's roles and responsibilities are to ensure that staff have access to the PPE needed for the task to be performed and the necessary education and training to ensure competency on the selection, use and disposal of PPE in order to prevent exposure to infection².

Audits

- Audits are an evaluation tool or an indicator which is part of an IPAC program, specifically referred to as "process surveillance". Process surveillance means to collect and analyze information on whether procedures are being followed;

- Other types of audits that are part of IPAC programs include hand hygiene audits and environmental cleaning audits;
- Feedback is an important part of the audit process and refers to providing information based on direct observation that can help improve practices;
- Audits and feedback may be the most effective when performed regularly by supervisors and peers, and include clear targets and an action plan.

What are PPE Audits?

- Direct observation of PPE use and comparison to best practices for the safe, effective use of PPE which keeps staff and patients/residents/clients (P/R/C) safe (e.g., following the proper selection of PPE, sequence of donning [putting on] and doffing [removing] and disposal);
- Observation of administrative and environmental factors which support the appropriate use of PPE in health-care settings (e.g., policies, availability of supplies).

Why Perform PPE Audits?

- Identify and correct gaps or barriers to compliance that can lead to the transmission of infection to staff and patient, resident or client;
- Verify that procedures and/or standards of practice are being followed and an action plan is in place to improve practice;
- Assist with the planning and evaluation of training and education programs.

Who Can Conduct PPE Audits?

Trained staff including:

- Managers, supervisors, leaders or charge staff, IPAC professionals;
- Informal leaders or champions;
- Peers.

When Should PPE Audits Be Performed?

- On a regular basis as established by the organization or the team based on its needs;
- After training;
- When problems are identified such as a quality issue with PPE;
- With any change in guidelines/practices or introduction of new PPE;
- When transmission has occurred e.g., during a cluster or an outbreak situation;
- When related quality improvement initiatives are implemented to identify effects on compliance e.g., training or new process.

PPE Audits in Five Steps

The implementation of PPE audits can be organized into five steps, which are described in the figure below.



Step 1: Plan

Use PPE Audits as a Part of Your IPAC Program

The following are important considerations when implementing PPE audits in your care setting:

- Develop a policy and/or procedure on the process;
- Establish a working group and/or multidisciplinary committee to coordinate the process (if one is not already in place) and designate a lead(s);
- Make this a collaborative, **non-punitive** process;
- Ensure audits take place across all shifts, areas and categories of staff; consider combining with hand hygiene audits;
- Communicate the process and the rationale to all staff;
- Train auditors/observers on how to perform the audits and how to provide on-the-spot feedback (see [Train Observers](#));
- Collect and analyze data from audits;
- Identify deficiencies and plan corrective actions in collaboration with teams, units, frontline and management staff;
- Implement strategies and actions to improve compliance;
- Re-evaluate on a regular basis to determine effectiveness of strategies and to identify new problems.

Train Observers

- Define training content and who will be training observers as the trainer would need to have expertise in PPE and auditing;
- Staff who will be observing and performing the PPE audits need to have training on:
 - Chain of transmission, Routine Practices and Additional Precautions;
 - Best practices for PPE use including the sequence of donning and doffing PPE and the proper technique to don and doff each individual piece of PPE;

- Best practices for hand hygiene including the “4 moments”;
- Any organization-specific policies related to PPE use such as designated locations for donning and doffing PPE or cleaning/disinfection and storage of reusable PPE, and Additional Precautions signage;
- How to use the audit forms;
- How to provide on-the-spot feedback in a constructive and non-punitive way.

For the list of resources, see [Resources](#) section.

Step 2: Audit the Use of PPE

To start auditing, use the two PPE forms or your organization-specific form(s):

- Form 1: [Auditing of PPE Use](#)
- Form 2: [Supporting the Use of PPE](#)

Form 1: Auditing of PPE Use

- The purpose of this audit form is to identify gaps in personal protective equipment (PPE) use during Routine Practices or Additional Precautions observations;
- The PPE audit form is used to ensure that individuals are appropriately educated and trained and are able to follow correct PPE sequence and technique;
- This form will also allow an opportunity for on-the-spot feedback to the individuals as well as data collection to help create immediate and long-term improvements;
- This tool will be used by trained observers (with experience in using PPE) to observe the individual performing their duties.
- This audit 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 above baseline rates, and should include a snapshot of practices across all shifts and all types of staff;
- Maintain/save audits or input information into an electronic database for a set period e.g. annually.

Tips on providing on the spot feedback:

Introduce yourself and explain the purpose of the audit (e.g., safe use of PPE).

Following any team norms in place, ask the person being observed if you can provide them with feedback on their use of PPE.

Describe what you observed to them and explain best practices.

Ask them what could help them follow best practice, if required.

Thank them for the opportunity to give them feedback.

SETTING-SPECIFIC CONSIDERATIONS FOR USE OF THE AUDIT FORM

For settings such as primary care, home, community or congregate care, here are some considerations related to implementing this form in your organization:

Small Settings (e.g., clinics, primary care)

- If the volume of patients on Additional Precautions is low or staff have limited capacity, then the observation form could be used as a post-training or periodic assessment/practical review to identify any gaps in practices that may need improvement.
 - Example: After annual PPE review and training, have staff in pairs observe each other and provide feedback on practices by using the observation form.
- Set-up a mock scenario using an available exam room and use the observation form to audit PPE practices and provide feedback.

Home and Community Care

- Similar to the example above, use the observation form as a way to assess practice and identify gaps post-training and on a regular basis, such as at a team meeting;
- If two staff are doing a home visit together, identify if this could be an opportunity to audit the practice. If a supervisor is performing a joint visit with a staff member, then this could also be an opportunity to audit.

Congregate Care

- Use the form as a way to assess practice and identify gaps post-training and on a regular basis;
- Discuss mock scenarios at team meetings and identify what PPE might be used in a certain situation e.g., a client comes in with a wound that needs care.

Form 2: Supporting the Use of PPE

- This audit form identifies barriers/gaps to the proper use of PPE and what organizational supports need to be in place to support staff;
- This PPE audit is to be performed monthly or on a regular basis as decided by the organization;
- It should be completed by the IPAC lead or designated leader and then shared back with the person or team responsible for developing an action plan and improvement strategies;
- Maintain/save audits or input information into an electronic database for a set period e.g., annually.

Step 3: Analyze and Strategize

Once the audits have been performed, the information collected should be reviewed and analyzed to determine what is working well and what needs to be improved related to PPE use. Prioritize action items based on risk and available resources.

Conduct Observations

When determining how many observations to make to produce meaningful results, it is important to consider the following:

- Have a large enough sample size to be meaningful - Not collecting enough data means the rates are not reliable as any changes could be due to chance alone rather than the effect of the intervention;
- The time frame for the audit period should be no less than a 2-week period to capture a large enough number of random observations.

Collect and Analyze Data

- Tabulate or collect data from the audits such as in a simple spreadsheet or table;
- Analyze data by looking at trends and comparing to previous audits. Consider breaking down compliance rates to support the development of targeted and appropriate interventions to improve compliance such as in the example below which uses the type of staff;
- Calculate compliance rates. For example:

$$\left[\frac{35 \text{ appropriate mask removals in physicians}}{50 \text{ observed mask removals in physicians}} \right] \times 100 = 70\%$$

- Identify areas for improvement;
- Identify any barriers that may be preventing improvement.

Graphs and charts can help present the data in a way that communicates the progress over time to stakeholders.³ The following are examples of how to present PPE audit data using a graph:

Figure1: Sample chart for presenting the most common PPE doffing errors Jan to Dec 2020

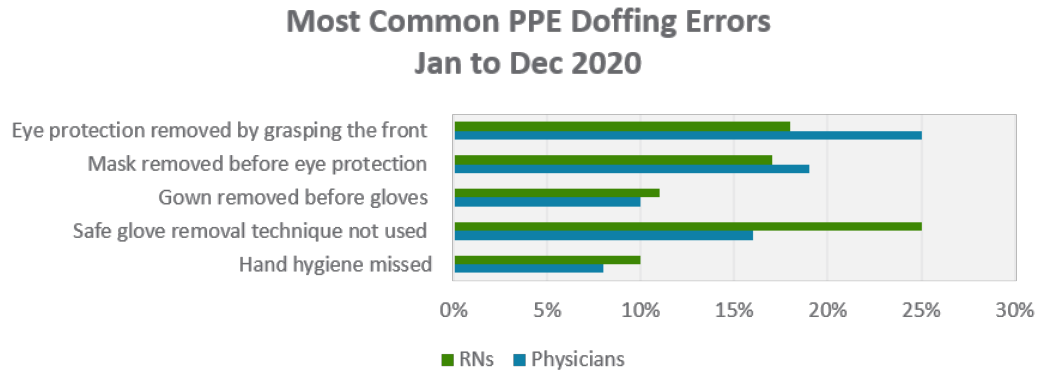
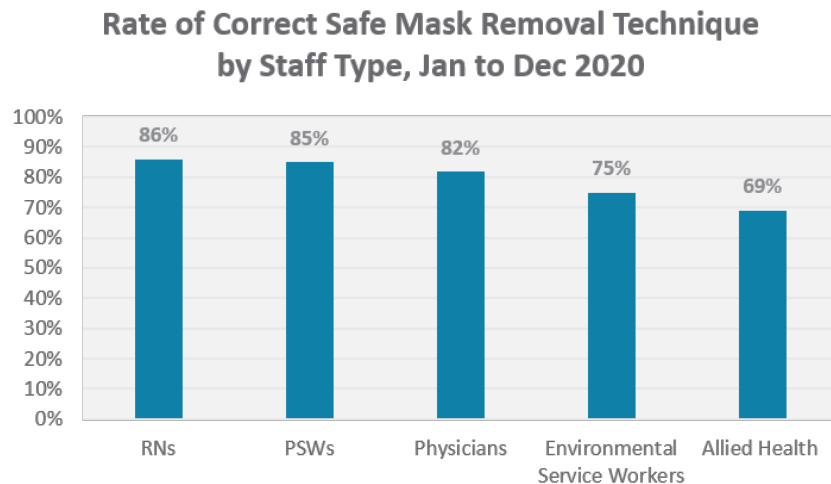


Figure2: Sample graph of the rate of correct PPE practices pre- and post-quality improvement project implementation.



Consideration for small settings: Although there is no standard for the number of observations needed for PPE audits, literature shows that at least 50-60 observations may be needed to calculate rates to show significant trends. If the number of observations is small, then rates, graphs and charts may not be helpful or appropriate. Consider the data in terms of themes. For example, what were the top three gaps in practice? Are these the same as last time and why?

Develop an Action Plan

- Lead(s) and Committee develop an action plan with strategies based on results and identified barriers;
- Solicit input from staff on their ideas for solutions;
- Communicate aggregate results and action plan to staff:
 - Data can be presented as a graph, table, or infographic;

- Share by email, in-person, or posting (e.g., huddles, leadership meetings, Joint Health and Safety or IPAC Committee meetings);
- What is the organization or team’s goal/target?

EXAMPLE OF AN ACTION PLAN

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

Step 4: Implement Strategies

Strategies used to address action items identified from the audits can be implemented in different ways depending on your organization’s culture and resources. Involving staff in the implementation process will help to achieve more sustainable results.

The following are examples of improvement strategies that may be implemented based on audit results.

Strategy A: Set Goals as a Team

- Facilitate improvement huddles where teams can discuss the barriers and challenges to best practices e.g. [Health Care Huddles: IPAC Checkpoints](#);
- Develop team goals and actions to address deficiencies shared from the audits;
- Monitor practice through sharing ongoing audit results and establish team norms where staff agree to give each other feedback.

Strategy B: Deliver Training to Staff

- Hold educational sessions to review best practices and to target the gaps identified from the audits;
- Ensure materials are appropriate to the audience (e.g., consideration for level of education, language barriers, literacy);
- Distribute educational materials;
- Plan for and make available training in an ongoing way;

- Vary the information delivery methods to cater to different learning styles and work contexts, and shape the training to be interactive;
- Provide ways for individuals to directly observe or shadow experienced people;
- Use a train-the-trainer approach.

Strategy C: Remind Staff of Key Practices

- Develop reminder systems or prompts designed to help individuals recall information and/or prompt them to follow a practice such as posters on PPE donning and doffing or lanyard cards;
- If staff are open to feedback or reminders, identify a signal word that one staff could say to another to remind them of missed or incorrect practices.

Strategy D: Structure the Environment

- Evaluate current configurations/flow and adapt, as needed;
- Evaluate the environment to facilitate use of PPE e.g., supplies at point of care, designated areas for donning and doffing.

Step 5: Improve and Sustain

Once the current action plan is complete, it is important to continue to audit PPE use on a regular basis to identify any new gaps and to confirm that previous gaps are not reoccurring. Integrating PPE audits into your IPAC program will ensure sustained improvement of best practices. Be sure to recognize successes and recognize staff contributions whenever possible.

- Communicate with and involve staff as much as possible in the process. Ensure non-punitive and non-judgmental language and atmosphere;
- Use qualitative feedback (e.g., stories, anecdotes) to review what is and isn't working along with your quantitative results;
- When making decisions about what to do next, consider a "Start Stop Continue" exercise with the team.
 - Start: What should the team start doing (e.g., new ideas to try out)?
 - Stop: What should the team stop doing (e.g., what isn't working so well)?
 - Continue: What should the team keep doing (e.g., what's going well)?
- Celebrate and recognize successes and improvements! Talk with the team and revisit the action plan to understand what is leading to these successes and if there were any barriers to getting there that could be planned for differently next time.
- Repeat audit cycle (audit, evaluate, strategize and implement) as described in your policy or procedure.

Conclusion

PPE audits are a mechanism for health-care settings to monitor, evaluate and improve the use of PPE. It is important that staff participate and provide input in the process to achieve buy-in and support. The safe use of PPE is a critical part of protecting staff and patients/residents/clients from transmission of infection.

Resources

Best Practice Guidelines:

- [Best Practices for Infection Prevention and Control Programs in Ontario In All Health Care Settings, 3rd edition](#)
- [Routine Practices and Additional Precautions in All Health Care Settings, 3rd edition](#)

Training:

- [Infection Prevention and Control \(IPAC\) – Online Learning](#)
- [Routine Practices and Additional Precautions](#)
- [Hand Hygiene for COVID-19 Prevention](#)

Posters/Fact Sheets/Cards:

- [How to Put on Personal Protective Equipment](#)
- [How to Remove Personal Protective Equipment](#)
- [Cleaning and Disinfection of Reusable Eye Protection](#)
- [Recommended Steps: Putting on Personal Protective Equipment \(PPE\)](#)
- [Additional Precautions Signage and Lanyard Cards](#)

References

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3. Centers for Disease Control and Prevention (CDC). Auditing and feedback of PPE use [Internet]. Atlanta, GA: Centers for Disease Control and Prevention; 2021 [cited 2021 Jun 24]. Available from: <https://www.cdc.gov/infectioncontrol/pdf/strive/PPE104-508.pdf>

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