

3 July 2020: 1130GMT

Case Summary

Cases worldwide: 10,874,146

Deaths worldwide: 521,337

Countries affected: 188

(Data taken from [Coronavirus COVID-19 Global Cases dashboard](#) from Johns Hopkins University Center for Systems Science and Engineering)

Introduction

The United States has broken its own daily confirmed case records four times in the last week.

The United Kingdom will be releasing a list of 50 countries whose citizens will not be required to quarantine upon arrival in England from 10 July. Countries on the list will be categorised into 2 categories. The first is “amber”, which includes countries with reciprocal arrangements in place, meaning that UK travellers do not have to quarantine upon arrival in those countries. The “green” category includes countries with low levels of COVID-19 cases but require UK travellers to self-isolate upon arrival.

News

WHO News

WHO Director-General Dr Tedros spoke yesterday in the media briefing, emphasizing the need to take a comprehensive approach to the pandemic. “Not testing alone. Not physical distancing alone. Not contact tracing alone. Not masks alone. Do it all.”

Turkey’s helpline, which reaches all 81 provinces in the country, has seen more than 80,000 consultations since March. The helpline provides mental health support to people dealing with the pandemic. Also highlighted is the need to refrain from de-prioritizing maternal and child health.

Within the WHO European region, “...examples from Italy, Germany and Israel show that swift recalibration of healthcare has helped maintain essential services, thereby protecting the well-being of pregnant women and their babies.” Dr Carissa F. Etienne, the WHO Regional Director for the Americas commented that “countries planning to relax public health measures must take a phased approach based on local conditions and be prepared to impose preventive measures again if the epidemiological situation changes.”

Dr Akjemal Magtymova has shared her experience, both professional and personal, with regards to her recent assumption of her position in Syria. She discussed the restrictions of the pandemic, but also the hurdles of responding to this pandemic while in a conflict area.

ECDC News

The European Centre for Disease Prevention and Control (ECDC) has released a risk assessment [Resurgence of reported cases of COVID 19 in the EU/EEA](#). Although overall there is a decline in cases in Europe in the final two weeks of June, community transmission is still occurring with a resurgence in some countries. The reasons for the resurgence are varied, including differences in case definitions and testing, as well as "genuine increases in transmission" related to easing of restrictions.

The risk for locations with "substantial ongoing community transmission" is considered **moderate** for the general population, but **very high** for people in a higher risk group for severe illness. Higher risk groups for severe disease include older adults, and people with underlying health issues such as heart disease, high blood pressure, cancer, diabetes, or chronic lung disease or those who are immunocompromised or have a weakened immune system.

The risk of further increases in COVID-19 is **high** for locations with community transmission that do not have robust monitoring, testing and contact tracing in place, and if social distancing measure are relaxed.

Evolution Worldwide

ASIA & PACIFIC

Bangladesh: A total of 153,277 cases and 1926 deaths have been reported so far. Authorities have extended restriction measures in the country until 3 August.

Cambodia: At least 141 cases reported, all new cases are returnees from Indonesia and Malaysia.

China: Two more cases have been confirmed in Beijing, all from Fengtai District. The total number in the Beijing outbreak is now 331. Seven people have recovered and been discharged. A further 29 people have been identified as positive for COVID-19 but do not have symptoms.

Hong Kong: Nine new imported cases have been reported, bringing the total to 1,243 cases.

India: 20,903 new cases and 379 deaths have been reported, bringing the total to 625,544 cases and 18,213 deaths. This was the worst daily increase in cases recorded. However, India reported a large increase in recoveries with 20,032, taking the total to 379,891 recoveries.

Indonesia: 1,624 new cases and 53 deaths have been reported, bringing the total to 59,394 cases and 2,937 deaths. This was the highest daily increase in cases. The capital city Jakarta has extended their social distancing policy until 16 July, and all activities must take place with no more than 50% capacity.

Malaysia: Three new cases and no deaths have been reported, bringing the total to 8,643 cases and 121 deaths. The number of active cases has gone down to 85.

Myanmar: Additional cases have been reported taking the total to 304 cases, no new fatalities were recorded. More than 79,000 tests have been conducted so far and at least 223 cases have recovered.

New Zealand: No new cases have been reported. The total number of active cases remains at 18. New Zealand has confirmed a total of 1,180 cases with 22 deaths.

South Korea: Around 30 to 50 new cases of COVID-19 have been consistently detected each day over the past couple of weeks. A number of small clusters are being tracked in Seoul as well as in Gwangju city and in Gyeonggi province.

Thailand: One new imported case has been reported, resulting in a total to 3,180 cases and 58 deaths. Thailand has gone 39 days without local transmission of the virus.

EUROPE

Germany: 446 new cases have been reported, bringing the total to 195,674 cases including 9,003 deaths.

Italy: 201 new cases have been reported, resulting in a total of 240,961 cases and 34,818 deaths.

Russia: 6,718 new cases and 176 deaths have been reported, bringing its total to 667,883 cases and 9,859 deaths.

Spain: 134 new cases and five deaths have been reported, bringing the total to 250,103 cases and 28,368 deaths. The last COVID-19 patient in ICU has been discharged from Elche Hospital in Costa Blanca.

Sweden: New cases continue to be reported. There is large variability in the case numbers reported each day. This may be due to reporting limitations. Overall the 14 day incidence has increased by 10%. Testing efforts continue with more than 60,000 tests performed last week. Public health authorities are also reporting that the number of serious cases continues to slowly diminish. The government also published new regulations for serving places today, which will come into effect on 7 July.

Switzerland: 116 new cases have been reported. The total number of cases is 31,967 cases. Unrestricted travel is allowed with countries in the Schengen area except for Sweden.

United Kingdom: 576 new cases and 89 deaths were reported bringing the total to 283,757 and 43,995 deaths. The UK will release a list of 50 countries that will be allowed to enter England without having to undergo a 14-day self-quarantine. Pubs, restaurants and hair salons will be allowed to open on 4 July.

MIDDLE EAST

Afghanistan: A total of 32,022 cases and 807 deaths have been confirmed.

Iran: 2,652 new cases and 148 deaths have been reported, bringing the total to 232,863 cases and 11,106 deaths. At least 194,098 patients have recovered.

Iraq: 2,184 new cases and 110 deaths have been reported, bringing the total to 53,708 cases and 2,160 deaths. At least 30 testing centres for COVID-19 has opened in Risafa, the eastern bank of the Tigris River.

Kazakhstan: 3,010 new cases have been reported, bringing the total to 44,075 cases and 188 deaths. Nationwide lockdown will start on 5 July for 2 weeks. All international flights that are in operation will remain, but no new countries will be added to the list. Outdoor markets, cafes, restaurants and groceries will remain open, while indoor gyms, pools and shopping malls stay closed.

Qatar: New cases continue to be reported daily, though the downward trend in new cases continues. In the past 24 hours 894 cases and 3 deaths were reported bringing the totals to 97,897 and 118 respectively. Public health authorities are also reporting 86,597 people have recovered. Everyone must wear a face mask when outside their homes, except when driving alone in their car. Qatar entered the second phase of reopening, permitting commercial activities in malls and commercial centres with social distancing guidelines. Restaurants in malls are allowed to operate by delivery only.

Saudi Arabia: 3,383 new cases and 54 deaths have been reported, bringing the total to 197,608 cases and 1,752 deaths.

United Arab Emirates: 400 new cases and one death have been reported, bringing the total to 49,469 cases and 317 deaths.

AFRICA

Algeria: 336 new cases and seven deaths have been reported in the last 24 hours bringing the total to 13,907 cases and 912 deaths.

Angola: At least 315 cases and 17 deaths have been confirmed.

Democratic Republic of Congo: A total of 7,189 cases and 176 deaths have been confirmed.

Ethiopia: New cases continue to be reported daily at a rate of about 171 per day over the last week. The Ministry of Health is offering COVID-19 learning for health professionals. The courses are online and the trainee receives a certificate once they pass.

Ghana: A total of 18,134 cases and 117 deaths have been reported.

Guinea Bissau: The overall trend of new COVID-19 cases reported each day is declining. In total, there have been 1,710 cases and 24 deaths.

Ivory Coast: At least 3,500 new cases have been reported since 20 June bringing the total number of cases to 9,499 and 68 deaths.

Kenya: 268 new cases and three deaths have been reported. The total number of cases has reached 6,941 including 152 deaths, and at least 2,109 patients have recovered.

Lesotho: New cases continue to be reported, though in small numbers. So far there have been 35 cases, with 11 recoveries and no deaths reported.

Madagascar: 100 new cases and two deaths have been reported. The total number of cases has reached at least 2,403 with 24 deaths.

Mozambique: 15 new cases have been reported, bringing the total to 918 cases and six deaths. Another lab for COVID-19 testing has opened in Nampula.

Nigeria: 626 new cases and 13 deaths have been reported, resulting in a total of 27,110 cases and 616 deaths. Lockdown has been lifted in Kano.

South Africa: A total of 168,061 cases and 2,844 deaths have been confirmed. South Africa will extend their deployment of 20,000 soldiers until 30 September to ensure restrictions are enforced.

AMERICAS

Brazil: 46,712 new cases and 1,038 deaths were reported in the last 24 hours. The total case count is now 1,448,753 including 60,632 deaths. Public health officials are also reporting 826,866 people have recovered. The country's capacity for COVID-19 testing has expanded by 869% since the beginning of the pandemic. Secretary of Health Surveillance, Arnaldo Correia de Medeiros stated: "With an increasingly early diagnosis, it will be possible to have a better perception of the patient's clinical condition, increasing the chances of intervention and treatment at the discretion of the doctor."

Chile: A total of 284,541 cases and 5,920 deaths have been confirmed. Schools and non-essential businesses will remain closed.

Mexico: 6,741 new cases and 679 deaths were reported. A total of at least 238,511 cases and 29,189 deaths have been confirmed. Mexico has overtaken Iran and is now the 10th country with highest number of confirmed cases.

Panama: New cases continue to be reported, and the trend continues to increase. The government has released guidelines on the return to work in various industries. All international flights remain suspended until at least 22 July, except for cargo and domestic flights. Borders remain closed to foreign nationals and non-residents until 22 July. A curfew is also in effect until 31 July for the Panama and Panama Oeste provinces from 17.00 on Saturdays to 05.00 on Mondays.

Peru: At least 292,004 cases, daily reported cases are on the decline but fatalities continue to increase taking the total to 10,045 deaths.

United States: Over 54,350 new cases were detected in the last 24 hours, setting a new daily case record. Seven states reported their highest ever daily totals: Alaska, Arkansas, Florida, Georgia, Montana, South Carolina and Tennessee. More than 10,100 cases were confirmed in Florida alone.

A total of 2,670,230 cases and 128,024 deaths have been reported nationwide. Among these are 90,626 cases and 500 deaths among health care workers. Surges are occurring in some of the most populous states, with increasing trends in 40 states.

In Texas, an Executive Order has been issued requiring everyone to wear face masks in public for any county with more than 20 cases. Gatherings of over 10 people have also been banned.

NEW COUNTRIES

No new countries have reported their first case(s) of COVID-19.

Something for the Weekend

Antibodies and immunity

Dr Dave Knight

There seems to be quite conflicting evidence to date on antibodies and immunity.

Research from SARS, MERS-CoV and in animal studies suggest that SARS neutralising antibodies were present in almost all patients 200 days after infection [Temperton et al, 2005]], and another large Chinese study found 86% developed neutralising antibodies and these remained elevated for 5 months with little decline at 5 months [Nie et al, 2005]. A Hong Kong study done in 2003 on SARS found IgG antibodies present 240 days after infection [Woo, et al, 2004], and a Taiwanese study found all 18 patients with SARS studied had IgG antibodies 12 months later. Another Chinese study on SARS found almost 100% developed IgG antibodies by 30 days post infection and that by 3 years almost 60% still had IgG antibodies detectable. Similarly, with MERS-CoV, a study from Jordan found that 6 of 7 cases still had neutralising antibodies at 34 months post infection.

So research, to date on other coronaviruses suggest most people but not all (85%) develop [neutralising antibodies](#) (the antibodies that prevent a virus from binding or entering a human cell, and thus prevent re-infection from occurring – also known as sterilising immunity), and that these persist for at least 5 months. They also suggest almost all people develop IgG antibodies and that IgG antibodies persist for 6 to 36 months at least.

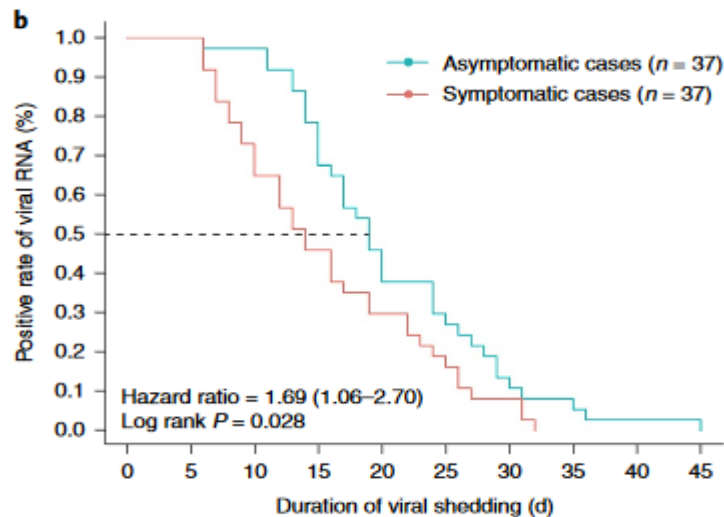
Onto SARS-CoV-2 the virus that causes COVID-19 – here the evidence is a little mixed – what is still somewhat uncertain:

1. Are IgG antibodies neutralising?
2. Do all people develop IgG antibodies?
3. Do all people develop neutralising antibodies?
4. How long does sterilising immunity last for?
5. How long does non-sterilising immunity last for?
6. What role does cellular immunity play (compared with antibody based or humoral immunity)?
7. Can re-infection occur at some point in the future? (over a period of months this seems very unlikely but in the longer term?)
8. What happens if re-infection does occur in a small proportion of people – is the subsequent disease more severe or less severe? ([antibody-dependant enhancement](#))
9. Is there a difference in these effects according to age and disease severity?
10. Will longer term mutations in the virus lead to loss of immunity, and what type of immunity? (the virus seems relatively stable and does not mutate nearly as rapidly as influenza viruses do for instance)

There have been a number of papers published recently on antibody and cellular responses to SARS-CoV-2 (COVID-19).

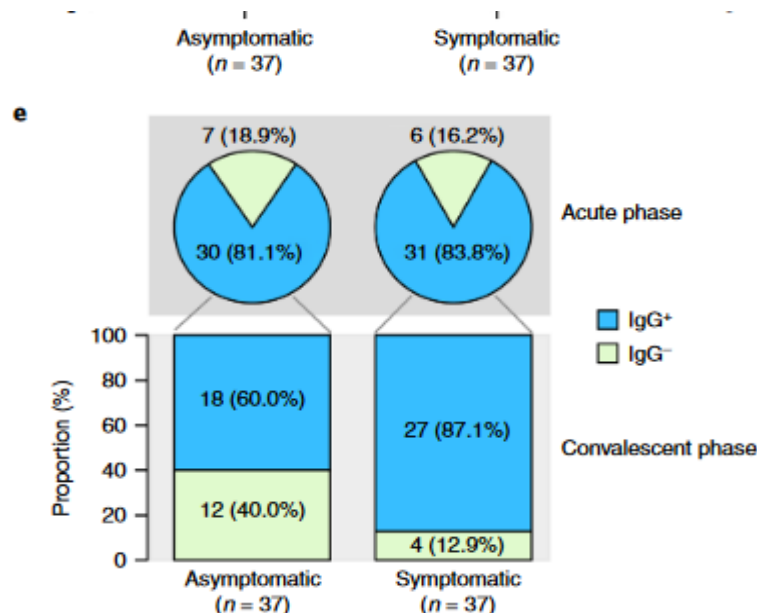
A prepublished paper (not peer reviewed) from the UK found that in 554 health care workers who were asymptomatic, 24% had antibodies to COVID-19 and those that had previous symptoms of COVID-19 had higher antibodies responses. 17% of those with no symptoms had seroconverted and had antibodies present – so the implication from this is even asymptomatic cases develop antibodies although at lower levels than symptomatic cases.[Shields AM, et al, medRxiv].

In another important peer reviewed Chinese study [Long Q et al, Nature Medicine], 37 asymptomatic cases were compared with 37 symptomatic cases – the asymptomatic cases were PCR positive for longer than the symptomatic cases, but had a weaker immune response.



Here we see asymptomatic cases have a median duration of positive PCR of 19 days and in the symptomatic cases of 14 days.

In the figure below we can see around 80% developed an IgG antibody response in the acute phase but this declined over 2 to 3 months.



This research suggests:

- Both asymptomatic and symptomatic cases develop an antibody response, but only about 80% developed an IgG antibody response in each group at 3 to 4 weeks after exposure.
- Both test positive on PCR and the test result can remain positive for many weeks
- The antibody response is weaker in asymptomatic cases.
- The response waned quite quickly with 40% in the asymptomatic group and 13% in the symptomatic group losing detectable IgG antibodies over 2 to 3 months
- Neutralising antibodies declined by around 10% over 2 to 3 months
- The authors contend this may have grave implications for so called “immune passports” if the detectable antibody response wanes quite quickly, and if this also translates into loss of immunity (this is uncertain)
- The authors also make the statement: “Therefore, timely RT–PCR and serological testing should be used in conjunction, which would benefit accurate estimation of the asymptomatic proportion”

In contrast to this a study done in France on health care workers in hospitals found that even in mild cases of COVID-19 almost all cases mounted an antibody response. [Fafi-Kremer S et al, medRxiv] The paper is prepublished and not peer reviewed but led by a team from the prestigious Institute Pasteur. In this study, 160 health care workers were tested using two different tests (one being the Biosynex RDT and another a S-Flow assay developed by the research group) and a neutralising antibody test.

Summarised as follows:

Table 2. Seropositivity with the different assays (Rapid test, S-Flow, and pseudoneutralisation) according to the time after onset of symptoms

Time from onset of symptoms (days)	13-20 (n=29)	21-27 (n=83)	≥28 (n=48)	Total	P value
Rapid test IgM	26 (89.7)	75 (90.4)	40 (83.3)	141 (88.1)	0.47
Rapid test IgG	14 (48.3)	59 (71.1)	41 (85.4)	114 (71.2)	0.002
Rapid test IgG or IgM	27 (93.1)	80 (96.4)	46 (95.8)	153 (95.6)	0.76
S-Flow	28 (96.5)	83 (100)	48 (100)	159 (99.4)	0.18
Pseudoneutralisation ID50 >100	23 (79.3)	76 (91.6)	47 (97.9)	146 (91.2)	0.020
Pseudoneutralisation ID80 >100	11 (37.9)	44 (53.0)	37 (77.1)	92 (57.5)	0.002

Almost all cases mounted an antibody response (159 of 160) as detected on the S-Flow assay.

- The Biosynex RDT was not very sensitive for IgG – it only detected about 50% between 13 to 20 days after symptom onset where the S-Flow detected 97%.
- The combined IgG and IgM sensitivity for the Biosynex RDT was much better.
- 91% developed neutralising antibodies in total, but 47 of 48 (98%) by after day 28.
- This suggests almost all people with mild disease develop both antibodies and neutralising antibodies by about a month after symptom onset.
- Good laboratory based assays for detecting antibodies are better than antibody RDTs (at least the Biosynex one, but from other research we can confidently say virtually all RDTs)

The take home points from this are:

- Most people seem to develop a neutralising antibody response and this strengthens with time in the French study over 28 to 41 days but weakens somewhat over 2 to 3 months in the Chinese study.
- Some people don't develop IgG antibodies as detected by some rapid tests.
- Good lab-based assays can detect antibodies in almost all people following even mild infection.
- Even asymptomatic cases develop a similar but slightly weaker IgG antibody response compared with symptomatic cases.
- There is a lot we don't know about immunity and how long it lasts for, but the French hospital study is encouraging, and somewhat at odds with the Chinese study. I have not summarised it here but studies coming out now on cellular responses are also uncertain but seem to indicate they could be important in conferring immunity in concert or addition to the antibody response.