Goal of Webinar:
To provide meaningful insight to the individuals and the employer community on the intersection of COVID and Flu Season 2020

Notes:
• Event is being recorded
• Everyone is muted
• Participate in the Poll
• Submit questions via Q&A function
Infectious Disease Expert

Dr. Cliff Dacso, MD, MPH, MBA
Baylor College of Medicine
Influenza in the World Of COVID-19

Clifford C. Dacso, MD, MPH, MBA
Philip J. Carroll, Jr. Professor of Translational Molecular and Cellular Biology Professor of Medicine
“In the future, everyone will be world famous for 15 minutes”.
-- Andy Warhol

In the future, each person will be trending on Twitter or Facebook for 15 minutes.
Review of Last Semester
On a hyperconnected planet rife with hyperinfectious diseases, experts warn we aren't ready to keep America—and the world—safe from the next pandemic.

Across China, the virus that could spark the next pandemic is already circulating. It's a bird flu called H7N9, and true to its name, it mostly infects poultry. Lately, however, it's started jumping from chickens to humans more readily—bad news, because the virus is a killer. During a recent spike, 88% of people infected got pneumonia, three-quarters ended up in...
# Lessons from Pandemics of Yore

Morens and Fauci, JID 2007

![Worldwide Mortality from Influenza Pandemics, 1700-2000](http://www.nber.org/papers/w22137)

## Worldwide Mortality from Influenza Pandemics, 1700-2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Pandemic Deaths (millions)</th>
<th>World population (millions)</th>
<th>Severity in standard mortality units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1729</td>
<td>0.4</td>
<td>720</td>
<td>6</td>
</tr>
<tr>
<td>1781-82</td>
<td>0.7</td>
<td>920</td>
<td>8</td>
</tr>
<tr>
<td>1830-33</td>
<td>0.8</td>
<td>1150</td>
<td>7</td>
</tr>
<tr>
<td>1898-1900</td>
<td>1.2</td>
<td>1630</td>
<td>7</td>
</tr>
<tr>
<td>1918-20</td>
<td>40</td>
<td>1830</td>
<td>250</td>
</tr>
<tr>
<td>1957-58</td>
<td>1</td>
<td>2860</td>
<td>3</td>
</tr>
<tr>
<td>1968-69</td>
<td>1.5</td>
<td>3540</td>
<td>4</td>
</tr>
<tr>
<td>2009</td>
<td>.6</td>
<td>6872</td>
<td>2</td>
</tr>
</tbody>
</table>
Excess Mortality is a Good Clue For Epidemic Presence
### Flu vs. Corona – some similarities, major differences

<table>
<thead>
<tr>
<th></th>
<th>SARS-COV-2</th>
<th>Influenza</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transmission</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Droplets (&gt;5μm)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Aerosol (&lt;5μm)</td>
<td>+</td>
<td>+/-</td>
</tr>
<tr>
<td>Asymptomatic transmission</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Incubation</strong></td>
<td>2-14 days</td>
<td>1-5 days</td>
</tr>
<tr>
<td><strong>Superspreader events</strong></td>
<td>Common</td>
<td>Rare</td>
</tr>
<tr>
<td><strong>Prevention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemoprevention</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Immunization</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Immunotherapy</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td><strong>Sequelae</strong></td>
<td>++</td>
<td>+/-</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Allergies</td>
<td>Cold</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Symptoms begin</td>
<td>Gradually</td>
<td>Gradually</td>
</tr>
<tr>
<td></td>
<td>Allergy season</td>
<td>4 – 10 days</td>
</tr>
<tr>
<td>Symptoms last</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body aches</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Chills</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Dry cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure to germs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue/Weakness</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headaches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Itchy eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal Congestion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea/Vomiting/Diarrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New loss of taste or smell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeated shaking with chills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runny nose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sneeze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sore throat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortness of breath</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptoms get worse</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
M.E. El Zowalaty and J.D. Jacob, One Health 2020 https://doi.org/10.1016/j.onehlth.2020.1001124
“We may be done with COVID, but COVID is not done with us”

--Matthew Dacso, MD (and probably many others)

Fasten your seatbelts
Diagnostic Modalities

Jamie Phillips, PhD
Roche
COVID-19 Testing Modalities

Jamie E. Phillips, PhD
Sr. Scientific Affairs Manager
Roche Diagnostic Corporation
All statements made in this document are based on the current state of scientific literature

September 2020
Value of Diagnostic Tests in the New World of COVID-19 Pandemic

The problem

In vitro diagnostic (IVD) tests are an essential service in the delivery of healthcare.

Patient pathway

Prior to pandemic IVD test results influenced 70% of clinical decisions

COVID-19

Has opened a whole new window into the world of diagnostic testing.

- Disrupted billions of lives
- Healthcare systems
- Global economy

Effective treatments

Preventative vaccines

Broad availability of fast, accurate and reliable testing

What are we trying to find out?

*Testing Objectives*

"Should I advise isolation?"

"Could they still transmit the virus?"

"Have they already been exposed to the virus?"

Is a person **currently infected** with SARS–CoV-2?

Has a person **previously been infected** with SARS–CoV-2?

Following the infection path…

Stages of transient viral infections

1. Virus enters the body via droplets
2. Virus reproduces
3. An immune response is triggered in the infected body
4. Virus is eliminated
5. The individual recovers

If small amounts of virus are present, individuals may still be infectious.

Clinical stages of COVID-19

Potential therapeutic approaches

2. https://www.jhltonline.org/article/S1053-2498(20)31473-X/fulltext
What tests are useful in SARS–CoV-2/COVID-19?

**Potential uses**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value</th>
<th>Beneficiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nucleic acid amplification test for viral RNA (Nasal, Nasopharyngeal swab, oropharyngeal swab, sputum, bronchoalveolar lavage fluid, others*)</td>
<td>Direct detection of SARS-CoV-2</td>
<td>Inform individual of infection status so they can anticipate course of illness and take action to prevent transmission</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inform patient management and actions needed to prevent transmission</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inform actions needed to prevent transmission</td>
</tr>
<tr>
<td>Antibody detection (serum, plasma)</td>
<td>Detection of immune response i.e. Past exposure to SARS-CoV-2</td>
<td>Detect susceptible individuals (antibody negative) and those previously infected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify individuals with neutralizing antibodies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Facilitate contact tracing and surveillance</td>
</tr>
</tbody>
</table>

*cobas SARS-CoV-2 Test requires nasal, nasopharyngeal, and oropharyngeal sample types only

Opportunities for detection of SARS-CoV-2 infection & recovery phases*


* Illustrative only as sero conversion time not known as yet. Larger studies are required

Direct detection of the virus

Detection of the host immune response

The antibody profile beyond this period is to be determined

PCR

Detectability on swabs decreases as infection descends into the lungs or the patient recovers

Nucleic acid and antigen

Time since symptom onset (days)

Concentration in patient sample

IgG

IgM

PCR SARS-CoV-2

SARS-CoV-2 antibodies

(resolved infection)
What are the key features of antibody assays for reliable detection of potential immunity?

Antibody assays need a high specificity, this means they must be very precise in telling that a positive test result is truly positive.

Erroneous assumption of convalescence and putative immunity - risk of infection by otherwise preventable exposure.

False Positives = Prognostic errors
What are the objectives for testing for antibodies to SARS-CoV-2

What can antibody detection tell us?

Serologic assays that accurately assess past SARS–CoV-2 infection will be essential for epidemiologic studies, ongoing surveillance, and vaccine studies.

What can’t antibody detection tell us?

Negative results cannot exclude SARS–CoV-2 infection, particularly among those with recent exposure to the virus.

There is currently no evidence that people who have recovered from COVID-19 and have antibodies are protected from a second infection.

Viral Co-infections
Every flu season is different

CDC influenza-like illness (ILI) outpatient visits, 2019-2020 and other selected seasons

CDC estimates* that from October 1, 2019 through April 4, 2020 there have been:

- 39-56 million illnesses
- 410,000-740,000 hospitalizations
- 18-26 million HCP visits
- 24,000-62,000 deaths*

ILI=influenza-like illness.
*Based on the proportion of all outpatient visits for influenza-like illness.
†Based on CDC estimates from October 1, 2019, to March 14, 2020.

Rates of co-infections between SARS-CoV-2 and other respiratory pathogens.

Table 2. Proportions of Specimens Positive for Non-SARS-CoV-2 Respiratory Pathogens and Mean Patient Ages for Each Subgroup, by SARS-CoV-2 Result\(^{a,b}\)

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>SARS-CoV-2 status</th>
<th>Negative (n = 1101)</th>
<th>Positive (n = 116)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Proportion positive for other respiratory pathogen, No. (%)(^b)</td>
<td>Mean age of positive patients, y</td>
</tr>
<tr>
<td>Influenza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>29/1101 (2.6)</td>
<td>45.0</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>8/1101 (0.7)</td>
<td>21.6</td>
</tr>
<tr>
<td>RSV</td>
<td></td>
<td>32/1101 (2.9)</td>
<td>26.0</td>
</tr>
<tr>
<td>Parainfluenza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>1/1101 (0.1)</td>
<td>71.0</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>0/1101 (0)</td>
<td>0/116 (0)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>2/1101 (0.2)</td>
<td>40.0</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>5/1101 (0.5)</td>
<td>26.6</td>
</tr>
<tr>
<td>Metapneumovirus</td>
<td></td>
<td>47/1101 (4.3)</td>
<td>41.1</td>
</tr>
<tr>
<td>Rhinovirus/enterovirus</td>
<td></td>
<td>133/1101 (12.1)</td>
<td>32.6</td>
</tr>
<tr>
<td>Adenovirus</td>
<td></td>
<td>10/1101 (0.9)</td>
<td>14.1</td>
</tr>
<tr>
<td>Other Coronaviridae</td>
<td></td>
<td>39/1101 (3.5)</td>
<td>42.2</td>
</tr>
<tr>
<td>Chlamydia pneumoniae</td>
<td></td>
<td>0/1060 (0)</td>
<td>0/116 (0)</td>
</tr>
<tr>
<td>Mycoplasma pneumoniae</td>
<td></td>
<td>6/1101 (0.5)</td>
<td>14.8</td>
</tr>
</tbody>
</table>

Of the 116 specimens positive for SARS-CoV-2, 24 (20.7%) were positive for 1 or more additional pathogens, compared with 294 of the 1101 specimens (26.7%) negative for SARS-CoV-2 (Table 1) (difference, 6.0% [95% CI, -2.3% to 14.3%]). The most common co-infections were rhinovirus/enterovirus (6.9%), respiratory syncytial virus (5.2%), and non-SARS-CoV-2 Coronavirusidae (4.3%) (Table 2). None of the differences in rates of non-SARS-CoV-2 pathogens between specimens positive and negative for SARS-CoV-2 were statistically significant at \( P < .05 \).
Managing critically ill patients
Critical Care in COVID-19

Hospitalization

20% of COVID-19 diagnosed cases¹

Severe Illness

5% require ICU and/or respiratory support¹

Hospitalized Patients

10.1 days median length of stay for all admitted patients²

ICU Stay

10.6 days median duration of ICU Stay²

Most critically ill patients with COVID-19 experience organ dysfunction and require mechanical ventilation³,⁴

ARDS, acute respiratory distress syndrome; ICU, intensive care unit.
Role of IL-6 in COVID-19

- **Interleukin-6 (IL-6)** is a cytokine marker associated with inflammation
- Patients with severe COVID-19 could be at risk for cytokine storm syndrome, IL-6 can be used to **assess severe patients suspected of hyperinflammation**\(^1\,^2\)
- IL-6 may **predict respiratory failure** in hospitalized symptomatic COVID-19 patients\(^3\)
  - This provides **objective data** to assist in mechanical ventilation resource allocation

Elecsys IL-6 is for use under the Emergency Use Authorization (EUA) only

Broad access to reliable COVID-19 testing is essential to accurately identify who has been infected and to contain the disease

https://www.roche.com/about/business/diagnostics/medical_value/testing-for-coronavirus.htm
Doing now what patients need next
How Can Individuals Prepare and Healthy Actions
Poll Question: Flu Vaccine 2020
Speakers

Dr. Heidi Baines
ASD, Vera

Sue Prochazka, JD
Benefits Director, Rice University
You and the 2020-2021 Flu Season

Take Care of Your Health

• Interact with your health care team, virtually or in person
• Recognize the stressors of the pandemic, and the winter days
• Be mindful of your nutrition, sleep and physical activity
Managing COVID & Flu at Home

10 things you can do to manage your COVID-19 symptoms at home

If you have possible or confirmed COVID-19:

1. Stay home from work and school. And stay away from other public places. If you must go out, avoid using any kind of public transportation, ridesharing, or taxis.
2. Monitor your symptoms carefully. If your symptoms get worse, call your healthcare provider immediately.
3. Get tested and stay hydrated.
4. If you have a medical appointment, call the healthcare provider ahead of time and tell them that you have or may have COVID-19.
5. For medical emergencies, call 911 and notify the dispatch personnel that you have or may have COVID-19.

6. Cover your cough and sneezes with a tissue or use the inside of your elbow.
7. Wash your hands often with soap and water for at least 20 seconds or clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol.
8. As much as possible, stay in a specific room and away from other people in your home. Also, you should use a separate bathroom, if available. If you need to be around other people in or outside of the home, wear a mask.
9. Avoid sharing personal items with other people in your household, like clothes, towels, and bedding.
10. Clean all surfaces that are touched often, like counters, tabletops, and doorknobs. Use household cleaning sprays or wipes according to the label instructions.

cdc.gov/coronavirus
How Employers Can Prepare
Employers and the 2020-2021 Flu Season

Employer Flu Vaccination Clinics
- Revamping protocols for safe social distancing
- Consideration of mobile vaccination options, curbside
- Community options

Communications
- Frequent, multi modalities
- Current, relevant

Testing Options
- Right tests, right time
- Community options
Staff and Patient Safety
- In person and telecommuting
- COVID screening pre appointment/workday
- Social distancing & masking
- Enhanced cleaning throughout the day

Taking Care of Your Health
- In person visits for wellness, disease management, labs, non-respiratory procedures
- Video and telephone appointment options
- Separate "sick" clinic times and appointment spacing
- Population based flu shot clinic planning underway
- Curbside dual testing, vaccinations where available

Increased Outreach to Help You Feel and Stay Connected
- Mindfulness Moments
- Emails, phone calls
- Webinars
Protocols
- All procedures and processes are science based
- Experts from CDC, Rice University, The Texas Medical Center

Contractors
- Required to have their own policies and procedures to manage the health of their employees with the expectation of disease containment

Testing
- In August, we conducted 9,131 tests with 15 positive outcomes (.016%)
- Students, faculty and staff included if on campus (required)

Contact Tracing
- 60 employees were trained to do contact tracing
- Many were those whose job was not able to be done from home, so it gave them meaningful, productive work to do
- Has resulted in quarantine and isolation of students and employees
- Employees are not getting Covid19 on campus rather at gatherings away from campus
Rice University-Return to Work

Return to Work Phases
- Essential personnel needed to support returning to school
- Individualized return to work plan for every employee and every department
- Accommodations made for those with health conditions and caregivers
- Groups will continue to work from home exclusively for the fall semester
- Staggering shifts

Administrative Controls
- Cleaning, signage, appts required for meetings, meetings limited, conference room capacity limited

Engineering Controls
- Plexiglass in public areas, furniture placement, cleaning materials, PPE, electronic assistant, hand sanitizer

Staffing Safety
- Mandatory masks for all on campus
- Daily health assessments
- Recommended flu shots- drive up option included; or community resources encouraged
- Return to work documentation requirements
Communication From the Dean of Students
• Pre-arrival health behaviors and supply list for fall semester
• Culture of Care Agreement
• Town Halls
• Regular messaging about progress

Testing & Vaccine
• All students who will be on campus are tested before arriving at campus
• Flu vaccine required

Physical Environment
• Separate dorm for those testing positive
• Dining is take-away meals only
• Tents constructed on campus to provide space for students to properly distance
• Classes are a hybrid model-always recorded
Poll Question: Work Disruption
Resources
## Additional Resources

### Individuals

- CDC Sick with Flu Infographic
- CDC Managing COVID19 @ Home
- Baylor College of Medicine COVID and the Flu FAQ

### Employers

- CDC Workplace, School and Home Guidance FAQ
- 10 Steps to Prevent and Manage Flu in Workplace
- VERA Mindfullness Videos
Can my dependents visit the care center?

For many members, eligibility includes your dependents on your health plan. Call your care center first to verify eligibility. Visit www.patients.verawholehealth.com or www.prominence.verawholehealth.com to find the location closest to you.

Is COVID testing or antibody testing available at my care center?

Poll Question: Webinar Feedback
Thank you for your participation.

We would love to hear more from you! If you have any follow-up questions or ideas for future webinars, please send a message to vwhwebinars@verawholehealth.com