

UCHealth COVID-19 Webinar

May 2020



Richard Zane, MD

Chief Innovation Officer, UCHealth

Co-Founder, UCHealth CARE Innovation Center

Chair and Professor, Emergency Medicine,

University of Colorado School of Medicine

COVID-19 Webinar Agenda

- Overview of current state of COVID-19, UCHealth's response and lessons learned.
- The evolution of COVID-19 from an epidemiologic point of view.
- Strategies and tactics for addressing COVID-19.
- National and local regulatory guidance and requirements.
- The potential role and pros and cons of testing.
- UCHealth's COVID-19 employer solutions program.

Colorado-owned and operated, non-profit integrated health system.



25,000 + 6,000

employees

provider partners

12

HOSPITALS

1,987

HOSPITAL BEDS

THE ONLY ACADEMIC MEDICAL CENTER IN THE REGION

MORE THAN

150

**UCHEALTH
AND AFFILIATE
LOCATIONS**

1.7

MILLION
patients served

Real time information and innovation.

The COVID-19 situation is dynamic, with information and guidelines changing each day. We are collaborating continuously with health system partners and government agencies across Colorado and beyond to stay on top of these changes and to address how they affect the workplace environment.



**We are experts
in navigating
this pandemic.**

Leading the community during COVID-19 response.

Our integrated academic expertise is saving lives and providing safe and exceptional care for our patients and employees.

uhealth

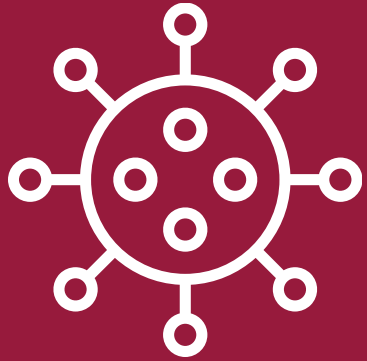


Michelle Barron, MD

Professor of Medicine in Infectious Diseases and
Medical Director of Infection Prevention and Control,
University of Colorado School of Medicine

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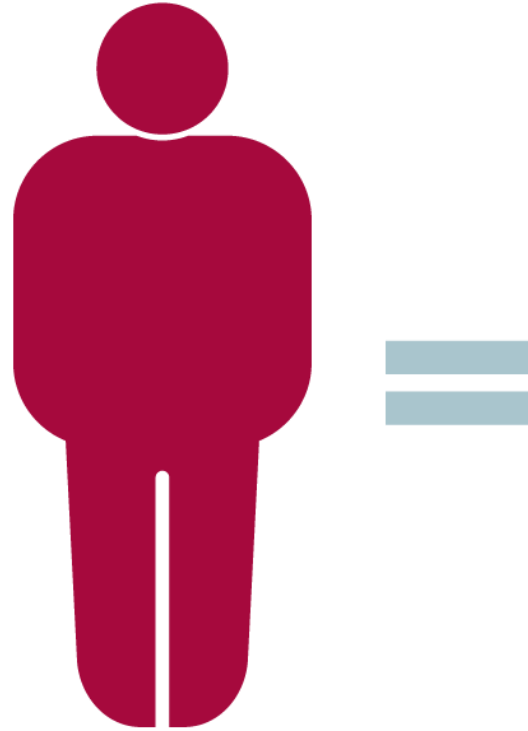
COVID-19 Overview

- Disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).
- Symptoms include fever and lower respiratory illness but also might cause mild URI symptoms.
- No specific treatment. Recommend supportive therapy and infection control measures.

COVID-19 Virology and Mode of Transmission

- Member of the Coronavirus family.
- Origin traced to Wuhan, China.
- Animal reservoir.
- Person-to-person spread via droplets from cough or sneeze, close contact (within six feet) and fomites.

The average number of people that one person with a virus infects, based on the R0 scale.



H1N1: 1.2-1.6



SARS: 2-4



Ebola: 1.6-2



MERS: 2.5-7.2**



COVID-19: 2-2.5*

*As of February 28, 2020. **R0 calculated solely during the 2015 outbreak in South Korea.
Sources: ScienceMag; WHO; Journal of ISIRV

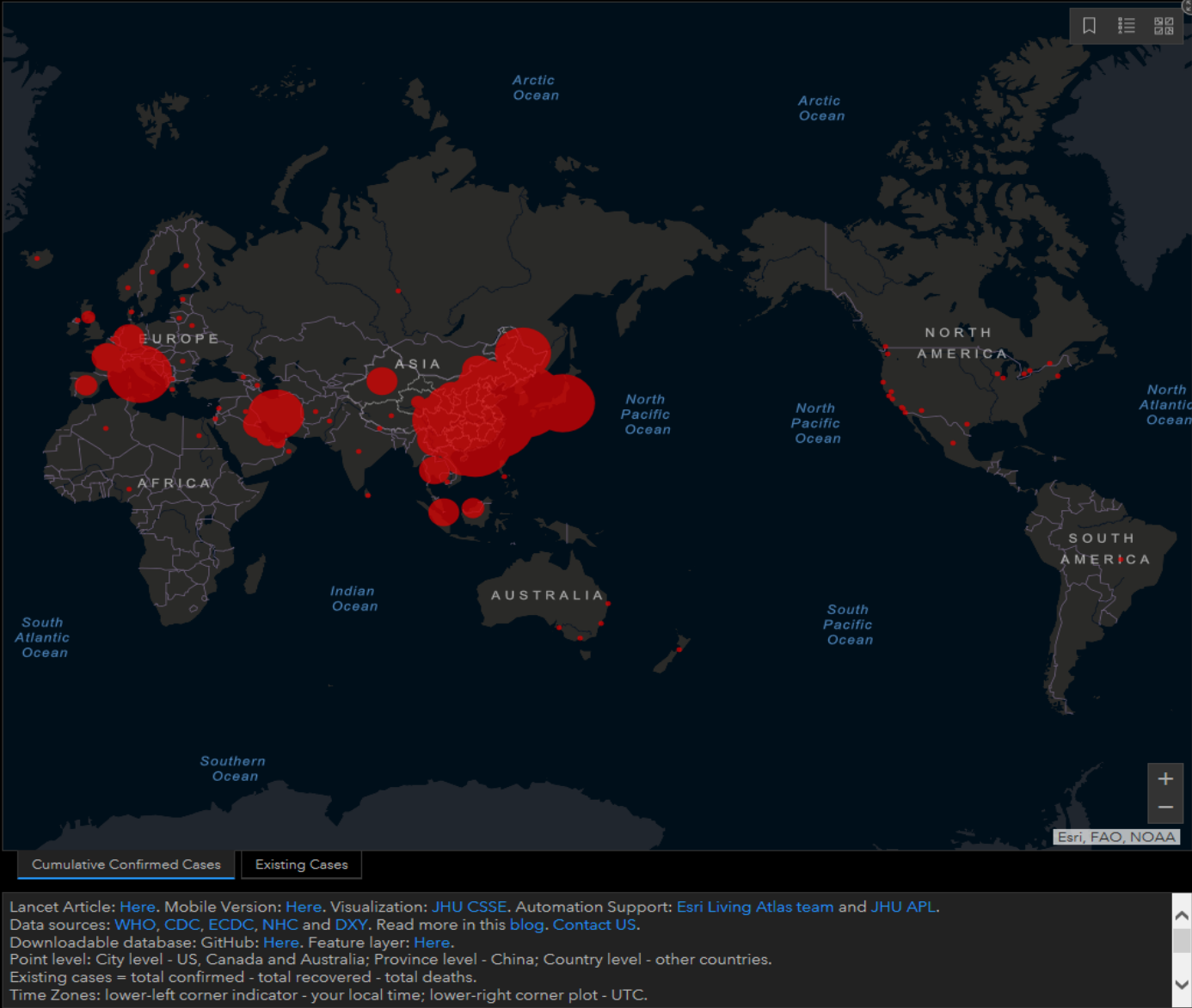
Total Confirmed
83,867

Confirmed Cases by Country/Region

78,824 Mainland China
2,337 South Korea
705 Others
655 Italy
388 Iran
228 Japan
94 Hong Kong
93 Singapore
60 US
48 Germany
45 Kuwait
41 France
41 Thailand
36 Bahrain
34 Taiwan
32 Spain
23 Australia
23 Malaysia
19 United Arab Emirates
19 UK
16 Vietnam

Country/RegionCity, St/Prov

Last Updated at (M/D/YYYY)
2/28/2020, 9:23:03 AM



Total Deaths
2,867

2,682 deaths	Hubei Mainland China
34 deaths	Iran
20 deaths	Henan Mainland China
17 deaths	Italy
13 deaths	Heilongjiang Mainland China
13 deaths	South Korea
7 deaths	Beijing Mainland China
7 deaths	Guangdong Mainland China
6 deaths	Anhui Mainland China
6 deaths	Chongqing Mainland China
6 deaths	

Total Recovered
36,686

26,403 recovered	Hubei Mainland China
1,112 recovered	Henan Mainland China
975 recovered	Zhejiang Mainland China
935 recovered	Guangdong Mainland China
830 recovered	Hunan Mainland China
821 recovered	Anhui Mainland China
790 recovered	Jiangxi Mainland China
515 recovered	Jiangsu Mainland China
405 recovered	Shandong Mainland China
402 recovered	Chongqing Mainland China
338 recovered	

80k
60k
40k
20k
0

Feb

● Mainland China ● Other Locations ● Total Recovered

Actual Logarithmic Daily Cases



Total Confirmed

4,872,308

Confirmed Cases by
Country/Region/Sovereignty

1,520,029 US
299,941 Russia
262,545 Brazil
250,121 United Kingdom
232,037 Spain
226,699 Italy
180,933 France
177,574 Germany
151,615 Turkey
124,603 Iran
106,468 India
99,483 Peru
84,063 China
80,133 Canada

Admin0 Admin1 Admin2

Last Updated at (M/D/YYYY)
5/19/2020, 1:32:29 PM



Cumulative Confirmed Cases

Active Cases

Incidence Rate

Case-Fatality Ratio

Testing Rate

Hospitalization Rate

188

countries/regions

Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#).

Lead by JHU CSSE. Automation Support: [Esri Living Atlas team](#) and [JHU APL](#). [Contact US](#). [FAQ](#). Read more in this [blog](#).

Global Deaths

321,593

91,187 deaths
US

35,422 deaths
United Kingdom

32,169 deaths
Italy

28,025 deaths
France

27,778 deaths
Spain

17,509 deaths
Brazil

9,108 deaths

Global Deaths

US State Level
Deaths, Recovered

28,451 deaths, 61,681
recovered
New York US

10,587 deaths, 23,496
recovered
New Jersey US

5,862 deaths, recovered
Massachusetts US

4,915 deaths, 28,234
recovered
Michigan US

4,628 deaths, recovered
Pennsylvania US

US Deaths, Recovered



Confirmed

Logarithmic

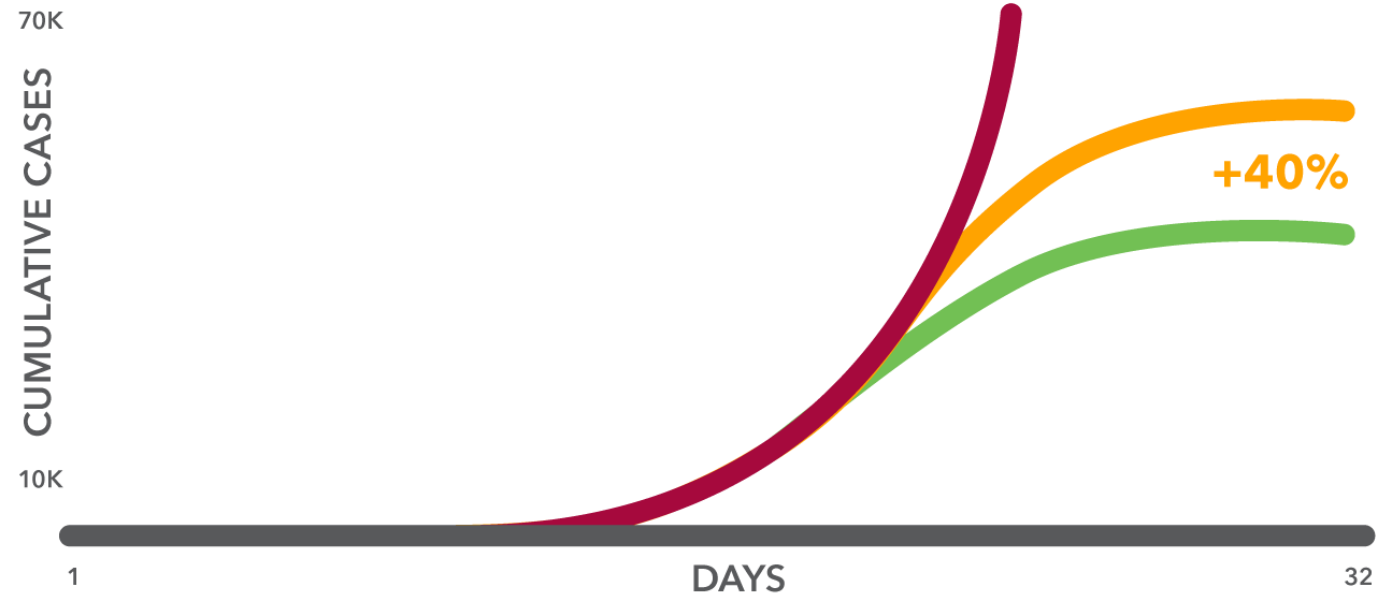
Daily Cases

Situation Summary: May 19, 2020

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

COVID-19: Tomas Pueyo

Chart 23:
Model of cumulative
cases of Coronavirus
with social-
distancing measure
taken one day apart.



NO SOCIAL DISTANCING

SOCIAL DISTANCING ONE DAY LATER (N+21)

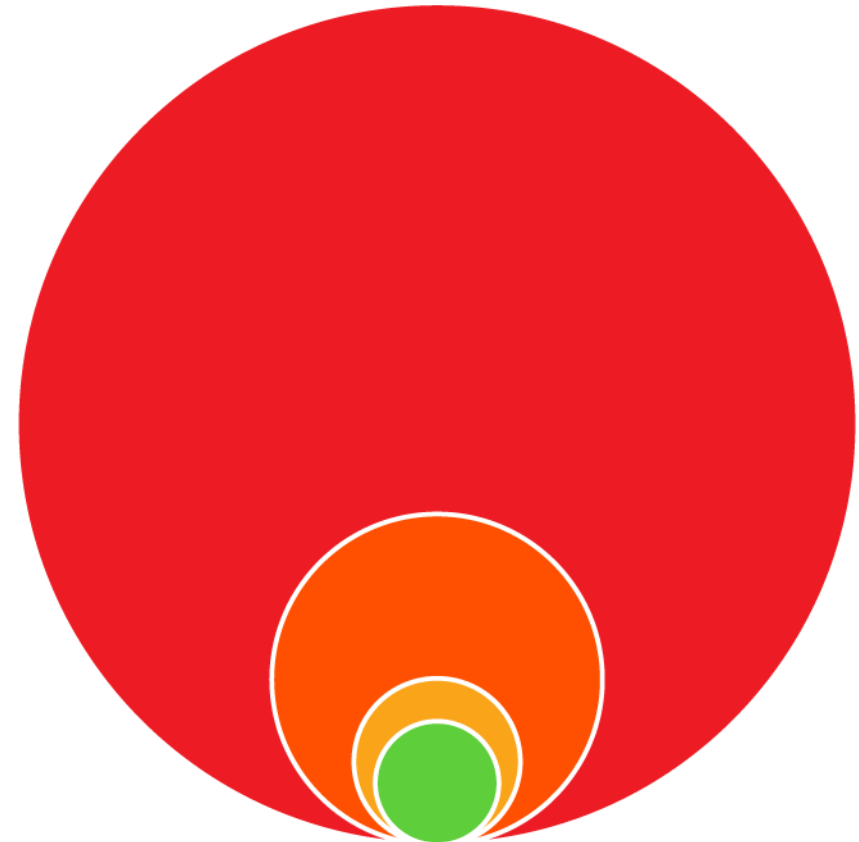
SOCIAL DISTANCING STARTED ON DAY N+20

<https://medium.com/@tomaspueyo/coronavirus-act-today-or-people-will-die-f4d3d9cd99ca>

COVID-19: Gates Foundation Model

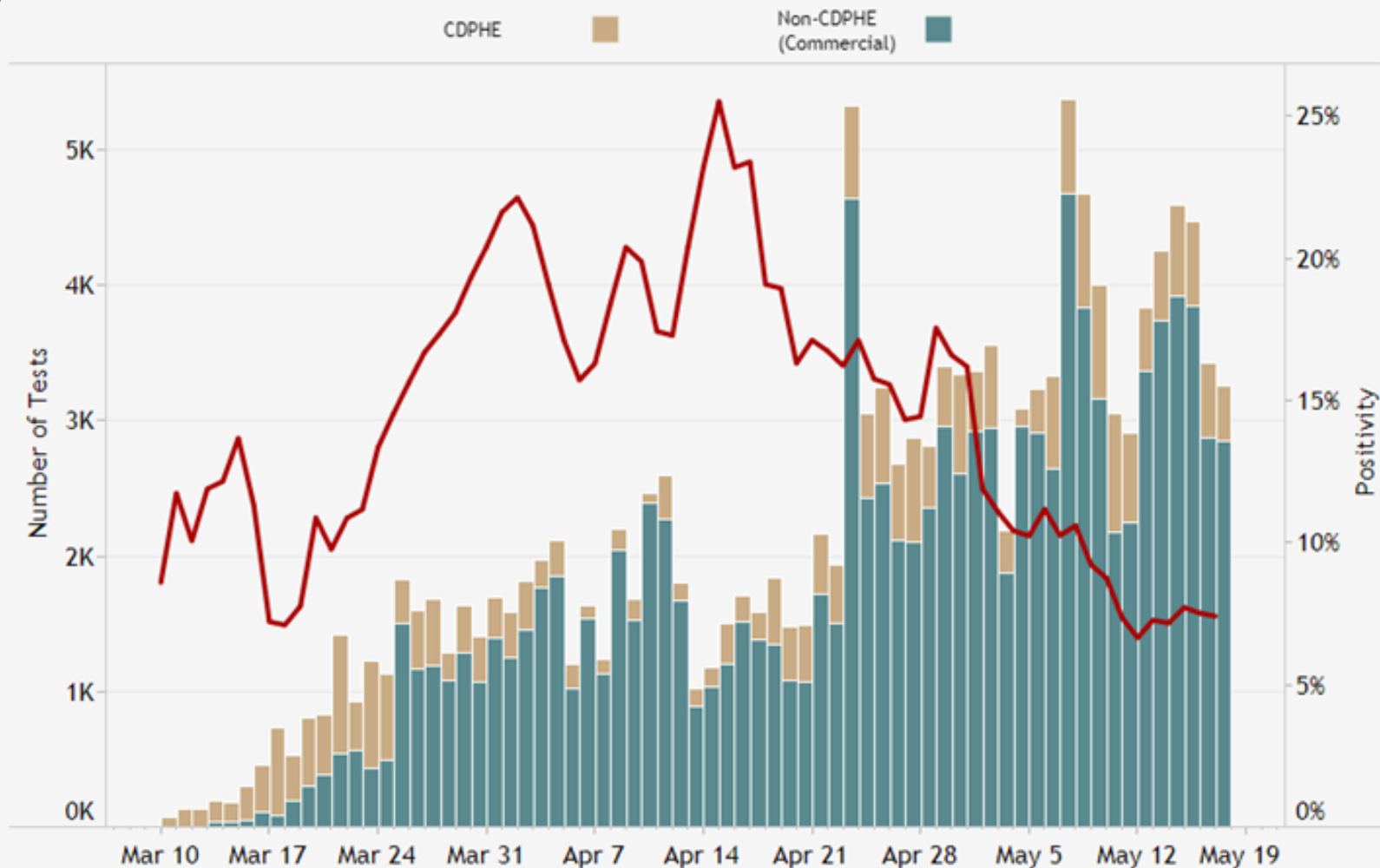
Social distancing intervention.

	Estimated
BUSINESS AS USUAL	25,000 Infections 400 Deaths
25% REDUCTION	9,700 Infections 160 Deaths
50% REDUCTION	4,800 Infections 100 Deaths
75% REDUCTION	1,700 Infections 30 Deaths



Testing and impact of Colorado's shelter-in - place orders.

3 Day Moving Average Positivity Data and Daily Tests From Clinical Laboratories



*



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IMMUNE RESPONSES

Innate/General Resistance System

First line of defense against germs:

- Anatomic barriers such as intact skin and mucous membranes.
- Acidic environment that prevents growth of germs.
- Normal bacteria that out-compete bad bacteria from growing.

Physiologic barriers:

- Temperature control of the body.
- Production of chemicals that can kill germs directly or by producing inflammation.

IMMUNE RESPONSES

Adaptive Immune System

- Actions are specific to a particular germ.
- Special cells (B cells) that produce antibodies (chemicals that recognize a germ) that help kill the germs.
- Has memory so can recognize a germ if it enters the body again.
- Other special cells that can kill the germs directly.

Best Practices: Worksites

- Maintain six-foot distancing, when possible, and discourage shared spaces.
- Frequently sanitize all high-touch areas and common spaces.
- Avoid gatherings of more than 10 people.
- Implement symptom-monitoring protocols including temperature-checks.
- Provide appropriate protective gear.

Best Practices: Employees

- Employees showing signs or symptoms of illness, or who have had contact with a known positive case of COVID-19, should stay home.
- Provide flexible or remote scheduling and encourage remote work (when possible).
- Encourage frequent hand-washing/sanitation and cleaning of workspace.
- Wear appropriate protective gear.



Edward R. Ashwood, MD

Professor and Vice Chair for Clinical Pathology and
Medical Director of Clinical Laboratories,
University of Colorado School of Medicine

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FDA Review of COVID-19 Tests

On February 29, 2020, the FDA announced a new policy for review of COVID-19 lab tests called Emergency Use Authorization (EUA):

- Review time in days instead of months.
- Included CDC test method.

Since then, EUA has been granted:

- 62 molecular tests
- 12 antibody tests
- One antigen test

COVID-19 Specimen Collection and Testing



PCR testing detects the viral genes.

Polymerase chain reaction (PCR) is a molecular test performed on a nasopharyngeal swab. PCR is the current gold standard for diagnosis of an active COVID infection. PCR is a chemical reaction that amplifies a gene up to 10 billion-fold.



Antibody testing detects the body's response to the infection.

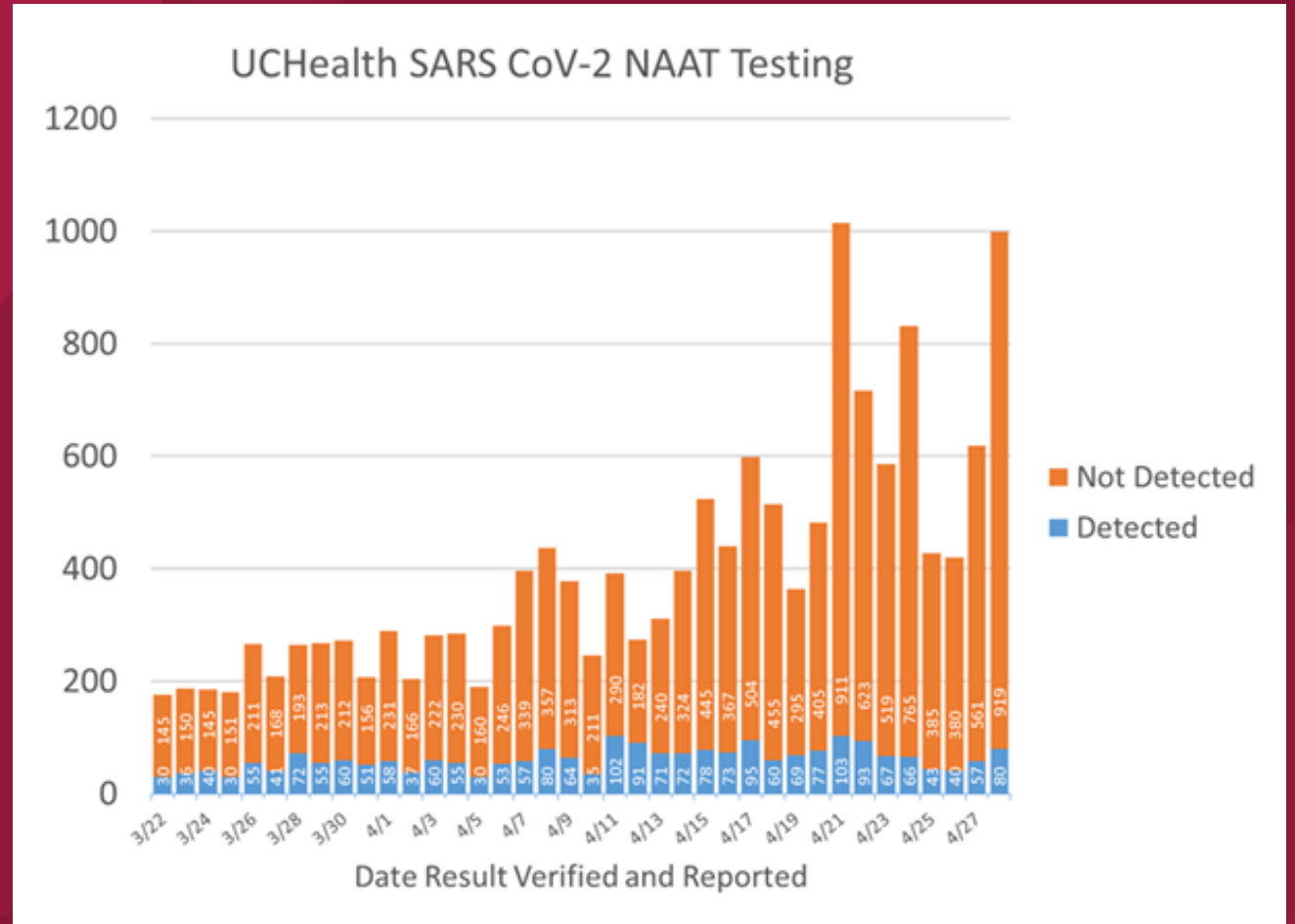
A serology test is performed using a patient's blood and will identify the presence of antibodies. A positive serology test does not distinguish between current or past COVID infection; an NP swab and PCR are needed to diagnose an active COVID infection.

PCR Testing

- Total tests performed: **35,844**.
- Tests performed in-house: **31,428**.
- Overall positivity rate: **9.7%**.
- Daily testing capacity: **1,250**.

We support testing for several partner organizations including: SCL, Evans Army Community Hospital, Buckley AFB, Boulder Community Hospital, and many more.

This graph shows the number of PCR tests we perform across the system each day. We have expanded our capacity since we began testing in March, to support testing for various populations through Colorado and surrounding regions.



**We are
implementing
technologies
across the
continuum
of care,**

participating in numerous
clinical trials and offering
COVID-19 PCR and
antibody testing in house.





Lori Japp, PA-C

Vice President of Urgent Care,
UCHealth

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**The health
and well-being of
our communities
is our top priority
and our area
of expertise.**

Just as we've done for our own employees, we offer a comprehensive program to help employers navigate their concerns and uncertainty surrounding COVID-19. This program will enable employers to provide validated testing and monitoring solutions to keep employees safe.

Keeping your employees and customers safe.

In response to the COVID-19 pandemic, we have leveraged our expertise to develop a comprehensive COVID-19 Employer Solutions Program that addresses immediate and evolving needs for a safe workplace.

Minimize

the risk of exposure.

Reduce

the risk of transmission.

Increase

knowledge of prevention opportunities.

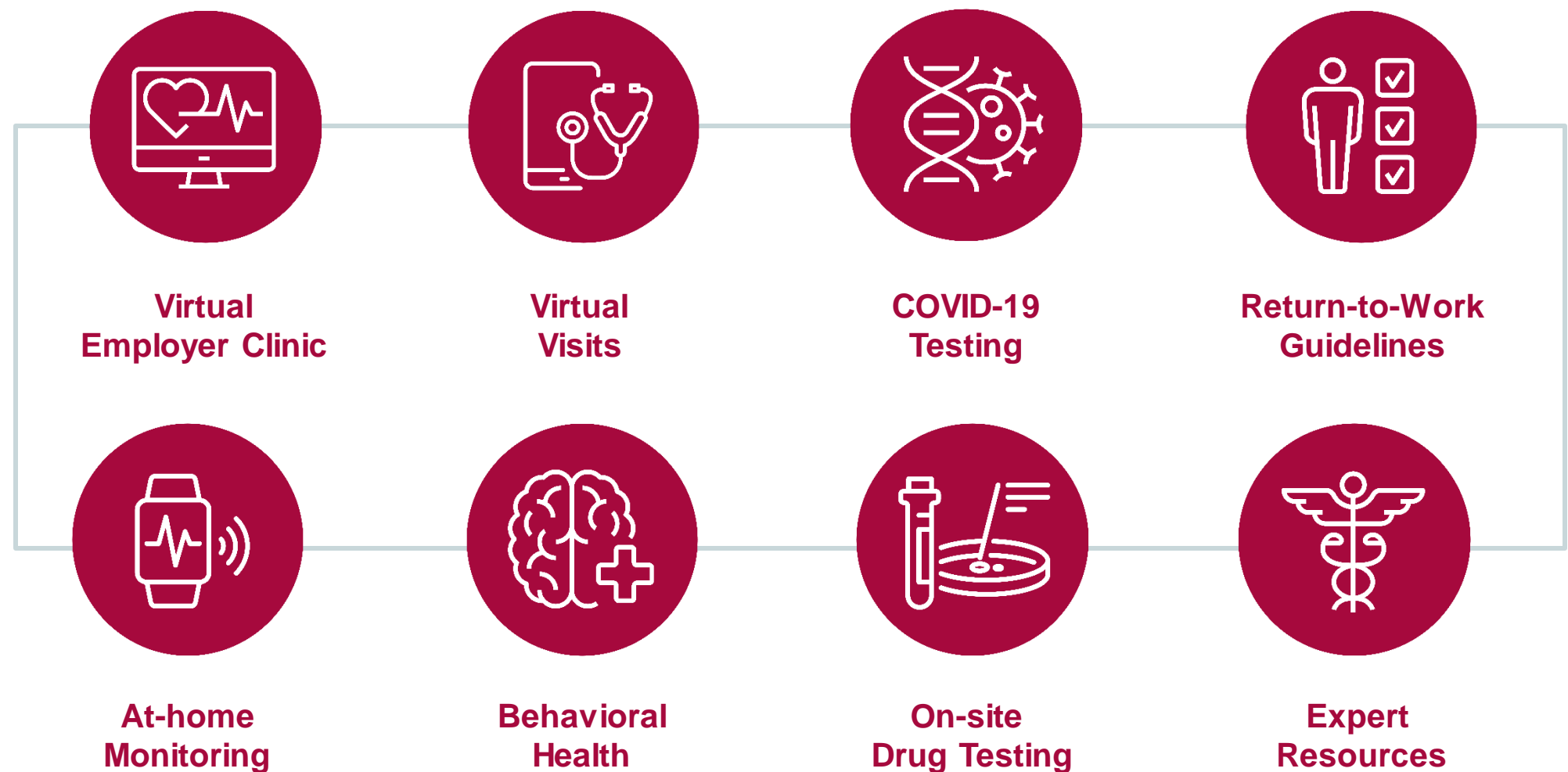
Increase

understanding of employee health status.

Establish

symptom-monitoring protocols.

Comprehensive and Customized Program Development



Comprehensive and Customized Program Development



Virtual Employer Clinic

Dedicated employer nurse triage services and 24/7 support for employees. Features a screening tool within the UCHealth mobile app for tracking employee's symptoms and current temperature each day prior to going to work.



COVID-19 Testing

COVID-19 PCR, antibody collection and testing for employees.



Virtual Visits

Employees may schedule a Virtual Visit with a Virtual Urgent Care provider 24/7, eliminating travel time and expense and mitigating the risk of COVID-19 exposure.



Return-to-Work Guidelines

Utilizing our team of medical providers, employees are provided with next steps and guidance on safely returning to work.

Comprehensive and Customized Program Development



At-home Monitoring

Two levels of service assisting in employee care from home including wireless physiological data collection and monitoring.



Behavioral Health

Immediate, 24/7 access for behavioral health assessments and services.



On-Site Drug Testing

Conduct on-site random drug testing for employees returning to work using saliva testing.



Expert Resources

Provide employees with the latest scientific updates, virtual workplace education, guidance on minimizing risk and exposure and more.

Contact Us

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