Healthcare Worker Temperature Screening for COVID-19

Disclaimer:
This *Quick Response Report* was published on April 14, 2020. 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rapidly changing nature of the coronavirus pandemic, some of the references included in this report may quickly become out-of-date.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 & 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.

Original Inquiry

Health System request for research literature on temperature reading for healthcare workers as a way to screen them for COVID-19 to increase patient and worker safety.

Summary

Our search included PubMed, Google Scholar, the National Collaborating Centres for Public Health and for Infectious Diseases, and several regional health authorities within Canada. There appears to be very limited research-based evidence on the efficacy or effectiveness of body temperature screening healthcare workers (HCWs) for COVID-19. We were able to find several policies and guidelines from public health authorities. We were also able to find some research that assessed infection control measures during SARS.

We contacted the National Collaborating Centres for Public Health and for Infectious Diseases directly (Stefan Hardy, personal communication). We were informed that, to the best of their knowledge, they are not working on any protocols for screening healthcare workers for fever to reduce COVID-19 transmission. They recommended contacting our provincial Department of Health and Community Services as well as other provinces (we did not find anything for NL). They indicated that the situation is dynamic, policy and practices are changing daily, and that official operating protocols may be difficult to find.

Please note that we have not included search results for health jurisdictions that are not screening or have decided not to screen healthcare workers body temperature for indication of COVID-19 infection.

Our findings are summarized below. All emphases/highlighting have been added.

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Expert Opinion

Atkinson, P., French, J., Lang, E., McColl, T., & Mazurik, L. (2020). **Just the Facts: Protecting frontline clinicians during the COVID-19 pandemic**. *CJEM*, 1–5. LINK

Quote: "Is there a role for staff screening and testing during the pandemic? Individual jurisdictions will have different policies and procedures for staff screening and testing. What is clear is that an active screening procedure for staff, preventing symptomatic or potentially infected staff from working among well staff and patients is vital in preventing super-spreaders. Screening questions about travel, contacts, contamination events, and symptoms are the minimum required, with temperature checks for staff before each shift providing additional screening power."

Policy

Operational Considerations for the Identification of Healthcare Workers and Inpatients with Suspected COVID-19 in non-US Healthcare Settings – CDC LINK

Note: Section 5, Identification of Healthcare workers with suspected COVID-19, indicates healthcare workers may be assessed passively (self-reporting alone or with automated reminders) or actively (in-person or remotely) and includes the following considerations:

- Same as Passive Strategy.
- Active monitoring of healthcare workers can be highly resource intensive. There is limited evidence of increased effectiveness in prevention of nosocomial transmission beyond passive strategies.
- Acceptance by staff can be limited by perceptions of mistrust in ability to monitor and appropriately report symptoms.
- Active monitoring can decrease the likelihood that healthcare workers self-monitor signs and symptoms. Ideally, healthcare workers are checking their own temperature and symptoms and will not present if not indicated. Any action that weakens self-monitoring should be implemented with caution.
- To decrease workload, and if accountability can be maintained, the following can be delegated to unit/immediate supervisors (e.g., head/charge nurses, department heads):
    - responsibility for receiving symptom/temperature reports
    - monitoring staff compliance for the *remote active strategy*

Implementation of Mitigation Strategies for Communities with Local COVID-19 Transmission (US Settings) – CDC LINK

Note: does not explicitly recommend temperature screening for healthcare personnel (HCP) but does recommend assessing plans to monitor HCP (none to minimal impact), actively monitoring

absenteeism and respiratory illness among HCP (minimal to moderate impact). However, the Equal Employment Opportunity Commission (EEOC) has interpreted the CDC statement to mean that employers can take temperatures if they maintain confidentiality (see here for full statement), and legal opinions have interpreted both statements to mean that an at-risk employer's best practices include HCP temperature screening (for example, see here).

Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease (COVID-19) – CDC March 7, 2020 LINK

Quote: "Active monitoring means that the state or local public health authority assumes responsibility for establishing regular communication with potentially exposed people to assess for the presence of fever or respiratory symptoms (e.g., cough, shortness of breath, sore throat). For HCP with high- or medium-risk exposures, CDC recommends this communication occurs at least once each day. The mode of communication can be determined by the state or local public health authority and may include telephone calls or any electronic or internet-based means of communication.

"For HCP, active monitoring can be delegated by the health department to the HCP's healthcare facility occupational health or infection control program, if both the health department and the facility are in agreement. Note, inter-jurisdictional coordination will be needed if HCP live in a different local health jurisdiction than where the healthcare facility is located."

Daily Fitness for Work Screening Protocol - Alberta Health. LINK

Quote: "All staff, physicians and contractors will be required to complete screening prior to starting a shift, by completing a standard questionnaire to assess health risk (See Appendix 1)… Depending on the site's screening process, a temperature check may be required on site." Note: Questionnaire includes self-reported fever.

COVID-19 Screening at Hospital Entrances – St. Joseph's Healthcare Hamilton LINK

Quote: "Effective Tuesday, March 17 at 6 a.m., St. Joseph's Healthcare Hamilton has limited the entrances at our sites, and are conducting COVID-19 screening of all patients, visitors, staff and physicians before entering the hospital. If the patient or visitor meets the screening criteria for COVID-19, they will be directed to a secondary screening area for further assessment." Note: it is not clear if body temperature is included in either of the screening phases.

Related news article: LINK

COVID19 Control Measures for Long Term Care: Interim Guidance (subject to change) March 20, 2020 – Illinois Department of Public Health LINK

Quote: "If not already being performed begin screening all residents and staff including temperature checks and use of checklists to identify symptomatic individuals.

"Inform staff to stay home when sick insuring non-punitive practices during this period. Screen all staff prior to shift for temperature and respiratory symptoms. If present staff member should be sent home until symptoms resolve."

Mandatory COVID-19 Screening for Employees to Begin Wednesday - Vanderbilt University Medical Center LINK

Quote: "To protect patients and co-workers, beginning Wednesday evening March 25, all Vanderbilt University Medical Center employees will need to undergo temperature screening each day for signs of possible COVID-19 infection before being allowed to report to work. Those who will need to be screened include all staff, faculty and residents entering Medical Center facilities that include clinical care areas regardless of clinical contact."

Essential Services Screening Recommendations for COVID-19 Pandemic – Delaware Health and Social Services

Summary: All employees (including healthcare personnel) must be asked for their temperature (i.e., self-reporting) and should be screened for fever using touchless thermometers (if possible).

COVID-19 Information for Businesses and Employers Screening Employees for COVID-19 – Ohio Department of Health LINK

Summary: All employees (including healthcare personnel) should be screened for fever using touchless thermometers (if possible).

News

Alberta health-care workers will be screened for COVID-19 at the start of each shift - CBC News · Posted: Mar 24, 2020 LINK

Quote: "Health-care workers across Alberta will be screened for COVID-19 at the start of every shift, starting this week. Doctors, nurses and any staff entering a hospital, urgent care centre, or continuing or long-term care facility will have their temperature taken and be asked to fill out a questionnaire."

Healthcare workers line up outside Winnipeg hospitals for screening – CTV News Winnipeg, published Thursday, April 2, 2020 LINK

Quote: "As part of new screening measures from the province, all staff at healthcare facilities need to have their temperature checked before the start of their shift."

Some hospitals screening everyone for COVID-19 symptoms: Central Maine Healthcare checking employees, patients and visitors for symptoms. Sun Journal: March 24, 2020 LINK

Quote: "The screening consists of a couple questions and a temperature check," said Kate Carlisle, spokeswoman for the 3,000-employee health care institution."

Healthcare Worker Temperature Screening for Previous Epidemics

Tan, Chorh-Chuan. "**SARS in Singapore-key lessons from an epidemic**." *Annals-Academy of Medicine Singapore* 35.5 (2006): 345. LINK

Quote: "Strict twice- or thrice-daily temperature monitoring of all healthcare workers (HCWs) was first introduced by TTSH early in the course of the SARS outbreak. It was subsequently mandated by the MOH for all other healthcare facilities. During the outbreak, temperature monitoring of HCWs was useful in enabling the early identification and isolation or quarantine of individuals who might have had SARS."

Bell, David M, and World Health Organization Working Group on International and Community Transmission of SARS. "**Public health interventions and SARS spread, 2003**." *Emerging infectious diseases* vol. 10,11 (2004): 1900-6. LINK

Quote from paper: "The optimal management of contacts, stratified according to risk of becoming ill, remains under discussion in several countries, e.g., whether confinement is always needed or close monitoring of health status without confinement would suffice. Reports from Canada indicate that the insidious onset of symptoms sometimes posed challenges for clinicians and public health officials. "Timely diagnosis and isolation of cases were sometimes hindered by delays in patient recognition of symptoms, obtaining medical evaluation, and/or physician recognition of the significance of symptoms, which occasionally waxed and waned early in illness" (A. McGeer and D. Low, Mount Sinai Hospital Toronto, pers. comm.). "In Toronto, some healthcare workers continued to work without recognizing that they were ill, perhaps confusing their symptoms with fatigue, despite daily screening and repeated messages not to come to work if ill. This resulted in transmission to patients and staff" (B. Henry, Toronto Public Health, pers. comm.)."

Yen, Muh-Yong, et al. "**Quantitative evaluation of infection control models in the prevention of nosocomial transmission of SARS virus to healthcare workers: implication to nosocomial viral infection control for healthcare workers**." *Scandinavian journal of infectious diseases* 42.6-7 (2010): 510-515. LINK

Abstract: Healthcare workers (HCWs) are at high risk of acquiring emerging infections while caring for patients, as has been shown in the recent SARS and swine flu epidemics. Using SARS as an example, we determined the effectiveness of infection control measures (ICMs) by logistic

regression and structural equation modelling (SEM), a quantitative methodology that can test a hypothetical model and validates causal relationships among ICMs. Logistic regression showed that installing hand wash stations in the emergency room (p = 0.012, odds ratio = 1.07) was the only ICM significantly associated with the protection of HCWs from acquiring the SARS virus. The structural equation modelling results showed that the most important contributing factor (highest proportion of effectiveness) was installation of a fever screening station outside the emergency department (51%). Other measures included traffic control in the emergency department (19%), availability of an outbreak standard operation protocol (12%), mandatory temperature screening (9%), establishing a hand washing setup at each hospital checkpoint (3%), adding simplified isolation rooms (3%), and a standardized patient transfer protocol (3%). Installation of fever screening stations outside of the hospital and implementing traffic control in the emergency department contributed to 70% of the effectiveness in the prevention of SARS transmission. Our approach can be applied to the evaluation of control measures for other epidemic infectious diseases, including swine flu and avian flu.

Yen, M-Y., et al. "**Taiwan's traffic control bundle and the elimination of nosocomial severe acute respiratory syndrome among healthcare workers**." *Journal of Hospital Infection* 77.4 (2011): 332-337. LINK

Abstract: The traffic control bundle consists of procedures designed to help prevent epidemic nosocomial infection. We retrospectively studied the serial infection control measures to determine factors most effective in preventing nosocomial infections of healthcare workers (HCWs) during the 2003 Taiwanese severe acute respiratory syndrome (SARS) epidemic. Fever screening stations, triage of fever patients, separating SARS patients from other patients, separation of entrances and passageways between patients and HCWs, and increasing hand-washing facilities all demonstrated a protective effect for HCWs (univariate analysis; $P < 0.05$). By multiple logistic regression: (i) checkpoint alcohol dispensers for glove-on hand rubbing between zones of risk, and (ii) fever screening at the fever screen station outside the emergency department, were the significant methods effectively minimising nosocomial SARS infection of HCWs ($P < 0.05$). The traffic control bundle should be implemented in future epidemics as a tool to achieve strict infection control measures.

Liu, C.-C., Chang, R.-E., & Chang, W.-C. (2004). **Limitations of Forehead Infrared Body Temperature Detection for Fever Screening for Severe Acute Respiratory Syndrome**. *Infection Control & Hospital Epidemiology*, *25*(12), 1109–1111. (publication not available publicly, PDF included with email)

Abstract: We investigated alternative measurement methodology for infrared body thermometry to increase accuracy for outdoor fever screening during the 2003 SARS epidemic. Our results indicate that the auditory meatus temperature is a superior alternative compared with the forehead body surface temperature due to its close approximation to the tympanic temperature.

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 Regional Health Authorities, the Departments of Health and Community Services and 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:

- 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
- Johns Hopkins
- MedRxiv
- National Institutes of Health (NIH)
- National Institute of Allergy and Infectious Diseases (NIAID)
- National Library of Medicine
- Public Health Agency of Canada
- Trip Database
- World Health Organization

This report was prepared by Pablo Navarro. For more information, contact pnavarro@mun.ca.