OREGON HEALTH AUTHORITY

June 18, 2025

Eastern Oregon Infection Prevention & Control (IPC) Community of Care

Case Studies with Transmission Based Precautions

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Public Health Division | Acute & Communicable Disease Prevention

Healthcare-Associated Infections Program

Meet your OHA Team!

Pam Bruhn
IP
Regions
6, 7, and 9

Katie Cox
Epi
Regions
6 and 9

Dan Daniluk
Epi
Region 7

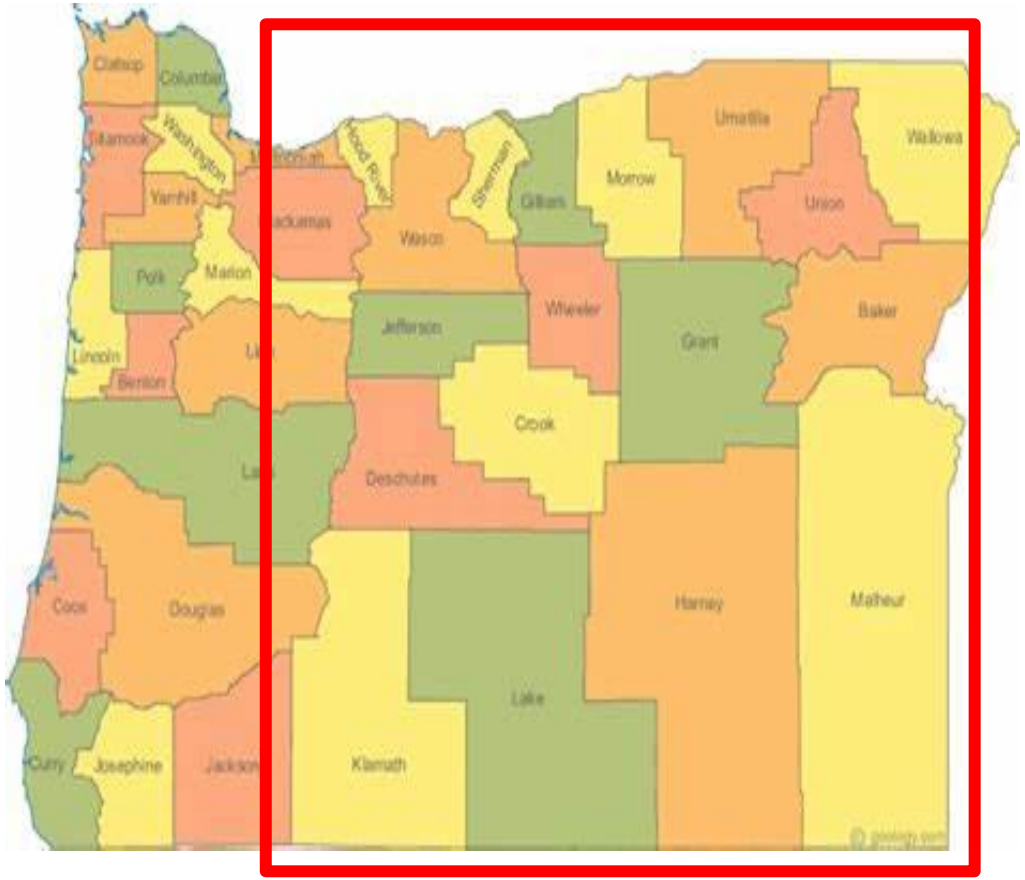
Elizabeth Johnson
MDRO IP Eastern Oregon

Purpose

Our time is intended to provide a space for infection preventionists and local public health personnel in Regions 6, 7 and 9 to come together to share ideas and stories and to learn about topic in infection prevention.

Our goal is to build community among a group of practitioners who are commonly isolated as the only one in their setting.

This time is **not** intended to provide specific recommendations for a facility. This space will provide a connection with the OHA or LPHA infection preventionists and epidemiologists who can provide that direct guidance.



Housekeeping

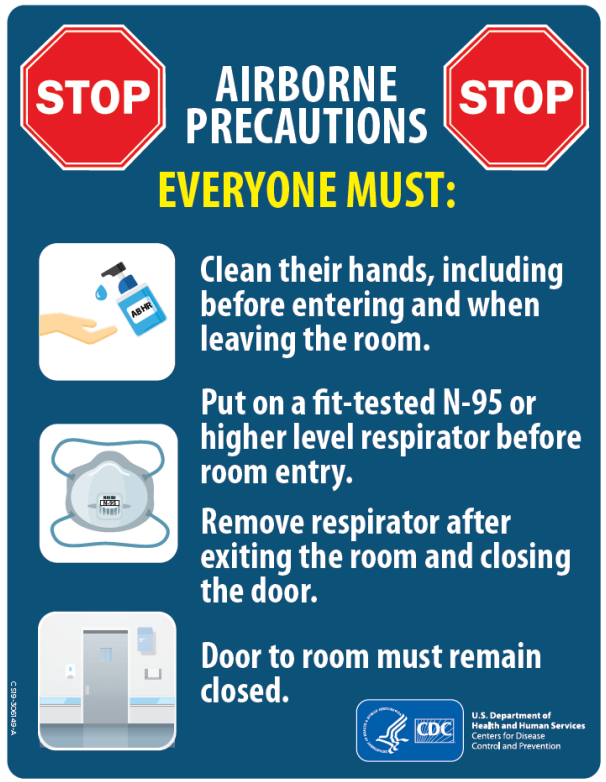
- This session will be recorded.
- Please turn off any AI recording/technology (against OHA policy)
- If you have questions during today's presentation, please feel free to raise your hand or type your question into the chat.

Agenda

- Review 3 case studies on transmission-based precautions (TBP)
- Discuss findings from research paper on improving adherence to TBP
- Discussion and questions

Transmission-Based Precautions (TBP) Case Studies

Standard Precautions & TBP Overview



Sources: Washington State Hospital Association; CDC

Case Study #1: Mixed Gastrointestinal (GI) & Respiratory Illness

Case Study #1: Mixed GI & Respiratory Illness

- Scenario:
  - A patient has symptoms of GI illness, which includes uncontrolled diarrhea, and projectile vomiting. The patient also has a persistent, productive cough.
  - The patient has not received a diagnosis for their illness(s) yet. No causative agent(s) has been identified.
  - The nurse knows when he/she enters the patient's room, he/she needs to use proper PPE and take precautions to protect himself/herself and the patient.

- Questions:
  - Q1: What, if any, PPE does the nurse need to don when he/she enters the patient's room to protect himself/herself from the GI illness?
  - Q2: What, if any, PPE does the nurse need to don when he/she enters the patient's room to protect himself/herself from respiratory illness?

Case Study #1: Mixed GI & Respiratory Illness

- Scenario continued
  - As the nurse enters the room, he/she places his/her gloved hand on the bed rail while he/she chats with the patient.
  - While attending to this patient, the nurse is suddenly pulled away from the patient's room for an emergency.

- Question:
  - Q3: What kind of hand hygiene is most appropriate when the nurse doffs his/her PPE?

Case Study #1: Mixed GI & Respiratory Illness

- Scenario continued
  - After responding to the emergency, the nurse then returns to the patient's room.
  - The nurse continues to provide care to this patient during their illness.

- Questions:
  - Q4: When can transmission-based precautions be discontinued for this patient?

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Case Study #2: Itchy Rash

Case Study #2: Itchy Rash

Image: https://www.webmd.com/skin-problems-and-treatments/ss/slideshow-scabies-overview

- Scenario
  - The patient, who is houseless, is admitted to the ER for an itchy, red, macular (flat) rash in the finger and toe web spaces, inside of the wrists, ankles, arm pits, and genitalia. The rash does not appear “crusted.”

- Questions
  - Q5: With the above scenario, should the ER nurse put this patient on TBP? If so, what type of TBP?
  - Q6: What PPE would the ER nurse put on to care for this patient?

Situational Awareness Should Help Drive Your Critical Thinking…..

- With houseless person(s) we may be expecting lice, bed bugs and/or scabies rashes…
- Measles is highly contagious and can live for up to 2 hours in an airspace after an infected person leaves an area.

Images: https://www.cdc.gov/measles/signs-symptoms/photos.html

- Airborne precautions (AIIR room, N95 respirator, gloves, gown and face shield).

Case Study #2: Itchy Rash

- Scenario
  - While in the ER, the patient is diagnosed with scabies.

- Questions
  - Q7: How long should the patient stay on TBP?
  - Q8: What would you do with the patient's personal belongings?
  - Q9: How should the patient be treated?

Case Study #2: Itchy Rash

- Scenario
  - The patient's significant other comes to visit them in the hospital.
  - A staff member who provided hands-on-care to the patient becomes symptomatic.

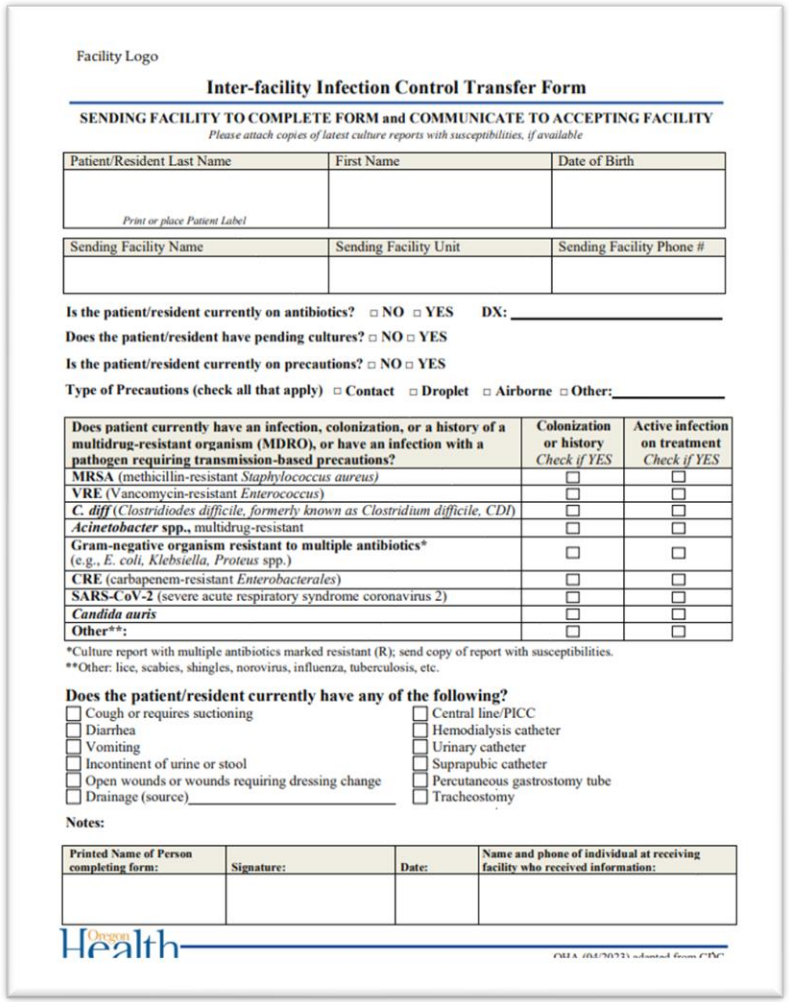
- Questions
  - Q10: What would be the appropriate treatment and timing for treatment for the significant other?
  - Q11: What would be the appropriate treatment and timing for treatment for the symptomatic staff member?

Case Study #3: Respiratory Illness

Case Study #3: Respiratory Illness

- Scenario
  - The patient is a LTCF resident with a medical history that includes COPD, hypertension, diabetes, and rheumatoid arthritis.
  - The patient's family members visited with them in their room at the LTCF the day before the patient's symptoms began.
  - The patient develops a 102° fever, sore throat, cough, muscle aches, and nausea.
  - The patient is sent to the ER because of low blood pressure and O2 saturation at 90%.
- Question
  - Q12: How should the LTCF notify the hospital about the patient's illness before sending the patient to the ER? And what information should be provided?

Inter-facility Infection Control Transfer Form Examples



Facility Logo

Inter-facility Infection Control Transfer Form

SENDING FACILITY TO COMPLETE FORM and COMMUNICATE TO ACCEPTING FACILITY

Please attach copies of latest culture reports with susceptibilities, if available

Patient/Resident Last Name	First Name	Date of Birth
Print or place Patient Label		

Sending Facility Name	Sending Facility Unit	Sending Facility Phone #

Is the patient/resident currently on antibiotics? □ NO □ YES **DX:** _____

Does the patient/resident have pending cultures? □ NO □ YES

Is the patient/resident currently on precautions? □ NO □ YES

Type of Precautions (check all that apply) □ Contact □ Droplet □ Airborne □ Other:_____

Does patient currently have an infection, colonization, or a history of a multidrug-resistant organism (MDRO), or have an infection with a pathogen requiring transmission-based precautions?	**Colonization or history** *Check if YES*	**Active infection on treatment** *Check if YES*
MRSA (methicillin-resistant *Staphylococcus aureus)*	☐	☐
VRE (Vancomycin-resistant *Enterococcus*)	☐	☐
C. diff *(Clostridiodes difficile, formerly known as Clostridium difficile, CDI)*	☐	☐
Acinetobacter **spp.,** multidrug-resistant	☐	☐
Gram-negative organism resistant to multiple antibiotics* (e.g., *E. coli, Klebsiella, Proteus* spp.)	☐	☐
CRE (carbapenem-resistant *Enterobacterales*)	☐	☐
SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2)	☐	☐
Candida auris	☐	☐
Other:**	☐	☐

*Culture report with multiple antibiotics marked resistant (R); send copy of report with susceptibilities.
**Other: lice, scabies, shingles, norovirus, influenza, tuberculosis, etc.

Does the patient/resident currently have any of the following?

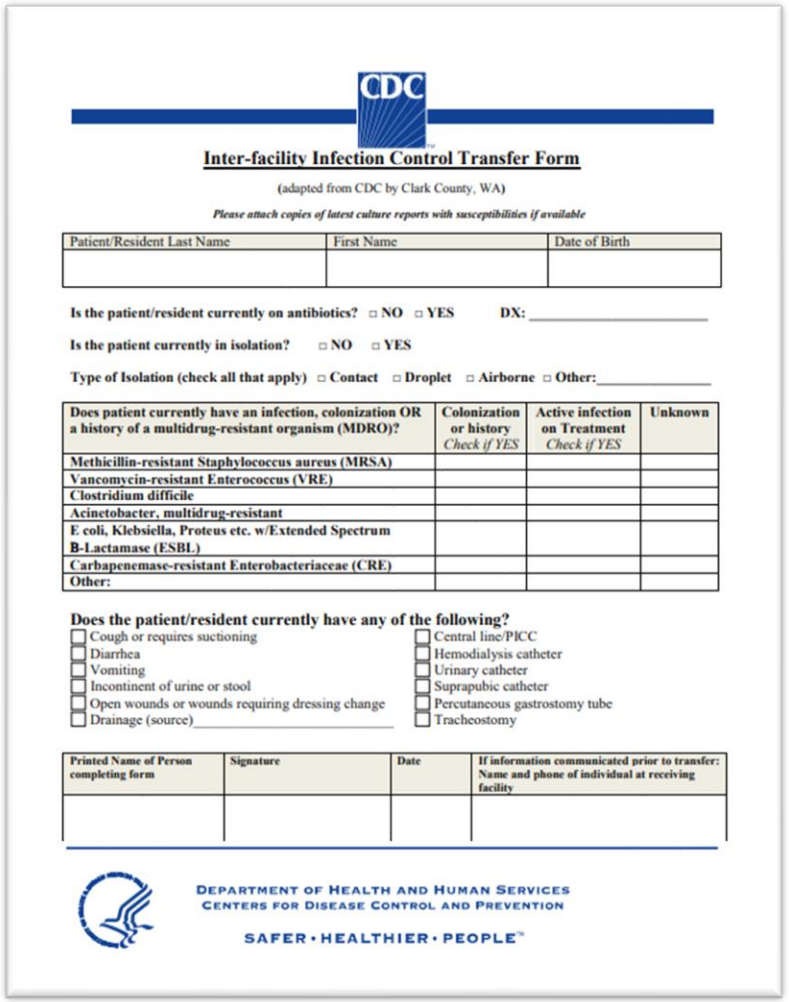
- ☐ Cough or requires suctioning
- ☐ Diarrhea
- ☐ Vomiting
- ☐ Incontinent of urine or stool
- ☐ Open wounds or wounds requiring dressing change
- ☐ Drainage (source)_____
- ☐ Central line/PICC
- ☐ Hemodialysis catheter
- ☐ Urinary catheter
- ☐ Suprapubic catheter
- ☐ Percutaneous gastrostomy tube
- ☐ Tracheostomy

Notes:

Printed Name of Person completing form:	**Signature:**	**Date:**	**Name and phone of individual at receiving facility who received information:**

Oregon Health

OHA 4042 (04/2022) adapted from CDC



CDC

Inter-facility Infection Control Transfer Form

(adapted from CDC by Clark County, WA)

Please attach copies of latest culture reports with susceptibilities if available

Patient/Resident Last Name	First Name	Date of Birth

Is the patient/resident currently on antibiotics? □ NO □ YES **DX:** _____

Is the patient currently in isolation? □ NO □ YES

Type of Isolation (check all that apply) □ Contact □ Droplet □ Airborne □ Other:_____

Does patient currently have an infection, colonization OR a history of a multidrug-resistant organism (MDRO)?	**Colonization or history** *Check if YES*	**Active infection on Treatment** *Check if YES*	**Unknown**
Methicillin-resistant Staphylococcus aureus (MRSA)			
Vancomycin-resistant Enterococcus (VRE)			
Clostridium difficile			
Acinetobacter, multidrug-resistant			
E coli, Klebsiella, Proteus etc. w/Extended Spectrum B-Lactamase (ESBL)			
Carbapenemase-resistant Enterobacteriaceae (CRE)			
Other:			

Does the patient/resident currently have any of the following?

- ☐ Cough or requires suctioning
- ☐ Diarrhea
- ☐ Vomiting
- ☐ Incontinent of urine or stool
- ☐ Open wounds or wounds requiring dressing change
- ☐ Drainage (source)_____
- ☐ Central line/PICC
- ☐ Hemodialysis catheter
- ☐ Urinary catheter
- ☐ Suprapubic catheter
- ☐ Percutaneous gastrostomy tube
- ☐ Tracheostomy

Printed Name of Person completing form	**Signature**	**Date**	**If information communicated prior to transfer: Name and phone of individual at receiving facility**

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Case Study #3: Respiratory Illness

- Scenario
  - At the hospital, the patient is cared for by an ER nurse.

- Questions
  - Q13: What TBP should be used for the patient and why?
  - Q14: What PPE should the ER nurse wear and why?

Case Study #3: Respiratory Illness

- Scenario
  - While in the ER, the patient is diagnosed with influenza B. They test negative for SARS-CoV-2 and RSV.
  - The patient is transferred to the med surg floor and is cared for by a med surg nurse.

- Questions
  - Q15: What PPE would the patient be requested to use upon transfer to the med surg floor?
  - Q16: What TBP should the med surg nurse put the patient on and why?

Case Study #3: Respiratory Illness

- Scenario
  - The patient is discharged to the LTCF.

- Question
  - Q17: Should the hospital notify the LTCF about the patient's illness before discharging the patient back to the LTCF? If so, how should the hospital notify the LTCF?

Case Study #3: Respiratory Illness

- Scenario
  - The ER nurse who cared for the patient develops a fever, respiratory symptoms, and body aches.

- Questions
  - Q18: Should the ER nurse be sent home from work?
  - Q19: Should the ER nurse receive treatment?
  - Q20: When can the ER nurse return to work?

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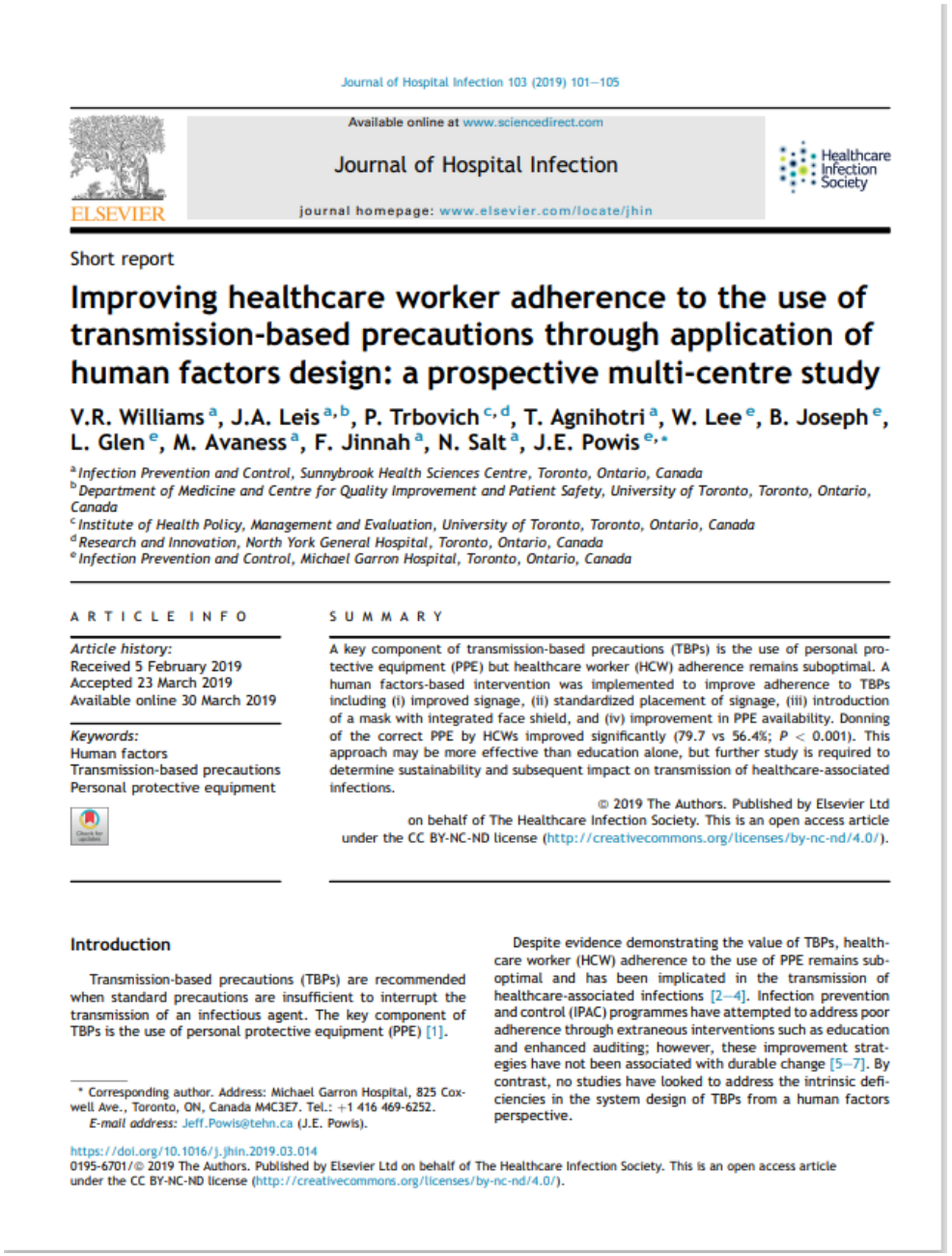
TBP Research

Research paper on improving HCW adherence to TBPs

- Prospective study at 2 hospitals in Toronto: included EDs, inpatient units
- The researchers used human factors principles to look at how healthcare workers interact with signage and PPE
- They identified system design factors that discourage healthcare worker adherence with PPE when providing care for patients in TBP



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Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

Short report

Improving healthcare worker adherence to the use of transmission-based precautions through application of human factors design: a prospective multi-centre study

V.R. Williams [a], J.A. Leis [a,b], P. Trbovich [c,d], T. Agnihotri [a], W. Lee [e], B. Joseph [e], L. Glen [e], M. Avaness [a], F. Jinnah [a], N. Salt [a], J.E. Powis [e,*]

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Personal protective equipment

SUMMARY

A key component of transmission-based precautions (TBPs) is the use of personal protective equipment (PPE) but healthcare worker (HCW) adherence remains suboptimal. A human factors-based intervention was implemented to improve adherence to TBPs including (i) improved signage, (ii) standardized placement of signage, (iii) introduction of a mask with integrated face shield, and (iv) improvement in PPE availability. Donning of the correct PPE by HCWs improved significantly (79.7 vs 56.4%; $P < 0.001$). This approach may be more effective than education alone, but further study is required to determine sustainability and subsequent impact on transmission of healthcare-associated infections.

Introduction

Transmission-based precautions (TBPs) are recommended when standard precautions are insufficient to interrupt the transmission of an infectious agent. The key component of TBPs is the use of personal protective equipment (PPE) [1].

Despite evidence demonstrating the value of TBPs, healthcare worker (HCW) adherence to the use of PPE remains suboptimal and has been implicated in the transmission of healthcare-associated infections [2–4]. Infection prevention and control (IPAC) programmes have attempted to address poor adherence through extraneous interventions such as education and enhanced auditing; however, these improvement strategies have not been associated with durable change [5–7]. By contrast, no studies have looked to address the intrinsic deficiencies in the system design of TBPs from a human factors perspective.

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E-mail address: Jeff.Powis@tehn.ca (J.E. Powis).

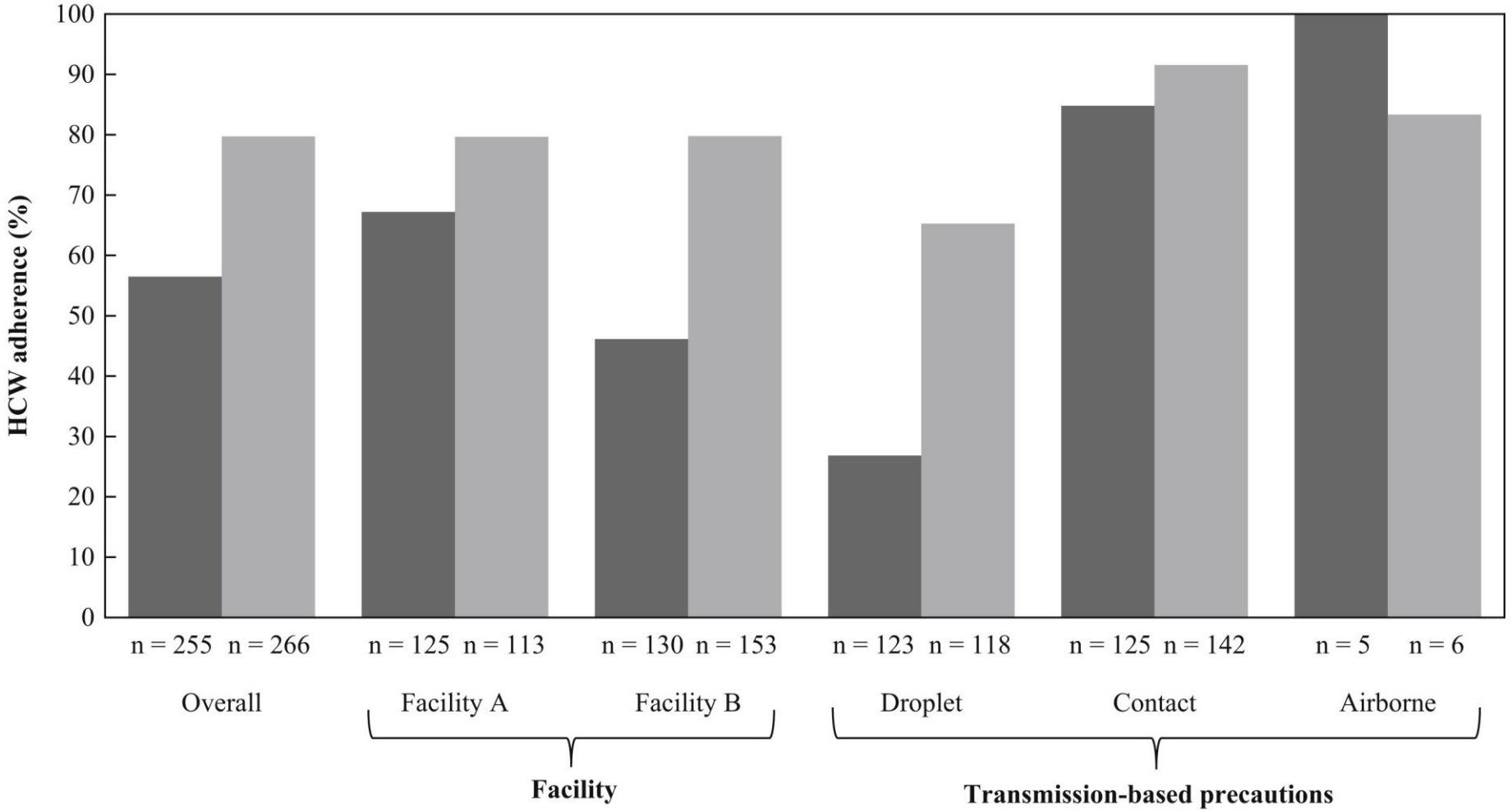
https://doi.org/10.1016/j.jhin.2019.03.014

Research paper on improving HCW adherence to TBPs

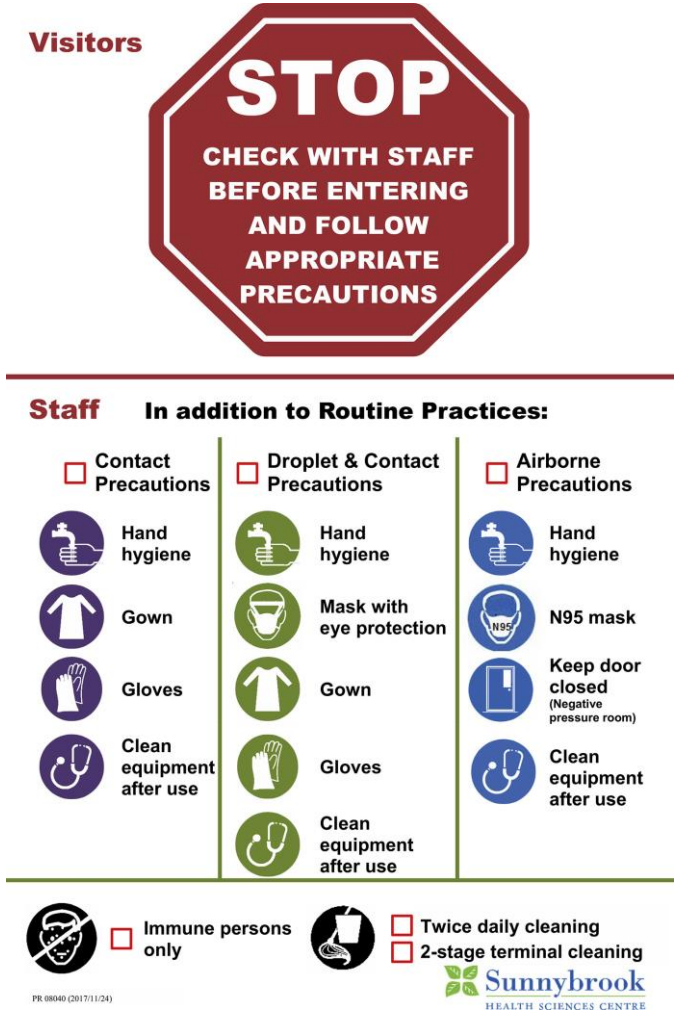
- The researchers then designed an intervention to address the following identified system barriers to TBP adherence:
  - Improved TBP signage
  - Standardized placement of signage
  - Introduction of a mask with an integrated face shield instead of goggles
  - Improvement in availability of required PPE in clean utility rooms on each unit*
- Audits before/after the intervention to observe HCW adherence to recommended PPE

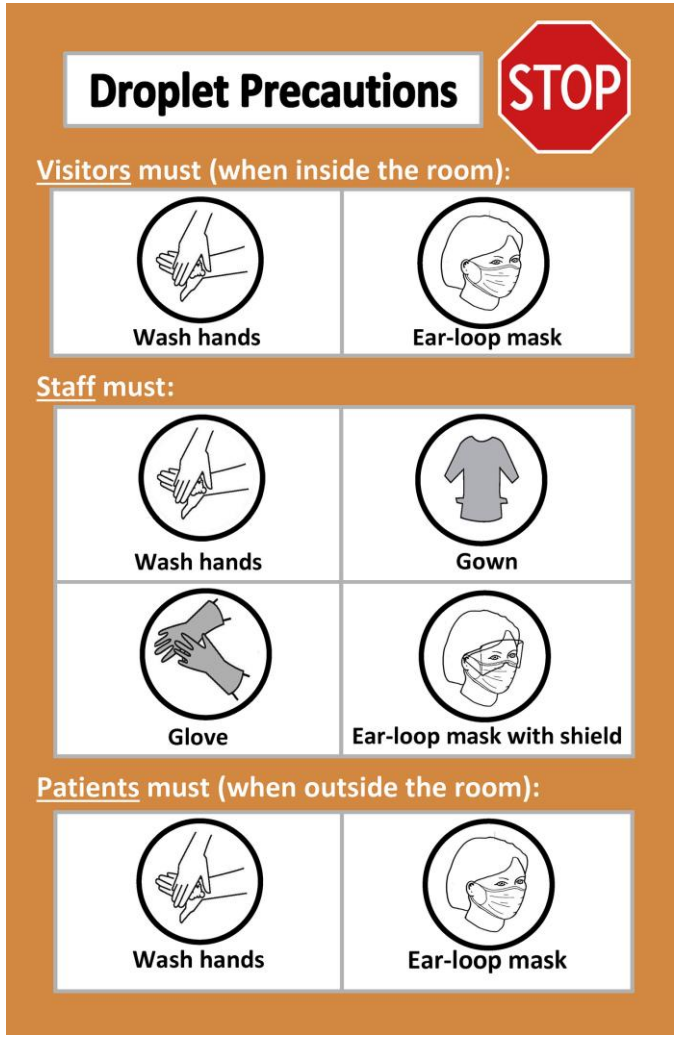
*Improvement in availability of required PPE at room entrances was not part of the intervention and was a limitation of this study

Results

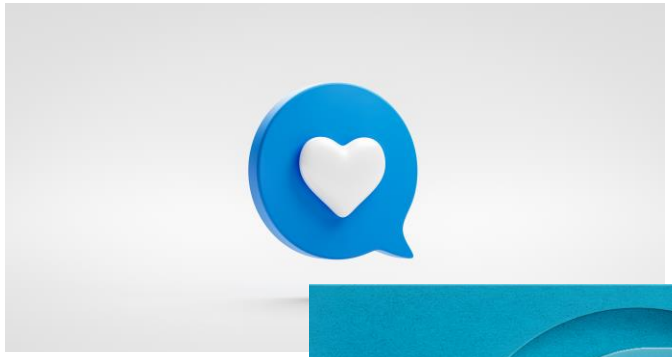

HCW adherence (%)
100
90
80
70
60
50
40
30
20
10
0
n = 255 n = 266
n = 125 n = 113
n = 130 n = 153
n = 123 n = 118
n = 125 n = 142
n = 5 n = 6
Overall
Facility A
Facility B
Droplet
Contact
Airborne
Facility
Transmission-based precautions

Examples of improved signage





Comments, Thoughts, Questions….



Next Meeting:

Wednesday July 16, 2025

1:15 pm – 2:00 pm

Session Topic: Adult Immunization Schedule & Antibiotic Classification

Presenters: Amanda Timmons

Liz Breitenstein

Resources

- CDC: Standard Precautions for All Patient Care
- CDC: Transmission-Based Precautions
- CDC/HICPAC Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007)

Resources

- Appendix A: Type and Duration of Precautions Recommended for Selected Infections and Conditions from the CDC/HICPAC Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007)
- Appendix A: Table 2. Clinical Syndromes or Conditions Warranting Empiric Transmission-Based Precautions in Addition to Standard Precautions from the CDC/HICPAC Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007)
- Appendix A: Table 4. Recommendations for Application of Standard Precautions for the Care of All Patients in All Healthcare Settings from the CDC/HICPAC Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007)

Resources

- Clinical Practice Guidelines for Clostridium difficile Infection in Adults and Children: 2017 Update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA)
- MN Department of Health: Clostridioides (Clostridium) difficile Infection Prevention

Resources

- Inter-facility infection control transfer forms:
  - OHA Example Form
  - CDC Example Form
- OHA At-A-Glance Infection Control for Respiratory Pathogens
- CDC Infection Prevention and Control Strategies for Seasonal Influenza in Healthcare Settings
- Improving healthcare worker adherence to the use of transmission-based precautions through application of human factors design: a prospective multi-centre study (2019)

Contacts

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Thank you!! 😊