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An update on COVID-19

University of Illinois at Chicago
School of Public Health
Division of Epidemiology and Biostatistics
Mark S. Dworkin, MD, MPH & TM
Professor
Associate Director of Epidemiology
Division of Epidemiology and Biostatistics
UIC School of Public Health
mdworkin@uic.edu
Outline

• UIC SPH COVID-related activities
• Background on COVID-19
• Update on global and US data
• Questions Some Are Asking
• Hopeful News and Advice
• Q and A
How UIC SPH Leads the Way

UIC School of Public Health is the only accredited school of public health in Illinois.

The school is leading the way during this pandemic by:

• **Providing assistance to the Illinois Department of Public Health** on the department's response through an intergovernmental agreement;
• Creating an **epidemiological model to track pediatric cases** of COVID-19 in Chicago;
• Occupational Health Services Institute is **consulting on preparations for and mitigation of COVID-19 with major organizations and companies** including: Abbott, Baxter, Cook County Health, United Steelworkers Union, among others;
• **Using biostatistical modeling** to estimate the number of COVID-19 cases in Chicago, Cook County and the State of Illinois, and the number of tests needed daily to keep pace with the infection rate.

There are other Coronaviruses

- Infect humans and animals (cattle, camels, bats and other animals)
- In humans, they cause illnesses as mild as a common cold
Coronaviruses owe their name to the crown-like projections.
A Multi-Country Coronavirus Outbreak is Not New

- SARS
- MERS
SARS-CoV:
When the Genie First Escaped the Bottle

SARS-CoV
- Severe acute respiratory syndrome – possibly bat origin

2003, 8422 cases, beginning in China and spreading to 28 countries

The case fatality rate (CFR) ranged from 0% to 50%
- Fatality was lowest in the young and highest in those 65 and older

Successful control measures – Returning the Genie to the bottle!
- Isolation, contact tracing, quarantine
MERS-CoV

MERS-CoV

• Middle East respiratory syndrome (MERS).
• A species of coronavirus that infects humans, bats, and camels

2012, 2000 cases, began in Saudi Arabia and spread to 21 countries

The case fatality rate (CFR) $\approx 34\%$

Successful control measures - isolation, contact tracing, and quarantine
COVID-19 Coronavirus Outbreak
April 22, 2020

Worldwide
• Cases: 2,598,322
• 210 countries
• Deaths: 181,355

United States
• Cases 831,283
• 50 states and > 4 territories
• Deaths 46,013
Illinois Daily Number of Reported COVID-19 Cases, March – April to date, 3-day Moving Average
Can Mailed Packages Transfer The COVID-19 Virus?

Coronaviruses are generally thought to be spread most often by respiratory droplets. Currently there is no evidence to support transmission of COVID-19 associated with imported goods and there have not been any cases of COVID-19 in the United States associated with imported goods.

**Risk level:** Theoretical only.
Will Warm Weather Stop This Outbreak?

- Unknown

- Some other viruses, like the common cold and flu, spread more during cold weather months

- However, disease is being reported from India (>8000) and other tropical countries where current temperature highs are 100F
Can My House Pet Get The COVID-19 Virus And Give It To Me?

According to CDC at this point there is no evidence that companion animals, including pets, are spreading COVID-19. Risk level: Theoretical only. Action: If ill, avoid the pet if you live with others.
Who Should Wear a Mask?

- If you have respiratory symptoms
- If you are providing care to individuals with respiratory symptoms
- If you are a healthcare worker
- If you will be among people where you cannot guarantee social distancing
Why are some cities or regions experiencing a worse outbreak than other places?

Many factors can influence the impact of COVID-19

- How long ago COVID-19 was introduced to the area
- Population density
- Age distribution
- Prevalence of underlying medical conditions among COVID-19 patients
- The timing and extent of community mitigation measures
- Diagnostic testing capacity
- Public health reporting practices
If I have COVID-19, when can I get out of isolation?

• **Interim CDC Guidance recommends:**
  
  • If you were sick
    • Wait at least 3 days since the fever resolved (w/out fever reducing agents)
    • Respiratory symptoms have improved and
    • It is at least 7 days since symptoms first appeared
    • OR – If you have 2 negative COVID-19 tests at least 2 days apart
  
  • If you were NOT sick but tested positive
    • Wait 7 days since the tested positive and
    • No symptoms have developed and
    • Wear a mouth covering (mask/bandana) and social distance 6 feet for 3 more days
Basic Protective Measures Against The COVID-19

Wash your hands frequently
• Regularly and thoroughly
• Use alcohol-based hand rub or wash them with soap and water

Maintain social distancing
• 6 feet (CDC)

Avoid touching eyes, nose and mouth
• 2015 observational study, described college students touch their face with their own hands on average 23 times per hour.

Respiratory hygiene
• Covering your mouth and nose with your bent elbow or tissue when you cough or sneeze
Can Someone Spread The Virus Without Being Sick?

Yes: although symptoms often appear 2-14 days after exposure and that is when they are most contagious, transmission might occur a few days before the illness begins.
Just How Contagious Is COVID?

• A report of an outbreak among restaurant diners from China gives us an example to consider.

• 3 unrelated families were having lunch at a restaurant at the same time.

• 1 person at one of the tables developed symptoms later that day but was not coughing when dining.

• This person, 4 others at her table, 3 people at a nearby table, and 2 people at another nearby table were all diagnosed with COVID-19 in less than 2 weeks.
Tables in this air-conditioned restaurant were 3 feet apart.
Persistence Of Coronavirus On Inanimate Surfaces

• Remains infectious from 2 hours up to 9 days, depending on the surface material
• Persists for more days at lower temperatures
• Persistence also longer if more of the virus contaminates the surface
• High humidity probably allows the virus to survive longer
  • We might lower the virus’ survival indoors by lowering humidity
<table>
<thead>
<tr>
<th>Type of surface</th>
<th>Virus</th>
<th>Strain isolate</th>
<th>Inoculum (viral titer)</th>
<th>Temperature</th>
<th>Persistence</th>
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<tbody>
<tr>
<td>Steel</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>$10^3$</td>
<td>21°C</td>
<td>5 days</td>
</tr>
<tr>
<td>Aluminum</td>
<td>HCoV</td>
<td>Strains 229E and OC43</td>
<td>$5 \times 10^3$</td>
<td>21°C</td>
<td>1–8 hours</td>
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<td>Glass</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>$10^3$</td>
<td>21°C</td>
<td>5 days</td>
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<tr>
<td>Plastic</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>$10^7$</td>
<td>Room temp</td>
<td>2-6 days</td>
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<tr>
<td>PVC</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>$10^3$</td>
<td>21°C</td>
<td>5 days</td>
</tr>
<tr>
<td>Surgical glove</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>$5 \times 10^3$</td>
<td>21°C</td>
<td>$\leq$ 8 hours</td>
</tr>
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<td>(latex)</td>
<td></td>
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<td></td>
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<tr>
<td>Ceramic</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>$10^3$</td>
<td>21°C</td>
<td>5 days</td>
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<tr>
<td>Biocidal agent</td>
<td>Concentration</td>
<td>Virus</td>
<td>Strain / isolate</td>
<td>Volume / material</td>
<td>Organic load</td>
</tr>
<tr>
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<tr>
<td>Ethanol (rubbing alcohol)</td>
<td>6 / $</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>20 μl / stainless steel</td>
<td>5% serum</td>
</tr>
<tr>
<td>Benzalkonium chloride</td>
<td>/ - / 3 $</td>
<td>HCoV</td>
<td>Strain 229E</td>
<td>20 μl / stainless steel</td>
<td>5% serum</td>
</tr>
<tr>
<td>Sodium hypochlorite (commonly known as liquid bleach)</td>
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<td>HCoV</td>
<td>Strain 229E</td>
<td>20 μl / stainless steel</td>
<td>5% serum</td>
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<tr>
<td>Sodium hypochlorite</td>
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<td>HCoV</td>
<td>Strain 229E</td>
<td>20 μl / stainless steel</td>
<td>5% serum</td>
</tr>
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<td>Glutardialdehyde (sold under the brand Cid)</td>
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<td>HCoV</td>
<td>Strain 229E</td>
<td>20 μl / stainless steel</td>
<td>5% serum</td>
</tr>
</tbody>
</table>
Immediately Report to Your Local Health Department...

- Cases or clusters you learn about in any congregate living facility including long-term care, jail/prisons, group homes, and homeless shelters
Where Are We Going?

As case counts decline, policies on re-opening the economy and living a “new normal” will be guided by several factors:

- Ability to determine **who has COVID** and needs isolation
- Ability to **identify close contacts** who need monitoring and maybe quarantine
- Ability to determine **who is immune** (past infection)
- **Regional burden** of disease
- **Public compliance** with prevention measures
What Might A “New Normal” Look Like

Until we get an effective safe vaccine:

• Continue social distancing for highest risk persons based on mortality risk factors
  • Elderly
  • Diabetes
  • Hypertension, and other conditions

• Open businesses in stages with modifications
  • Fever and symptoms screening
  • Masks for all when near others
  • Enhanced access to hand hygiene
  • Spacing out (restaurants, theaters, stadiums)
  • Disposable (paper) menus
  • Many in person meetings will continue to be held online
  • Airplanes may reduce seats available and enhance airflow
Hopeful News

• A Japanese drug may be effective at treating COVID-19
• *Favipirivir* (Avigan)
• Preliminary data suggests most useful to treat disease *early*, before becoming critically ill
• X-rays improved in about 91% of the patients who were treated versus in 62% in those not treated
• A US small clinical trial will begin in Massachusetts
This Is Temporary!

• This is all Temporary. The worst is probably occurring now.
• Our knowledge about this virus is improving every week.
• We need to be patient with those who are trying to provide guidance in the setting of something historically new. Guidance will change.
• Beware letting fear, discomfort, and exhaustion with this situation allow you to justify dismissing good advice or exercising reasoned judgement.
• Most people who have gotten the disease have or will recover and probably have some protection going forward.
Stress and Anxiety During Social Distancing

• Some of us are alone, keeping the TV or phone screen active all day.
• Some of us are living with children who are restless and bored.
• Some of us are living with adolescents or college students who are in conflict with their parents as we spend more time together than ever before.
• Some of us are trying to work in a home environment with distractions from others.
• Some of us are leaving the house every day to perform essential services like healthcare or grocery store work – concerned for our risk to ourselves and others.
• Most of us are watching television and hearing bad news every day.
Remember This Is Temporary

• We will get through this
• Treatment studies will help the sick
• A vaccine will be tested
• Expect another wave of cases at some point – don’t be surprised – plan for it!
• Check on your neighbors
• Make use of technology to use your support systems (friends, family, or faith-based organizations)
• One day at a time
Acknowledgments

Sinan Almukhtar, MBBS, MPH
For more information, please visit the links below or Google search the references:

- Centers for Disease Control and Prevention (CDC)

- Frequently asked questions and answers about COVID-19

- Morbidity and Mortality Weekly Report (MMWR)
  www.cdc.gov/mmwr/Novel_Coronavirus_Reports.html

- World Health Organization (WHO)

- Emergency Responders: Tips for taking care of yourself
  emergency.cdc.gov/coping/responders.asp

- Coronavirus (COVID-19) across the world
  github.com/CSSEGISandData/COVID-19

- Johns Hopkins COVID19 resource center
  coronavirus.jhu.edu/map.html

- New England Journal of Medicine March 17, 2020
  Correspondence DOI: 10.1056/NEJMc2004973


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