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METHODOLOGY

COVID-19 Surveillance Testing of Healthcare Personnel Drives Universal Masking Practice

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Abstract

Health Care Professionals (HCP) are at increased risk of COVID-19 infection due to the unpredictable clinical presentation of COVID-19 disease, limited SARS-CoV-2 testing, personal protective equipment (PPE) shortages, and the inherent inability to distance from patients. Infected HCP may infect others including coworkers leading to a simultaneous increase of number of infections and decreased availability of HCP in a community. [1] Due to PPE shortages, many healthcare systems have faced difficult decisions regarding utilization of PPE to protect HCP, patients, and the communities they serve. We describe Norton Healthcare's success utilizing surveillance COVID-19 testing of HCP to inform the decision to increase the use of PPE during a PPE shortage in the form of universal masking. Many healthcare systems could benefit from surveillance COVID-19 testing of HCP and universal masking of HCP.

Introduction

The COVID-19 pandemic has been challenging to contain across the world due to difficulty in clinically identifying contagious individuals, lack of access to testing, and the supply of personal protective equipment (PPE). COVID-19 disease varies in its clinical presentation ranging from asymptomatic carriers to severe illness. The mechanism of transmission is not well understood, and the duration of viral shedding can be long relative to other viruses. This lead to transmission occurring in many communities long before the first cases were identified. [2] Testing for COVID-19 is cumbersome due to the reliance on nasopharyngeal swabs, suboptimal sensitivity with frequent false negative results, [3] and is unreliable in access, quantity, and turnaround time in many communities. Hospitals were not uniformly stocked with sufficient PPE to meet the demands. This combination of factors potentiates the risk of COVID-19 spread in hospitals due to the inherent close contact required to provide inpatient care. PPE reduces the risk of COVID-19 transmission in hospitals, but limited supplies leads to difficult decisions for healthcare systems to determine how best to protect HCP and patients. The objective of this paper is to describe Norton Healthcare's use of COVID-19 testing to inform a PPE utilization strategy of universal masking during a pandemic with limited PPE.

Intervention

Norton Healthcare is a five (four adult, one pediatric) hospital, 1800+ licensed bed, community health system located in Louisville, Kentucky. The metropolitan area's first PCR test confirmed COVID-19 case was identified in our system on March 8, 2020. This first case did not demographically match risk factors outlined by the CDC as someone at high risk for COVID-19. Therefore, Norton Healthcare leadership assumed there had been community transmission of COVID-19 prior to March 8 that could have already affected HCP and patients. Our approach to identifying suspected inpatient COVID-19 cases was adjusted from applying CDC screening criteria to asking providers to initiate COVID-19 isolation and testing on any inpatient suspected to have COVID-19 infection without having to meet any pre-defined risk factors. By March 21, a suspected COVID-19 clinical

case assessment team comprised of our antimicrobial stewardship clinical pharmacists, a radiologist, and an infectious diseases specialist were reviewing each suspected case and tracking the number of COVID-19 suspects in each adult hospital daily (**Figure 1**). Meanwhile, the infection prevention department was performing contact tracing of exposed employees as new cases were identified and the employee health department was fielding calls from ill employees.

Each morning, a representative from the suspected COVID-19 case assessment team met with representatives from the infection prevention and employee health teams to discuss evolving trends across the health system. As illustrated by **Figure 1**, hospital A was quickly identified as an outlier in number of suspected COVID-19 cases relative to the other hospitals and anecdotally had more exposed HCP per contact tracing and ill employees calling employee health. Therefore, on the morning of March 26, the decision was made to offer surveillance PCR testing to asymptomatic HCP at hospital A on a volunteer basis.

One-hundred-one employees of varying job duties volunteered to be tested by nasopharyngeal/oropharyngeal swab for COVID-19 PCR. By March 29, results showed eleven of the 101 employees (10.9%) had tested positive. Employees who tested positive were furloughed until cleared by employee health to return to work. Data regarding the number of HCP identified as exposures in known contact tracings are not available at the time of this publication. Based on this information, a universal healthcare working masking practice (**Figure 2**) was implemented on March 30. Hospitals B, C, and D continued the baseline trend in suspected COVID-19 cases while the number of suspected COVID-19 cases at hospital A declined after the policy change on March 30.

Discussion

Most metropolitan areas in the United States and worldwide have struggled during the COVID-19 pandemic to adjudicate limited PPE and testing resources between hospitalized patients, healthcare workers, and members of the community. Norton Healthcare had the benefit of greater testing capacity earlier than most health care systems and was able to utilize these tests to inform the difficult decision to increase PPE utilization in our successful effort to "bend the curve" of suspected COVID-19 cases at one of our hospitals. The decision to implement a universal masking practice was challenging. While asymptomatic and pre-symptomatic transmission of SARS-CoV-2 has been described, there must be a balance between use of PPE now and the risk of inadequate PPE later as supply chain is not guaranteed. [4] In this case, employee testing allowed Norton Healthcare to make the decision to implement a universal masking practice based on data. The universal masking practice of HCP was effective and has since been recommended by the CDC as of April 13, 2020. [5]

Transmission control of a pandemic respiratory virus requires interventions at both the community and institution level. At the community level, there were many strategies implemented by the Kentucky Governor including closing public schools on March 16, ordering all elective surgeries to cease on March 18, and all nonessential retail business to close on March 23. In addition to the universal masking practice, Norton Healthcare carried out other local interventions including visitation policy limiting visitors on March 21 (**Figure 3**). All businesses, including healthcare organizations, should develop local interventions to mitigate SARS-CoV-2 transmission. Waiting on guidance from national organizations can put healthcare systems behind. During a pandemic, a period of a week could be the difference between normal operations and running out of ventilators.

In conclusions, the authors suggest that whenever possible, universal masking of HCP should be the policy of all acute and long-term care facilities during the COVID-19 pandemic. In addition, surveillance COVID-19 testing of HCP should be prioritized in hospitals and nursing homes facilities despite limited testing capacity.

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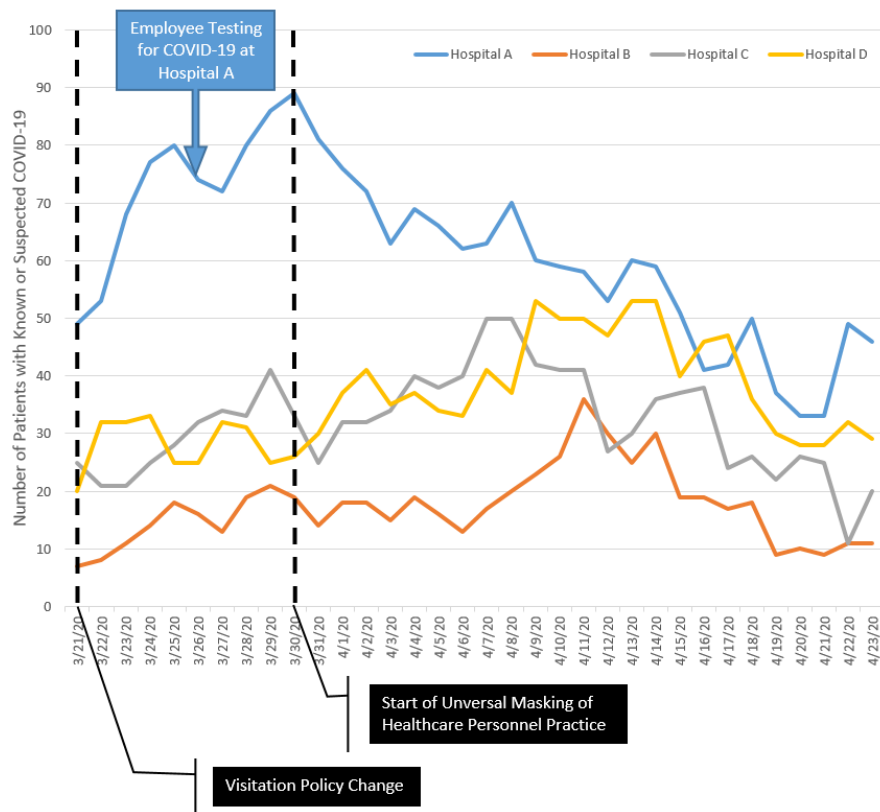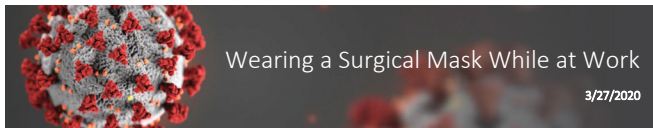**Figure 1.** Trend of inpatients with known or suspected COVID-19 infection by hospital.

Wearing a Surgical Mask While at Work

3/27/2020

Guidelines to Wear a Surgical Mask while at a Medical Facility

Norton Healthcare is asking all staff to wear a surgical mask when at work. This is commonly referred to as a universal masking process. The universal masking policy requires all personnel (clinical or otherwise) to wear some type of face mask when working in the medical facilities, which reduces the risk of transmission. This mask policy helps protect our staff and patients. You will be provided with a personal surgical mask upon arrival to work. Place this over your nose and mouth and leave in place (cannot drop below nose or chin).

For staff in a PATIENT CARE role

- When caring for any patient, not in COVID isolation, the personal surgical mask, issued at the beginning of your shift, can be worn room to room and may be worn when accessing supplies, med room, patient care and common areas such as the nursing station, lounge, etc.
- When caring for your patients, order of care should be: no isolation, contact/contact plus isolation and finally, COVID patients
- When caring for COVID (suspect or confirmed) patients staff will:
  - Remove your personal surgical mask, fold inside to inside and place in a paper bag labeled with your name. Perform hand hygiene.
  - Don appropriate PPE to care for COVID patients using your extended wear practice. Select either an N95 for appropriate procedures or surgical mask. Eye protection should be worn for both types of masks.
    - The mask and eye protection is worn between patient rooms.
    - Gown and gloves must be changed between patient rooms
  - Once care of COVID patients is complete, remove all PPE. Discard the surgical mask or follow your facility reuse process for the N95. Clean and store eye protection per your department/unit policy. Perform hand hygiene.
  - Obtain your personal surgical mask from your bag, don and discard bag. Perform hand hygiene.
  - Repeat this process throughout your shift
- Discard and obtain a new mask whenever the mask becomes:
  - visibly soiled
  - wet or damp either inside, outside or both
  - removed from nose, mouth or both (i.e. it cannot be placed under chin or untied and dropped to chest).
  - torn in any way
  - unable to be kept in place over nose and mouth for any reason
- If the mask is touched at any time while wearing it, hand hygiene must be performed immediately after doing so.
- When taking a break to eat or drink, remove the mask, fold it in half (inside to inside) and place in a paper bag labeled with your name. Perform hand hygiene before eating or drinking.
- To put the mask on again, tear the paper bag open and open your personal surgical mask using the ear loops. Assess for damage, visible dirt/makeup, or moisture and if found, discard the mask and obtain a new one from your supervisor. If the mask has no visible concerns, place mask on face, discard the paper bag and perform hand hygiene

For staff in a NON-PATIENT CARE role

- Following the universal masking process: the personal surgical mask will be obtained when entering the building, put on and left in place (cannot drop below nose or chin).

March 29, 2020

- Your personal surgical mask must be worn across the nose and mouth at all times. If you touch the mask during wear, hand hygiene must be performed immediately after contact with the mask
- If your remove your personal surgical mask from your face, fold it in half (inside to inside) and place in a paper bag labeled with your name.
- To put your personal surgical mask on again, tear the bag and open your personal surgical mask using the ear loops. Assess for damage, visible dirt/makeup, or moisture and if found, discard the mask and obtain a new one from your supervisor. If your personal surgical mask has no visible concerns, place mask on face, discard the paper bag and perform hand hygiene

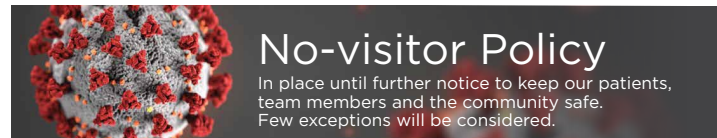**For staff that are SCREENING/CHECKING TEMPERATURES at entrances**

- Your personal surgical mask will be obtained when entering the building, place the mask over your nose and mouth and leave in place (cannot drop below nose or chin).
- Eye protection is issued by your supervisor for individuals checking temperatures
- The personal surgical mask must be worn across the nose and mouth at all times. If you touch the mask during wear, hand hygiene must be performed immediately after contact with the mask
- When removing your personal surgical mask, fold it in half (inside to inside) & place in a paper bag labeled with name. Perform hand hygiene
- To put your personal surgical mask on again, tear the bag and open your personal surgical mask using the ear loops. Assess for damage, visible dirt/makeup, or moisture and if found, discard this personal surgical mask and obtain a new one from your supervisor. If the mask has no visible concerns, place mask on face, discard the paper bag and perform hand hygiene

Mask should be worn at all times except for eating and drinking

Discard the mask at the end of your shift and perform hand hygiene

• NORTON CLINICAL COMMAND CENTER APPROVED •

March 29, 2020

Figure 2. Norton Healthcare guidelines to wear a surgical mask while at a medical facility.

No-visitor Policy
In place until further notice to keep our patients, team members and the community safe. Few exceptions will be considered.

Important changes at Norton Healthcare

The health and safety of our patients, providers and employees are our top priority. Thank you for your cooperation and understanding during this challenging time as we work to keep our team members and community healthy.

No-visitor policy

To keep our patients and team members safe, we now have a no-visitor policy with few exceptions until further notice. This is a proactive measure to reduce the spread of COVID-19. All Norton Healthcare hospitals, doctors' offices and medical centers are following this policy.

Some exceptions include:

- In-person discharge instructions for inpatients or urgent/emergency procedures (*one visitor*)
- Patients who are physically or cognitively impaired (*one visitor*)
- Patients at the end of life (*two visitors*)
- Pediatric patients,* including NICU (*two visitors*)
- Pediatric patients* who are pending or positive for COVID-19 (*one visitor*). The visitor must not have COVID-19.
- Maternity patients: *One partner* and *one birth support person* if applicable (midwife/doula)

*Pediatric patients are children ages 17 and younger.

Clergy: We welcome clergy for patients in palliative care, emergency care and hospice care.

Important information for all visitors

- When visiting, we ask all guests to wash their hands with soap and water for 20 seconds when entering and leaving patient rooms.
- All visitors will be screened upon entering the hospital. Those with fever, cough, shortness of breath, runny nose, body aches or respiratory symptoms should stay home.
- Any visitor granted an exception must stay in the patient's room the entire time of the visit. Once the visitor leaves the patient's room, they must leave the hospital.

In addition:

Doctors' offices and outpatient medical centers

- Adult patients cannot be accompanied into their appointment.
- If a patient needs additional support, they should let their provider know prior to their appointment.
- All patients will complete a health screening prior to their appointment.
- Pediatric patients can have one parent or guardian in the exam room.

Elective surgeries and outpatient appointments

- We are limiting surgeries to urgent and emergency situations only.
- Outpatient appointments may be done via Norton eCare video visit or over the phone, or they may be rescheduled.
- Your provider's office will contact you if there is a change to your scheduled appointment, surgery or procedure.

Thank you for your cooperation and understanding. Please contact your provider if you have any questions.

For more information about COVID-19, visit the Kentucky Department for Public Health's website at **KYCOVID19.KY.gov**.

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Figure 3. Norton Healthcare modified visitation policy.