



# Short Update 49a COVID-19 Coronavirus Disease 11th of December 2020



## GLOBAL



69 600 911

Confirmed cases

44 895 050 recovered

1 582 259 deaths

## USA



(new cases/day 213 144)

15 547 872

confirmed cases

5 925 913 recovered

290 798 deaths

## India

(new cases/day 31 521)



9 796 769

confirmed cases

9 290 834 recovered

142 186 deaths

## Brazil

(new cases/day 53 347)



6 781 799

confirmed cases

6 043 219 recovered

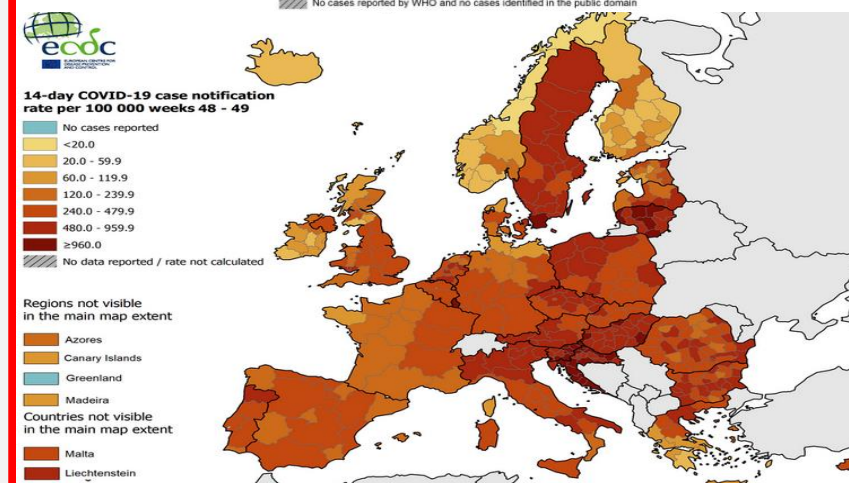
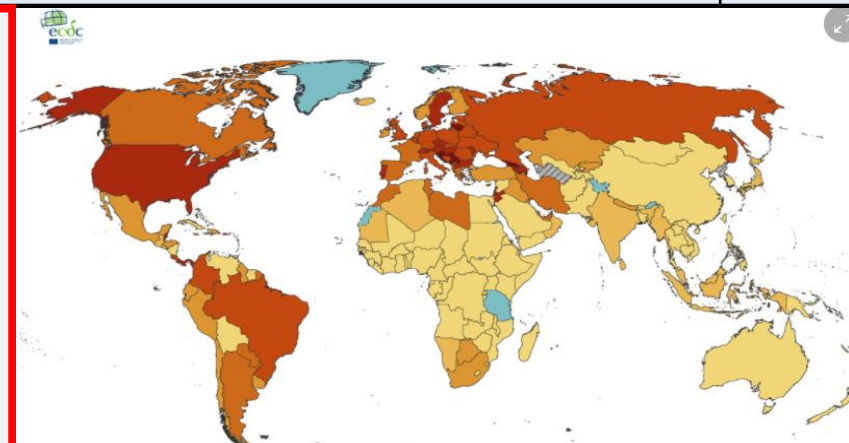
179 765 deaths

### News:

- **Amnesty International:** laments a drastic deterioration in the human rights situation in the wake of the corona pandemic. Especially in societies with great inequality, COVID-19 and the countermeasures have had a particularly strong impact.
- **Global:** In the Corona year 2020, a record decrease in global CO2 emissions of 7% was recorded. With an estimated 2.4 billion tons, the decline in climate-damaging CO2 emissions is significantly higher than in the previous record years, announced the research network Global Carbon Project.
- **EU:** In the dispute over the blockade of the EU budget, a compromise has been reached. The member states agreed on the EU budget and settled disputes around some prerequisites to receive EU-money. This paves the way for billions of Euros to be paid out to mitigate the consequences of the on-going pandemic.
- **EU:** The EU Court of Auditors fears that the different levels of corona aid in the individual member states could worsen the economic gap between the countries. Differences in growth, national debt and unemployment as well as distortions of competition are possible consequences. So far, Germany has paid the most aid in the EU to support the economy and employees. The aid would have reached a volume of around 43 percent of the gross domestic product. This is followed by Italy with financial aid amounting to around 37 percent of GDP, followed by Lithuania (29 percent) and France (23 percent). Slovakia (5 percent), Romania (5 percent) and Bulgaria (2 percent) spent the least on Corona aid.
- **The Bill and Melinda Gates Foundation** pledges an additional \$ 250 million to develop low-cost corona vaccines and treatment options. In total, the foundation is now making \$ 1.75 billion available to combat the pandemic.
- **WHO's** health emergencies online learning platform: [OpenWHO.org](https://openwho.org).
- Find Articles and other materials about COVID-19 on **our** website [here](#).
- Please use **our** online observation form to report your lessons learned observations as soon as possible [here](#).

### Topics:

- **Global situation**
- **Subject in Focus:** Vaccine development and mRNA vaccination
- **Timeline COVID-19 infection**
- **In the press**



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## EUROPE



20 245 601

confirmed cases

8 939 700 recovered

460 964 deaths

## Russia

(new cases/day 27 562)



2 546 113

confirmed cases

2 015 137 recovered

44 769 deaths

## France

(new cases/day 13 750)



2 337 966

confirmed cases

174 658 recovered

56 940 deaths

## GBR

(new cases/day 20 964)



1 787 783

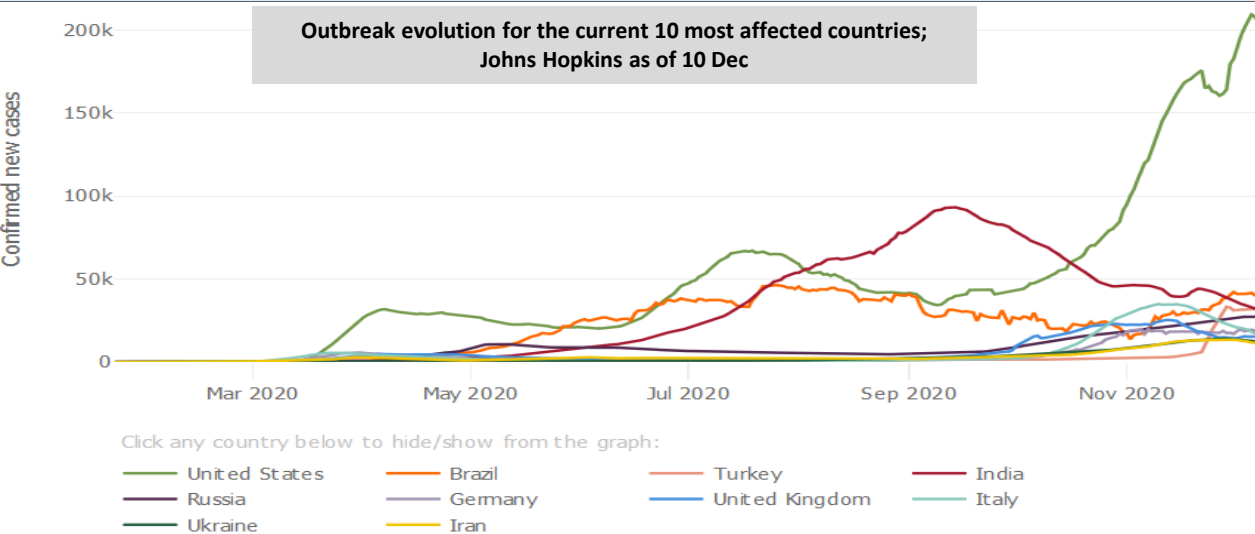
confirmed cases

-not reported- recovered

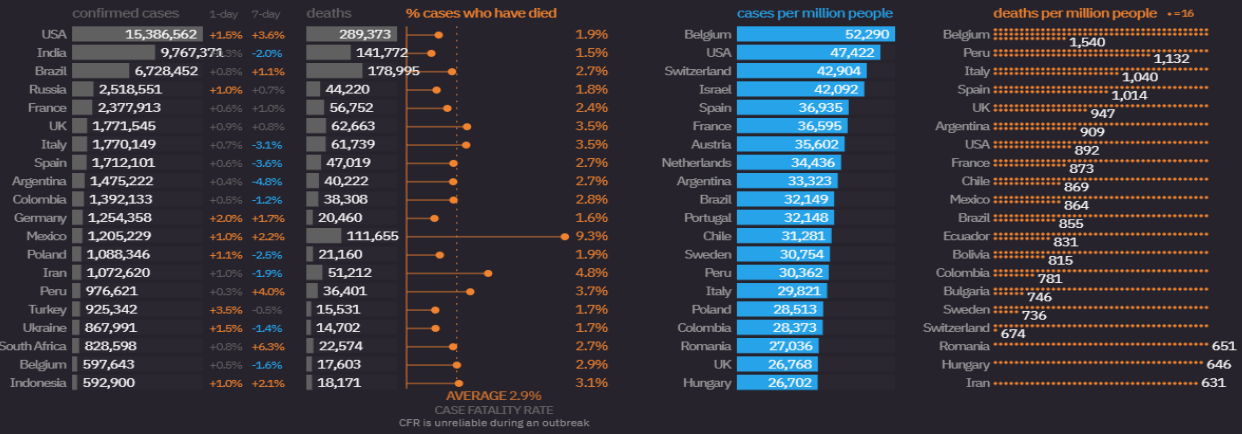
63 082 deaths

# Global Situation

Outbreak evolution for the current 10 most affected countries;  
Johns Hopkins as of 10 Dec



## Infection & Fatality Rates Vary by Country



informationisbeautiful Univers Labs

sources: Johns Hopkins University

**DEU:** The State Office for the Protection of the Constitution in the federal state of Baden-Württemberg is the first in Germany to observe the "Querdenker" movement. "Querdenker" is the leading anti-corona group in Germany. The group, which has been taking to the streets against the state corona restrictions for months, is radicalizing and has been infiltrated by extremists, according to security circles.

In view of the increasing number of antigen rapid test offers, German laboratory doctors warn against this method. False-positive or false-negative results were observed more and more frequently. This is due to the swab and test quality. The association demands clear rules for the tests: In general, the following must apply: Those who surround themselves closely with many people should only be tested by competent medical personnel. Positive results of all rapid antigen tests would have to be confirmed immediately by specialist laboratories using the PCR method.

From mid-December, people over 60 and people with previous illnesses or high-risk pregnancies will be given three free FFP2 masks. These can be picked up at the pharmacy after presenting your ID card or personal information. After New Year, they can receive another twelve such masks. For this, they should receive two forgery-proof coupons for six masks each from their health insurance companies. They should be able to redeem these in pharmacies in the two periods mentioned in the new year. Persons should pay a personal contribution of two euros for each redeemed coupon.

**ESP:** Four lions have been infected with the corona virus in the Barcelona Zoo. Two employees of the zoo also tested positive for the pathogen. So far, only a few cases are known in which big cats have become infected with the virus

**RUS:** Due to a mistake by officials in Moscow, the data of hundreds of thousands of people infected with corona has become public. This was announced by the head of the municipal information technology authority. The employees passed the files on to third parties. The incident will be investigated. The authority ruled out a hacker attack.

RUS wants to vaccinate its space travelers against the corona virus and thus prevent the disease from spreading on the International Space Station ISS. Cosmonauts and employees of the cosmonaut training center should be among the first to receive the "Sputnik V" vaccine developed in Russia.

**USA:** Companies in the US hired fewer employees and fired more employees than in the previous month. According to figures from the US Department of Labor, 5.81 million Americans got a new job in October. In September there were 5.89 million hires. This compares with 1.68 million jobs that were cut in US companies in October. In September companies laid off 1.44 million employees. Around 22 million people in the United States had lost their jobs since the beginning of the corona pandemic. In October there were 6.65 million reported vacancies in the labour market.

**ISR:** wants to start a large-scale vaccination campaign on December 27th. Prime Minister Benjamin Netanyahu wants to be the first to be vaccinated. 60,000 doses of vaccine could be administered per day. Israel has agreed to purchase around eight million vaccine doses from Biontech and Pfizer. Those who are vaccinated will receive a "green passport", providing some privileges like entering malls or attending some events.

**AUS:** Australia does not want to rush into the approval of the corona vaccine. For him it is important that the Australians have full confidence in the vaccination. Approval of the vaccine is expected at the end of January; in March it should be vaccinated.

# Global Situation

## Global epidemiological situation; WHO as of 08 Dec

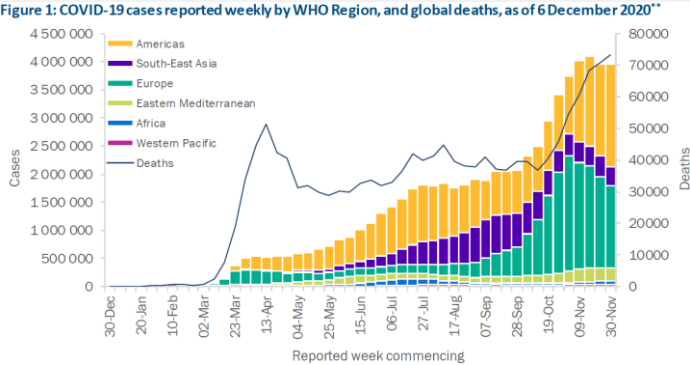
The global incidence of new cases remained very similar to the previous week with just under 4 million new cases reported in the past seven days, while new deaths, globally, increased slightly to over 73 000 new deaths reported. New cases and deaths in the **Region of the Americas** account for nearly half of all new cases and over one third of all new deaths this week.

While new cases remain high in the **European Region**, new deaths have decreased for a second week. New cases declined in **South-East Asia** and **Eastern Mediterranean regions** this week. Deaths decreased in the Eastern Mediterranean Region, and increased in the South-East Asia Region.

In the **African Region**, while both new cases and deaths remain low compared to other regions, there was an increase of 9% in new cases. New deaths have remained stable over the past few weeks.

In the **Western Pacific Region**, cases showed a small decline overall while new deaths increased slightly this week. In the past week, the five countries reporting the highest number of cases were:

- United States of America**; reporting over 1.2 million cases, a 9% increase from the previous week,
- Brazil**; reported over 295 000 new cases, a 35% increase,
- India**; reported over 251 000 cases, an 15% decrease,
- Russian Federation; over 191 000 new cases, a 6% increase and
- Italy**; reported over 145 000 new cases, a 21% decrease.



| Table 1. Newly reported and cumulative COVID-19 confirmed cases and deaths, by WHO Region, as of 6 December 2020** |                              |                                      |                      |                               |                                       |                       |
|--------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------|----------------------|-------------------------------|---------------------------------------|-----------------------|
| WHO Region                                                                                                         | New cases in last 7 days (%) | Change in new cases in last 7 days * | Cumulative cases (%) | New deaths in last 7 days (%) | Change in new deaths in last 7 days * | Cumulative deaths (%) |
| Americas                                                                                                           | 1 845 816 (46%)              | 12%                                  | 28 062 331 (43%)     | 26 624 (36%)                  | 18%                                   | 746 852 (49%)         |
| Europe                                                                                                             | 1 456 530 (37%)              | -9%                                  | 19 986 964 (30%)     | 35 249 (48%)                  | -3%                                   | 448 867 (29%)         |
| South-East Asia                                                                                                    | 332 396 (8%)                 | -10%                                 | 11 071 129 (17%)     | 5 004 (7%)                    | 2%                                    | 168 458 (11%)         |
| Eastern Mediterranean                                                                                              | 242 563 (6%)                 | -3%                                  | 4 288 875 (7%)       | 5 084 (7%)                    | -13%                                  | 107 258 (7%)          |
| Africa                                                                                                             | 53 083 (1%)                  | 9%                                   | 1 547 607 (2%)       | 974 (1%)                      | 0%                                    | 34 486 (2%)           |
| Western Pacific                                                                                                    | 40 039 (1%)                  | -1%                                  | 914 744 (1%)         | 461 (1%)                      | 4%                                    | 17 722 (1%)           |
| Global                                                                                                             | 3 970 427 (100%)             | 0%                                   | 65 872 391 (100%)    | 73 396 (100%)                 | 4%                                    | 1 523 656 (100%)      |

Source: <https://www.who.int/publications/m/item/weekly-epidemiological-update-8-december-2020>

## Vaccination News

**FDA:** The US Food and Drug Administration has classified the corona vaccine from pharmaceutical companies Biontech and Pfizer as safe. The statement now suggests that regulators are inclined to give the green light to the emergency approval of the Biontech-Pfizer vaccine candidate.

17 members of the panel of experts voted for the approval of the **BionTech** vaccine in the **USA** at the meeting, four experts advised against it, and there was one abstention

**EMA:** has been attacked by hackers. Documents related to the approval application for the vaccine from Pfizer and Biontech were tapped.

**Biontech/ Pfizer:** are working on a new version of the corona vaccine that should also be available without the currently necessary storage at minus 70 degrees. Data on whether the vaccine not only protects against COVID-19 but also prevents infection should be available early next year.

**The Roche Group and Moderna:** The companies cooperate in the vaccine development. Roche provides a diagnostic test for the ongoing vaccine studies by Moderna to determine the amount of antibodies caused by the vaccination. The blood test was granted emergency approval in the US in late November.

**Moderna:** has started testing its corona vaccine on young people. The examinations concern adolescents between the ages of twelve and 17.

The **Vaccine candidate Sanofi and GSK** has to be revised again because it does not work enough for older subjects. It won't be finished until the end of 2021. In adults between 18 and 49 years of age, according to the information, an immune response was produced in the first two test phases like after a COVID-19 disease. In older adults, however, the immune response was "insufficient".

**CAN:** has also granted approval for the vaccine from Biontech and Pfizer. The active ingredient was "safe, effective and of good quality," said the country's health authority.

**GBR:** There have been allergic reactions to the corona vaccinations in Great Britain. Reports of two such cases are being investigated. This did not occur in the extensive clinical tests with the vaccine from Biontech / Pfizer. A safety notice is now being issued. Experts recommend people with severe allergies not to vaccinate for the time being.

**DEU:** The German military will provide their barracks as temporary storage for the corona vaccine. The Bundeswehr will support the storage and distribution of vaccines. Furthermore, it will support the vaccination process with up to 26 vaccination centers and up to 26 mobile vaccination teams.

**BRA:** According to the Ministry of Health, the Brazilian government has secured the delivery of 70 million vaccine doses from Pfizer and Biontech. The vaccination units would be delivered from January. Through various agreements, more than 300 million doses are now available, which only have to be approved by the health authority Anvisa.

# Subject in Focus:

## Vaccine development and mRNA vaccination

On January 10, Chinese researchers posted the novel coronavirus’ RNA sequence on a preprint server. Immediately, scientists who study genetic vaccines turned their efforts to the emerging pathogen that causes coronavirus disease 2019. On Monday 7 December the first m-RNA based vaccine candidate got emergency approval in GBR. Not even 12 month after the report of the genome. How is this possible?

Current antiviral vaccine designs can be described as falling into 2 camps: **protein based** or **gene based**.

Protein-based vaccines deliver the immune system—stimulating antigen to the body. This category includes whole-inactivated (killed) vaccines, as in the polio and flu shots, and subunit vaccines and virus-like particles, like in the hepatitis B and human papillomavirus vaccines.

Gene-based vaccines carry the genetic instructions for the host’s cells to make the antigen, which more closely mimics a natural infection. In the case of coronaviruses, the antigen of interest is the surface spike protein.

The approach isn’t entirely unfamiliar. In live-attenuated vaccines, like the measles, mumps, and rubella shot, weakened viruses incorporate their genetic instructions into host cells, causing the body to churn out viral copies that elicit antibody and T-cell responses. In newer gene-based designs—viral vector, DNA, and mRNA vaccines are used.

### Why was the development so fast?

The above named techniques were waiting in the wings when COVID-19 hit. The scientist already had vaccine platforms that were conducive for this and ready to use. All they had to do was basically figure out what part of [the virus] they were going to put in the vaccine and then run with it. And as the CHN reported the RNA sequence of SARS-CoV-2 in January, so they could start right from that point to design a vaccine.

And furthermore thanks to research beginning in 2002 on the severe acute respiratory syndrome coronavirus and then the Middle East respiratory syndrome coronavirus of 2012, scientists knew to focus their initial attention on the novel coronavirus’ spike protein. They also already knew which genetic modifications would stabilize the spike in its “prefusion” configuration—important for a robust and safe antibody response—and those that would make the mRNA less inflammatory and therefore safer. They had also learned how to purify mRNA to rid it of contaminants and how to protect it from degrading too quickly in the body by encasing it in lipid carrier molecules. These delivery vehicles, already in use with therapeutic small interfering RNAs, also help mRNA cross the cell membrane and may even have an immune-stimulating adjuvant effect.

Another big point is that over the last 10 years, vaccinology changed radically. With the nowadays available technologies and the understanding of performance science could act much faster.

And unlike conventional vaccines, mRNA vaccines aren’t grown in eggs or cells, a time-consuming and costly process. At their essence, these vaccines are simply chemicals catalysed in test tube or a tank. This makes them easier to develop quickly and—at least theoretically—at scale, although they’ve never been mass-produced before.

And not to forget, time was urgent because of the high impact of the pandemic. Where past vaccination trials have to be paused because of lack of funding and money or waiting for a authorial approval, for the COVID-19 vaccine funding and political support was on high priority and so the trials could proceed without a disruption.

Source: <https://jamanetwork.com/journals/jama/article-abstract/2665756>  
<https://jamanetwork.com/journals/jama/fullarticle/2770485>  
<https://www.ema.europa.eu/en/news/ema-receives-application-conditional-marketing-authorisation-covid-19-mrna-vaccine-bnt162b2>  
<https://biotech.de/covid-19>  
<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/mrna.html>  
<https://www.nature.com/articles/nrd.2017.243>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6446947/>  
<https://www.sciencedirect.com/science/article/pii/S0264410X94900744?via%3Dihub>

### Why m-RNA vaccines?

As of August 20, thirty potential vaccines against COVID-19 were in clinical trials, with another 139 in preclinical development, including both gene- and protein-based candidates. But genetic approaches have a potential immunological advantage. In addition to eliciting antibodies and CD4+ helper T cells, mRNA vaccines recruit CD8+ killer T cells. That pathway is needed that body cells display viral proteins on their surface.

In cutting out the viral vector, both DNA and mRNA vaccines eliminate the risk of pre-existing immunity against it, which can limit effectiveness. Because of the pre-existing immunity other candidates fail until now.

mRNA based vaccines are not new to scientists. The process was first designed in 1994 for vaccination of mice. And the German firm CureVac and academic collaborators published phase 1 results from the first prophylactic mRNA vaccine clinical trial, for a candidate against rabies, less than 3 years ago.

Since then, potential mRNA vaccines against rabies, influenza, Zika, and a few other viruses have been studied in small, early-phase trials, many of which are still underway. In both rabies and influenza trials, the candidates stimulated promising but lower-than-expected neutralizing antibodies. Some moderate and severe injection site or systemic reactions were reported, although severe events were rare.

Although people are still suspicious of the new vaccine. Experts try to state again and again that mRNA can’t cause an infection. It also doesn’t enter the cell’s nucleus, so the chance of its integration into human DNA is believed to be very low. In addition, the body breaks down mRNA and its lipid carrier within a matter of hours, assuaging some concerns about long-term risks.

The questions about mRNA vaccines’ protective duration has still to be solved.

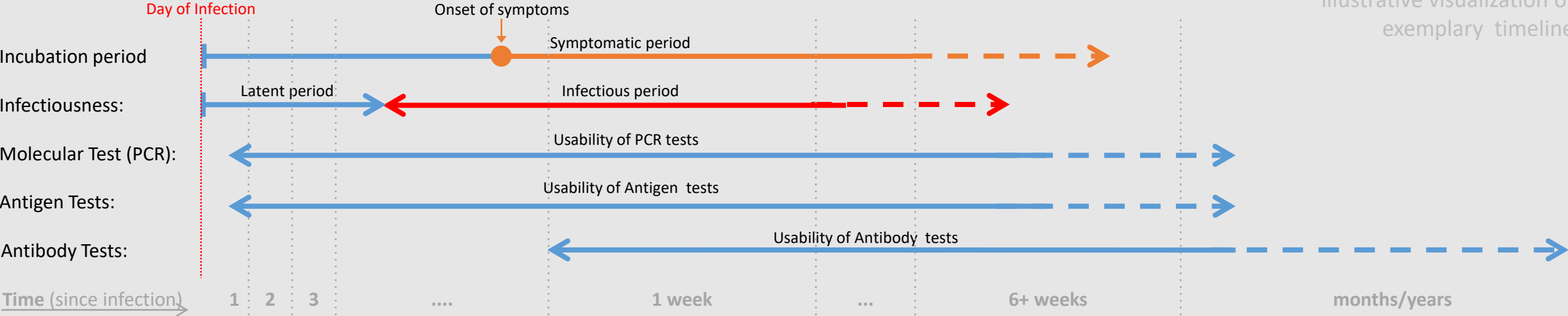
But if an mRNA vaccine works, the implications could stretch far beyond COVID-19. Success could pave the way for the platform’s widespread use for both emerging and established pathogens.

#### COVID-19 vaccines techniques

- Spike protein plus adjuvants – traditional vaccines
  - Recombinant protein to trigger an immunresponse
  - GSK/Sanofi; Novavax
  - Activate Ab and some T helper cells
- Killed whole virus – traditional vaccines
  - Sinovac; CLS
  - Activate AB and some T helper cells
- Genetic code for the Spike (all spike) – Vector vaccines
  - SARS-CoV-2 infects through the ACE2 receptor
  - **Andenovirus as vector:** Oxford/AstraZeneca (*Chimpanzee AD*); Jansen (*Ad26*), Cansino (*Ad5*)
    - activate Ab and T helper and T killer cells
    - Do not protect against infection but against disease
    - Anti-vector immunity reduces efficiency (could only be given two times)
    - Can be stored in +4
  - **m-RNA as vector:**, Moderna, CureVac, BionTec/Pfizer
    - Activate Ab and t helper and t killer cells
    - Must be transported frozen -20 to -80, can be stored for 5 days by +4 (Biontec) and 4 month (Moderna)

# Timeline COVID-19 infection

illustrative visualization of  
exemplary timeline



|                                   | Molecular Tests                                                                                                           | Antigen Tests                                                                                                                                                                                                                                                                               | Antibody Tests                                                                                      |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Also known as:                    | RT-PCR                                                                                                                    | Rapid diagnostic test                                                                                                                                                                                                                                                                       | Serological test, serology, blood test, serology test                                               |
| Applicable period:                | From infection until at least 6 weeks after being symptom free                                                            | From infection until at least 6 weeks after being symptom free                                                                                                                                                                                                                              | As soon as 1 or 2 weeks after infection                                                             |
| How the sample is taken:          | Nasal or throat swab (most tests)<br>Saliva (a few tests)                                                                 | Nasal or throat swab                                                                                                                                                                                                                                                                        | Finger stick or blood draw                                                                          |
| How long it takes to get results: | Several hours                                                                                                             | Fast < 1h                                                                                                                                                                                                                                                                                   | Several hours or days                                                                               |
| Is another test needed:           | A second test is only needed to rule out false positive results                                                           | Positive results are usually accurate but negative results may need to be confirmed with a molecular test.                                                                                                                                                                                  | Sometimes a second antibody test is needed for accurate results.                                    |
| What it shows:                    | Active coronavirus infection (i.e. <b>presence of SARS-CoV-2</b> )                                                        | Active coronavirus infection (i.e. <b>presence of protein fragments of SARS-CoV-2</b> )                                                                                                                                                                                                     | If you've been <b>infected by coronavirus in the past</b>                                           |
| What it can't do:                 | Show if you ever had COVID-19 or were infected with the coronavirus in the past.<br>Show if you are currently infectious. | Definitively rule out active coronavirus infection. Antigen tests are more likely to miss an active coronavirus infection compared to molecular tests. Your health care provider may order a molecular test if your antigen test shows a negative result but you have symptoms of COVID-19. | Diagnose active coronavirus infection at the time of the test or show that you do not have COVID-19 |

Sources:  
<https://www.fda.gov/consumers/consumer-updates/coronavirus-testing-basics>  
<https://www.sciencemediacenter.de/alle-angebote/fact-sheet/details/news/verlauf-von-covid-19-und-kritische-abschnitte-der-infektion/>  
<https://www.apotheken-umschau.de/Coronavirus/Corona-Nachweis-Die-Testverfahren-im-Ueberblick-558071.html#Die-Testverfahren-im-Ueberblick>

## In the press

This section aims at summarizing trending headlines with regards to COVID-19. The collection does not aim at being comprehensive and we would like to point out that headlines and linked articles are no scientific material and for information purposes only. The headlines and linked articles do not reflect NATO's or NATO MiMed COE FHPB's view. Feedback is welcome!

10<sup>th</sup> December 2020

**Aljazeera**

### **‘Moral issue’: African official blasts COVID vaccine inequality**

<https://www.aljazeera.com/news/2020/12/10/moral-issue-african-health-official-blasts-vaccine-inequality>

11<sup>th</sup> December 2020

**BBC**

### **Covid: Students and retirees form long-distance friendships**

<https://www.bbc.com/news/world-europe-55235378>

10<sup>th</sup> December 2020

**DW**

### **Life in Wuhan back to normal amid COVID precautions**

<https://www.dw.com/en/life-in-wuhan-back-to-normal-amid-covid-precautions/a-55892909>

10<sup>th</sup> December 2020

**BBC**

### **Celebrating Hanukkah in the time of Covid**

<https://www.bbc.com/news/newsbeat-55260858>

10<sup>th</sup> December 2020

**Aljazeera**

### **S Korea building container hospital beds as COVID cases rebound**

<https://www.aljazeera.com/news/2020/12/10/south-korea-2>

09<sup>th</sup> December 2020

**The Guardian**

### **Covid used as pretext to curtail civil rights around the world, finds report**

<https://www.theguardian.com/global-development/2020/dec/09/covid-used-as-pretext-to-curtail-civil-rights-around-the-world-finds-report>

10<sup>th</sup> December 2020

**South China Morning Post**

### **Coronavirus: WHO wants end to ‘panic-then-forget’ approach to epidemics**

<https://www.scmp.com/news/china/science/article/3113374/coronavirus-who-wants-end-panic-then-forget-approach-epidemics>

09<sup>th</sup> December 2020

**The Guardian**

### **North Korea says South may 'pay dearly' for doubting its claim to be Covid-free**

<https://www.theguardian.com/world/2020/dec/09/north-korea-says-south-may-pay-dearly-for-doubting-its-claim-to-be-covid-free>

09<sup>th</sup> December 2020

**The Guardian**

### **Covid lockdowns will only lower 2050 temperatures by 0.01C, predicts UN**

<https://www.theguardian.com/environment/2020/dec/09/covid-lockdowns-will-only-lower-2050-temperatures-by-001c-predicts-un>

# The new normal!

## THE NEW NORMAL



**Be a role model.** Show others the importance of cleaning hands, covering coughs and sneezes with a bent elbow, maintaining a distance of at least 1 metre from others and cleaning frequently touched objects and surfaces regularly.

Don't just say it,  
**Do it!**

#StaySafe



In some places, as cases of COVID-19 go down, some control measures are being lifted.

**But this doesn't mean we should go back to the 'old normal'.**

**If we don't stay vigilant and protect ourselves and others, coronavirus cases may go up again.**

If we stop following the key protective measures, coronavirus can come rushing back.

**Now, more than ever, it's important that we all follow our national health authority's advice and be part of helping to prevent coronavirus transmission.**

Wherever you are, you still need to protect yourself against COVID-19.

**Even as restrictions are lifted, consider where you are going and stay safe.**



## Avoid the Three C's



Be aware of different levels of risk in different settings.

There are certain places where COVID-19 spreads more easily:



**Crowded places**

with many people nearby



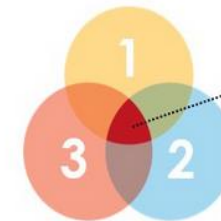
**Close-contact settings**

Especially where people have close-range conversations



**Confined and enclosed spaces**

with poor ventilation



The risk is higher in places where these factors overlap.

**Even as restrictions are lifted, consider where you are going and #StaySafe by avoiding the Three C's.**

## WHAT SHOULD YOU DO?



Avoid crowded places and limit time in enclosed spaces



Maintain at least 1m distance from others



When possible, open windows and doors for ventilation



Keep hands clean and cover coughs and sneezes



Wear a mask if requested or if physical distancing is not possible

**If you are unwell, stay home unless to seek urgent medical care.**



# The perfect wave – why masks are still important



## NEW STUDY ON MOUTH NOSE PROTECTION AND SOCIAL DISTANCING

Unfortunately, in the epicenter of the new hot spots areas often enough people are seen who do not adhere to the still valid protective regulations such as social distancing and the correct wearing of a nose and mouth protection. It could be as simple as that - [new studies](#) show that these two measures make a significant contribution to reducing the probability of transmission.

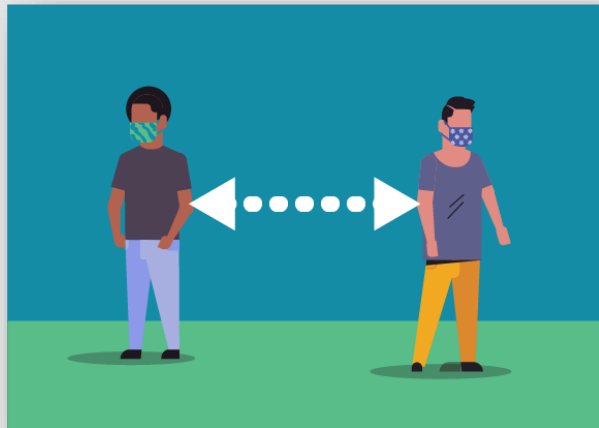
In the case of protective masks with an advertised protective effect in connection with SARS-CoV-2, depending on the intended purpose, a distinction is made between two types:

**Medical face masks (MNS; surgical (surgical) masks);** are primarily used for third-party protection and protect the person against the exposure of potentially infectious droplets of the person wearing the face mask. Corresponding MNS protect the wearer of the mask if the fit is tight, but this is not the primary purpose of MNS. This is e.g. used to prevent droplets from the patient's breathing air from getting into open wounds of a patient. Since, depending on the fit of the medical face mask, the wearer not only breathes in through the filter fleece, but the breathing air is drawn in as a leakage current past the edges of the MNS, medical face masks generally offer the wearer little protection against aerosols containing excitation. However, you can protect the mouth and nose area of the wearer from the direct impact of exhaled droplets from the other person as well as from pathogen transmission through direct contact with the hands.

**Particle-filtering half masks (FFP masks);** are objects of personal protective equipment (PPE) in the context of occupational safety and are intended to protect the wearer of the mask from particles, droplets and aerosols. The design of the particle-filtering half masks is different. There are masks without an exhalation valve and masks with an exhalation valve. Masks without a valve filter both the inhaled air and the exhaled air and therefore offer both internal and external protection, although they are primarily designed for internal protection only. Masks with valves only filter the inhaled air and therefore **offer no external protection!!!**

As a large number of unrecognized people move around in public spaces without symptoms, mouth and nose protection protects other people, thereby reducing the spread of the infection and thus indirectly reducing the risk of becoming infected

|                         | Mouth and nose protection | FFP2/FFP3 mask without valve | FFP2/FFP3 mask with valve |
|-------------------------|---------------------------|------------------------------|---------------------------|
| Protects wearer of mask | limited                   | ✓                            | ✓                         |
| Protects periphery      | ✓                         | ✓                            | ✗                         |



Due to the occasion, it should be pointed out again and again, also by executives, that the correct way of wearing the mask is essential to achieve maximum protection. The mask wrong, e.g. for example, wearing it under the nose means accepting a possible infection of others.

FFP2 / 3 masks are still considered deficient equipment and should be kept available for healthcare workers and emergency services.

### When wearing a facemask, don't do the following:



DON'T wear your facemask under your nose or mouth.

DON'T allow a strap to hang down. DON'T cross the straps.



DON'T touch or adjust your facemask without cleaning your hands before and after.



DON'T wear your facemask on your head.



DON'T wear your facemask around your neck.



DON'T wear your facemask around your arm.