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WHOLE HEALTH

The Intersection of COVID-19 and Flu Season and What That Means For You

September 10th 2020

Housekeeping

Jenn Roberts, MS

Vera Whole Health

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

Expert Panel

Roche

Baylor Medicine

Genentech
A Member of the Roche Group

RICE UNIVERSITY

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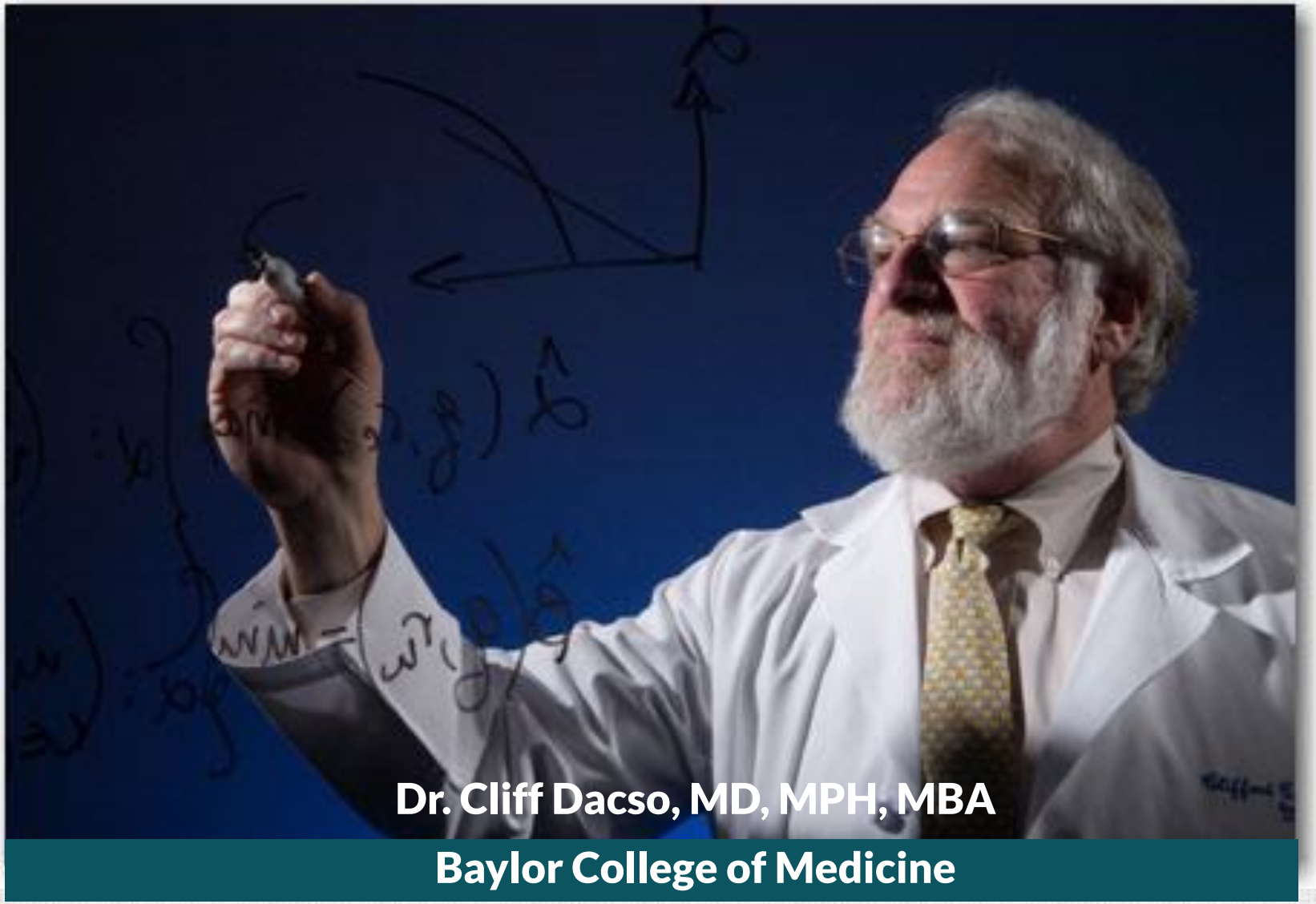
Infectious Disease Expert



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

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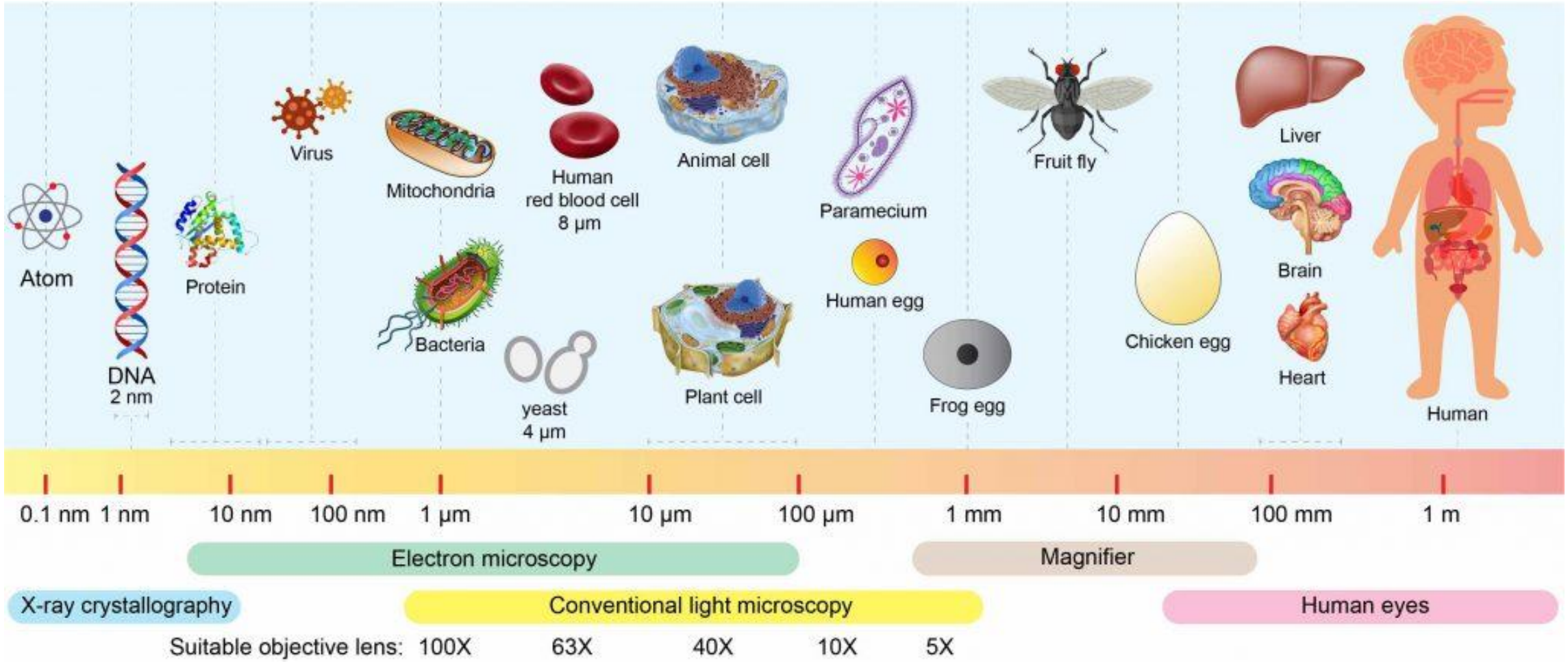
“In the future, everyone will be world famous for 15 minutes”.

-- Andy Warhol

In the future, each person will be trending on Twitter or Facebook for 15 minutes.

Review of Last Semester



May 15, 2017

HEALTH DISEASE

The World Is Not Ready for the Next Pandemic

Bryan Walsh @bryanrwalsh | May 4, 2017

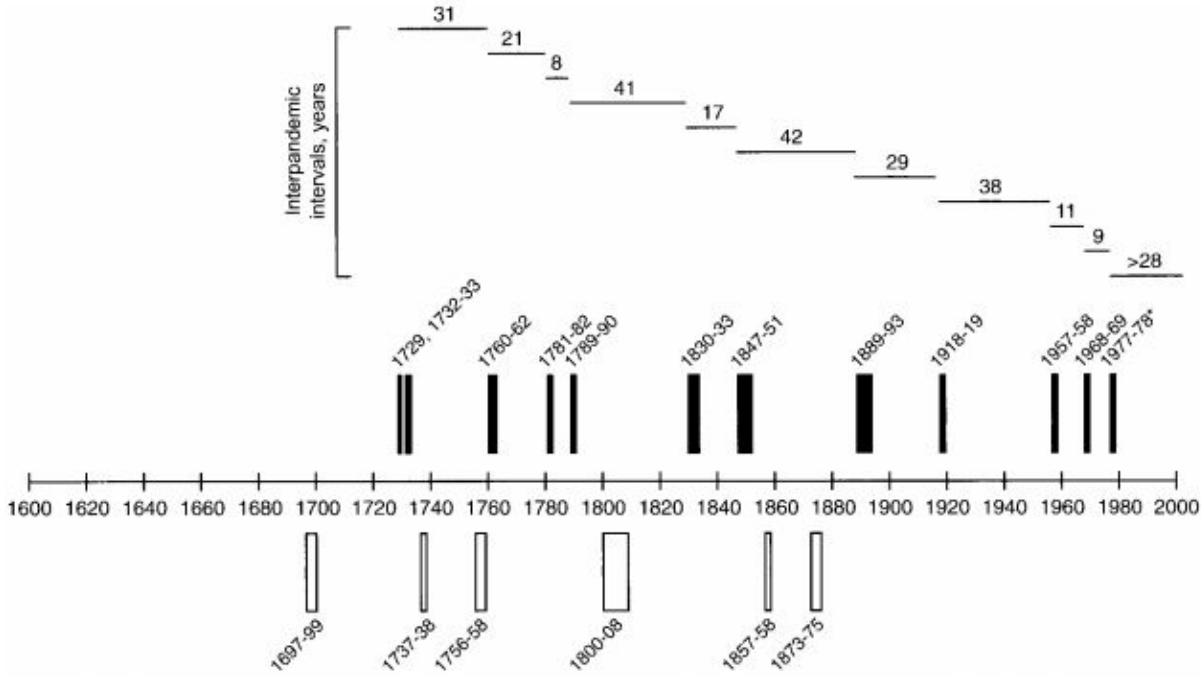
On a hyperconnected planet rife with hyperinfectious diseases, experts warn we aren't ready to keep America--and the world--safe from the next pandemic

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

Cody Pickens for TIME

John Hackett and Charles Chiu handle Zika samples at the University of California, San Francisco-Abbott Viral Diagnostics and Discovery Center Cody Pickens for TIME

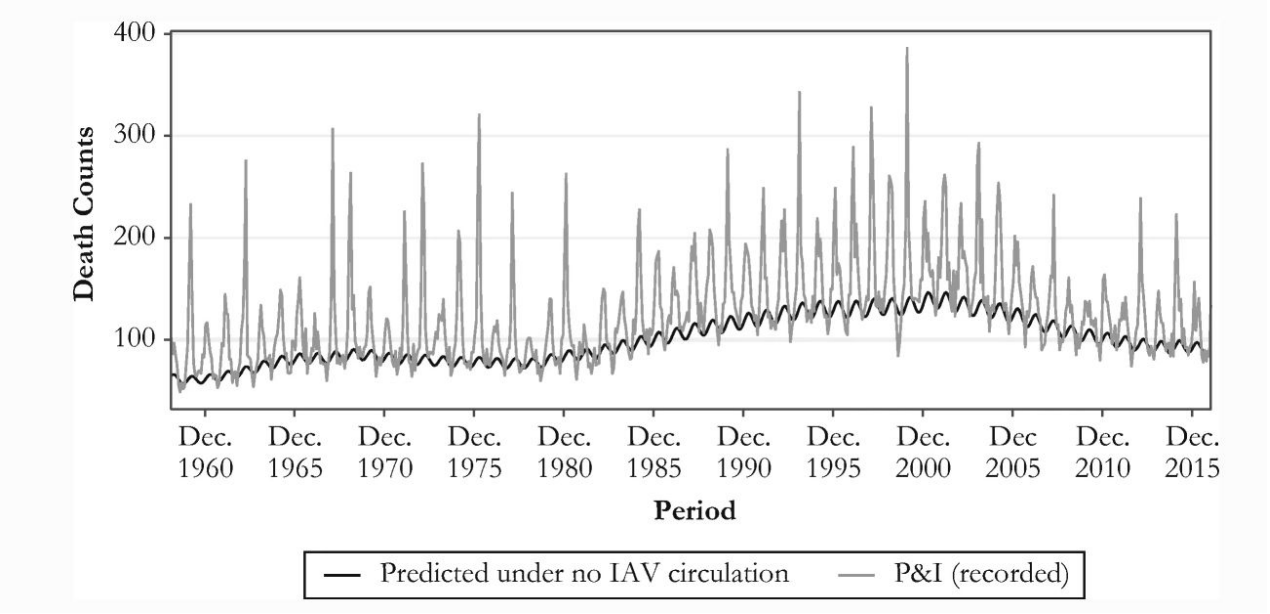
Lessons from Pandemics of Yore

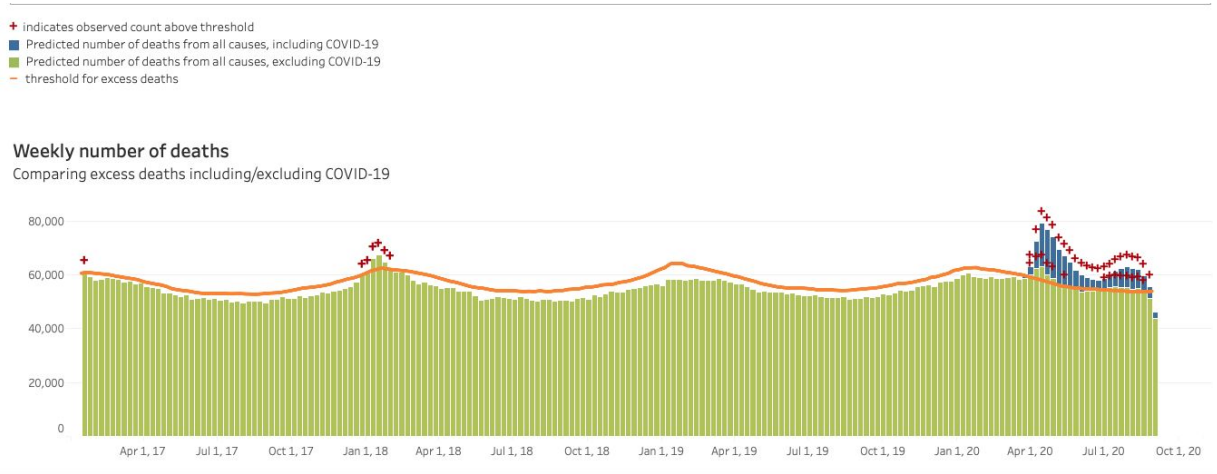


Morens and Fauci, JID 2007

Worldwide Mortality from Influenza Pandemics, 1700-2000			
	http://www.nber.org/papers/w22137		
Year	Pandemic Deaths (millions)	World population (millions)	Severity in standard mortality units
1729	0.4	720	6
1781-82	0.7	920	8
1830-33	0.8	1150	7
1898-1900	1.2	1630	7
1918-20	40	1830	250
1957-58	1	2860	3
1968-69	1.5	3540	4
2009	**.6**	**6872**	**2**

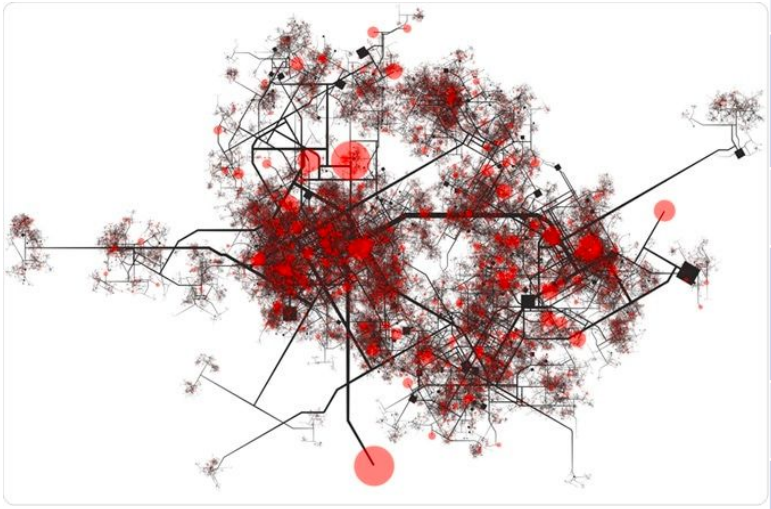
Excess Mortality is a Good Clue For Epidemic Presence



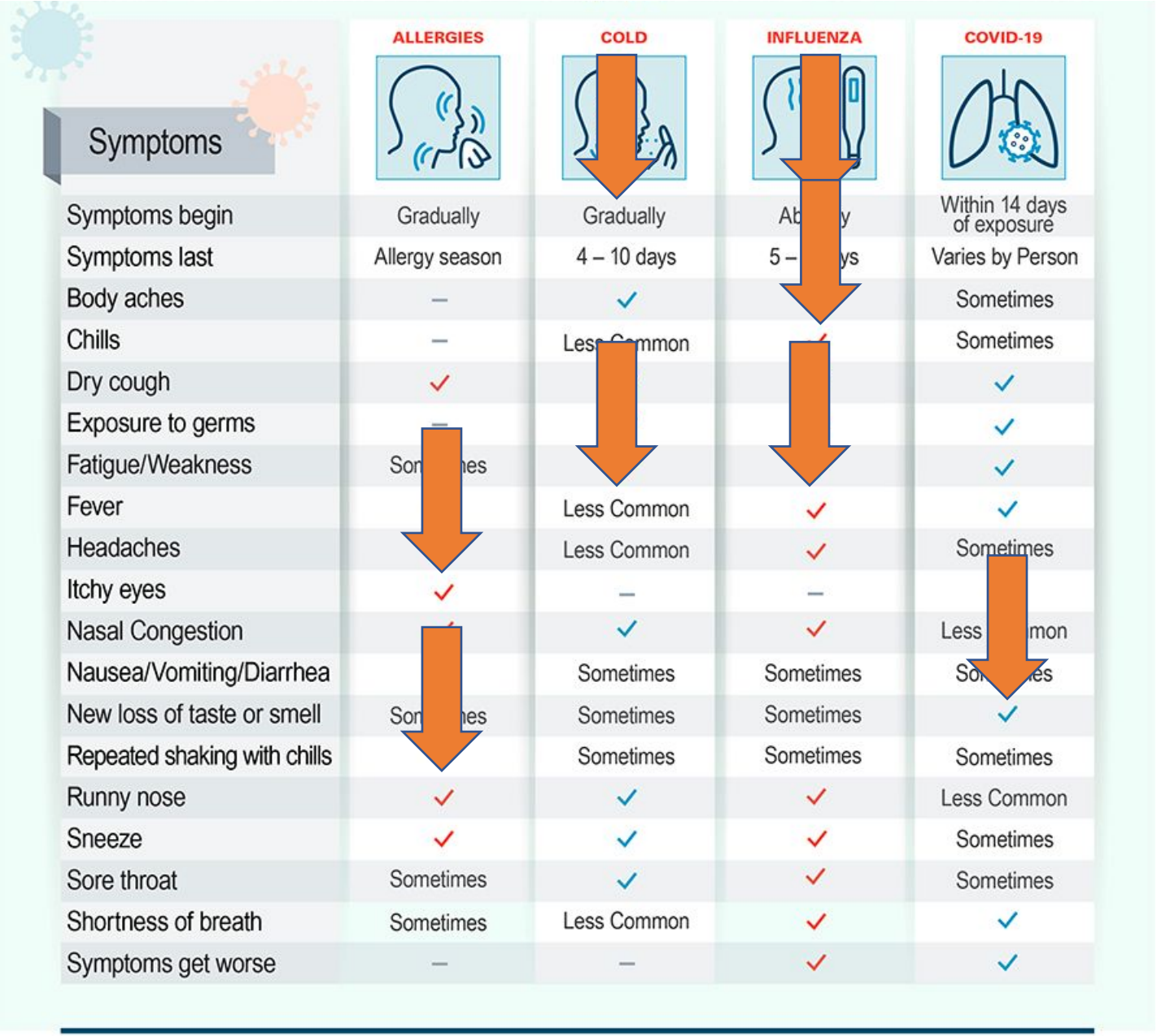


NCHS

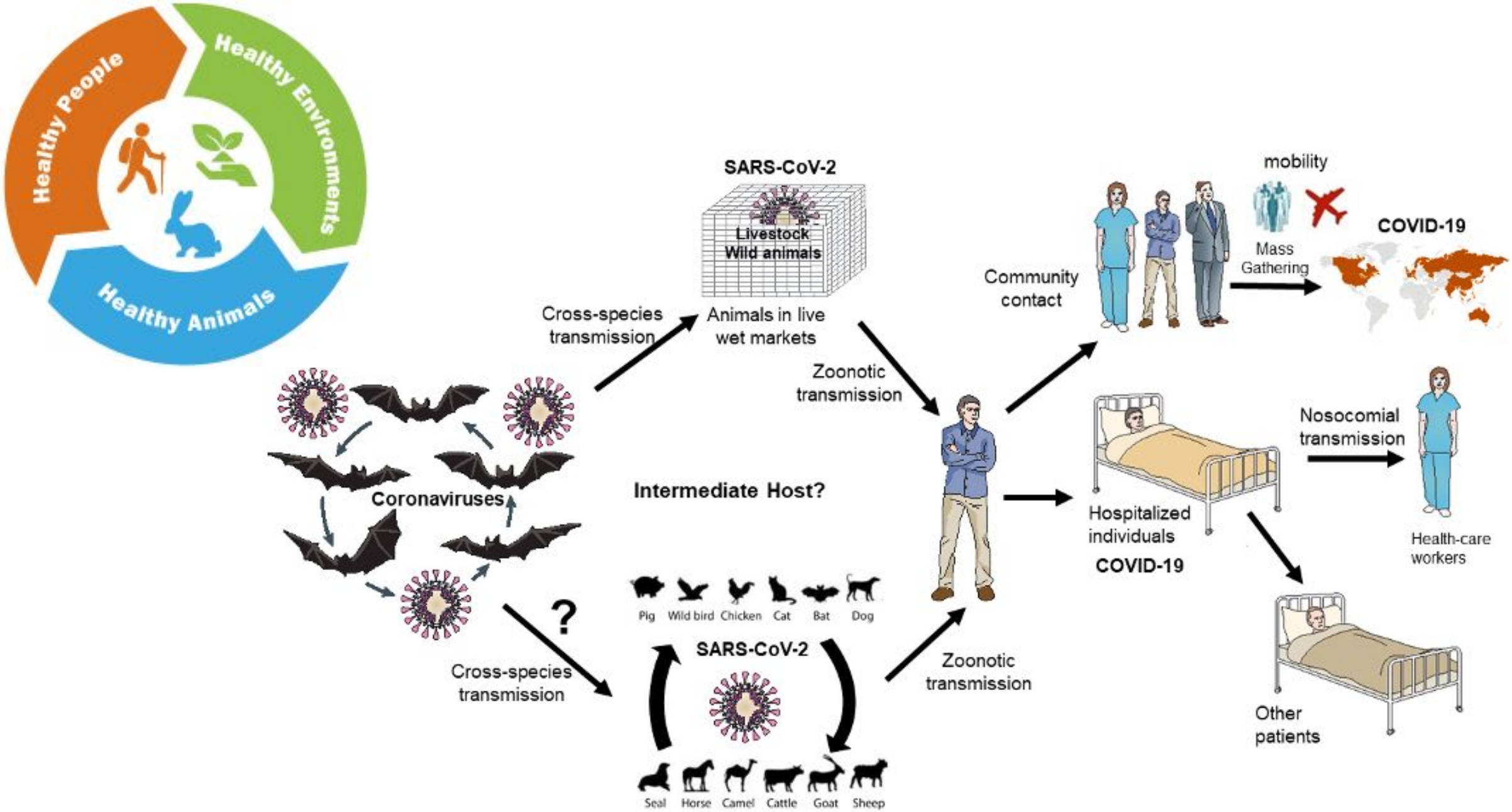
Flu vs. Corona – some similarities, major differences



		SARS-C0V-2	Influenza
Transmission	Droplets (>5μm)	+	+
	Aerosol (<5μm)	+	+/-
	Asymptomatic transmission	+	+
	Incubation	2-14 days	1-5 days
	Superspreader events	Common	Rare
Prevention	Chemoprevention	-	+
	Immunization	-	+
Treatment	Drugs	+	+
	Immunotherapy	+	-
Sequelae		++	+/-



Adapted from National Jewish Health



M.E. El Zowalaty and J.D. Jarhult, One Health 2020 https://doi.org/10.1016/j.onehlt.2020.100124

“We may be done with COVID, but COVID is not done with us”

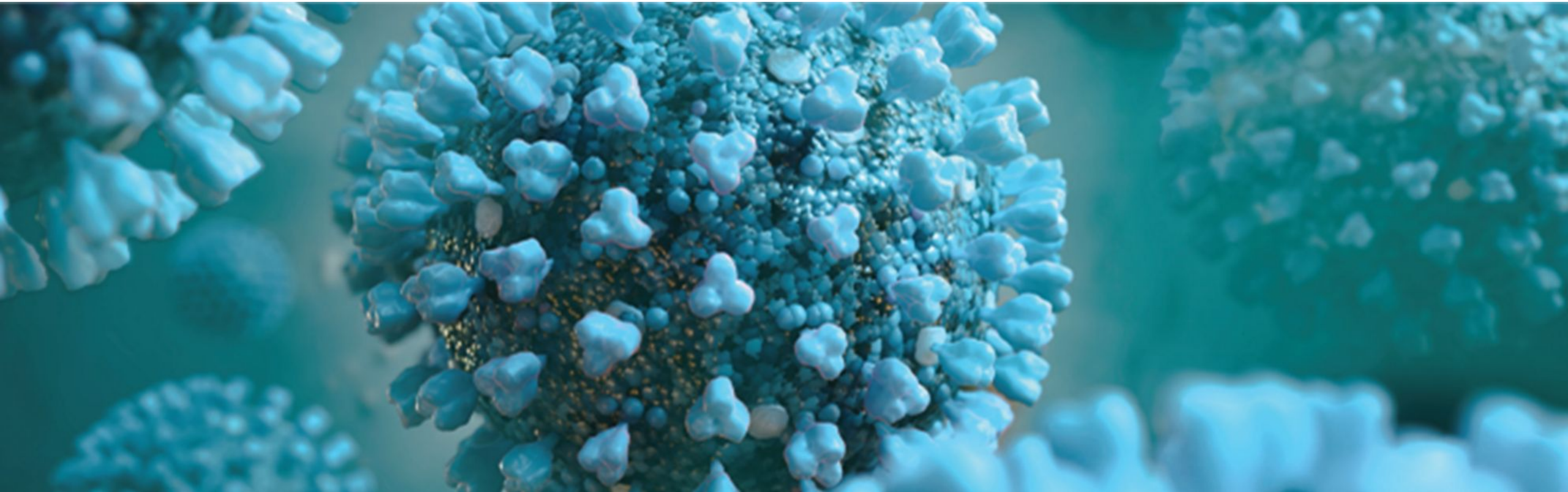
--Matthew Dacso, MD (and probably many others)

Fasten your seatbelts

Diagnostic Modalities

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

https://www.quantamagazine.org/what-can-other-coronaviruses-tell-us-about-sars-cov-2-20200429/

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

The problem

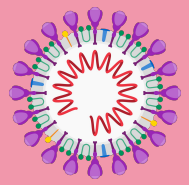
In vitro diagnostic (IVD) tests are an essential service in the delivery of healthcare

Patient pathway

IVD tests

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

https://pubs.rsna.org/doi/10.1148/radiol.2020201845, https://healthmanagement.org/c/imaging/news/value-of-diagnostic-tests-in-world-of-covid-19, https://www.medtecheurope.org/access-to-medical-technology/value-of-diagnostic-information-vodi/, https://www.medtecheurope.org/covid-19-information-hub/, https://www.roche.com/about/business/diagnostics/medical_value/testing-for-coronavirus.htm, https://www.roche.com/about/business/diagnostics/medical_value/testing-for-coronavirus.htm

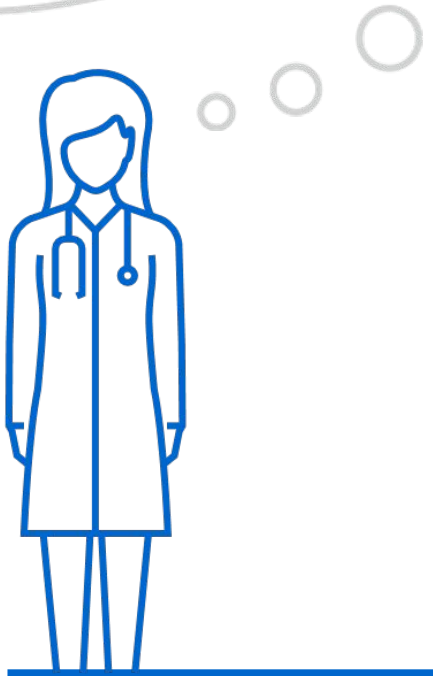
What are we trying to find out?

Testing Objectives

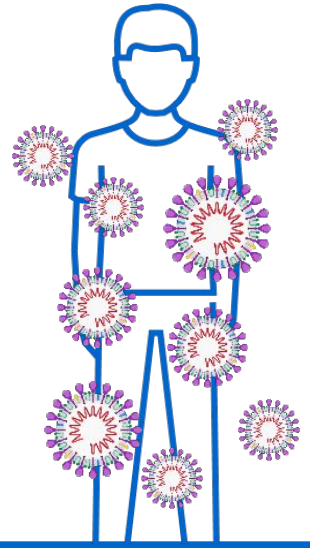
"Should I advise isolation?"

"Could they still transmit the virus?"

"Have they already been exposed to the virus?"

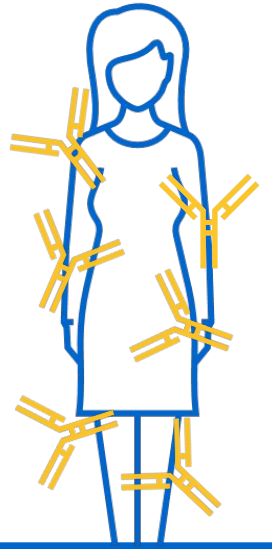


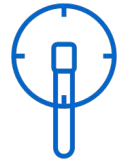
Is a person **currently infected** with SARS–CoV-2?



or

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





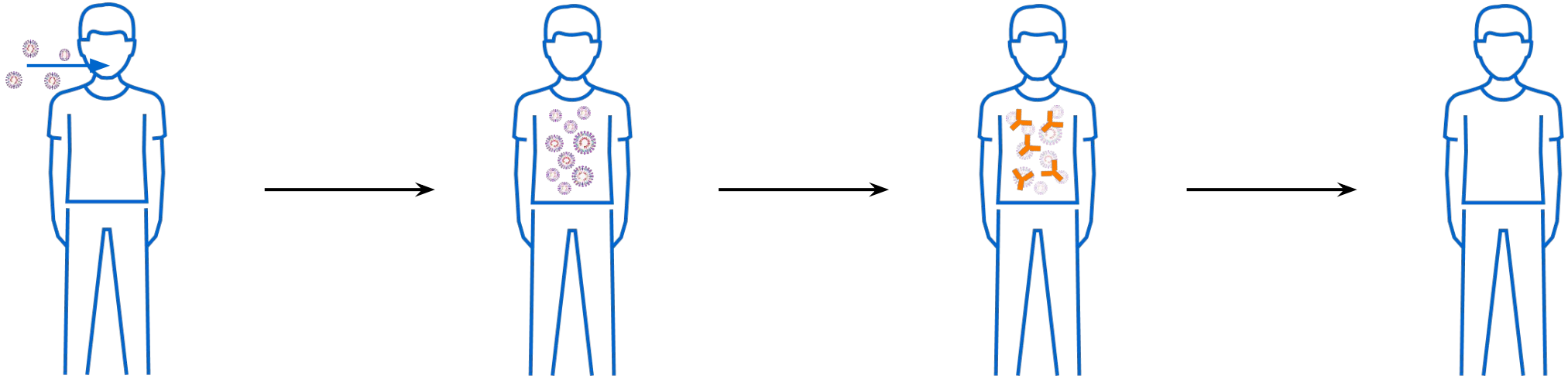
https://www.cdc.gov/coronavirus/2019-ncov/index.html, . World Health Organization. "Immunity passports" in the context of COVID-19

Following the infection path…

Stages of transient viral infections

Period a person is typically infectious

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



Virus enters the body via droplets

Virus reproduces

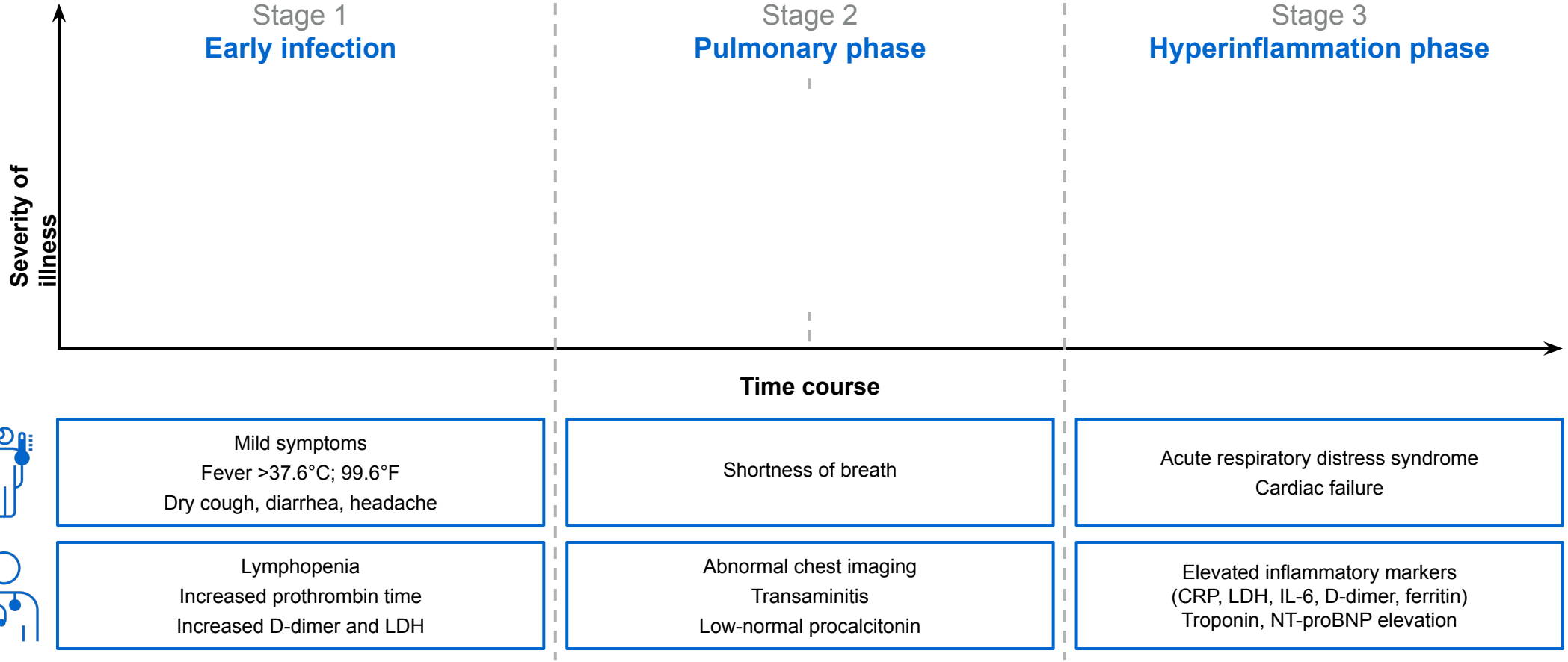
An immune response is triggered in the infected body

Virus is eliminated
The individual recovers

1. Li Q, et al. N Engl J Med (2020);doi.10.1056/NEJMoa2001316. 2. Backer JA, et al. Euro Surveill (2020);252000062.; 3. The World Health Organization https://www.who.int/news-room/q-a-detail/q-a-coronaviruses. Accessed 28 April 2020.
4. Zhou F, et al. Lancet (2020);395:1054–62. 5. Wu Y, et al. Lancet (2020);S2468–1253:30083.

Clinical stages of COVID-19

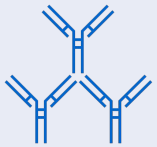
Potential therapeutic approaches



1.Siddiqi H & Mehra M. J Heart Lung Transp (2020). In press. doi: https://doi.org/10.1016/j.healun.2020.03.012.
2.https://www.jhltonline.org/article/S1053-2498(20)31473-X/fulltext

What tests are useful in SARS–CoV-2/COVID-19?

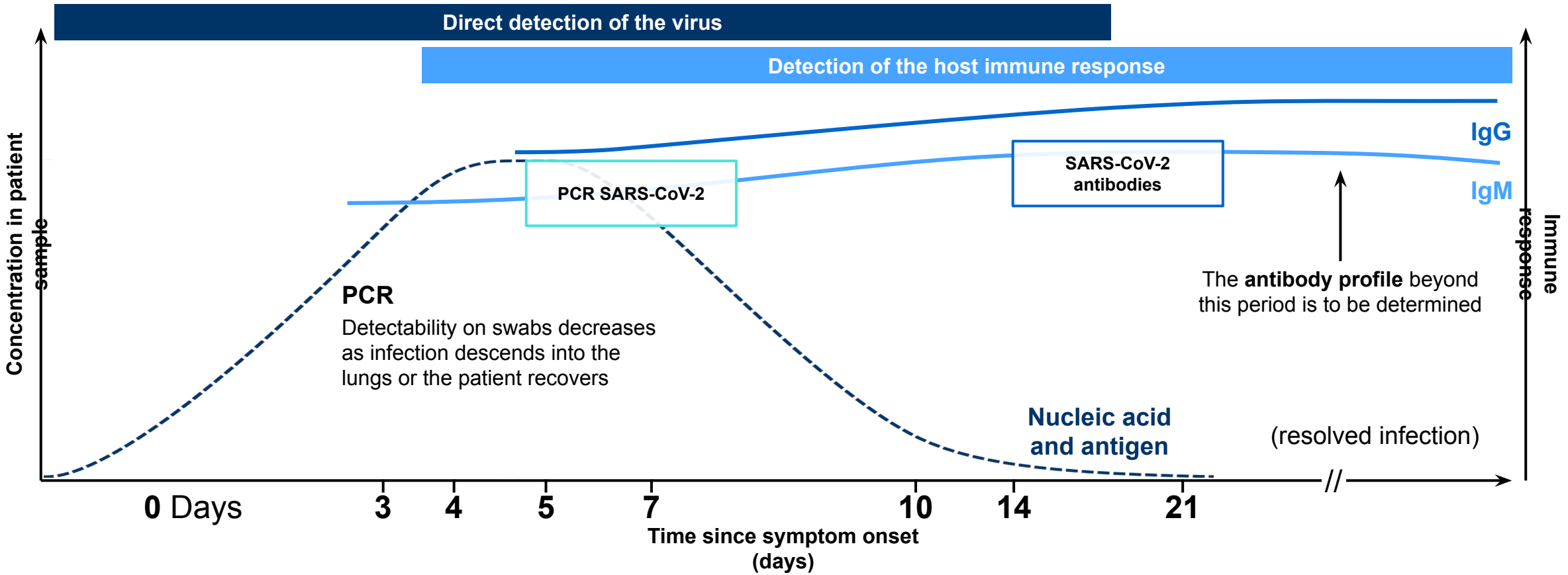
Potential uses

 **Nucleic acid amplification test for viral RNA** (Nasal, Nasopharyngeal swab, oropharyngeal swab, sputum, bronchoalveolar lavage fluid, others*)	Direct **detection of** SARS-CoV-2	Inform individual of infection status so they can anticipate course of illness and take action to prevent transmission	Individual
		Inform patient management and actions needed to prevent transmission	Healthcare or long-term care facility
		Inform actions needed to prevent transmission	Public health
 **Antibody detection** (serum, plasma)	**Detection of immune response** i.e. Past exposure to SARS-CoV-2	Detect susceptible individuals (antibody negative) and those previously infected	Identify those potentially immune to SARS-CoV-2 (if tests can detect protective immunity, individuals could return to work)
		Identify individuals with neutralizing antibodies	Healthcare facilities: experimental therapy
		Facilitate contact tracing and surveillance	Public health

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

1. Patel R, et al. mBio (2020);11: pii: e00722-20. doi: 10.1128/mBio.00722-20
2. Zhou G, Zhao Q. Int J Biol Sci. 2020;16(10):1718–172.

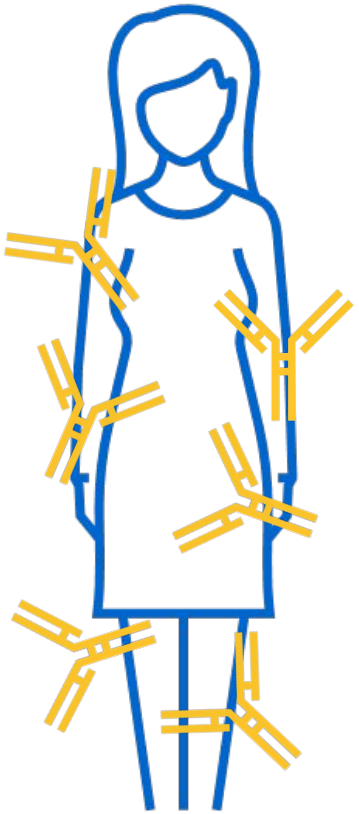
Opportunities for detection of SARS-CoV-2 infection & recovery phases*



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

1. Xiang F, et al. Clin Infect Dis (2020);ciaa461. doi: 10.1093/cid/ciaa461; 2. Zhao J, et al. Clin Infect Dis (2020);pii:ciaa344. doi:10.1093/cid/ciaa344; 3. Wölfel R, et al. Nature (2020);[epub ahead of print]. doi.10.1038/s41586-020-291-x. 4. Jin Y, et al. Int J Infect Dis (2020). 5. Liu W, et al. J Clin Microbiol (2020);pii:JCM.00461-20.doi.10.1128/JCM.00461-20. 6. Guo L, et al. Clin Infect Dis (2020); doi.10.1093/cid/ciaa310. 7. Zhang W, et al. Emerg Microb Infect;9:386–389. 8. Xiao DAT, et al. J Infect Dis (2020);S0163–4453:30138–30139.

What are the key features of antibody assays for reliable detection of potential immunity?



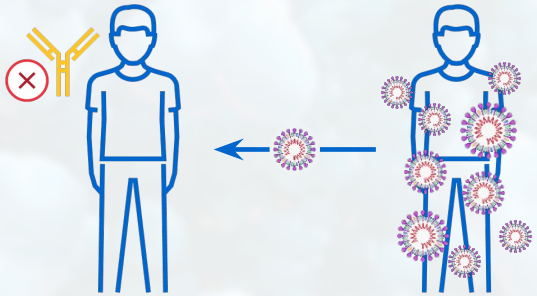
Immune Reaction
IgG, IgM, IgA

Has someone recovered?

Antibody Assays: **Very high specificity**

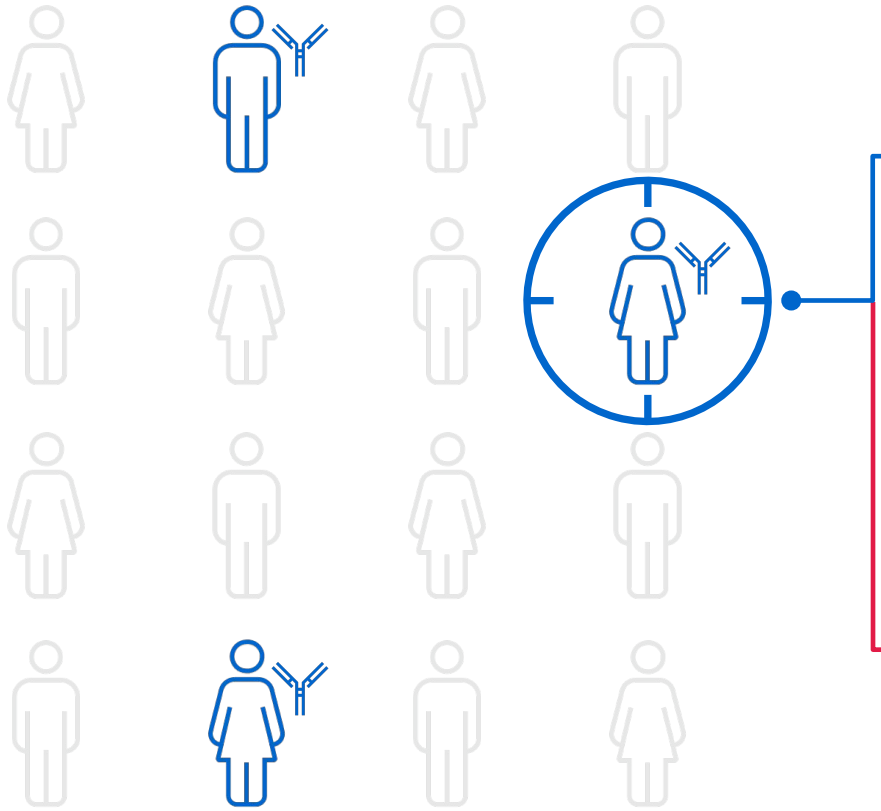
Antibody assays need a high specificity, this means they must be very precise in telling that a positive test result is truly positive

False Positives = Prognostic errors



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

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**[1]

What can't antibody detection tell us?

Negative results cannot exclude SARS–CoV-2 infection, particularly among those with recent exposure to the virus[1]

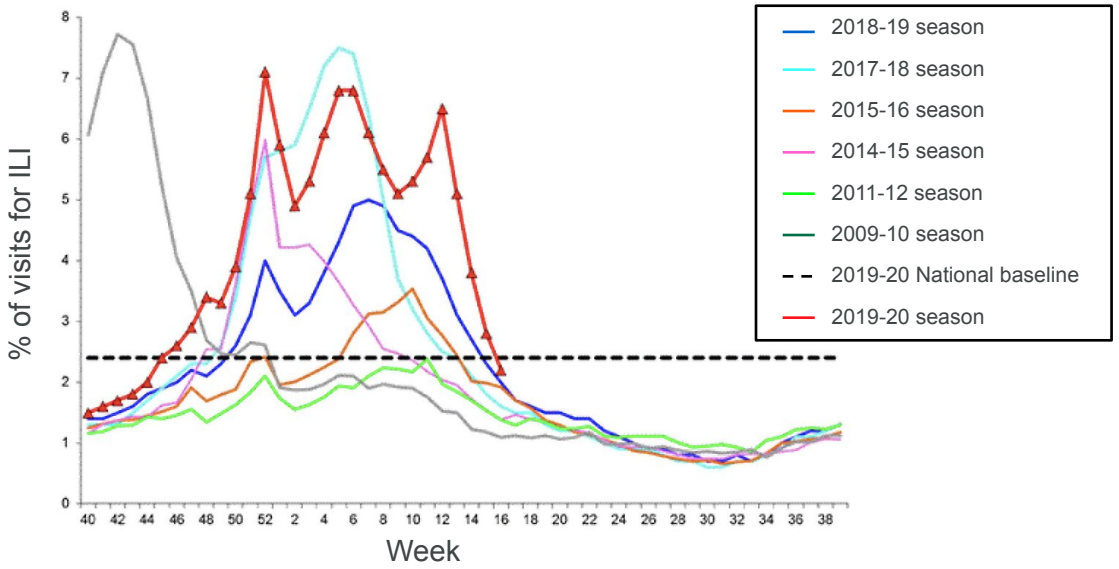
There is currently no evidence that people who have recovered from COVID-19 and have antibodies are protected from a second infection[2]

1. Cheng MP, *et al*. Ann Intern Med 2020: DOI: 10.7326/M20-1301; 2. World Health Organization. "Immunity passports" in the context of COVID-19. Available at: https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19 (accessed April 2020)

Viral Co-infections

Every flu season is different

CDC influenza-like illness (ILI) outpatient visits, 2019-2020 and other selected seasons[1]*



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

39-56 million **illnesses**

18-26 million **HCP visits**

410,000-740,000 **hospitalizations**

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.

References: 1. Centers for Disease Control and Prevention. Weekly U.S. influenza surveillance report. Updated April 24, 2020. Accessed April 28th, 2020. https://www.cdc.gov/flu/weekly **2.** Centers for Disease Control and Prevention. 2019-2020 U.S. flu season: preliminary burden estimates. Updated April 17, 2020. Accessed April 28th, 2020. https://www.cdc.gov/flu/about/burden/preliminary-in-season-estimates.htm

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]

	SARS-CoV-2 status			
	Negative (n = 1101)		Positive (n = 116)	
Pathogen	Proportion positive for other respiratory pathogen, No. (%)[b]	Mean age of positive patients, y	Proportion positive for other respiratory pathogen, No. (%)[b]	Mean age of positive patients, y
Influenza				
A	29/1101 (2.6)	45.9	1/116 (0.9)	74.0
B	8/1101 (0.7)	21.6	0/116 (0)	
RSV	32/1101 (2.9)	26.0	6/116 (5.2)	52.3
Parainfluenza				
1	1/1101 (0.1)	71.0	1/116 (0.9)	43.0
2	0/1101 (0)		0/116 (0)	
3	2/1101 (0.2)	40.0	1/116 (0.9)	45.0
4	5/1101 (0.5)	26.6	1/116 (0.9)	36.0
Metapneumovirus	47/1101 (4.3)	41.1	2/116 (1.7)	67.0
Rhinovirus/enterovirus	133/1101 (12.1)	32.6	8/116 (6.9)	42.1
Adenovirus	10/1101 (0.9)	14.1	0/116 (0)	
Other Coronaviridae	39/1101 (3.5)	42.2	5/116 (4.3)	40.8
Chlamydia pneumoniae	0/1060 (0)		0/116 (0)	
Mycoplasma pneumoniae	6/1101 (0.5)	14.8	0/116 (0)	

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 Coronaviridae (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

Hospitalizatio

20%

of COVID-19 diagnosed cases[1]

Severe Illness

5%

require ICU and/or respiratory support[1]

Hospitalized Patients

10.1 days

median length of stay for all admitted patients[2]

ICU Stay

10.6 days

median duration of ICU Stay[2]

Most critically ill patients with COVID-19 experience **organ dysfunction** and require **mechanical ventilation**[3,4]

ARDS, acute respiratory distress syndrome; ICU, intensive care unit.

1. Auld, et al. CCM, 2020; doi: 10.1097/CCM.0000000000004457 2. Lewnard, et. Al. BMJ 2020; doi: 10.1136/bmj.m1923 3. Yang X, et al. (2020). Lancet Resp Med. 8:475-81; 4. Cummings MJ, et al. Lancet (2020); doi: 10.1016/S0140-6736(20)31189-2

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 the **first and only FDA authorized IL-6** in the US Market

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

1. Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, Xiang J, Wang Y, Song B, Gu X, Guan L. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. The Lancet. 2020 Mar 11. PMID:32171076 2. Kavsak PA, de Wit K, Worster A. Clinical chemistry tests for patients with COVID-19–important caveats for interpretation. Clinical Chemistry and Laboratory Medicine (CCLM). 2020 Apr 16;1(ahead-of-print). PMID: 32301748 3. Herold T, et al. (2020). J. Allergy Clin. Immunol. doi: 10.1016/j.jaci.2020.05.008

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

Accessible Version: https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html

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 rest 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 dishes, towels, and bedding.

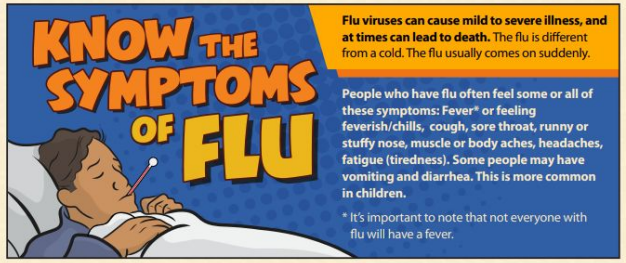
10. **Clean all surfaces** that are touched often, like counters, tabletops, and doorknobs. Use household cleaning sprays or wipes according to the label instructions.

CDC

cdc.gov/coronavirus

CS 315822-A 07/01/2020

Influenza (or flu) is a contagious respiratory illness caused by flu viruses. Most people with flu have mild illness and do not need medical care or antiviral drugs. If you get flu symptoms, in most cases, you should stay home and avoid contact with others except to get medical care.



Flu viruses can cause mild to severe illness, and at times can lead to death. The flu is different from a cold. The flu usually comes on suddenly.

People who have flu often feel some or all of these symptoms: Fever* or feeling feverish/chills, cough, sore throat, runny or stuffy nose, muscle or body aches, headaches, fatigue (tiredness). Some people may have vomiting and diarrhea. This is more common in children.

* It's important to note that not everyone with flu will have a fever.

Antiviral drugs can be used to treat flu illness. Antiviral drugs can make illness milder and shorten the time you are sick. They also can prevent serious flu complications.

CDC recommends that antiviral drugs be used early to treat people who are very sick with the flu and people who get flu symptoms who are at high risk of serious flu complications, either because of their age or because they have a high risk medical condition.

When you are sick, limit contact with others as much as possible. Remember to cover your nose and mouth with a tissue when you cough or sneeze, and throw tissues in the trash after you use them. Stay home for at least 24 hours after your fever is gone except to get medical care or for other necessities.

*Your fever should be gone for 24 hours without the use of a fever-reducing medicine before resuming normal activities.

www.cdc.gov/flu/takingcare.htm

#FIGHT FLU

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

Vera & Prominence Care During the Pandemic & Flu Season

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

Rice University-COVID Management

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□research in labs□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

Rice University-Return to School

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


Q
A

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

Additional Resources – Vera & Prominence Care Center Resources

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?

Please call your care center for updates related to COVID-19. For more questions related to this topic, please visit our COVID-19 Advisory Pages.
Vera Care Centers - https://content.verawholehealth.com/coronavirus-advisory
Prominence -https://prominence.verawholehealth.com/coronavirus-advisory

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