COVID-19:
Experiences from the Front Line
April 8, 2020

Environmental and Occupational Health Sciences (EOHS) Noon Seminar –
Great Lakes Center for Occupational Health and Safety

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Margaret Sietsema, PhD – Assistant Professor EOHS| Industrial Hygienist
Agenda

1. Introduction and COVID-19 Pandemic Review
2. UIH Approach to Evaluating and Protecting HCWs (Dr. Scott)
3. Corporate Approaches to Employee Health & Safety (Dr. Buchanan)
4. Roles of Masks vs. Respirators (Dr. Sietsema)
5. Q & A session
Brief Timeline of COVID-19

- **Late Dec. 2019** – First clusters of “pneumonia of unknown etiology” in Wuhan, Hubei, China
- **Jan 1, 2020** – Huanan seafood market closed
- **Jan 7** – novel coronavirus identified (2019-nCov)
- **Jan 13** – Thailand reports first case outside China
- **Jan 21** – **U.S. reports first confirmed case (Washington state)**
- **Jan 21** – WHO released first situation report
- **Jan 23** – Wuhan quarantined; shortly later Hubei also
- **Jan 30** – “Public Health Emergency of International Concern” by WHO
- **Feb 29** – First U.S. COVID-19 death
- **Mar 11** – “Pandemic” by WHO
- **Mar 13** – U.S. declared national emergency
- **Mar 26** – **U.S. becomes country with highest confirmed cases**
- **Mar 28** – First U.S. infant COVID-19 death is in Cook County
COVID-19 Modeling Projection

As of 4/7/2020

UI Health’s Approach to Protecting Healthcare Workers (HCWs)

Section Agenda
1. Introduction to UI Health employee health services (UHS)
2. Evolution of UHS Screening and Monitoring
3. Recent Milestones of UHS Response
4. Recent Actions at UIH for Protecting HCWs

Disclosures
• I have no conflicts of interest or financial disclosures.
• The views, opinions, and statements expressed in this presentation and discussion are my own and do not necessarily reflect the views, opinions, or policy stance of UIC and/or UIH.
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University Health Services (UHS) at UIH – “The Employee Health Clinic”

• Provides occupational health services for the UIH and UIC employees, volunteers, and students

• The UHS mission is to promote the health of the employee, volunteer, or student throughout their work at the university.

• UHS **partners with multiple university departments** to **develop and coordinate health surveillance** and disability programs to comply with regulatory agencies.

UHS Initial COVID-19 Employee Screening Form

• Mid-Jan. 2020

• Screening emphasized:
  1. Travel to China, particularly Wuhan
  2. Close contact with PUI or confirmed case

• Assessed threat of spread to campus

• Consulted Infectious Disease
Evolution of UHS Screening and Monitoring

- Symptom Tracking
- Travel Risk Algorithm
- COVID-19 Specific Intake Screen
- Monitoring Attestation
- Algorithms for (+) Patient and (+) Employee

- Recent Travel History at Intake
- All Details About Recent Travel
- Add Occupational Exposure Screening
- Broaden China Travel Questions
- COVID-19 specific phone message
<table>
<thead>
<tr>
<th>Started with Paper-based Documentation</th>
<th><strong>Advantages</strong></th>
<th><strong>Disadvantages</strong></th>
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<tr>
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<td>• Developed quickly (vs. EMR)</td>
<td>• Added extra steps on back-end (vs. EMR)</td>
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<tr>
<td></td>
<td>• Dedicated pink paper</td>
<td>• Colored paper may be visually convenient, but it <strong>may hinder computer-based review</strong> when scanned.</td>
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Returning a COVID-19 (+) HCW to Work

≥ 7 DAYS AFTER SYMPTOMS BEGAN

NO FEVER FOR 72 HOURS

IMPROVING SYMPTOMS

Instruct to wear face mask through 14 days from symptom onset

Recent Milestones in UHS Response

- Computerization & Automation
- Increased Staffing
- Expansion of Testing
Computerization & Automation

Exposure Screening
Symptom Tracking
Integrate Test Results

Future Steps
- Send Work Status Report
- Send Contact Tracing Alerts

https://www.project-redcap.org
Increased UHS Staffing and Capabilities

- Volunteers
- Reassigned HCWs
- Emergency Labor Pool
- Remote Screening
- Virtual Staffing
Expansion of Testing

- In-house COVID-19 Test
- Dedicated UHS testing staff
- Assign UHS appointments
- Drive-thru location option
- Expedite testing if indicated
Recent Actions at UIH for Protecting HCWs

- Universal Masking
- Temperature Screening
- High-Risk Employee Monitoring
- Rooming Resources
- Emotional Support Line
- Future Discussions on N95
Corporate approaches to the COVID-19 pandemic

Susan Buchanan, MD, MPH
April 8, 2020
OCCUPATIONAL AND ENVIRONMENTAL MEDICINE

OCCUPATIONAL MEDICINE SERVICES FOR INDUSTRY
We provide specialized physician and nursing services to corporations in the Chicago area. We understand Workers' Compensation, OSHA requirements, and are dedicated to rapid return to work of injured employees.

OCCUPATIONAL & ENVIRONMENTAL MEDICINE CONSULTATIONS
We provide evaluation, diagnosis and management of occupational and environmental injuries and diseases, such as asthma, allergies, arthritic/cancer, carpal tunnel syndrome, and low back pain. We specialize in identifying the cause of the conditions for medico-legal purposes and prevention.

WORKERS’ COMPENSATION
We provide work-related healthcare for Illinois workers and are the experts in occupational health and safety. Our clients include numerous public and private-sector employees. Real-time scheduling now available for Workers’ Compensation Claim.

MEDICAL ADVISORY:
Our team of certified faculty physicians provide a flexible, cost-effective solution for meeting corporate medical needs. Our corporate partners enjoy the confidential, individualized service of a single physician with the backup of our entire group.

WORKPLACE MEDICAL SURVEILLANCE AND SCREENING
We provide an array of routine medical testing and OSHA mandated examinations for employees working with hazardous materials or working in industrial environments.

INDEPENDENT MEDICAL EVALUATIONS
We provide independent medical evaluations/examinations regarding injury causation, disability, capacity, future medical needs among others.

PHYSICAL EXAMINATION AND MEDICAL EVALUATIONS FOR EMPLOYERS AND EMPLOYEES
We provide commercial driver’s (CDL) examinations, fitness for duty physicals, return to work physicals, as well as post-offer/pre-employment exams.

DRUG TESTING AND MEDICAL REVIEW OFFICER SERVICES
We offer both DOT (regulated) and unregulated drug and alcohol test collection and screening services as well as medical review office (MRO) services.

TRAVELER HEALTH SERVICES AND VACCINATIONS
Same-day and post-travel advice, vaccination, and medical assessment is offered to meet all US or international requirements. We also provide employer related vaccination services and employer onsite vaccination services.

HEALTH IN THE ARTS
Our medical specialists address the special risk that performance artists face from exposure to toxic materials and hazardous physical conditions to injuries and repetitive motions disorders.

UI HEALTH SERVICES
UI Health Services provides occupational health services for the University of Illinois Hospital & Health Sciences System and University of Illinois employees, retirees, and students. Contact us for more information on our services.

• Abbott
• Baxter
• Cook County
• United Steelworkers Union
• Teamsters Union
• UNITE HERE Hotel Workers Union
January 2020 – first cases in Wuhan, China

Corporate EHS response:

• Follow WHO and CDC websites and reports, International SOS

January 29 - Anyone returning from China should work from home for 14 days
February 2020

- 2/10 – guidance for management of exposed workers
- 2/14 – site communication re: contact tracing and personal thermometer distribution – Europe and Asia
- 2/20 - Travelers from Asia Pacific countries, especially those from heavily impacted countries should work from home for 14 days
- 2/25 – Are shipments of goods by trucks that may pass through a zone with active COVID-19 contaminated?
February 2020

• 2/27 – Should we develop restrictions related to pregnant women or people with other medical conditions working in the field?

• 2/28 – Developed communication to:
  • the manager and coworkers of positive case
  • site managers if approached by the local media

• 2/29 – Who should receive masks?
  • Those living in areas where required to get to and from work
  • Occupational Health and emergency responders
  • Staff that may have to work in clinical areas where exposure is likely
March 2020

- 3/1 - Employees who have been to Italy on holiday or business should go into 14 days home quarantine.

- 3/2 - What are the restrictions for corporate travel?
  - Travel in or out of China, Hong Kong, Macau, Japan, Singapore, Italy and South Korea is restricted unless it’s absolutely business critical. **Travel to or from any of these locations needs Corporate Officer approval.**

- 3/2 - What to do if an employee has a family member living in the home who has visited a restricted location?
March 2020

• 3/4 – Corporate employee from hot spot country travels to US, returns to hot spot country and becomes ill. **How to manage:**
  • US colleagues with close contact: 2
  • US colleagues in contact in same room: 16
  • US colleagues that used the same toilets/ kitchen/ had occasional chats with visitor in the corridor: 14

• “Can you help and let the visiting colleague be tested?”

• 3/4 - Only business-critical visitors are allowed at our facilities, and all visitors must answer the questionnaire about potential contact with infected individuals
March 2020

• 3/4 - Employee in European warehouse whose girlfriend is working as a nurse, she feels ill and is waiting on testing.
  • How should we manage employee?
  • Can the other warehouse workers continue working?

• 3/4 - Employee in northern Europe is not ill but has been in contact with multiple friends that have been in Northern Italy.
  • Can this employee continue working?

• 3/10 – Reviewed US OSHA COVID-19 guidance document:
  • risk categories for workers
  • engineering controls, administrative controls
March 2020

• 3/10 - Swiss government is not applying the 14 days rule anymore. Will our company continue with the 14 days rule?

• 3/10 – Should we quarantine workers who are household contacts of people with direct contact?

• 3/10 – Should we quarantine workers over 60 yo?

• 3/11 – Should we quarantine “suspected” cases?
  • Based on this, if a person presents with a cough/fever in a hot spot country for example (as there is local transmission), similar to common cold, are we saying they are suspect case and as such must quarantine and be tested?
March 2020

• 3/16 - If you travel to a hot spot location, you should remain at home in quarantine for a 14-day period after returning. The same 14-day quarantine period should also be observed if you have a family member living in your home that has visited a restricted location.

• 3/12 - Is pregnancy a risk factor for severe illness? Increased risk seen in SARS and flu, pregnancy should be considered an at-risk population for COVID-19

• 3/11 – A company nearby is setting up a tent outside their entrance to do temp screens, should we be doing that?
What about this test?
March 2020

- 3/19 - As you probably know, the CDC is now saying that for people with COVID-19 and quarantined that if they have been in quarantine for at least 7 days and have been symptom free with no suppressants for at least 72 hours they can be released from quarantine.
  - Can we say the same for workers that have shown symptoms but not been tested / confirmed to contain COVID-19 that we have either recommended self-quarantine or they voluntarily self-quarantined?
  - Do we have to wait the full 7 days for those or can we say they can be released after 72 hours symptom free if they’ve had no other highly suspect exposure?

- 3/20 - According to new guidelines for rationing of tests ... if a person does not meet the criteria for testing but rules out for flu A&B, strep, and no preexisting conditions, but has sx consistent with Covid-19, they are presumed positive and we are to treat them as such ... Correct?
March-April 2020

• 3/21 - In areas where we can’t assure a social distance, should we have these workers in surgical masks in locations where there is community spread?

• 3/21 - Create a plan to test all workers with rapid test

• 3/28- At what point should we close a plant?
  • Based on number of COVID-19 cases
  • In Germany a company closed their plant when one worker became infected
  • Health of individual workers vs. public health
  • Criticality of work product

• 4/3 – We want to test all workers at one of our US plants, make it happen (get a medical license in that state)
Documents developed

• GOHS Guidance Document for Novel Coronavirus (2019-nCoV) – General Use
• Guidelines for Employees Who Have Had Close Contact with a Person with Probable or Confirmed Case of Novel Coronavirus (2019-nCoV)
• Guidance for Person Responsible for Tracking and Reporting Potential or Confirmed Novel Coronavirus (COVID-19) Activity
• Guidance for Worker Quarantine and Return to Work 2019 Novel Coronavirus (COVID-19)
• Decision Support for Potentially Exposed Family Member’s Personal Travel
• Travel Matrix
• Point of Entry Screening Tool
• Guidance for Monitoring and Quarantine Novel Coronavirus (COVID-19) Decision Summary
• COVID-19 Case Management Guidelines
Masks and Respirators: What to Wear When

Dr. Margaret Sietsema

April 8, 2020

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Let’s talk about routes of Transmission

• Contact –
  • Direct – when you touch someone who is sick
  • Indirect – when you touch something that someone who is sick touched (or coughed on)

• Droplet –
  • respiratory droplets carrying infectious pathogens [that] transmit infection when they travel directly from the respiratory tract of the infectious individual to susceptible mucosal surfaces of the recipient, generally over short distances (>5µm)

• Airborne –
  • dissemination of either airborne droplet nuclei or small particles in the respirable size range containing infectious agents that remain infective over time and distance (<5µm)
CDC Routes of Transmission of Coronavirus

Person-to-person spread

The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs, sneezes or talks.
- These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.
- Some recent studies have suggested that COVID-19 may be spread by people who are not showing symptoms.
- Maintaining good social distance (about 6 feet) is very important in preventing the spread of COVID-19.

Spread from contact with contaminated surfaces or objects

It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes. This is not thought to be the main way the virus spreads, but we are still learning more about this virus. CDC recommends people practice frequent “hand hygiene,” which is either washing hands with soap or water or using an alcohol-based hand rub. CDC also recommends routine cleaning of frequently touched surfaces.
Aerosol Transmission – Suspension of different sized particles in the air all of which might be infectious.

Violent Sneeze

Initial peak velocity – up to 100 m/s

Up to $2 \times 10^6$ droplets in a single sneeze
Figure 3. After more time (time = 2), the small particles are uniformly dispersed and more of the larger particles have settled from the air. Persons B and C will **inhale** particles that are generally smaller, have a smaller size range, and are at a lower concentration than at time = 0.

At time = 2, the aerosol is dispersed, and many larger particles have deposited on the floor. Persons B and C inhale particles.
### Understanding the Difference

<table>
<thead>
<tr>
<th>Cloth Face Cover</th>
<th>Surgical Mask</th>
<th>N95 Respirator</th>
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<tbody>
<tr>
<td>Can be homemade and washed</td>
<td>One time use</td>
<td>Single use</td>
</tr>
<tr>
<td>May remind you not to touch your face</td>
<td>Some evidence that it reduces the release of potential contaminants from the user into their immediate environment.</td>
<td>Filter is certified</td>
</tr>
<tr>
<td>May cause you to touch your face more</td>
<td>Protects from large droplets, sprays and splashes of bodily fluids from hitting your mucus membranes</td>
<td>Fit testing required</td>
</tr>
<tr>
<td>Does not provide protection to wearer.</td>
<td>Some are approved by FDA</td>
<td>used in work settings not for general public</td>
</tr>
<tr>
<td></td>
<td>- Reduces exposure to particles including small particle aerosols and large droplets (all non-oil aerosols)</td>
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Collection Efficiency of the Respiratory System

Nose collects 10-100 μm particles

Lungs collect 0.01-10 μm particles

Alveoli collect 0.01-0.1 μm particles

Source Control -
“What I wear to protect society”

• Homemade Cloth Mask?
  - First tried in 1918 flu with no reduction in transmission of cases.
  - If you are symptomatic this may be beneficial
  - You will cough or sneeze forcing many particles through the filter
  - Small particles will still travel straight through or around the filter

• Surgical Mask?
  – Same as cloth mask but slightly better. Some evidence in disease reduction
  - If you are symptomatic this may be beneficial for same reasons as above

• Respirator?
  - Unless it is properly fitted may not provide good source control
Receptor Control

“What I wear to protect myself”

• Homemade Cloth Mask?
  - Will not protect you from inhaling infectious disease particles
  - Small particles will still travel straight through or around the filter

• Surgical Mask?
  - MAY be better than nothing. Depends on mask and how it is worn.
  - Most particles will go around mask
  - SHOULD BE SAVED FOR HEALTHCARE

• Respirator?
  - Can protect you, IF properly sealed and fitted
  - SHOULD BE SAVED FOR HEALTHCARE
But CDC says everyone should wear a mask

• CDC says they should do this to prevent asymptomatic transmission
• CDC cites 6 references that all have to do with asymptomatic transmission occurring.
• CDC does not provide any evidence that wearing masks will reduce transmission from asymptomatic transmission.
But everyone in Asia wears a mask and infection rates are going down there.

• They also making drastic measures in community
• Conducted extensive testing
• Conducted extensive screening measures – Temperatures were taken everywhere.
• Contact tracing was very thorough
• Isolation of known or suspected cases
Best way to protect society and yourself?

Stay Home = Save Lives

https://twitter.com/i/status/1244762897743351808

- Do not go to store to “pick up 1 thing”
- Plan ahead
- My family has a small challenge – how long can you go before you need to go out?