

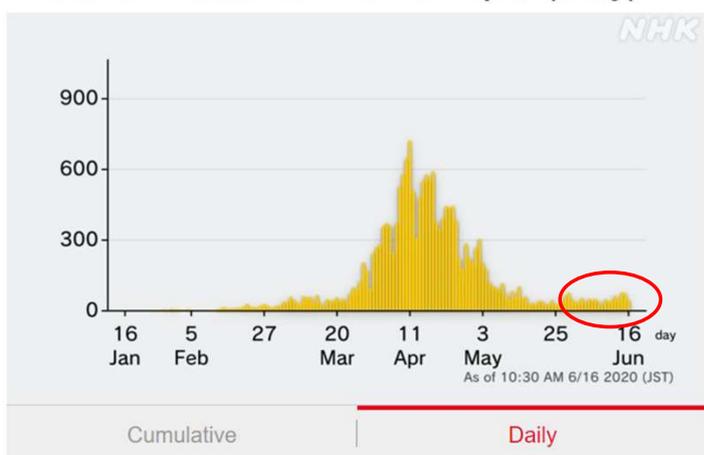
Weekly Meeting

1. Trend (June 4th -June 18th)
2. Assessing risk behavior
3. Understanding tests for COVID19
4. Q&A



Trend (June 4th-June 18th)

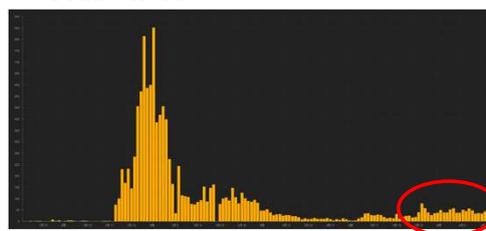
COVID-19 confirmed cases in Japan (daily)



Germany



South Korea



<https://www3.nhk.or.jp/nhkworld/en/news/tags/8>

<https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf62/>

Beijing responds to rise in coronavirus cases

- Restrictions were eased on June 6.
- New 106 symptomatic cases have been confirmed since last Thursday.
- Some of the cases linked to a large food wholesale market in the city.
- 2000+ contact tracing
- Schools are closed again



https://www3.nhk.or.jp/nhkworld/en/news/20200617_07/

CDC: Deciding to Go Out Guidance

People

- Interacting with more people raises your risk.
- Being in a group with people who aren't social distancing or wearing cloth face coverings increases your risk.
- Engaging with new people also raises your risk.
- Some people have the virus and don't have any symptoms.
- It is not yet known how often people without symptoms can transmit the virus to others.

Assessing risk
is important



Space

- The closer you are to other people who may be infected, the greater your risk of getting sick.
- Keeping distance from other people is especially important for people who are at higher risk for severe illness, such as older adults and those with underlying medical conditions.
- Indoor spaces are more risky than outdoor spaces where it might be harder to keep people apart and less ventilation.

Time

- Spending more time with people who may be infected increases your risk of becoming infected.
- Spending more time with people increases their risk of becoming infected if there is any chance that you may already be infected.

<https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/activities.html>

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

Search Coronavirus Advanced Search

<https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/doctor-visits-medicine.html>

Coronavirus Disease 2019 (COVID-19)

CDC > Coronavirus Disease 2019 (COVID-19) > Daily Life & Coping > Errands & Going Out

Coronavirus Disease 2019 (COVID-19)

Symptoms

Testing

Prevent Getting Sick

If You Are Sick

Daily Life & Coping

At Home

Errands & Going Out

Deciding to Go Out

Running Errands

Personal and Social Activities

Using Transportation

Doctor Visits & Getting Medicines

Visiting Parks & Recreational Facilities

Caring for Children

Stress & Coping

Funeral Guidance

People Who Need Extra Precautions

Doctor Visits and Getting Medicines

Other Languages Print Page

Talk to your doctor online, by phone, or e-mail

- Use telemedicine, if available, or communicate with your doctor or nurse by phone or e-mail.
- Talk to your doctor about rescheduling procedures that are not urgently needed.

If you must visit in-person, protect yourself and others

- If you think you have COVID-19, notify the doctor or healthcare provider before your visit and follow their instructions.
- Cover your mouth and nose with a [cloth face covering](#) when you have to go out in public.
- Do not touch your eyes, nose, or mouth.
- Stay at least 6 feet away from others while inside and in lines.
- When paying, use touchless payment methods if possible. If you cannot use touchless payment, sanitize your hands after paying with card, cash, or check. Wash your hands with soap and water for at least 20 seconds when you get home.

Limit in-person visits to the pharmacy

- Plan to order and pick up all your prescriptions at the same time.
- If possible, call prescription orders in ahead of time. Use drive-thru windows, curbside services (wait in your car until the prescription is ready), mail-order, or other delivery services. Do the same for pet medicine.
- Check with your doctor and pharmacist to see if you can get a larger supply of your medicines so you do not have to visit the pharmacy as often.

Talk to your doctor online, by phone, or email

New Way of Living!


Published June 1st 2020

Lancet: Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis

- For the general public, evidence shows that physical distancing of more than **1 m is highly effective** and that face masks are associated with protection, even in non-health-care settings, with either disposable surgical masks or reusable 12–16-layer cotton ones.
- Eye protection** is typically under considered and can be effective in community settings.
- Other basic measures (eg, **hand hygiene**) are still needed in addition to physical distancing and use of face masks and eye protection.

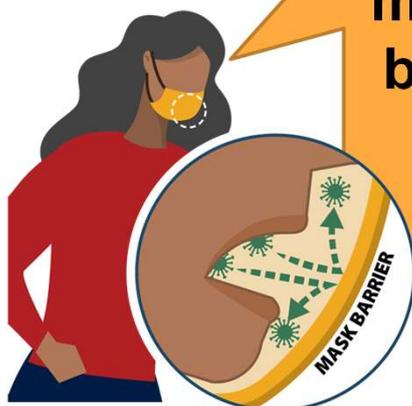
<https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2931142-9>

June 10th 2020

WHO: 40% of infections from asymptomatic people

- Clusters of cases were found at gyms and karaoke clubs in Japan.
- The virus is present in the upper respiratory tract close to the mouth, unlike MERS and SARS pathogens.
- Transmitted when infected people speak loudly or breathe heavily during hard exercises.
- WHO advise people in areas where infection is spreading to wear face masks when they cannot practice physical distancing.

https://www3.nhk.or.jp/nhkworld/en/news/20200610_07/



CDC: A cloth face covering may not protect the wearer, but will prevent the wearer from spreading the virus to others

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>
<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html>

Himeji City: All pregnant moms and partner to get Saliva PCR test for corona May 16th 2020

Yokosuka: WALK-THROUGH Testing

Kobe: WALKTHROUGH Testing May 16th 2020

Tokyo to plan to cover PCR/Antigen Test for free May 19th 2020

Tokyo: Antibody testing to 3,000 volunteers for epidemiology assessment May 25th 2020

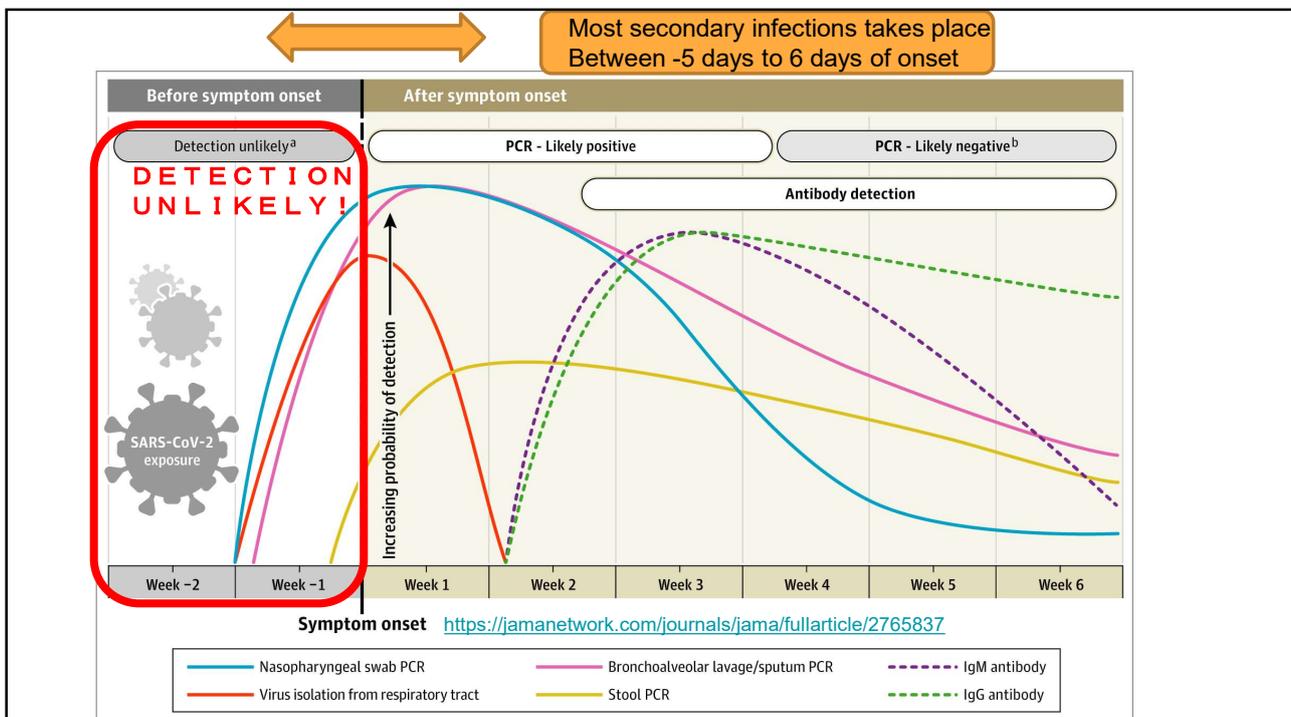
Local district based strategies are emerging...but scientific basis are questionable?!

Tests for SARS-CoV-2 (novel coronavirus)

1. PCR nasal swab (viral RNA)
2. PCR Saliva test (viral RNA)
3. Antigen test nasal swan (viral protein)
4. Antibody test (blood immunity)

PCR testing for SARS-CoV-2

- Positive PCR tests are highly accurate on essentially all laboratory platforms in use. (“Gold Standard” diagnostic test)
- **BUT**, false negative results have been reported in up to **20%** of cases; this may be attributed to variability in sampling techniques.



Nasal Swab? Saliva?

- The U.S. Food and Drug Administration (FDA) has authorized two viral tests that let you collect either a nasal swab or a saliva sample.
- *Only one preprint data available:* Saliva is more sensitive for SARS-CoV-2 detection in COVID-19 patients than nasopharyngeal swabs.
- Japan approved Coronavirus PCR Tests Using Saliva (June 3rd ~)
- Detection depends on sample quality, less sensitive in asymptomatic cases?

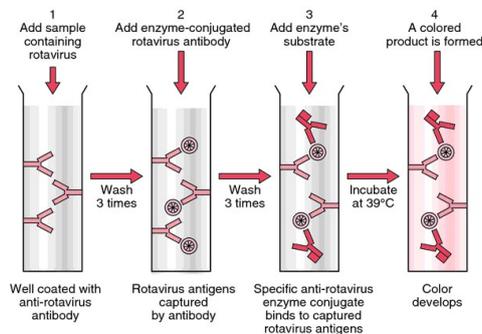
It's been shown that the virus is present in the **upper respiratory** tract close to the mouth, unlike MERS and SARS pathogens.



https://www.medrxiv.org/content/10.1101/2020.04.16.20067835v1.full.pdf+html#disqus_thread

Antigen Test

- Antigens are expressed when the virus is active. The test aims to detect those antigen produced by the virus.
- Uses similar platform as influenza tests



<https://medical-dictionary.thefreedictionary.com/Antigen+test>

Japan approves coronavirus antigen test kits

- The Japanese government approved on May 13th 2020
- The antigen test has lower sensitivity to the virus than the PCR test, which may lead to false negative reports.
- People with **negative results** will require additional PCR test to confirm.



...the antigen test
doesn't really provide
assurance



WHO statement about Rapid Antigen detection

- **The sensitivity of these tests might vary from 34% to 80%**
In the US, false negative results have been occurring in up to 25%-50% of tests on the point-of-care platform.
 1. False-negative → Half or more of COVID-19 infected patients might be missed
 2. False-positive → The test strip also recognize antigens of viruses other than COVID-19, such as from human coronaviruses that cause the common cold.
- **WHO does not currently recommend the use of antigen-detecting rapid diagnostic tests for patient care**, although research into their performance and potential diagnostic utility is highly encouraged.

<https://www.who.int/news-room/commentaries/detail/advice-on-the-use-of-point-of-care-immunodiagnostic-tests-for-covid-19>

Serology Survey: epidemiology

**Caution!
Not clinical implications**

Osaka has 0.17% positive rate for coronavirus antibodies, government says

抗体検査	抗体保有人数	抗体保有割合
2,970	5	0.17%

Coronavirus antibody tests begin in Tokyo

Tokyo has 0.1% positive rate for coronavirus antibodies, government says

Serology Test (Antibody Testing)

- Used **ONLY** for epidemiological research purposes.
- CDC does **NOT** recommend using antibody testing to diagnose infection.
- WHO: **No evidence that antibody tests can show coronavirus immunity.** People who have recovered from infection have varying levels of antibodies to the virus suggesting that cellular immunity may also be critical for recovery.

WHO warning: No evidence that antibody tests can show coronavirus immunity

Published Fri, Apr 17, 2020, 4:38 PM EDT | Updated Sun, Apr 19, 2020, 12:34 PM EDT

Benkiya Lovelace Jr. @BENKIELYN William Feuer @WILLFEUER

KEY POINTS

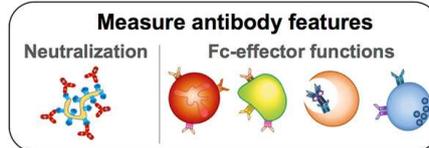
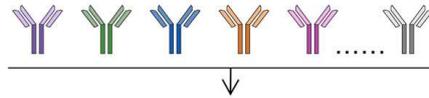
- The WHO said there's no evidence serological tests can show whether a person has immunity or is no longer at risk of becoming reinfected.

VIDEO 03:18
WHO issues warning about coronavirus testing

<https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html>
<https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19>
<https://www.cnbc.com/2020/04/17/who-issues-warning-on-coronavirus-testing-theres-no-evidence-antibody-tests-show-immunity.html>

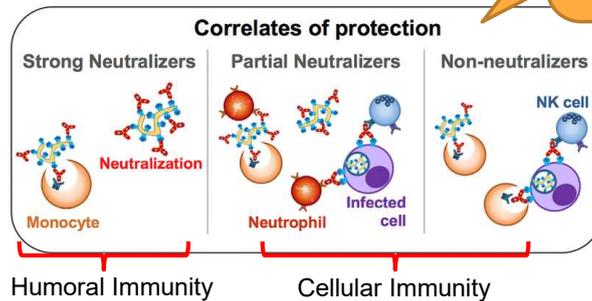
Understanding how antibodies work

① Different antibodies are formed targeted to different parts of virus structure



② Different types of antibody trigger different types of defense mechanism

What is being measured as “antibody against coronavirus” is irrelevant to protection against COVID19. We need to know which type of antibody represents “protection”.



<https://www.sciencedirect.com/science/article/pii/S1931312818303792>

Understanding how antibodies work: RS virus

- “Respiratory syncytial virus,” or “RSV.” is the most common cause of bronchiolitis in young children.
- Previous infection with RSV does not protect against reinfection, even in patients with high titers of specific antibody
- Research show that serum antibodies to the surface glycoproteins, F and G, correlate with resistance to reinfection, but protection is far from complete and is of short duration.
- Secretory IgA antibodies and B lymphocytes are important in termination of RSV shedding and resistance to RSV reinfection.
- There are many viral diseases that behave in this manner. In fact, it is only few diseases (such as measles, etc) that we can determine protection against certain disease by measuring certain antibodies.

<https://www.sciencedirect.com/science/article/pii/S1931312818303792>

Nature: April 30, 2020

“No test is Better than a bad test”

- Test the tests
- Timing is critical
- Infection doesn't equal immunity

The world this week

News in focus



Antibody tests have been promoted as a way to get people back to work — but the reliability of their results is unknown.

WILL CORONAVIRUS ANTIBODY TESTS REALLY CHANGE EVERYTHING?

The rapidly developed tests have been touted as society's way out of widespread lockdowns, but scientists say it will be a while before they are as useful as hoped.

By **Smriti Mallapaty**

British Prime Minister Boris Johnson called them a 'game changer'. Antibody tests have captured the world's attention for their potential to help return to normal by revealing who has been exposed, and might now be immune, to the new coronavirus.

Dozens of biotechnology companies and research laboratories have rushed to produce the blood tests. And governments around the world have bought millions of kits, in the hope that they could guide decisions on

when to relax social distancing measures and get people back to work. Some have even suggested that the tests could be used as an 'immunity passport', giving the owner clearance to interact with others again.

Many scientists share this enthusiasm. The immediate goal is a test that can tell the ill, care and other essential workers whether they are still at risk of infection, says David Smith, a clinical virologist at the University of Western Australia. In the future, the tests could assess whether vaccine candidates give people immunity.

But as with most new technologies, there are

signs that the promises of COVID-19 antibody tests have been overhyped, and their challenges underestimated. Kits have flooded the market, but most aren't accurate enough to confirm whether an individual has been exposed to the virus.

And even if tests are reliable, they can't indicate whether someone is immune to reinfection, say scientists. It will be a while before kits are as useful as hoped, says Smith.

The UK government learnt about this the hard way after it ordered 3.5 million tests from several companies in late March, only to discover later that none of these tests

Nature | Vol 580 | 30 April 2020 | 871

<https://media.nature.com/original/magazine-assets/d41586-020-01115-z/d41586-020-01115-z.pdf>

How do we tackle this?

- Physical distancing, environmental hygiene protocols
- Personal Hygiene: self-monitor, avoiding risk behavior and universal mask
- Telemedicine
- Prevention of other preventable diseases (Routine vaccine/Flu vaccine)
- Maintaining good control of underlying medical condition
- Medication?

Emergency Use Authorization (EUA): Remdesivir

Favipiravir (Avigan®) ? Hydrochloroquine X

- Immune Substance? (=Passive Immunity)

Kitazato University (Japan)

- Vaccine? (=Active Immunity)

.....over 70 candidates according to WHO

- Herd immunity? Immunity Test??

NIH (US) says:
There are insufficient data to recommend either for or against any antiviral or immunomodulatory therapy in patients with COVID-19 with mild illness

**Thank you for joining!
See you next week!**

**Schedules are available from
www.adachiclinic.org**

