COVID-19 Disease
What the Clinician Needs to Know

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Professor and Chief
Division of Infectious Diseases

March 20, 2020

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What Makes a Coronavirus a Coronavirus?

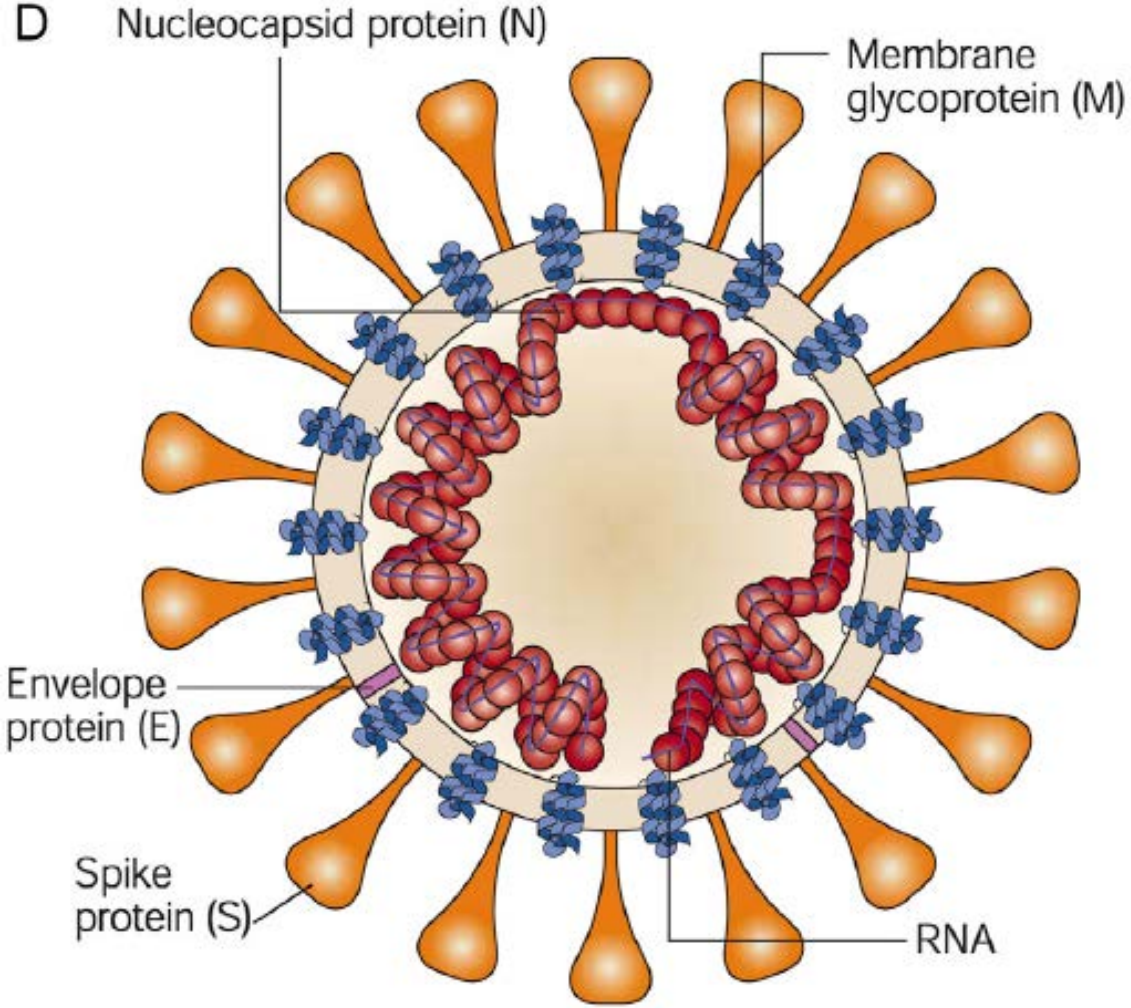
- Viruses are classified according to their genome characteristics:
  - RNA or DNA
  - Single or double stranded
  - Positive or negative sense
  - Segmented or not
- Enveloped or non-enveloped

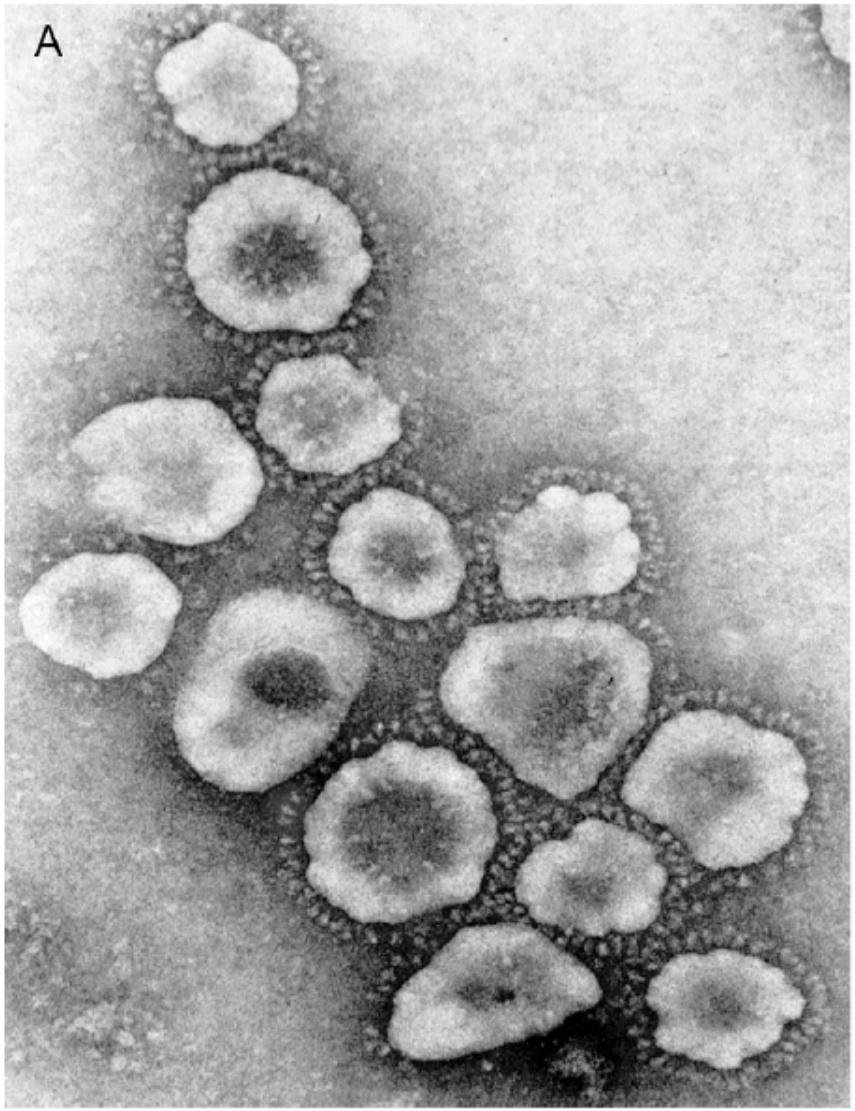
Coronaviruses

- Single stranded
- RNA
- Positive sense
- Non-segmented
- Enveloped

- Very large genome (largest of any RNA virus)

Coronaviruses

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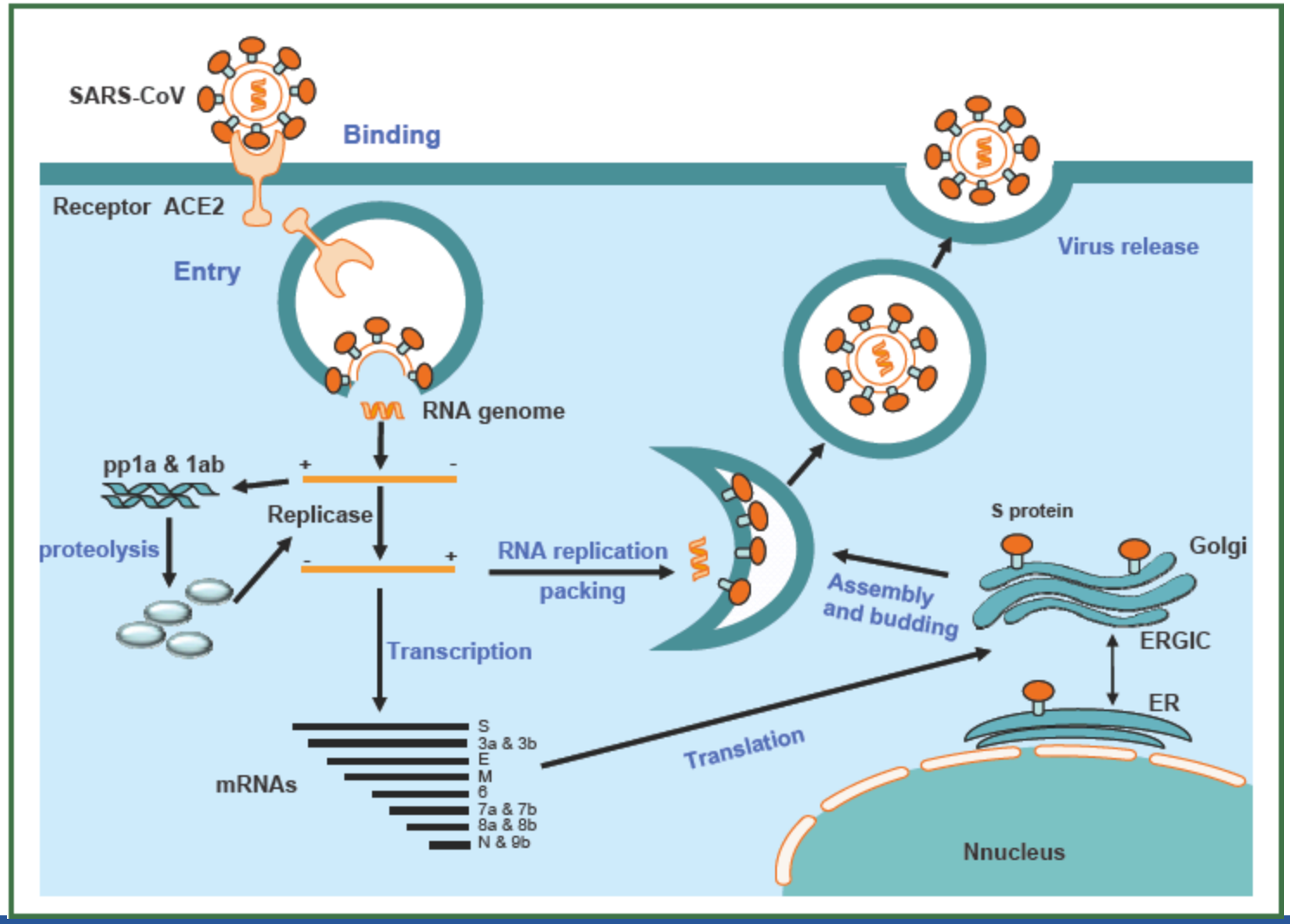
Coronavirus Replication: Potential Therapeutic and Vaccine Targets



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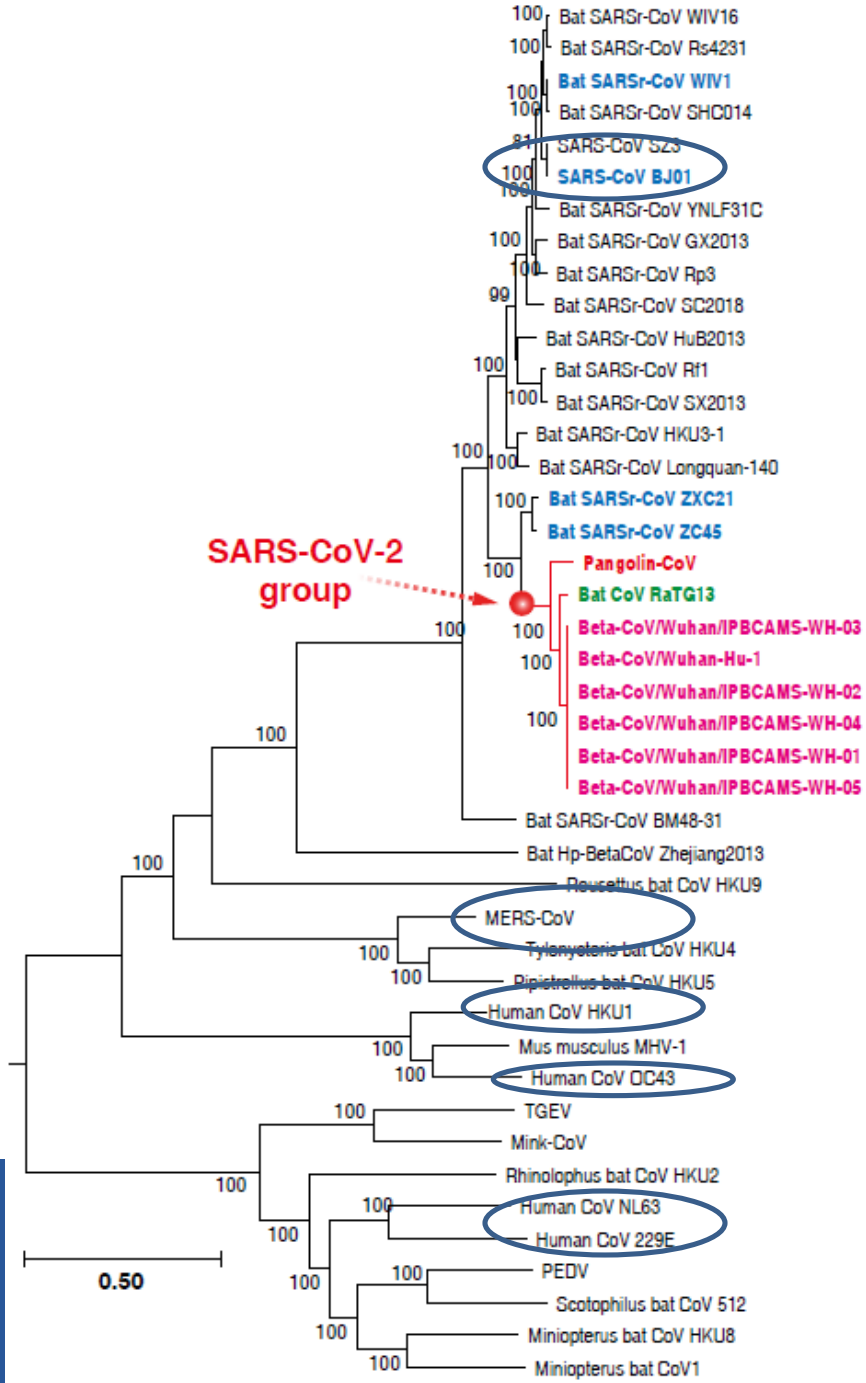
What Coronaviruses Infect Humans?

- Four common ones
  - Cause colds, but can cause lower respiratory infections
- Three bad ones
  - SARS CoV (causes SARS)
  - SARS CoV-2 (causes COVID-19)
  - MERS CoV (causes MERS)

Where Did SARS CoV-2 Come From

- Most likely bats
- Did it spread directly from bats to humans?
- Was there an intermediate animal?


Bat SARSr-CoV WIV16
Bat SARSr-CoV Rs4231
Bat SARSr-CoV WIV1
Bat SARSr-CoV SHC014
SARS-CoV SZ3
SARS-CoV BJ01
Bat SARSr-CoV YNLF31C
Bat SARSr-CoV GX2013
Bat SARSr-CoV Rp3
Bat SARSr-CoV SC2018
Bat SARSr-CoV HuB2013
Bat SARSr-CoV Rf1
Bat SARSr-CoV SX2013
Bat SARSr-CoV HKU3-1
Bat SARSr-CoV Longquan-140
Bat SARSr-CoV ZXC21
Bat SARSr-CoV ZC45
SARS-CoV-2 group
Pangolin-CoV
Bat CoV RaTG13
Beta-CoV/Wuhan/IPBCAMS-WH-03
Beta-CoV/Wuhan-Hu-1
Beta-CoV/Wuhan/IPBCAMS-WH-02
Beta-CoV/Wuhan/IPBCAMS-WH-04
Beta-CoV/Wuhan/IPBCAMS-WH-01
Beta-CoV/Wuhan/IPBCAMS-WH-05
Bat SARSr-CoV BM48-31
Bat Hp-BetaCoV Zhejiang2013
Rousettus bat CoV HKU9
MERS-CoV
Tylonycteris bat CoV HKU4
Pipistrellus bat CoV HKU5
Human CoV HKU1
Mus musculus MHV-1
Human CoV OC43
TGEV
Mink-CoV
Rhinolophus bat CoV HKU2
Human CoV NL63
Human CoV 229E
PEDV
Scotophilus bat CoV 512
Miniopterus bat CoV HKU8
Miniopterus bat CoV1
0.50

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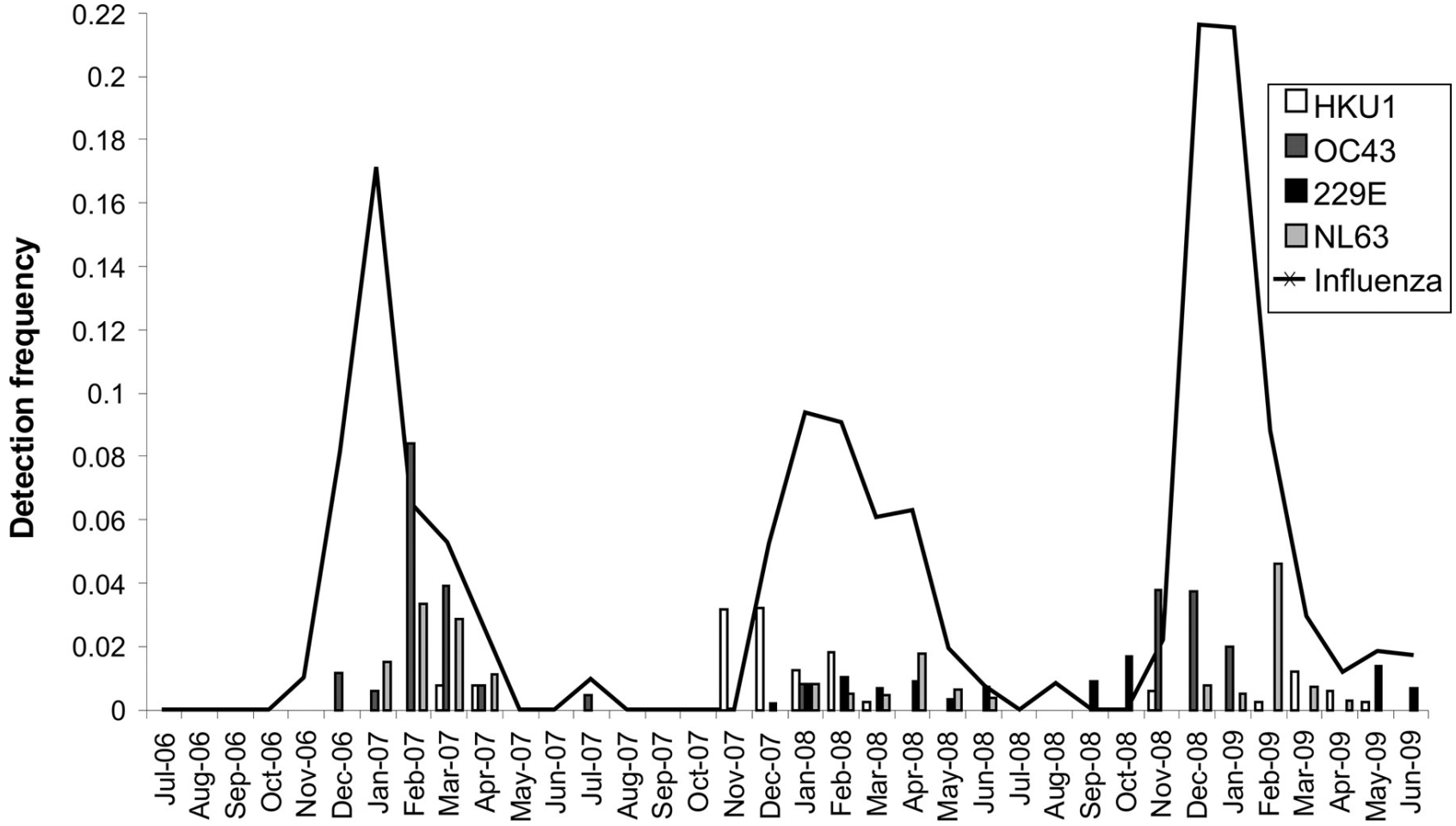
Are coronaviruses seasonal?
Can we expect SARS CoV-2 to be seasonal?



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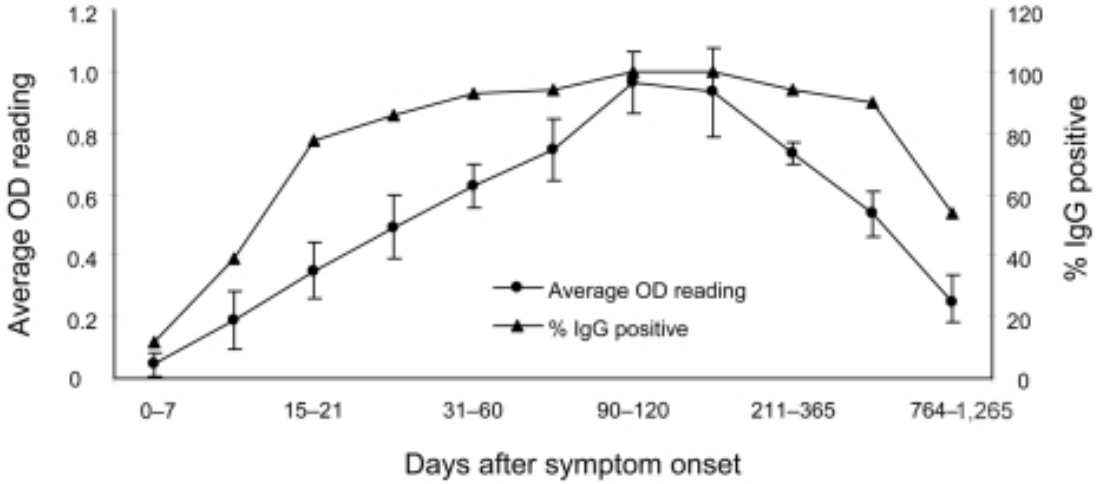
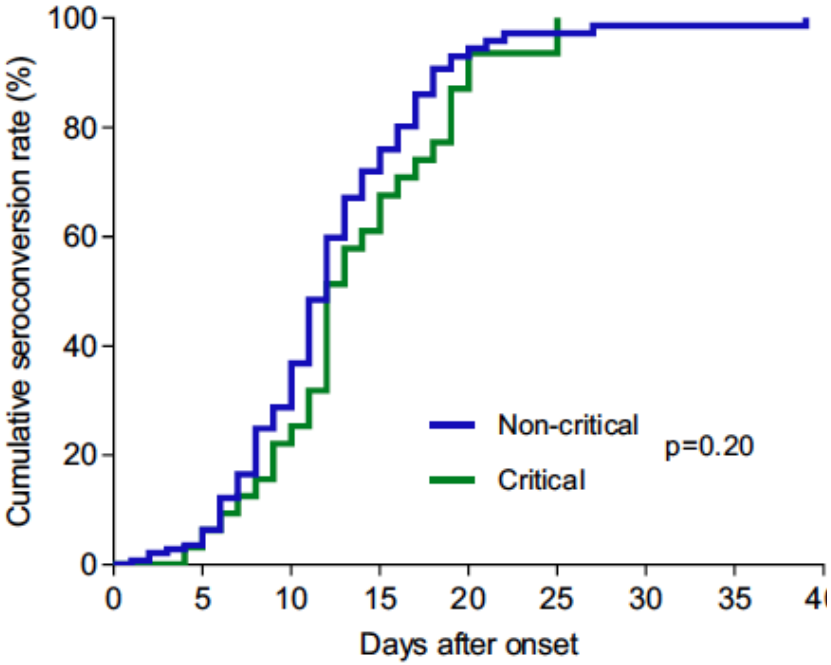
What do we know about coronavirus immunity?

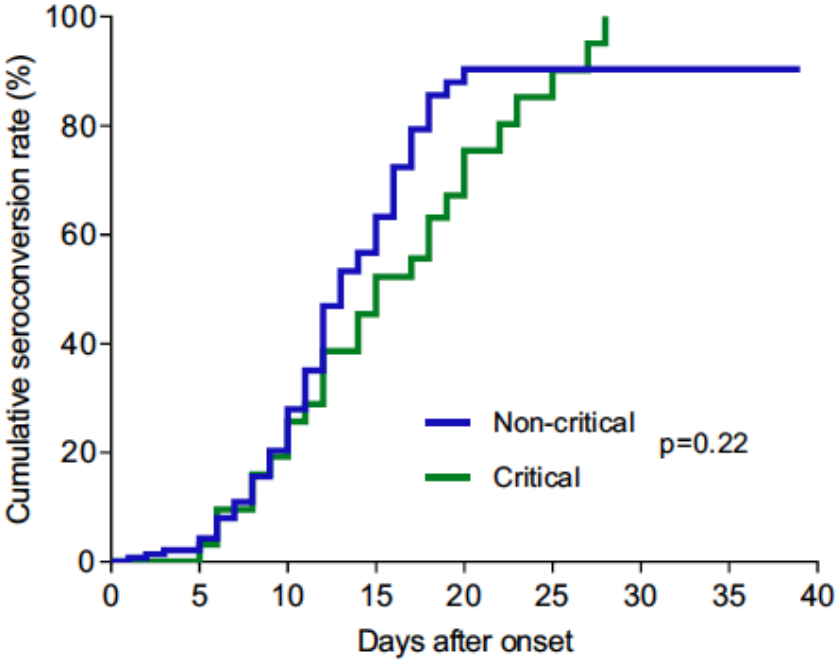
- Repeated infections occur with common CoVs
  - Short-lived antibody protection
- Mild cases may not develop much antibody response
- SARS antibody titers greatly reduced after 3 years



Immune response after COVID-19



IgM



IgG

What do we know about coronavirus immunity?

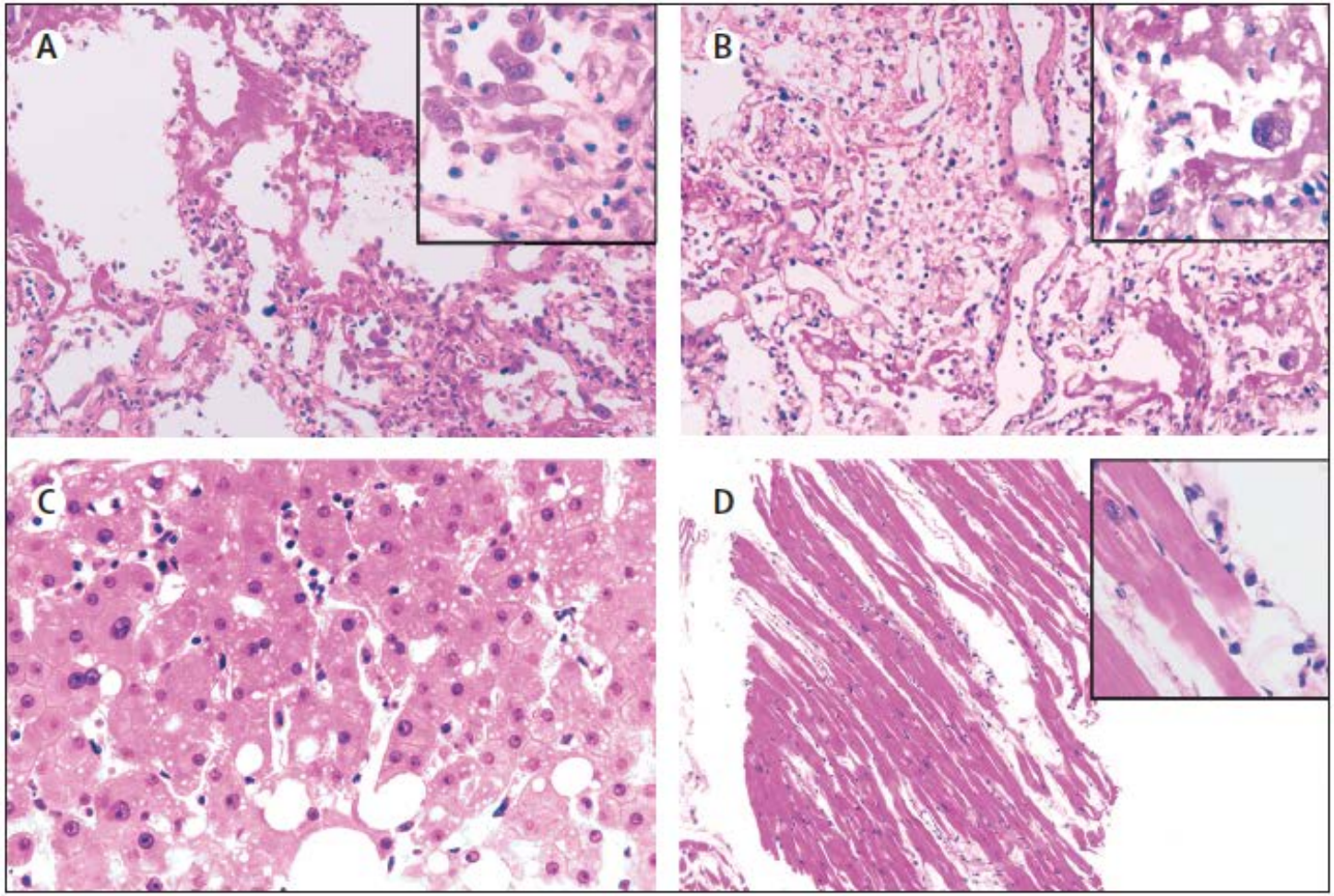
- Monkeys re-exposed to SARS CoV-2 after recovering from COVID-19 do not get re-infected
- Anecdotal reports of recurrent COVID-19 probably erroneous
  - Due to false negative testing

Are there vaccines against coronaviruses?

- Several tested in animals against MERS and SARS CoV
  - Various formats
    - Inactivated
    - DNA
    - Subunit
    - Vectors
- New vaccine for SARS CoV-2 just rolled out
  - mRNA express the spike protein

What is the pathophysiology of COVID-19?

- SARS
  - Pneumocytes and alveolar macrophages infected
  - Macrophage, neutrophil infiltrates
  - Cytokines (IL-6, TNF-α , IL-8)
  - Delayed but persistent interferon
  - Diffuse alveolar damage
  - Fibrinous organizing pneumonia
- COVID-19



Diffuse alveolar damage; edema; hyaline membrane; mononuclear infiltrates

Novel Coronavirus 2019 Epidemiology, Clinical Presentation, Diagnosis, Treatment

Shruti Gohil, MD, MPH
Assistant Professor, Division of Infectious Diseases
Associate Program Director, Epidemiology & Infection Prevention

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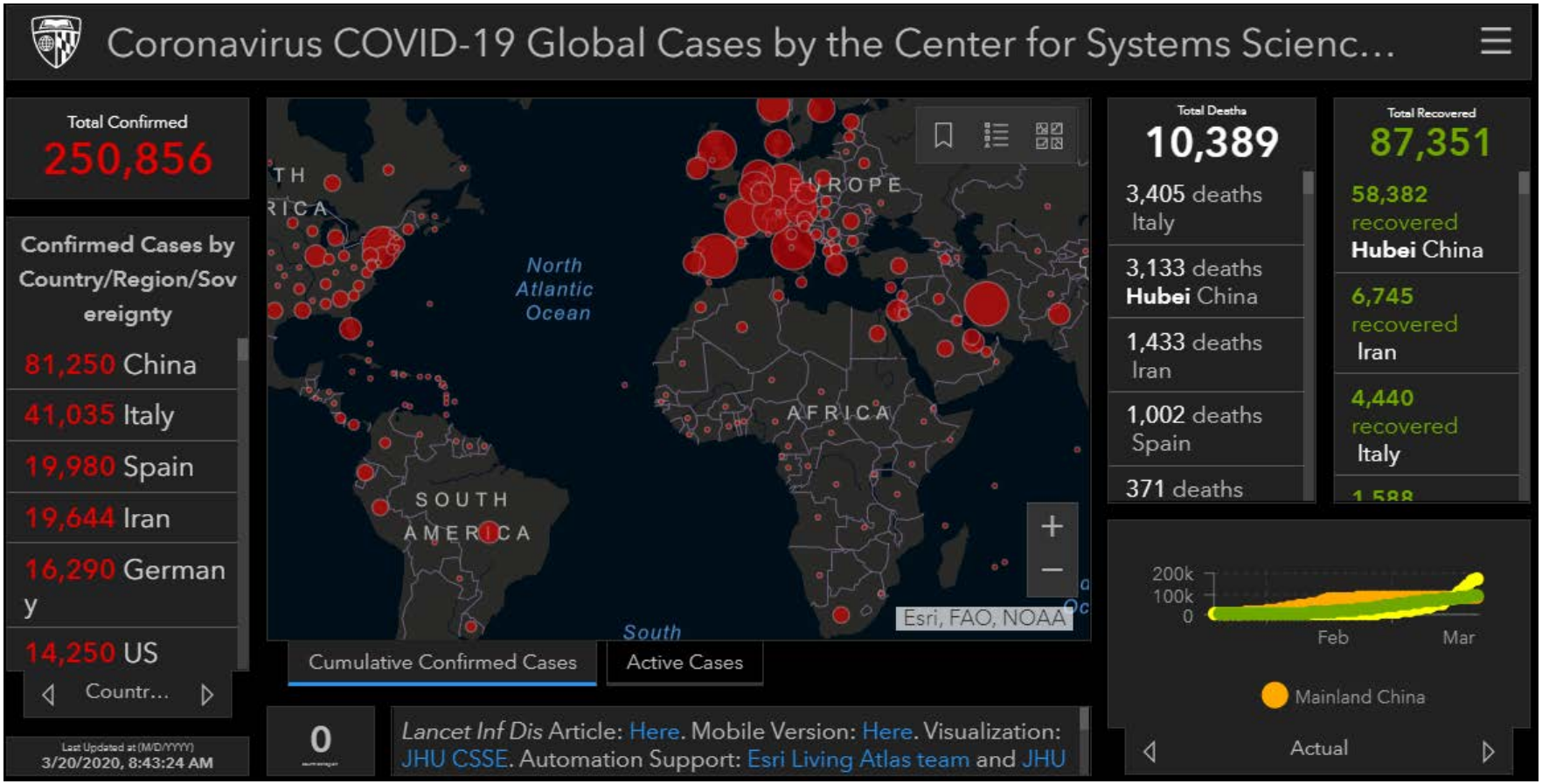
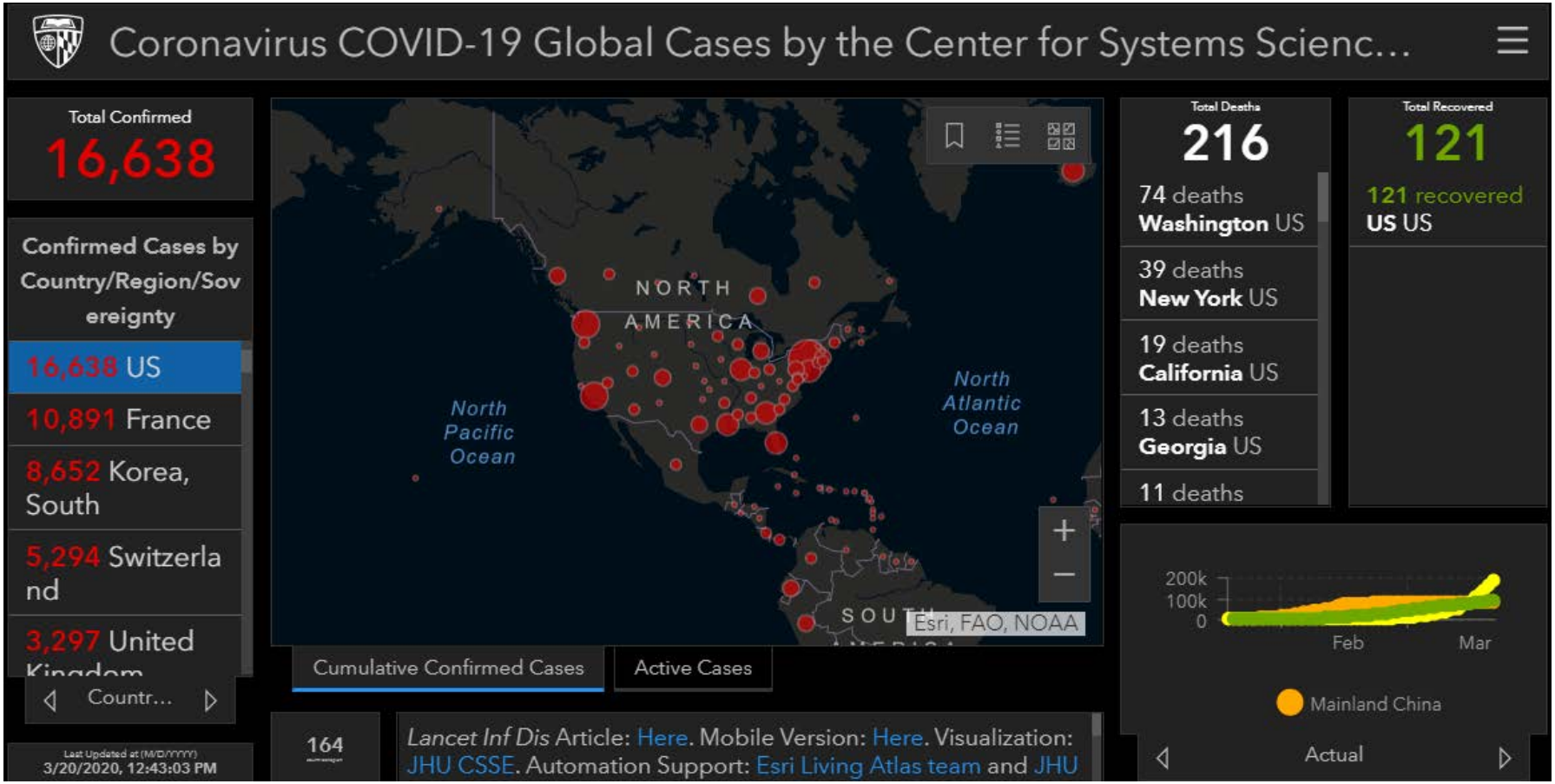
COVID-19 Global Spread



https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6

Snapshot: Thurs, March 20, 8:00am

COVID-19 US Cases



March 20, 2020
California: 1,030 cases, 18 deaths
Age 0-17: 13 cases; 18-64: 392 cases; 65+ 188 cases; 5 unknown age

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COVID-19 Orange County Cases

Orange County, CA COVID-19 Case Counts (as of 03/20/2020)							
		Gender		Age Group (years)			
	Total Cases	Male	Female	<18	18 - 49	50 - 64	≥ 65
Cases	**65**	**39**	**26**	**1**	**33**	**19**	**12**
Total Deaths	0	0	0	0	0	0	0
Travel Related	28	16	12	0	14	10	4
Person to Person Spread*	7	6	1	0	6	1	0
Community Acquired**	26	15	11	1	10	8	7
Under Investigation	4	2	2	0	3	0	1
*Contact to a known case. | **Not travel related or contact to known case.							
Note: Case counts are updated daily.							

March 20, 2020, Total tested: 589

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How Does COVID-19 Present?

- Incubation period: symptoms begin around 4 days from exposure (range 2-14 days)
- Majority mild (81%) flu-like symptoms resolving over 1-2 weeks
- Progression to moderate or severe pneumonia (15%) in second week (day 5-13 of illness, median day 8)
- Most data available is among hospitalized patients:
  - About 20% of hospitalized require ICU (5% of all patients)
  - Respiratory failure, ARDS (17-29%)
  - Septic shock

Zhonghua Liu Xing Bing Xue Za Zhi. 2020;41(2):145–151. DOI:10.3760/cma.j.issn.0254-6450.2020.02.003.
Wu, Z., et al. JAMA. February 24, 2020.doi:10.1001/jama.2020.2648
Chen, F. et al. Zhonghua Er Ke Za Zhi. 2020 Feb 11;58(0):E005. doi: 10.3760/cma.j.issn.0578-1310.2020.0005.
Zu, X. et al. Lancet Respir Med. 2020 Feb 18. pii: S2213-2600(20)30076-X. doi: 10.1016/S2213-2600(20)30076-X.

Coronavirus: Signs & Symptoms

- Fever (77–98%) – can be prolonged, intermittent
- Cough (46%–82%) – often dry, non-productive
- Myalgia or fatigue (11–52%)
- Shortness of breath (3-31%)
- Less commonly reported symptoms, often occurring before fever and respiratory symptoms:
  - Sore throat
  - Headache
  - GI symptoms (diarrhea, nausea)

Huang C, et. al. The Lancet. 2020 Jan 24.
Wang D, et al. Published online February 7, 2020.
Chen N, et al. Lancet. 2020 Jan 30.

Coronavirus: Predominance of Lower Respiratory Symptoms

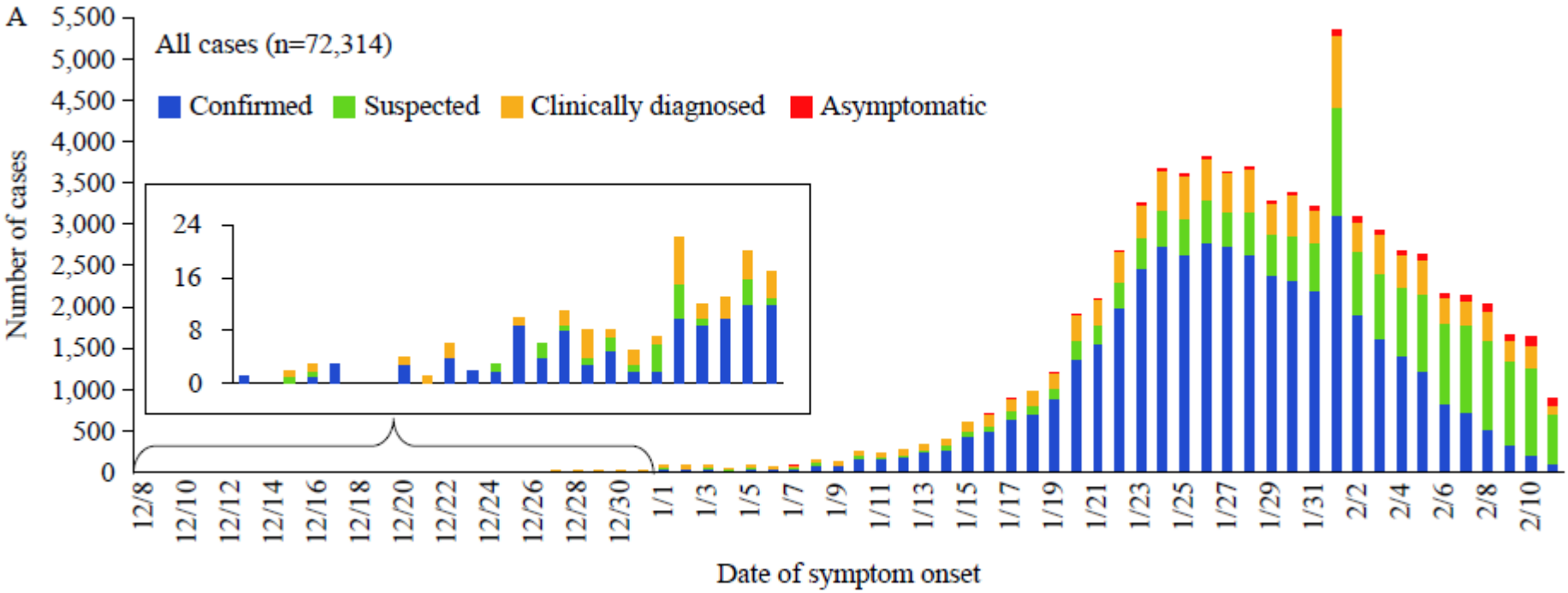
	Coronavirus	Influenza	Common Cold
Fever	**Common – prolonged, intermittent**	**High (100-102) lasting 3-4 days**	Rare
Headache	**Can be present**	**Common**	Rare
Myalgias	**Can be present**	**Usual, often severe**	Slight
Fatigue	**Can be present**	**Usual, starts early**	Very rare
Shortness of breath	**Common in serious infection**	Rare	Rare
Cough	**Common**	**Common, can be severe**	**Mild-moderate**
Sore throat	Uncommon	**Common**	**Common**
Sneezing	Uncommon	Sometimes	**Common**
Runny nose	Uncommon	Sometimes	**Common**

What About Asymptomatic Infection & Spread?

- Asymptomatic infection well documented in many viral syndromes and infections:
  - Influenza – one-third to one-half are asymptomatic[1]
  - Measles
  - Pertussis
  - *Neisseria meningitidis*
- Majority are children, young adults
- **Thought to be significantly less likely to spread[2]**

[1]Carrat F, et al. Am J Epidemiol. 2008;167:775–85.
[2]Patrozou, E., Mermel, L. Public Health Rep. 2009 Mar-Apr; 124(2): 193–196.

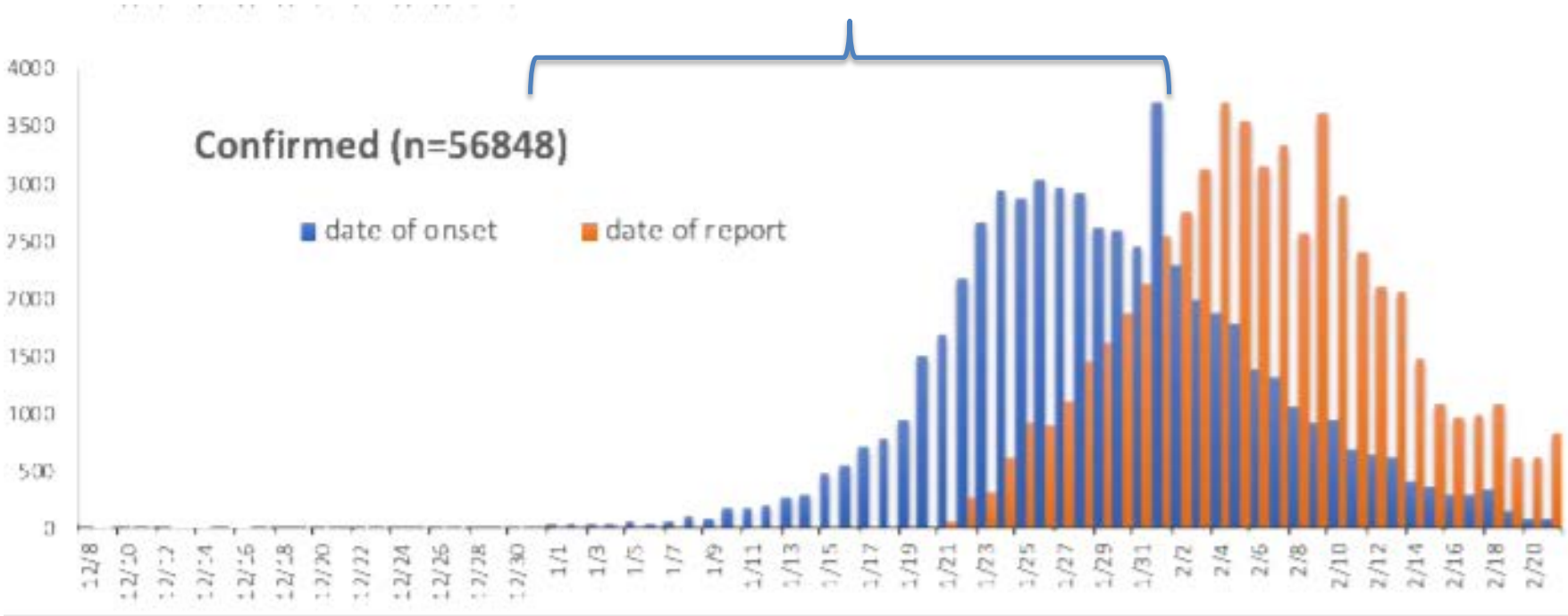
Coronavirus – Vast Majority Symptomatic



Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. Vital surveillances: the epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)—China, 2020. China CDC Weekly. Accessed February 20, 2020.

Coronavirus – Initial Epidemiology Curve

Thousands of <u>symptomatic patients</u> went undetected, unknowingly spreading disease, and seen in healthcare without <u>ANY</u> personal protective equipment



Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Final Report February 16-24, 2020.

Coronavirus Spread in Chinese Healthcare Settings

Thousands of symptomatic patients went undetected, unknowingly spreading disease, and seen in healthcare without ANY personal protective equipment

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Coronavirus Mortality in China

Mortality impacted by number of cases overwhelming system

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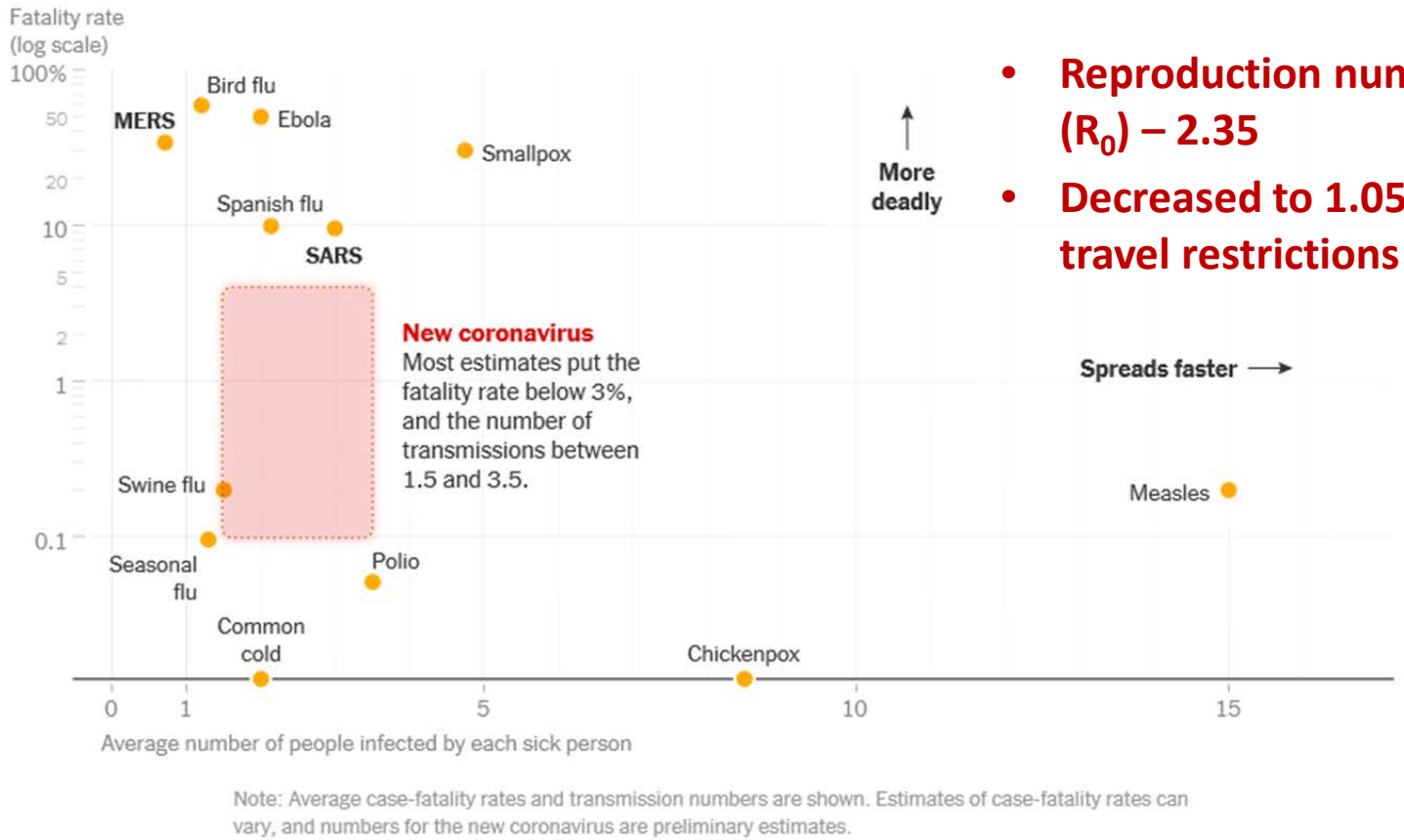
How Infectious Is COVID-19?



- **Reproduction number (R_0) – 2.35**
- **Decreased to 1.05 after travel restrictions**

Graph courtesy of: New York Times, February 7, 2020.
Kucharsky, AJ, et al. Lancet Infect Dis. March 11, 2020, https://doi.org/10.1016/S1473-3099(20)30144-4

COVID-19 PCR Detected in Multiple Body Sites

Case series - 9 patients with PCR and viral culture taken from multiple body sites day 1-22 of hospitalization

- Respiratory – detected throughout
  - Highest in pharyngeal samples
  - Highest in first week of illness
- Blood – not detected
- Urine – not detected
- Stool – high viral RNA counts, viable virus not found

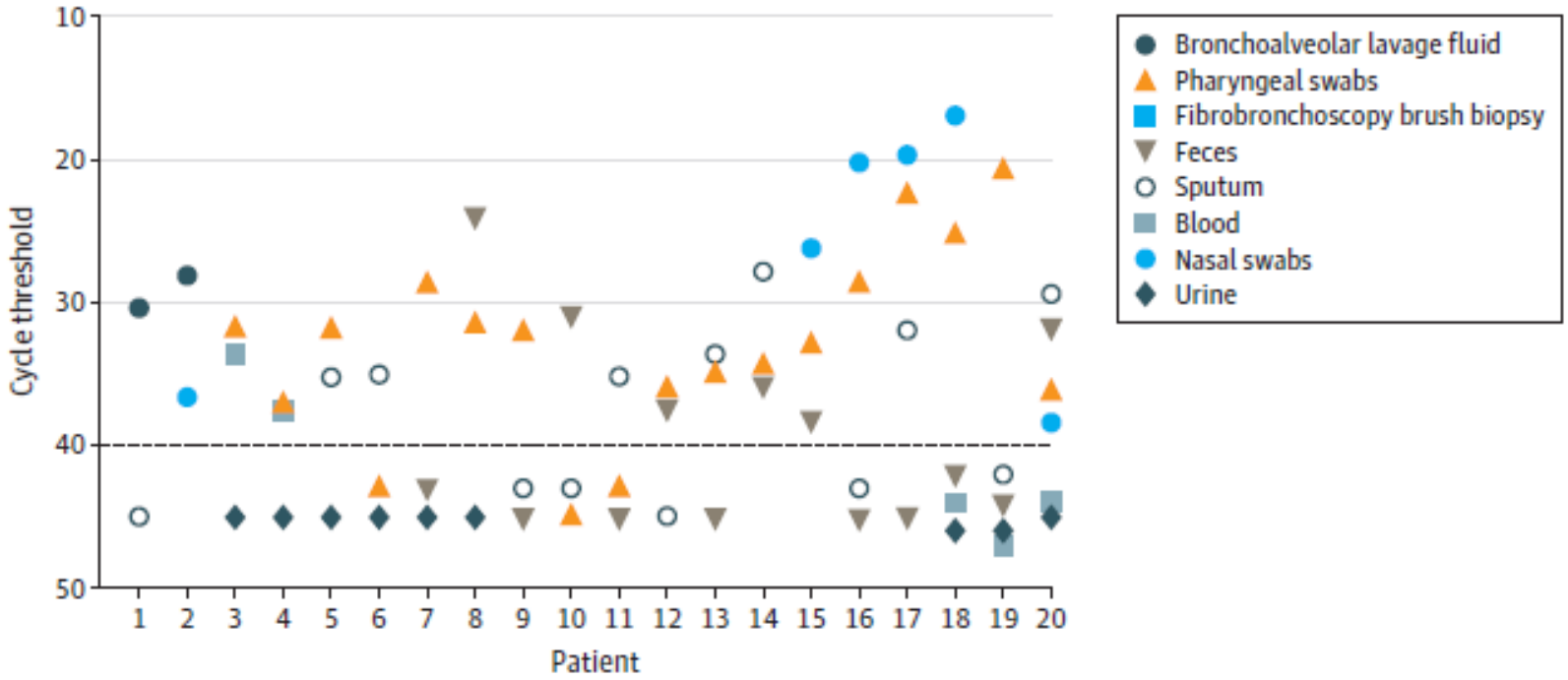
Viral shedding greatest in respiratory tract

Clinical Significance of viral PCR unclear – detectable dead or alive!

Tang, A., et al. Emerging Infectious Diseases. 26(6): June 2020

COVID-19 PCR Detected in Multiple Body Sites

Figure. Severe Acute Respiratory Syndrome Coronavirus 2 Distribution and Shedding Patterns Among 20 Hospitalized Patients



Wang, J., et al. JAMA, March 11, 2020. doi:10.1001/jama.2020.3786

What is the Clinical Significance of Positive PCR When Assessing Transmission Risk?

- COVID-19 PCR detects presence of viral RNA
- Cannot tell us if virus is viable
- Can be positive for weeks after clinical infection resolves
  - Examples: *C. difficile*, influenza, RSV
- Stool – high viral RNA counts, **but no viable virus found**

Not possible to translate detection of virus in body fluids to ability for transmission

Risk Factors for Severe Illness from COVID-19

- Older adults – age ≥ 70
- Immunocompromised
- Chronic medical conditions
  - Cardiovascular disease
  - Lung disease
  - Renal disease
  - Diabetes
  - Cancer
  - Liver disease

Case Fatality Highest Among Older Patients

- **China 1.4%** (surveillance) - **2.3%** (hospitalized)
- **S. Korea 0.6%** (surveillance)

TABLE 1. Patients, deaths, and case fatality rates, as well as observed time and mortality for n=44,672 confirmed COVID-19 cases in Mainland China as of February 11, 2020.

Baseline characteristics	Confirmed cases, N (%)	Deaths, N (%)	Case fatality rate, %	Observed time, PD	Mortality, per 10 PD
Overall	44,672	1,023	2.3	661,609	0.015
Age, years					
0–9	416 (0.9)	–	–	4,383	–
10–19	549 (1.2)	1 (0.1)	0.2	6,625	0.002
20–29	3,619 (8.1)	7 (0.7)	0.2	53,953	0.001
30–39	7,600 (17.0)	18 (1.8)	0.2	114,550	0.002
40–49	8,571 (19.2)	38 (3.7)	0.4	128,448	0.003
50–59	10,008 (22.4)	130 (12.7)	1.3	151,059	0.009
60–69	8,583 (19.2)	309 (30.2)	3.6	128,088	0.024
70–79	3,918 (8.8)	312 (30.5)	8.0	55,832	0.056
≥80	1,408 (3.2)	208 (20.3)	14.8	18,671	0.111

Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. Vital surveillances: the epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)—China, 2020. China CDC Weekly. Accessed February 20, 2020.
Guan, W. et.al, NEJM, February 28, 2020, DOI: 10.1056/NEJMoa2002032.

COVID-19 Mortality Highly Variable

- Lack of reliable denominators severely complicate interpretation but mortality may vary by access to high level critical care

	Cases	Deaths	Percent Mortality
Worldwide	266,115	11,153	4.2%
China	81,250	3,253	4.0%
Italy	47,021	4,032	8.6%
Spain	20,410	1,043	5.1%
South Korea	8,652	94	1.1%
Germany	19,711	53	0.3%
US	16,638	216	1.3%
California	870	16	1.8%

Calculations based on March 20, 2020 case counts from
https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6
Snapshot: Thurs, March 20, 8:00am

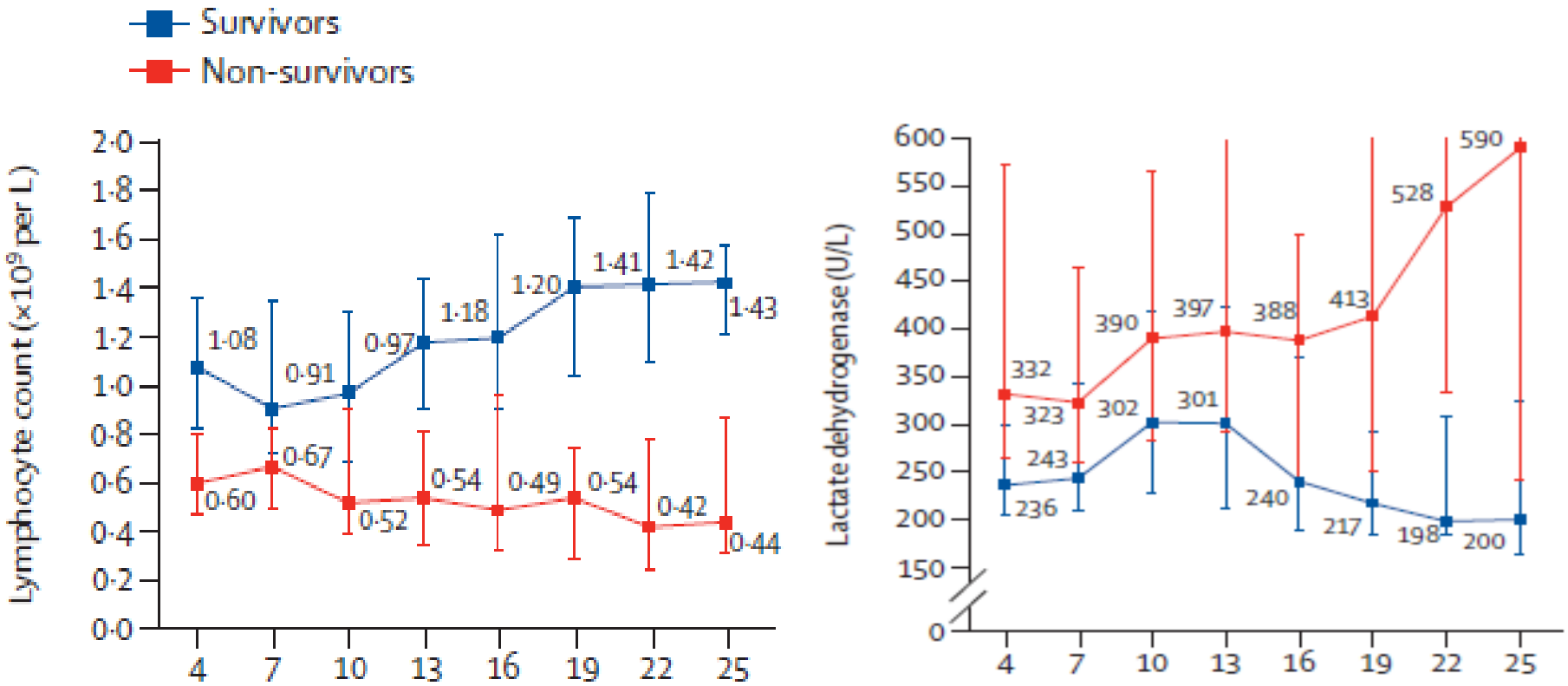
What Lab Abnormalities Are Most Common?

Among hospitalized patients, most common lab abnormalities:

- **Lymphocytopenia** (63%-83%) (low lymphocyte count)
- **WBC** can be high (leukocytosis, 24–30%) or low (leukopenia, 9–25%)
- **Elevated ALT or AST** levels (37%)
- **Thrombocytopenia** (36%)
- Serum procalcitonin is normal in most

Huang C, et. al. The Lancet. 2020 Jan 24.
Chen N, et al. Lancet. 2020 Jan 30.

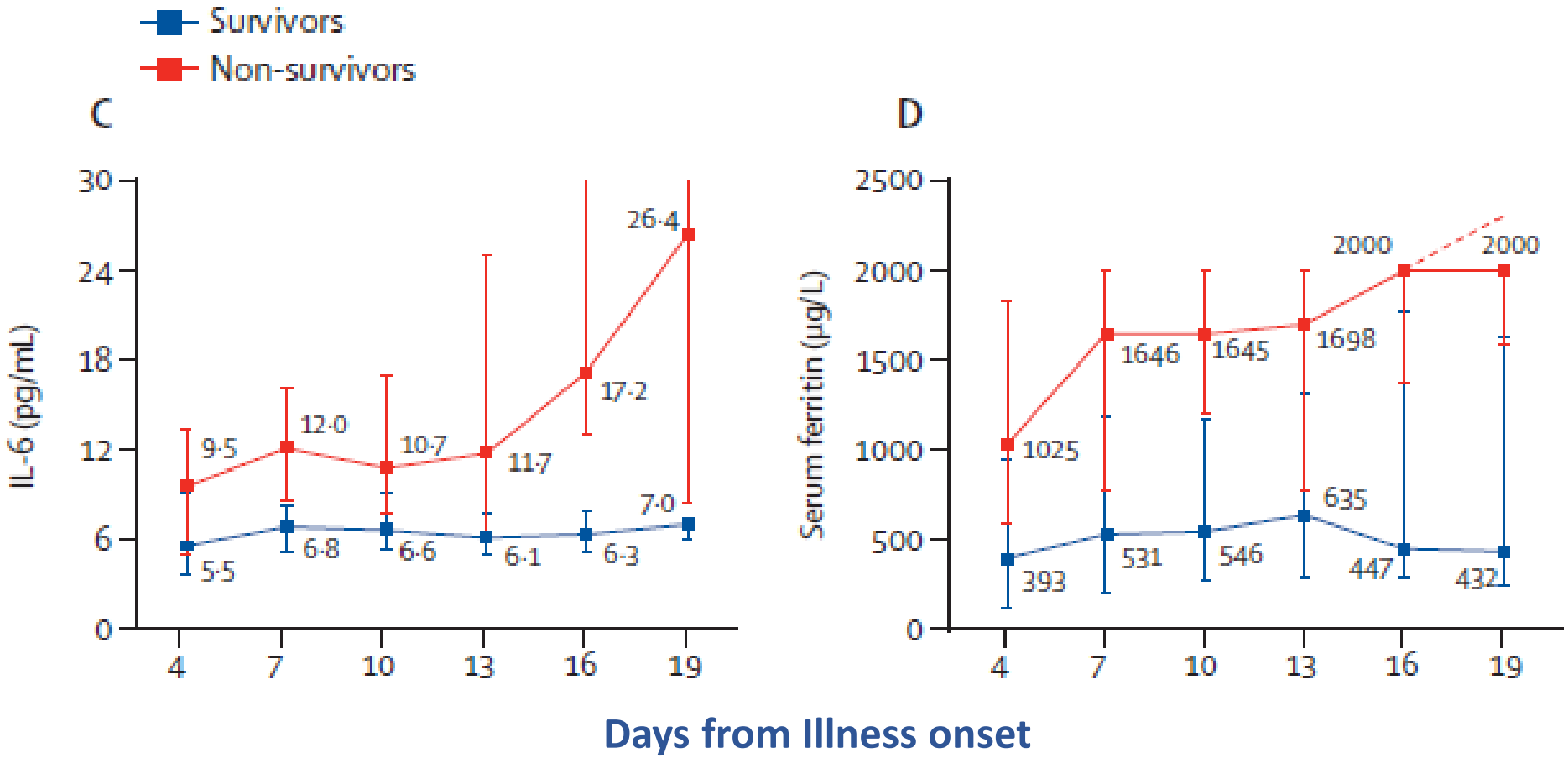
Lab Abnormalities Associated With Mortality



Days from Illness onset

Zhou, F, et al. Lancet. March 9, 2020, https://doi.org/10.1016/S0140-6736(20)30566-3

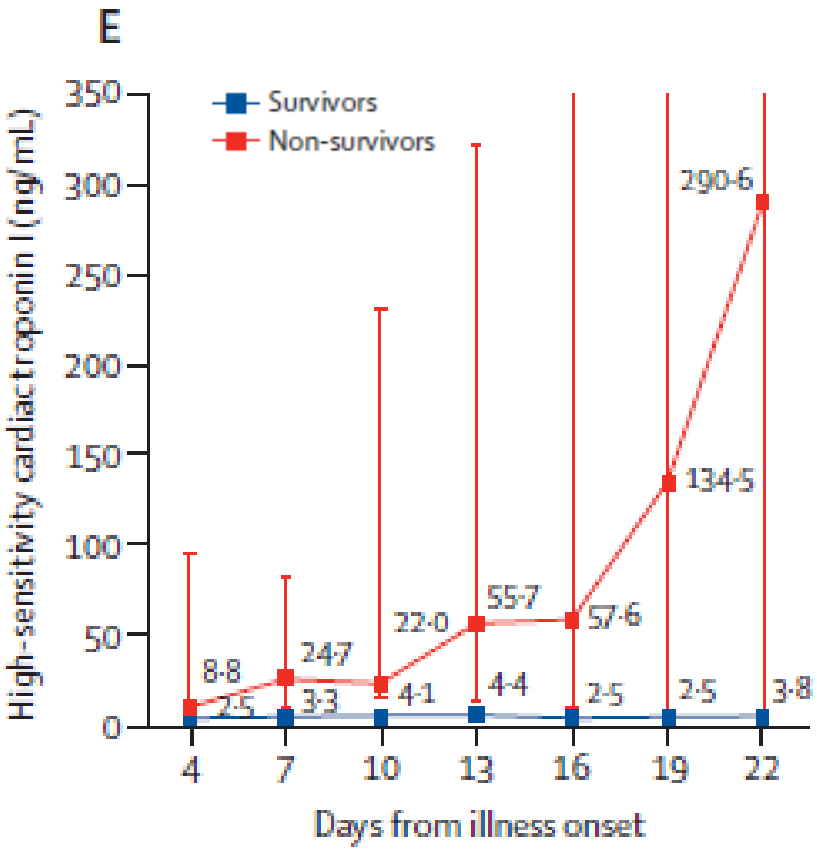
Lab Abnormalities Associated With Mortality



Zhou, F, et al. Lancet. March 9, 2020, https://doi.org/10.1016/S0140-6736(20)30566-3

Coronavirus & Cardiovascular System

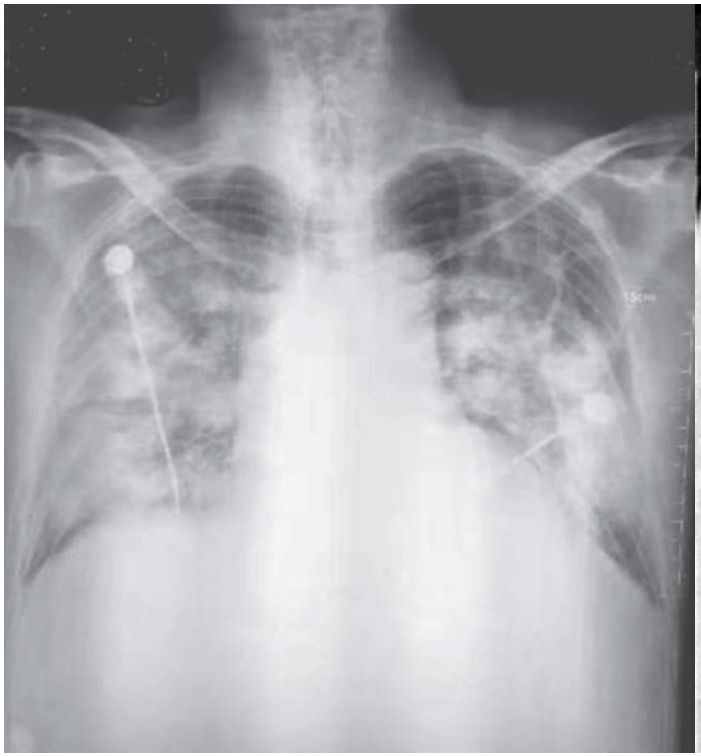
- CV disease (e.g. HTN) associated with COVID-19 – confounded by high prevalence of chronic disease
- Viruses well known to have cardiac impact
- COVID-19 impact:
  - Acute myocarditis
  - Heart failure
  - Myocardial injury via demand ischemia
  - Arrythmia

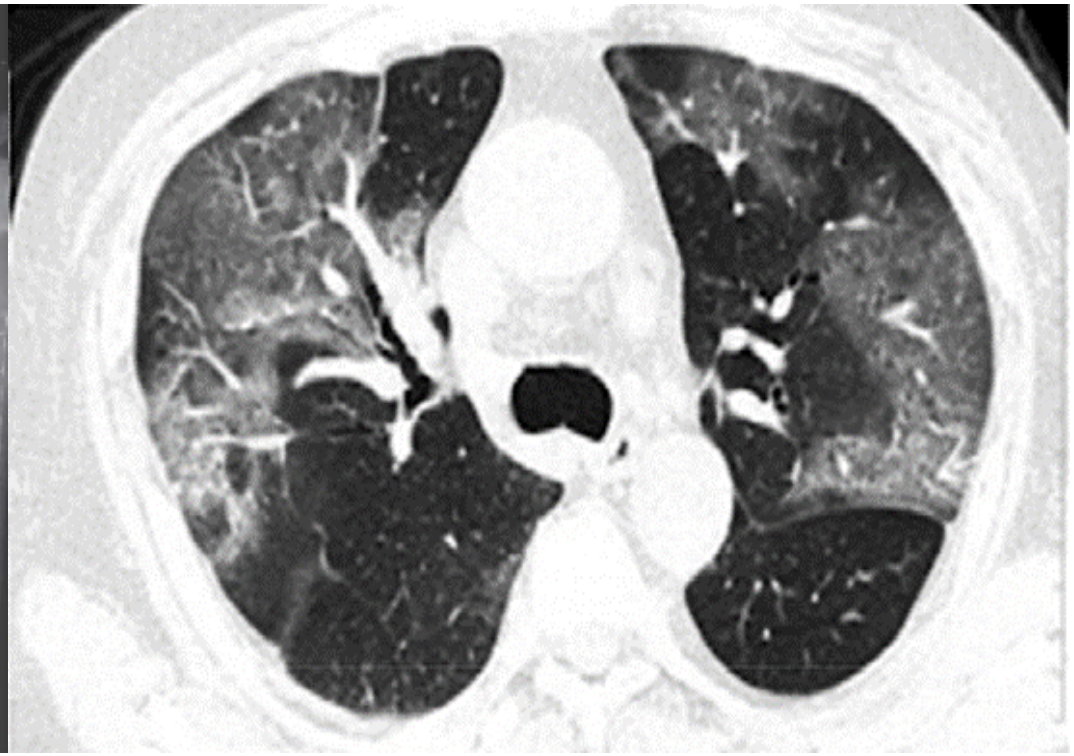


Zhou, F, et al. Lancet. March 9, 2020, https://doi.org/10.1016/S0140-6736(20)30566-3

What Radiographic Findings Are Most Common?

- Bilateral peripheral consolidations, ground glass opacities
- Can be out of proportion to symptoms





Testing: The Ideal World vs Reality

Ideal World

- Test everyone – whether mild or severe
- Have real time information to guide clinical management and infection prevention strategy

Reality

- Testing capacity still limited
  - Reagent availability
  - Swab availability
  - Staff/personnel to process sample
- Sensitivity data for clinical disease unclear (40-75%)

Clinical judgement is paramount!

Who Should Be Prioritized for Testing?

- Only test **symptomatic patients**
- Patients whose symptoms or illness trajectory suggests potential to be hospitalized.
- Consider chest X-ray first – faster
- Symptomatic patients at high risk for severe disease: age ≥ 70 years, comorbidities, immunocompromise.
- Symptomatic patients who have traveled internationally to area of widespread COVID-19 or contact with confirmed case within past 14 days.

Which Hospitalized Patients Do Not Need Testing?

- Fever, cough, and shortness of breath can be present in many illnesses other than COVID-19
- Investigating alternative causes for respiratory illness critical to assure patients get correct treatment up front
- Do **NOT test** for COVID-19 if:
  - Cause of pneumonia known (e.g., aspiration, trauma)
  - Clinical picture not consistent with viral process
  - Chronic symptoms or non-infectious lung findings (cough due to GERD, tumor)
  - Hospital acquired pneumonia
  - Patient asymptomatic

What Tests Should Be Sent?

- Nasopharygeal sample should be sent for PCR
- Collect **with sterile polyester tip swab**
- **Place swab in <u>single viral transport media vial</u>**
- Testing Laboratories
  - Orange County Health Care Agency (24-hour TAT)
  - LabCorp, Quest Diagnostics, ARUP (variable TAT)
  - UC Irvine Medical Center (24-hour TAT)

Testing for Outpatients (ED and Clinic)

Ordering physician should:

- NOT test asymptomatic patients
- Ask patient to stay home until results return
- Obtain samples in a safe way (mask + eye protection)
- Follow-up results and discuss with patient
- If test returns positive, report to OC Health Department

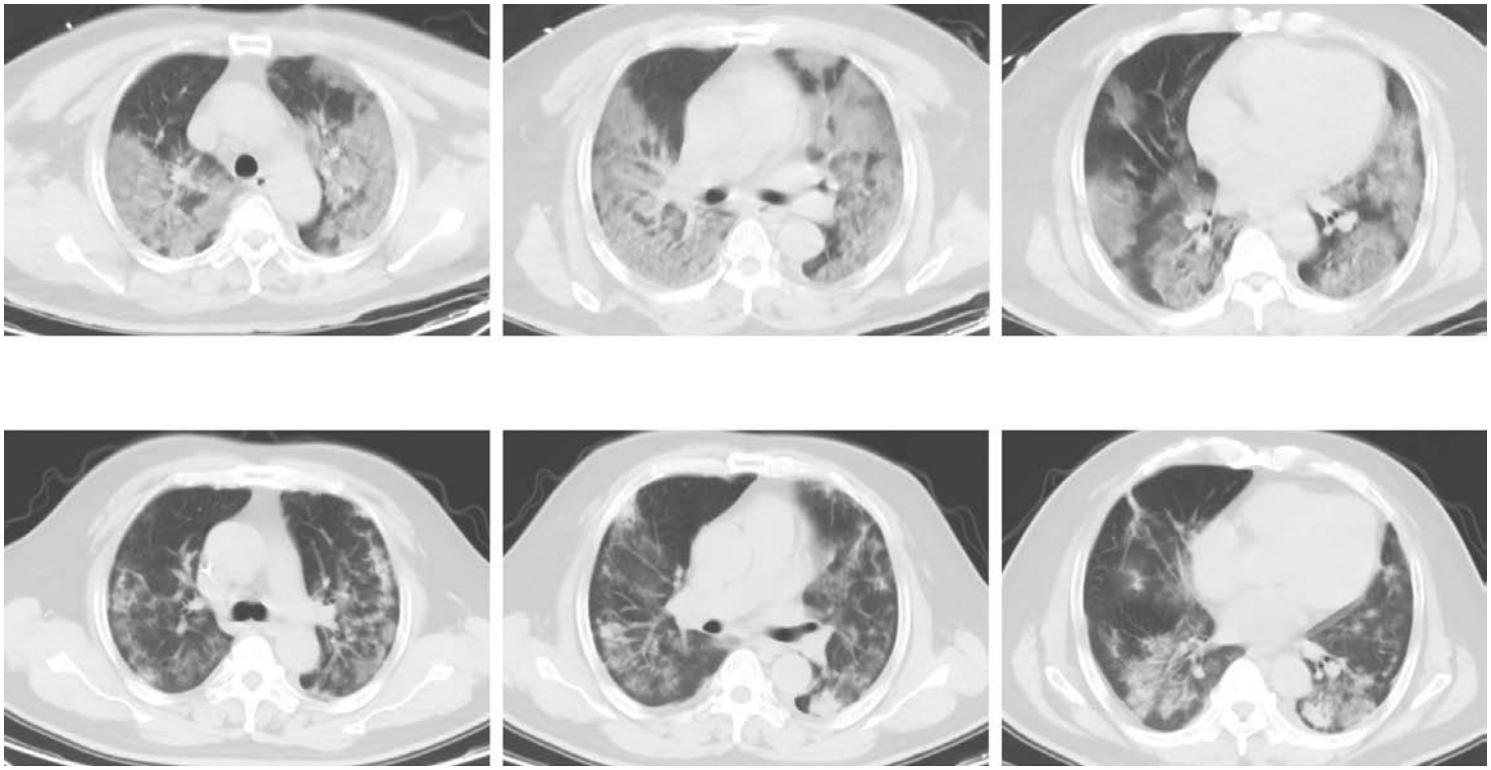
What Treatments Can Be Considered?

- Largely supportive treatment
- Investigational Therapies
  - **Remdesivir** – NIH adaptive RCT – nucleotide analog, broad spectrum antiviral
  - **Chloroquine** (hydroxychloroquine) – antiviral + inhibits cytokine storm
  - **Tocilizumab** (IL-6 inhibitor) – inhibits cytokine storm
  - **Favipiravir** – RNA polymerase inhibitor
  - **Lopinavir/ritonavir** (Kaletra) – no benefit in recent RCT

Cao, B., et al. NEJM. March 18, 2020. DOI: 10.1056/NEJMoa2001282
Liu, J., et al. Cell Discovery. 6, 16(2020)

Use of ECMO to Manage Coronavirus ARDS

- ECMO role unclear, may stimulate IL-6
- Regression of pulmonary edema, infiltrates after ECMO



These Unprecedented Times Call For…

- **Clinical judgment**
  - Triaging patients
  - Diagnostic evaluation
  - Treatment
- **Critical assessment**
  - Patient presentation
  - Published literature
- **Putting the whole picture together**
- **Working together as a system**

COVID-19
Infection Prevention

Susan Huang, MD, MPH
Professor, Division of Infectious Diseases
Medical Director, Epidemiology & Infection Prevention

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Orange County Status: COVID-19

- Initially, OC was in containment mode – how to prevent any case from entering
- On Friday, March 13, the first case of community spread (no travel exposure or contact with traveler) was identified
- More found due to testing availability (screening/test bias)
- OC Public Health switched gears
  - ✓ No more travel screening
  - ✓ No more community contact tracing
  - ✓ Target high risk spread and mitigation

Community Spread of COVID-19

- We are likely to be exposed to COVID-19 from family, friends, and in the community (e.g. at the grocery store, getting gas…)
- Your risk in the community is higher than at work where hand hygiene is outside and inside all patient rooms and PPE is used
- It is estimated that 50-70% of people will eventually be infected
- For most, COVID-19 will be a bad cold or a flu-like illness
- The goal is to protect the elderly and those who have serious chronic illnesses and immunocompromised states from catching COVID-19 before a vaccine becomes available

Los Angeles County: Cases by City

CITY/COMMUNITY*	
Alhambra	2
Arcadia	2
Baldwin Hills	1
Beverly Hills	4
Beverlywood	2
Boyle Heights	5
Brentwood	13
Burbank	1
Calabasas	1
Carson	1
Castaic	1
Covina	1
Crestview	1
Culver City	3
Diamond Bar	2
Eagle Rock	1
East Los Angeles	1
Echo Park	1
Encino	6
Gardena	1
Glendale	4
Granada Hills	4
Hancock Park	2
Hawthorne	1
Hollywood Hills	2
Hollywood	5
Inglewood	2
Koreatown	1
La Mirada	3
Lawndale	1
Lomita	5
Lynwood	1
Manhattan Beach	5
Mar Vista	1
Melrose	11
Monterey Park	2
North Hollywood	3
Northridge	1
Pacific Palisades	5
Palms	1
Park LaBrea	3
Playa Vista	1
Reseda	1
San Dimas	1
San Pedro	1
Santa Clarita	3
Santa Monica Mountains	2
Santa Monica	2
Sherman Oaks	5
South El Monte	1
South Pasadena	1
Stevenson Ranch	1
Studio City	3
Sylmar	1
Tarzana	5
Torrance	2
Tujunga	1
University Park	1
Valley Glen	1
Van Nuys	1
Venice	4
Vermont Knolls	1
Walnut	1
West Adams	1
West Hills	3
West Hollywood	12
West Los Angeles	2
West Vernon	1
Westchester	3
Westwood	2
Whittier	2
Woodland Hills	3
Under Investigation	30

As of 12pm 03/19

UCI Health

General Reminders: Standard Precautions

- **Wear PPE based on known or anticipated risk of exposure**
  - ✓ Example: gown, gloves, mask and face-shield with penetrating trauma
  - ✓ Example: gloves with oral/dental care
  - ✓ Example: gown, gloves for bathing, large wound care, burn care

- **Practice 5 Moments of Hand Hygiene**
  - ✓ Before patient contact
  - ✓ Before clean/aseptic procedures
  - ✓ After body fluid/exposure risk
  - ✓ After patient contact
  - ✓ After touching patient surroundings

General Reminders: Droplet Precautions

Droplet Diseases

- Meningococcus, influenza, rhinovirus, coronavirus, pertussis
- Spreads by droplets within 3-6 feet
- Source control is ideal
  - ✓ Mask the patient (best)
  - ✓ If patient can't mask, provider masks
- Standard precautions still applies

Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19)

Interim guidance
27 February 2020

World Health Organization

Preventive measures for COVID-19 disease

Based on the available evidence, the COVID-19 virus is transmitted between people through close contact and droplets, not by airborne transmission. The people most at risk of infection are those who are in close contact with a COVID-19 patient or who care for COVID-19 patients.

https://apps.who.int/iris/bitstream/handle/10665/331215/WHO-2019-nCov-IPCPPE_use-2020.1-eng.pdf

OSHA®
www.osha.gov

The virus is thought to spread mainly from person-to-person, including:

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) other people who may be infected with SARS-CoV-2.

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

What Healthcare Personnel Should Know about Caring for Patients with Confirmed or Possible COVID-19

How COVID-19 Spreads

There is much to learn about the newly emerged COVID-19, including how and how easily it spreads. Based on what is currently known about COVID-19 and what is known about other coronaviruses, spread is thought to occur mostly from person-to-person via respiratory droplets among close contacts.

Close contact can occur while caring for a patient, including:

- being within approximately 6 feet (2 meters) of a patient with COVID-19 for a prolonged period of time.
- having direct contact with infectious secretions from a patient with COVID-19. Infectious secretions may include sputum, serum, blood, and respiratory droplets.

If close contact occurs while not wearing all recommended PPE, healthcare personnel may be at risk of infection.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/caring-for-patients.html

Airborne Pathogens & Aerosols

Reports of Airborne Detection

- Laboratory generated aerosols/room air sampling detection reported
- What is needed for airborne transmission?
  - ➢ Evidence for aerosols
  - ➢ Epidemiologic data on how often that results in human illness
  - ➢ COVID-19 is **droplet spread with close contact**

Aerosol Generating Procedures

- Examples: CPR, intubation, extubation, bronchoscopy, sputum induction, non-invasive positive pressure ventilation, nebulizer therapy
- Wear N95 (short procedures) or PAPR (long procedures) + Eye PPE
  - ✓ Only wear for the procedure itself

More Is Not Better

Right-Sizing the Risk

- ✓ Anti-science. Doesn't provide additional protection.
- ✓ Takes valuable resources away from those who need it
- ✓ Generates critical shortage
- ✓ Stokes fear
- ✓ Impracticality, disbelief leads to variable compliance, confusion

Stand Up for Science

- ✓ Do not wear a mask if you are asymptomatic
- ✓ Do not wear excess PPE. It should match the guidance and need

UC Davis Experience

1st US Community Case

- ✓ Severely ill ICU patients with no travel history
- ✓ Late test for COVID-19 → many HCW without appropriate PPE
- ✓ >120 persons furloughed for 14 days
- ✓ Majority critical care nurses, doctors essential to hospital
- ✓ **Conversions ZERO**

Public Health, CDC Guidance

- ✓ Droplet PPE is protective
- ✓ HCW, even if exposed, can work if asymptomatic

Respiratory Precautions for Assessment: Two-Way Droplet

Patient and Provider Both Masked for Exam

- Respiratory viruses (e.g. coronavirus) spread by droplets w/in 3-6 feet
- No immunity, novel virus → heightened two-way protection
- Added protection if patient does not keep mask on
- Control the source & give provider control
  - ✓ Mask the patient
  - ✓ Mask provider
- If patient incompletely masked, won't mask
  - ✓ Provider wears Droplet + Eye Precautions

Ambulatory/ED Respiratory Precautions: Nasopharyngeal Swabs for Flu or COVID-19

Patient with Respiratory Symptoms

- Need NP swab? Use Droplet-Eye Precautions **+ gloves**

+

OR

- UCI COVID-19 testing locations are available to you
  - ✓ Can order test and send patients there for COVID-19 +/- flu
  - ✓ NOTE: testing staff may use PAPRs for comfort vs droplet/eye

Ambulatory Respiratory Precautions: 2-Way Droplet or Droplet Eye Precautions

+

+

OR

Maximize distance, when able

Inpatient Respiratory Precautions: Droplet-Eye Precautions

Inpatients are unable mask all the time

- All infectious respiratory admissions
  - ✓ Droplet + Eye Protection
    - ➢ Mask + face shield
    - ➢ Mask/shield combo
    - ➢ Mask + goggles

Inpatient Respiratory Precautions: When to Discontinue

Modify precautions based upon diagnosis

- Influenza → Droplet precautions
  (eye protection as needed per Standard precautions)
- RSV → Contact precautions
- TB → Airborne precautions
- Respiratory syndrome still unknown → Droplet Eye precautions
- Congestive heart failure → Standard precautions
- Cough due to GERD → Standard precautions

Personal Protective Equipment Re-Use Guidance

EVERYONE's job to conserve

- Re-use unless soiled, wet, damaged, or loses fit
  - ✓ N95 and regular masks (store in plastic bag)
  - ✓ Face shield and goggles (clean with alcohol)
- When **NOT** to re-use mask
  - ✓ Ex: Intubation
  - ✓ Ex: Within 6 feet of a procedure or activity causing splash, spray or aerosol (e.g. surgical field, coughs in your face)
  - ✓ Ex: Not sure mask still clean → discard
- **No students** to enter any isolation room (due to PPE conservation)

Working Well Policy

EVERYONE's job to stay home if ill

- Stay home if fever ≥100 F or trajectory is headed ≥100 F
  - ✓ Do not take fever-reducing medications to come to work
  - ✓ You are **contagious**. Working while ill is **harmful** to patients, staff
  - ✓ Inform your supervisor, chief, chair. They will be supportive.
- If respiratory symptoms without fever, but well enough to work
  - ✓ Stay home if you can
  - ✓ You are **contagious**. Wear mask, wash hands before/after touching common objects that others may touch.
- **Do NOT wear masks if you are asymptomatic**

Cleaning and Clothing

Cleaning: COVID-19 is easy to kill

- ✓ All our routine hospital disinfectants are effective
- ✓ Soap, alcohol hand rub, laundry detergent active

Clothing:

- ✓ To acquire COVID-19 from clothing, need breach with droplet spray to clothes from patient with respiratory illness, then hands touch droplets then rub eyes, nose or mouth with unclean hands
- ✓ Viral droplets less persistent than bacteria (e.g. MRSA, VRE, C diff, CRE, ESBL), and we wash at home for those and do not get sick
- ✓ Clothes can go into the hamper, wash with usual laundry
- ✓ Clean hands before and after you eat, touch face

Where to Get Updated Guidance?

Epidemiology & Infection Prevention Sharepoint

UCI Health Intranet

Phonebook / Pager | Keyword(s) | Search

Communication | Clinical Tools | Administration Tools | Employee Tools | School of Medicine Tools | Nursing | Help & Support | SharePoint Directory | Portals / Dashboards

Phonebook / Pager Search

Personal Quick Links

API LaborWorkx (Time & Att/Sched)
HR Connect
UC Learning Center

View All | Manage

Epic Application

Travel and illness screening for novel coronavirus now in effect

Access resources ›

Novel Coronavirus Updates

Travel screening now in effect for novel coronavirus. Learn more about personal protective equipment (PPE) special precautions and mask conservation ›

Quick Links

ACHIEVE Online
Antibiotic Stewardship
Calculate HLD
Catering
CE Direct
Clinical Pathways/Algorithms
Compliance and Privacy
Employee Experience Center
Epic Reference Order Sets
Human Resources
Infection Prevention
Information Services Help
Lab Test Directory
Leadership

Where to Get Updated Guidance?

COVID-19 Sharepoint

Presentations & Clinical Updates

UCI Town Hall Presentations

- Coronavirus - MD Town Hall 03.12.20
- GME COVID Town Hall 03.12.20

RN Clinical Updates

- 2020 01 29 Coronavirus Clinical Update-January
- 2020 01 29 Travel Screen Wuhan-Clinical Update
- 2020 01 31 Coronavirus Clinical Update-January
- 2020 01 31 Travel Screen China-Clinical Update J
- 2020 02 03 Coronavirus Travel Screen China-Clini
- 2020 02 05 Coronavirus Clinical Update-February
- 2020 02 18 COVID-19 Special Precautions PPE Cli
- 2020 02 28 Travel Screen COVID-19 Clinical Upda
- 2020 03 09 COVID-19 Clinical Update - March 9 2
- 2020 03 09 New Isolation Precautions-Droplet+E
- 2020 03 12 COVID-19 Testing Clinical Update Ma
- 2020 03 14 COVID-19 Isolation Precautions Clinic
- 2020 03 16 COVID-19 Testing Clinical Update Ma

Frequently Asked Questi

- COVID-19 HCW FAQ - Clinical Presentation, Testi
- COVID-19 HCW FAQ - Concerns About Exposure
- COVID-19 HCW FAQ - Droplet + Eye Precautions
- FAQ Infection Prevention Considerations for Aml
- FAQs for Patients 02.12.20 - UPDATE COMING SC

Isolation Precautions

- Interim Guidance of Precautions During COVID-19 Response 03.14.20

Droplet & Eye Protection Docume

- Droplet + Eye Precautions Checklist 03.
- Droplet + Eye Precautions Observer Tip
- Droplet + Eye Precautions Contact Trac
- Droplet + Eye Protection Isolation Sign

Personal Protective

- Interim Guidance of Precautions During

Personal Protective Equipment (PI

- Mandatory Re-use of Disposable N95 R
- Mandatory Re-use of Disposable Face S
- Mandatory Re-use of Regular Masks for
- Mandatory Re-use of Regular Masks for

Frequently Asked Questions (FAQs

- COVID-19 HCW FAQ - Droplet + Eye Pre

Clinical Guidance

- Workflow for Patients Admitted with A
- COVID-19 HCW FAQ - Clinical Presentat

Laboratory Specimens

Documents & Protocols

- COVID-19 How to Safely Collect NP Lab Specimens Instructions 03.16.20 - NEW

Patient Care & Exposures

- COVID-19 HCW FAQ - Concerns About Exposure 03.16.20 - NEW

Self-Monitoring Instructions

- UCI Health Staff Self-Monitoring at Home Instructions 03.13.20
- UCI Health Staff Self-Monitoring While Working Instructions 03.16.20

Patient Information

- Patient Self-Monitoring at Home Instructions 03.13.20
- FAQs for Patients 02.12.20 - UPDATE COMING SOON

Ambulatory, IR & Surgical Services

Protocols

- COVID-19 Ambulatory Screening and Appointment Workflow for Testing 03.17.20 - NEW
- COVID-19 Walk-in Rule Out Protocol 03.17.20 - NEW
- Phone Screening – Calls Handled In Clinic Protocol 03.16.20 - NEW
- International Travel Level 3 Countries 03.16.20 - NEW

Frequently Asked Questions (FAQs)

- FAQ Infection Prevention Considerations for Ambulatory Settings 03.14.20

UCI Health

COVID-19 Clinical Presentation, Testing, & Treatment

Frequently Asked Questions (FAQs) for Healthcare Workers

Click the question below to view the answer