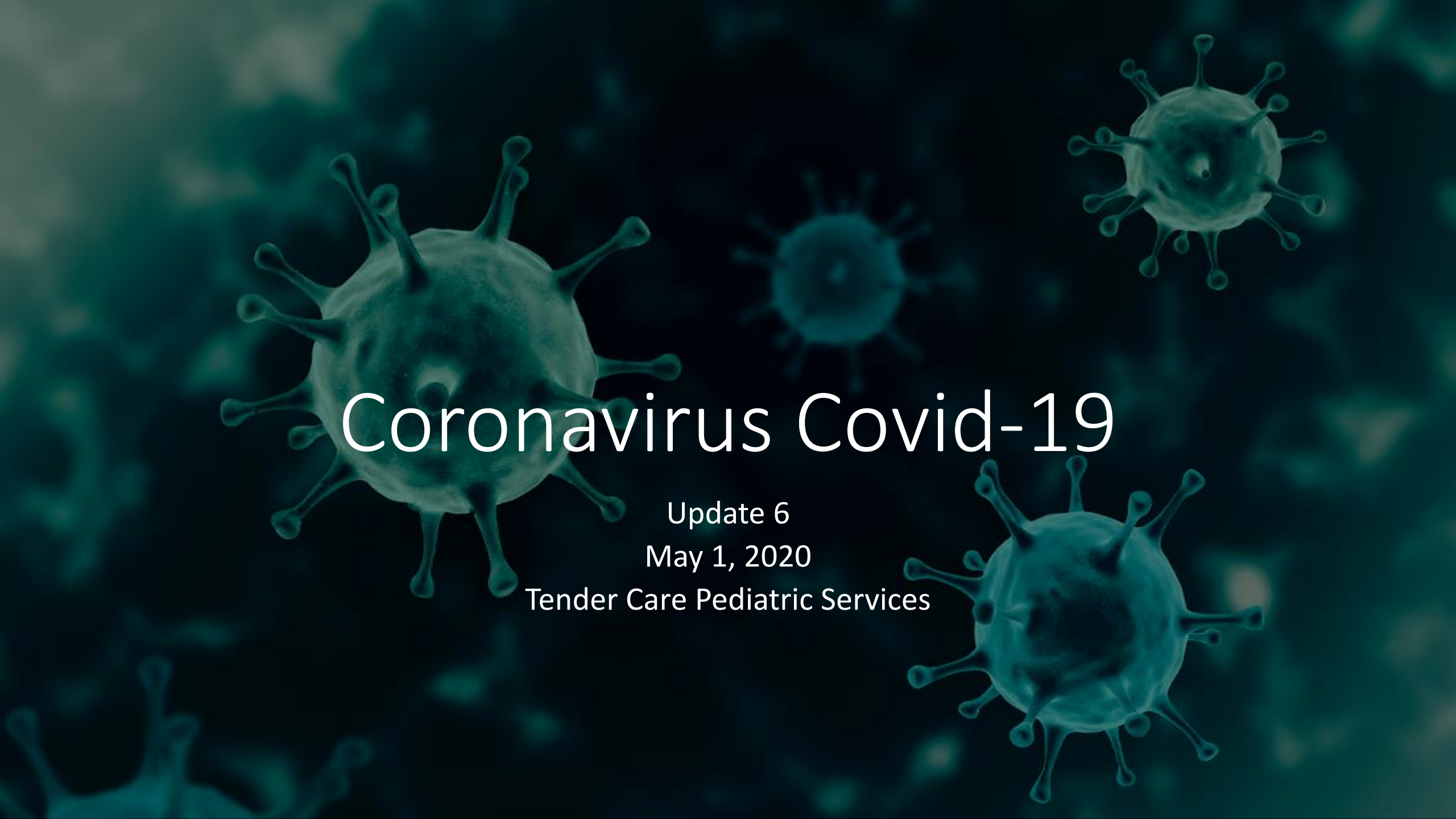


Coronavirus Covid-19

Update 6

May 1, 2020

Tender Care Pediatric Services

Tender Care Actions over Past 2 Weeks

Minimize interaction – social distancing continues. Safer at home. Businesses have started to re-open as of 04/26/2020 Telehealth visits for Case Managers and Therapists to maintain continuity of care.

Supply shortage – Same, continue to protect supplies.

Personal protective equipment – conserve; PPE kits available to PDNs with medical grade face masks. N –95 masks arrived – 24 available and will be issued for Covid-19 positive case. Plans underway to implement fit testing.

Risk **assessment and notification** – temperature assessment in all homes. Need to stay highly vigilant. Weld County still higher than Larimer County.

Home care nursing families (Private Duty Nursing (PDN) homes- Still have cases on hold. Parents electing to restrict staff to 'TCPS' only, not employed at medical centers. This power point contains more information on Kids and Covid.

Dynamic workforce – openings on Tiger Text. No layoffs. Orientation will be done virtually during May on an as needed basis. No nursing students for Summer.

The safer-at-home phase begins Monday, April 27

Stay at Home Executive Order D 2020 017

- Maintaining a social distancing level of 60-65%.
- Individuals wearing masks in public.
- Vulnerable populations continuing to stay at home as much as possible.
- Some businesses may reopen if they are following strict guidelines from the state.
- No gatherings of more than 10 people, and people should continue to limit their interactions to those in their household as much as possible.
- Building up the state's health care capacity.
- Increasing testing and contact tracing.

Safer at Home

Governor Polis has now issued the Safer at Home Executive Order (D 2020 044) which transitions Colorado away from the stricter Stay at Home model. The Colorado Department of Public Health and Environment (CDPHE) has also issued Public Health Order 20-28, which provides the requirements for implementation of Safer at Home, as directed by Governor Polis.


SAFER AT HOME
A COLORADO SOLUTION: BY COLORADANS FOR COLORADANS
• Coloradans are urged to stay at home as much as possible, except for critical tasks
• Vulnerable populations and older adults must stay at home except when absolutely necessary
• Wear face coverings in public
• No gatherings over 10 people
• Avoid unnecessary travel outside of a 10 mile radius-unless for work
• Stay home if you're feeling sick
#DoingMyPartCO
COLORADO
GOVERNOR
JARED POLIS

Masks in public

The Centers for Disease Control and Prevention (CDC) recommends that everyone wear a cloth face covering to reduce the risk of unknowingly spreading the virus to others. These coverings should not be surgical masks or N95 masks because those are needed by our healthcare workers.

Instructional Resources for Masks

- Mask Match: Send Your Masks Without Leaving Your Home
- New York Times: Mask Illustrations
- New York Times: Mask Instructions
- Martha Stewart: Patterns
- CNN: How to Make a Mask (sewing and non-sewing instructions)
- Centers for Disease Control: DIY Face Covering

Larimer County

312 CASES; 89.4/100,000 PEOPLE

For more about COVID-19 from the Larimer County Department of Health & Environment, go to www.larimer.org/health

If you suspect you or a household member may have COVID-19, please refer to the [COVID-19 Home Care and Testing Information]

If you do not feel sick, but have general questions about COVID-19:

- **Call: 970-498-5500 (9:00-4:30 Monday - Friday)**
- **Text: 970-999-1770**

Weld County – one of the hardest hit

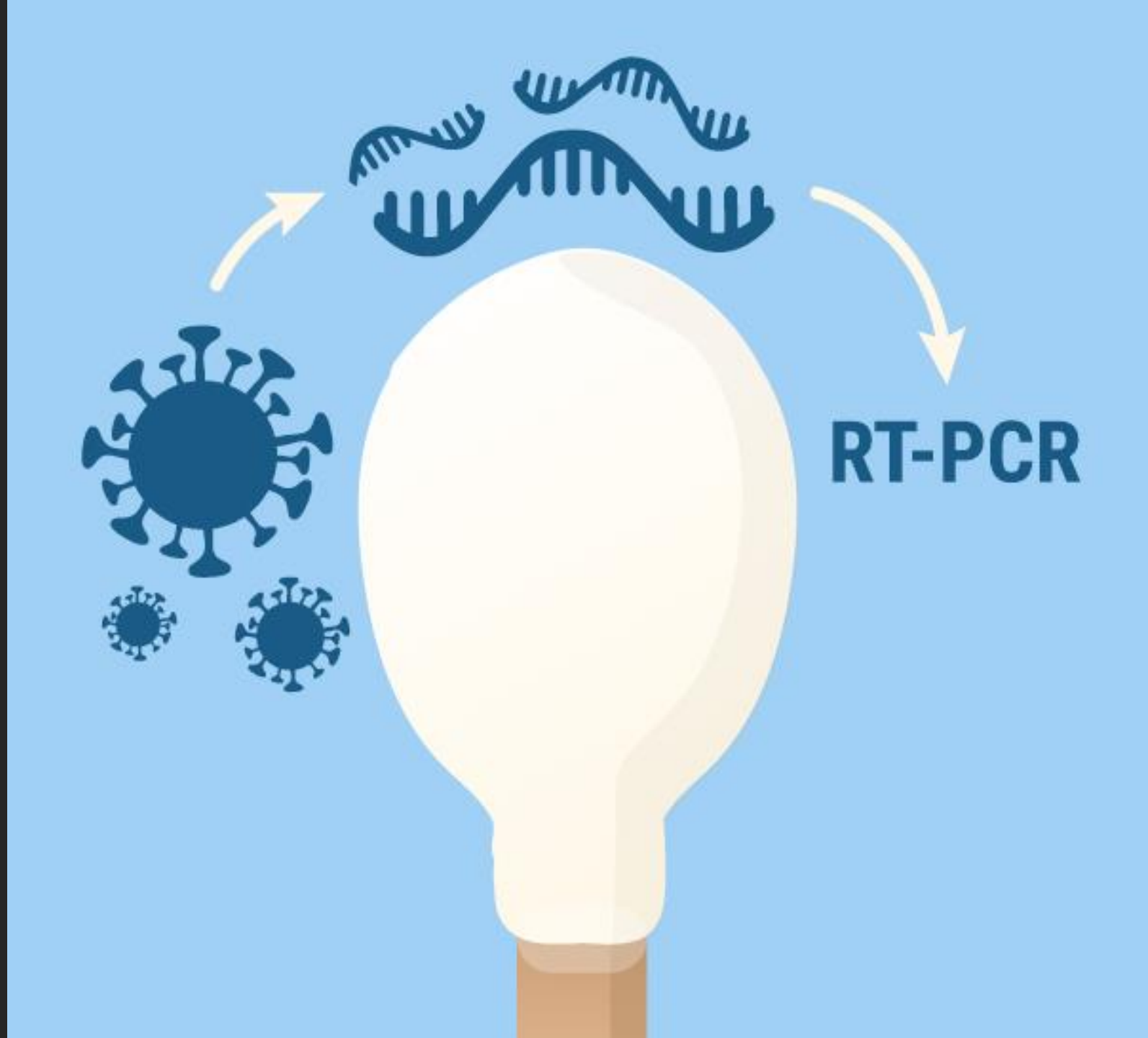
1469 CASES ; 467.46 / 100,000 PEOPLE

CONTACT INFORMATION

- **Weld County Health Department COVID-19 Hotline:** (970) 400-2111
- **CO HELP Line:** (303) 389-1687 **or** 1 (877) 462-2911 **or** **email** COHELP@RMPDC.org

On April 24, the state started conducting targeted testing in Weld County, which will run through April 28. Coordinated by the State Emergency Operations Center and the Colorado Department of Public Health and Environment, it's being staffed by members of the Colorado National Guard and the Colorado State Patrol. Testing is free and available to any Weld County resident with COVID-19 symptoms, including fever, coughing and shortness of breath.

How Testing Works



What is RT-PCR?

rRT-PCR* is a real-time, Reverse Transcriptase Polymerase Chain Reaction in which amplification is actively monitored as the reaction progresses. This is a fast, convenient and quite sensitive test, meaning that it can be run in a short 1–2 hours, on samples that contain potentially very small amounts of RNA. However, because of the speed and sensitivity, there is potential for error if the test is not run in a highly clean and controlled environment with carefully produced reagents. So, rRT-PCR must be run in a lab that meets certain guidelines, including maintaining an environment that is free from extraneous nucleic acid contamination.

Testing

There are two types of PCR machines: high-volume batch processing machines and low-volume machines. Both have a role to play. The high-volume machines provide most of the capacity. The low volume machines are better when getting a result in less than an hour is beneficial. Everyone who makes these machines, and some new entrants, are making as many machines as they can.

Colorado Testing

- Polis addressed questions about how the state is ramping up testing to meet requirements modeled by state health officials on Monday, April 27.
- The state model showed a 5% increase in testing and containment per week, which Polis said he believes the state would meet or exceed.
- By the end of the week April 25, Polis said they are expecting a shipment of 150,000 test kits, and another 150,000 swabs are expected to arrive by mid-May. None of that includes the few thousand test kits coming in from several different sources or the kits being obtained at the county level, Polis said.

Larimer County Testing

- Testing centers will only be open two days per week and have capacity to run 150 tests per day.
- Must be over 18 years old
- No doctors order needed
- Must be symptomatic
- Complete an online form to register https://docs.google.com/forms/d/e/1FAIpQLSf-T2s7lCk2kWVKvbGPyEkoG27kBF7O_Q258ga-IJ7OgEw-3w/viewform

Colorado

State Policy: Shelter in Place

- Increased testing
- Containment of people who test positive or show symptoms of the virus
- Wearing masks in public
- Maintaining social distancing measures
- Taking strong precautions to protect the most vulnerable populations

13. 879 cases

706 deaths

559 recovered

0 new cases 04/28/2020

Colorado mortality rate 5.1 % (WHO mortality rate 3.6 %

Medication and Treatment

- Hydroxychloroquine
- Remdesivir
- Glucocorticoids
- Immunotherapies
- Other Medications
  - **ribavirin** (Ribasphere)
  - **lopinavir-ritonavir** (Kaletra)
  - **interferon beta-1b** (Betaseron)
- Convalescent plasma

Coronavirus Illness

- Critical Care Pathway
- https://www.med.upenn.edu/uphscovid19education/assets/user-content/documents/treatment-guide-for-critically-ill-patients-with-covid-19.pdf

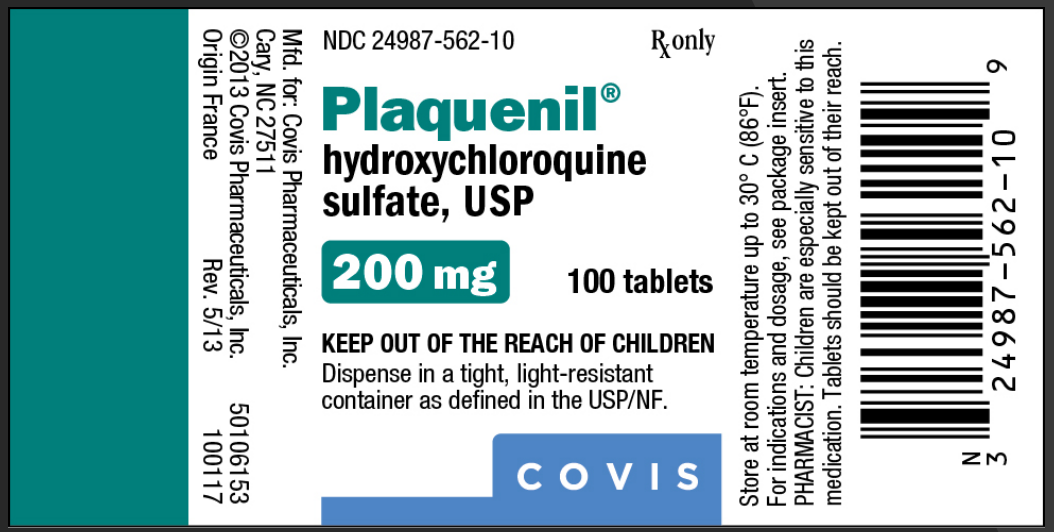
Antibodies

"There are two main types of antibody tests. The first just looks for antibodies and can be completed in a few hours. This is called an **ELISA test (**short for **Enzyme Linked Immunosorbent Assay**). And it doesn't provide the most complete picture of immunity.

The second test is more involved, and rarer. It's called a s**erum neutralization test**, and it takes a few days to process. It not only looks for antibodies, it then exposes those antibodies to a virus in a cell culture to see how effective the antibodies are in stopping the virus.

Hydroxychloroquine

The antimalarial drug chloroquine has shown antiviral and immune-modifying effects in preclinical research, leading to some interest in its potential role in combined-drug approaches to treating emerging coronavirus infections (Dyall 2017). **Hydroxychloroquine**, a less-toxic derivative of chloroquine (McChesney 1983), is also being studied in the context of COVID-19, although its use remains investigational and the evidence is inconsistent and preliminary as of late-April 2020. The U.S. National Institutes of Health has concluded that there is insufficient evidence available to recommend either for or against the use of hydroxychloroquine in the context of COVID-19 (NIH 2020a). Importantly, hydroxychloroquine may cause side effects, including potentially serious heart rhythm abnormalities. Several trials are currently underway to assess the clinical utility of hydroxychloroquine in COVID-19 patients (Frieden 2020; Lecrubier 2020; Liu 2020a).

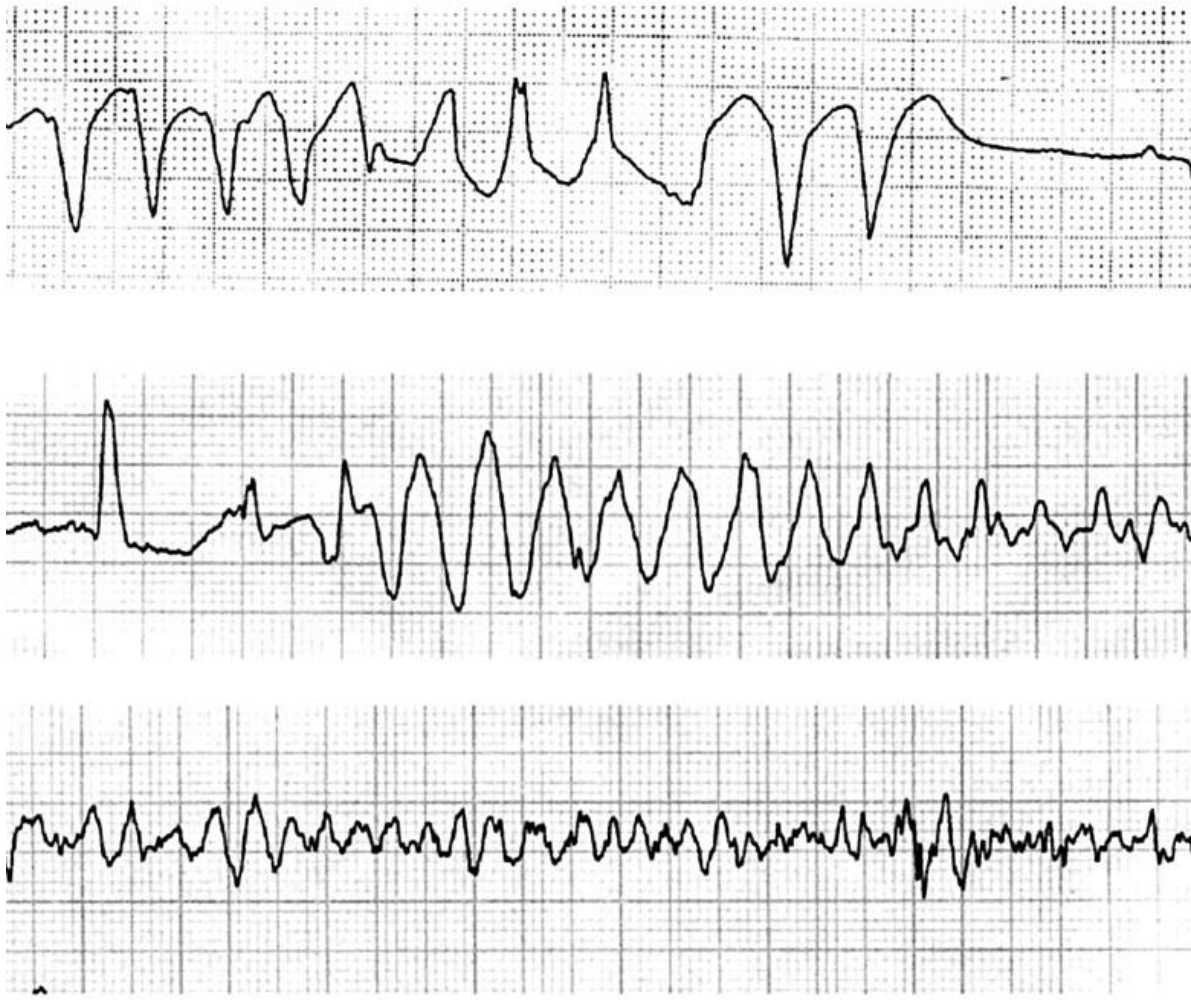


FDA Warning – April 24, 2020

FDA cautions against use of hydroxychloroquine or chloroquine for COVID-19 outside of the hospital setting or a clinical trial due to risk of heart rhythm problem.

Be aware that hydroxychloroquine or chloroquine can:

- cause QT prolongation
- increase the risk of QT prolongation in patients with renal insufficiency or failure
- increase insulin levels and insulin action causing increased risk of severe hypoglycemia
- cause hemolysis in patients with Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency
- interact with other medicines that cause QT prolongation even after discontinuing the medicines due to their long half-lives of approximately 30-60 days



Remdesivir

If given early enough, remdesivir interferes with the virus and blocks its ability to replicate in patients' cells. The goal is that it staves off the deadly inflammatory cascade that leads to respiratory failure and the need to be intubated and put on a ventilator.

Convalescent plasma

- When a person is exposed to viruses like SARS-CoV-2, their immune system responds by producing antibodies, which facilitate the recognition and elimination of the virus. After the patient recovers, antibodies typically remain in their blood and can help the immune system respond again if the patient is re-exposed to the virus in the future.
- As of April 8th, 2020, The U.S. FDA has granted emergency use authorizations and expanded access programs for convalescent plasma (FDA 2020). Research is ongoing to determine whether convalescent plasma can improve COVID-19 outcomes and to identify which patients should receive the treatment and at what point during the illness it is most helpful (Duan 2020; Shen 2020).

What is convalescent plasma?

Donated by people fully recovered from COVID-19, this plasma contains antibodies that attack the virus.

It's currently being used as a treatment for those seriously ill with COVID-19.

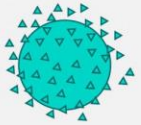
American Red Cross

Seroconversion

Testing for seroconversion – the technical name for the process of going from non-infected to infected to immune – can identify people whose plasma contains COVID-19-specific antibodies.

This plasma could, theoretically, be used for infusions to treat the disease and prevent its severe complications. Use of such plasma, called convalescent plasma, is not new. In fact, it was a treatment approach during the 1918 flu pandemic.

Treatment of 5 Critically Ill Patients With COVID-19 With Convalescent Plasma



CORONAVIRUS DISEASE 2019 (COVID-19): COULD CONVALESCENT PLASMA BE USED TO TREAT CRITICALLY ILL PATIENTS?

5 critically ill patients with COVID-19 and acute respiratory distress syndrome

Convalescent plasma transfusions

TREATMENT

Patients were transfused with convalescent plasma with SARS-CoV-2-specific antibody (IgG) binding titer greater than 1:1000

4 of 5 patients had their Sequential Organ Failure Assessment (SOFA) score decrease within 3 days and their $PAO_2/FiO2$ increased within 12 days

Viral loads decreased*

SARS-CoV-2-specific antibody titers**

3 patients discharged from hospital
Other 2 in stable condition, 37 days after transfusion

This study suggests transfusion of convalescent plasma could aid COVID-19 patients with ARDS, but was non-randomized with only n=5

*Viral loads negative within 12 days
**SARS-CoV-2-specific ELISA and neutralizing antibody titers went from range of 40-60 before to 80-320 on day 7
Shen et al. *JAMA*. March 27 2020.

AMR & COVID-19

Antimicrobial resistance (AMR) occurs when microorganisms (such as bacteria and viruses) change after being exposed to antimicrobial drugs. These changes can mean they become resistant to the drugs used to treat them. There are different types of antimicrobials which work against different types of microorganisms, e.g. antibacterials or antibiotics against bacteria, antivirals against viruses, antifungals against fungi, etc. **Antibiotic Resistance** is caused by the persistent overuse and misuse of antibiotics in human and animal health.

Antibiotics don't treat or prevent viruses, including the one that causes COVID-19!

Antibiotics only work against **bacterial infections**.
What's more, inappropriate antibiotic use raises the risk of antibiotic resistance which puts everyone at risk from even mild infections.

When might COVID-19 patients be given antibiotics?

Some patients with COVID-19 may develop **co-bacterial infections**. If this is the case, then health workers might prescribe antibiotics to treat the secondary bacterial infection in those patients.

Correct diagnosis is key!

Correct diagnosis is vital for treatment. Testing helps distinguish viral (such as the virus that causes COVID-19) from bacterial infections. This makes it far less likely that antibiotics will be unnecessarily prescribed and used, in turn lowering the risk of antibiotic resistance and optimizing patient care.

Never self-medicate with antibiotics!

It's important to listen to the advice of doctors. If you feel unwell, seek out medical help and don't try to diagnose yourself and self-medicate with antibiotics. Remember – **only take antibiotics if you have been prescribed them**.

Practice good hygiene at all times!

Hand hygiene is crucial in times of COVID-19. Practice good hand hygiene at home and in a health care setting by regularly washing your hands. Sneeze and cough into a bent elbow, or a tissue which should be thrown into a closed bin. These are some of the most effective ways of reducing the spread of many infections, including antibiotic resistant organisms.

World Health Organization
REGIONAL OFFICE FOR Europe

#COVID19 #Coronavirus #AMR #antibioticresistance

Decontamination

01

Do shoes contain coronavirus ?

02

Which item will coronavirus survive longest on : cardboard or plastic ?

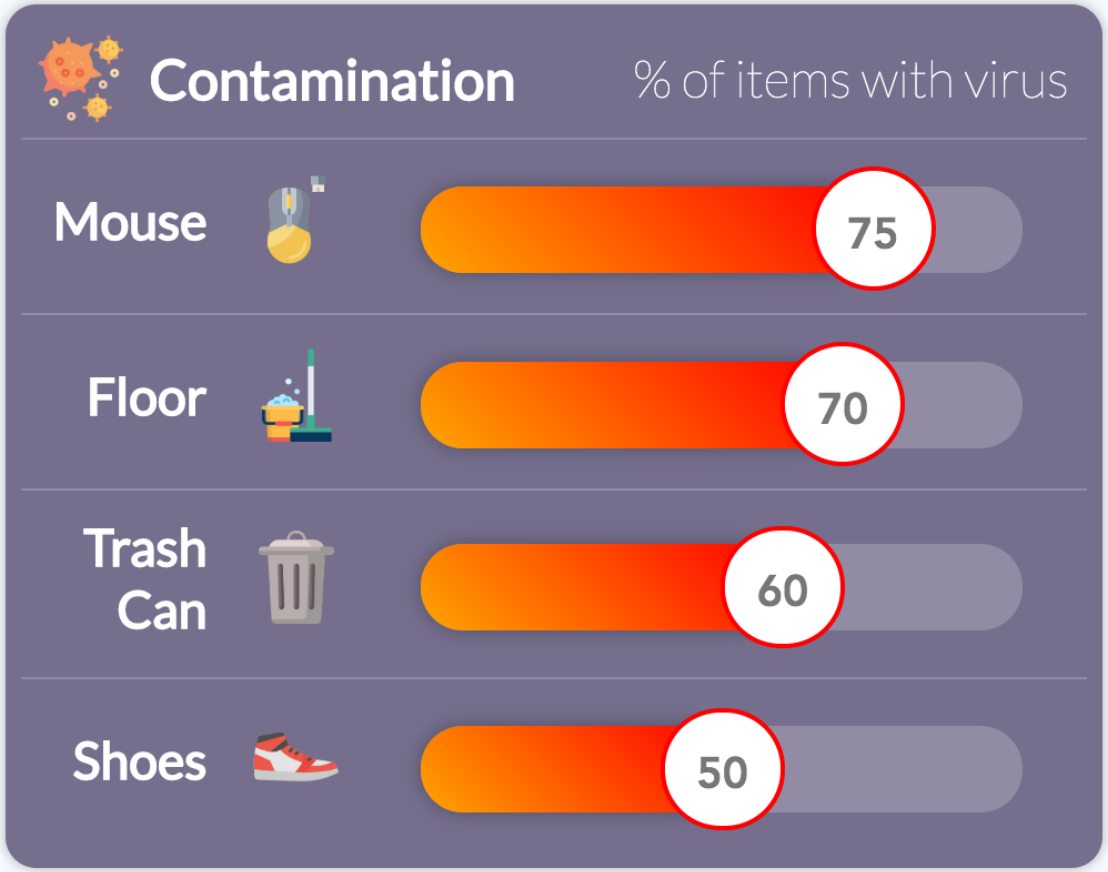
03

What is the most contaminated surface : the computer mouse, trash can or floor ?

Most Contaminated Items

Coronavirus

By Rebecca Israel, MS and Charles Li, MD



Clearvue Health

Guo et al

Research on Coronavirus Survivability

While the coronavirus spreads, scientists are working against the clock to understand how the virus moves around, how to contain it, and how to treat those already infected. New reports are coming out daily that paint a clearer picture of the virus's lifecycle.

Scientists in Wuhan, China, wanted to know what surfaces the virus can live on. To find out, they swabbed numerous high-touch surfaces throughout the isolation ward and tested them.

Of all the surfaces that were tested, the **objects with the highest rate of contamination include shoe soles, computer mouses, trash cans, and the floor.**

Reference : Aerosol and Surface Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 in Hospital Wards, Wuhan, China, 2020

COVID-19 Survivability on Surfaces

Clearvue Health

Doremalen et al

Shoe Decontamination

- Patient care facilities follow strict disinfecting protocols to ensure these surfaces are virus-free. This is an essential preventative measure for patients, their families, and the medical staff.
- The shoes of medical staff are not kept within the facility and, therefore, are likely to spread the virus outside of the contained environment.
- It is highly recommended for medical personnel to disinfect their shoes before leaving the clinic. It is also advised for everyone to dedicate a pair of shoes for work and stow them outside of the home, especially those who have been to a heavily populated area.
- The ideal shoe to wear out of the home is machine washable or easy to clean with soap and water.
- Shoes can be washed at a high temperature with Bleach or vinegar: both of which have been proven to kill viruses. Alcohol-based wipes are also suggested for daily shoe disinfecting.

COVID-19 & Shoes

Dos and Dont's

By Rebecca Israel, MS and Charles Li, MD

Do Allocate a pair of shoes for outside

Don't Walk around your home with contaminated shoes

Do Disinfect frequently used surfaces

Don't Forget to wash your hands after taking off or handling your shoes

Clearvue Health

PPE Sanitization from the State of Colorado.

- The State of Colorado is approved for two systems by the U.S. HHS and the Federal Emergency Management Agency. A second location is being secured within the state to house the second system.
- All healthcare personnel is eligible for the free N95 decontamination, including emergency medical service personnel, nurses, nursing assistants, physicians, technicians, therapists, phlebotomists, pharmacists, dentists and dental hygienists, students and trainees, contractual staff not employed by the healthcare facility, and persons not directly involved in patient care, but who could be exposed to infectious agents that can be transmitted in the healthcare setting (e.g., clerical, dietary, environmental services, laundry, security, engineering, and facilities management, administrative, billing, and volunteer personnel). Additionally, non-medical personnel participating in emergency response due to COVID-19 also qualify as a healthcare professional under the Battelle Emergency Use Authorization.

How to sign up:

- To get N95 respirators cleaned, health care providers must first fill out an enrollment form at battelle.org/decon.
- Battelle will return an email with links to the enrollment contract, instructions, and the Battelle point of contact.
- The enrollee will be given a three-digit code, which must be written on the respirators with a permanent marker.
- The respirators need to be unsoiled, free of blood, mucus, makeup, lip balm, etc. Place all masks into a single plastic bag and tie off the bag when it is full. Any soiled masks will be thrown out. The bag must be placed into a second plastic bag that should be wiped down with disinfectant.
- The respirators must be placed into a shipping box and labeled with the three-digit code and a biohazard sticker.
- The enrollee contacts a shipper to coordinate pickup and delivery.
- Follow the step-by-step process of how to submit respirators for decontamination.

OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk, as shown in the occupational risk pyramid.

- Low -Jobs that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2. Telehealthcare
- Medium -Jobs that require frequent/close contact with people who may be infected. Medical Supply
- High - Jobs with a high potential for exposure to known or suspected sources of SARS-CoV-2. Case Managers
- Very High Exposure Risk - Jobs with a very high potential for exposure to known or suspected sources of SARS-CoV-2 during specific medical, postmortem, or laboratory procedures. Home health care nurses

Safe Work Practices

- Perform as many tasks as possible in areas away from a patient with suspected or confirmed COVID-19 (e.g., do not remain in an isolation area to perform charting.
- Work from clean to dirty (i.e., touching clean body sites or surfaces before touching dirty or heavily contaminated areas) and limit opportunities for touch contamination (e.g., adjusting glasses, rubbing the nose, or touching face with gloves that have been in contact with suspected or confirmed COVID-19 patients or contaminated/potentially contaminated surfaces). Also, prevent touch contamination by avoiding unnecessary touching of environmental surfaces (such as light switches and door handles) with contaminated gloves.

Ensure that there are systems in place to:

- Differentiate clean areas (e.g., where PPE is put on) from potentially contaminated areas (e.g., where PPE is removed);
- Handle waste and other potentially infectious materials; and
- Clean, disinfect, and maintain reusable equipment and PPE.
- Use caution when handling needles or other sharps, and dispose of contaminated sharps in puncture-proof, labeled, closable sharps containers.
- Workers should avoid touching their faces, including their eyes, noses, and mouths, particularly until after they have thoroughly washed their hands upon completing work and/or removing PPE.

Is the disease seasonal or weather dependent?

Almost all respiratory viruses (a group that includes COVID-19) are seasonal. This would mean there are fewer infections in the summer, which might lull us into complacency when the fall comes. This is a matter of degree. Because we see the novel coronavirus spreading in Australia and other places in the Southern hemisphere, where the seasons are the opposite of ours, we already know the virus is not as seasonal as influenza is.

Reference: https://www.gatesnotes.com/Health/Pandemic-Innovation?WT.tsrc=GFGTW&sf121266275=1

Kids and Covid-19

- Between March 18 and April 6, there were 74 U.S. children admitted to pediatric intensive care units.
- Almost half of the kids that ended up in pediatric intensive care units were between 12 and 17 years old. Kids between 2 and 11 years old made up 24% of the serious cases, while the youngest kids -- those under 2 years of age -- accounted for 30% of the most serious illnesses in children.
- The average hospital stay for a child or teen with COVID-19 is 14 days

Reference: Jason Salemi, Ph.D., associate professor, epidemiology, University of South Florida College of Public Health, Tampa; Marcelo Malakooti, M.D., medical director, pediatric intensive care unit, and associate chief medical officer, Lurie Children's Hospital, Chicago; April 17, 2020, *Journal of Public Health Management and Practice*, online

In Rare Cases, COVID-19 May Be Causing Severe Heart Condition in Kids

- The Paediatric Intensive Care Society (PICS) in the United Kingdom issued an urgent alert this week to warn doctors who care for critically ill patients with COVID-19 that National Health Service (NHS) England reported a small increase in the number of patients who also seem to have Kawasaki disease. Patients with both conditions might have heart inflammation and other serious heart issues.
- **The most telling symptom is a very high fever for five days. The fever is typically at least 101 degrees Fahrenheit, but can be 104 degrees F or higher, according to the American Heart Association.**

Helping Kids Cope
Why are People Wearing Masks ?

- Explaining COVID-19 to 3-5 year olds
- Explaining COVID-19 to 6-12 year olds
- Explaining COVID-19 to 13-18 year olds

- Kids Health – Parent Tool Kit

https://kidshealth.org/en/parents/coronavirus-landing-page.html?utm_content=DI2350802010700&external_id=DI2350802010700&utm_campaign=p-toolkit-en&utm_medium=covid&utm_source=khbanner

Review

- The United States had over 1.1 million confirmed coronavirus cases as of Tuesday, April 28, accounting for about a third of the global tally.
- Social distancing will be central throughout summer
- Face masks in public for ages above 2 years Cloth face coverings should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the mask without assistance.
- Decontamination of surfaces important to prevention
- Kids need extra protection, Kawasaki like symptoms presenting.
- Handwashing is cornerstone of care.

References

- American Association of Occupational Nurses http://aaohn.org/page/face-covers-for-worker-safety
- Aerosol and Surface Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 in Hospital Wards, Wuhan, China, 2020
- Boston Childrens Hospital http://www.childrenshospital.org/conditions-and-treatments/conditions/c/coronavirus
- FDA Drug Safety Communication 04/24/20 https://www.fda.gov/media/137250/download
- Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records
- https://ucsf.app.box.com/s/2laxq0v00zg2ope9jppsqtnv1mtxd52z/file/639397543386
- Decontamination of PPE https://www.battelle.org/inb/battelle-critical-care-decontamination-system-for-covid19

References

- American Heart Association https://www.heart.org/en/coronavirus
- Kids and Kawasaki https://consumer.healthday.com/infectious-disease-information-21/coronavirus-1008/in-rare-cases-covid-19-may-be-causing-severe-heart-condition-in-kids-757173.html?fbclid=I
- CDC https://www.cdc.gov/coronavirus/2019-ncov/index.html
- Colorado https://covid19.colorado.gov/
- Larimer County https://www.larimer.org/health/communicable-disease/coronavirus-covid-19
- Weld County https://www.weldgov.com/emergency_alerts_management/covid19_information