



Update 46 (17th of November 2020)

**Information about Infection disease
COVID-19 (novel coronavirus)**



**Force Health Protection Branch FHPB (former DHSC) NATO MILMED COE
in Munich**

17th of November 2020

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In December 2019, a novel coronavirus emerged in Wuhan City, China. Since then the virus spread to 65 countries including Europe and America. Since then the virus showed evidence for human-to-human transmission as well as evidence of asymptomatic transmission. At 30th January 2020 WHO declared a Public Health Emergency of International Concern. The disease was formally named COVID-19 on 11th of February. The virus itself has been named SARS-CoV-2. On 11th of March 2020 WHO characterized the disease as a pandemic.

HIGHLIGHTS/NEWS

- For the first time, there has been a decline in new infections in Europe for many weeks. The number of new infections has decreased by 9% in the last 7 days.
- **WHO** has published the [Terms of References for a WHO-convened Global Study of the Origins of SARS-CoV-2](#). This outlines two phases of studies: Short term studies (Phase 1) will be conducted to better understand how the virus might have started circulating in Wuhan, China. Building on the findings of these short-term studies, and the scientific literature, longer term studies will be developed (Phase 2).
- **WHO** has published a [policy brief on readiness for influenza during the COVID-19 pandemic](#), which provides a concise summary of information and considerations for key issues policymakers. The document also includes links to relevant guidance and resources for monitoring the situation, preventing seasonal influenza, reducing severe complications and mortality, protecting specific populations, and communicating to and engaging with the public.
- **WHO** has published an [update to the guidance on critical preparedness, readiness and response actions](#), including further subclassifications of transmission scenarios within the community transmission category; and updated guidance on contact tracing, laboratory testing, infection prevention and control, public health and social measures and health services.
- The **WHO** welcomes the development of several vaccine candidates: After the companies Pfizer and BioNTech had already reported initial successes, the American company Moderna also reports that the currently tested vaccine is over 90% effective. The head of the agency was cautiously optimistic; it can be expected that enough vaccine doses for immunizing risk groups will be available in the coming months.

Find articles and other materials at the MilMed CoE homepage: [click here](#)

Please use our online observation form to report your lessons learned observations as soon as possible.

[Click here to submit your lessons learned observations online](#)

GLOBALLY ↗

55 020 619
confirmed cases
34 629 200 recovered
1 327 551 deaths

EU/EEA and the UK ↘

14 595 750
confirmed cases
5 290 800 recovered
338 798 deaths

USA ↗ (new cases/day 168 771)

11 152 351
confirmed cases
4 204 001 recovered
246 140 deaths

India ↘ (new cases/day 30 548)

8 873 541
confirmed cases
8 289 073 recovered
130 503 deaths

Brazil ↗ (new cases/day 14 134)

5 876 464
confirmed cases
5 335 498 recovered
166 014 deaths

France ↘ (new cases/day 9 406)

1 991 233
confirmed cases
140 880 recovered
45 054 deaths

Russia ↗ (new cases/day 22 562)

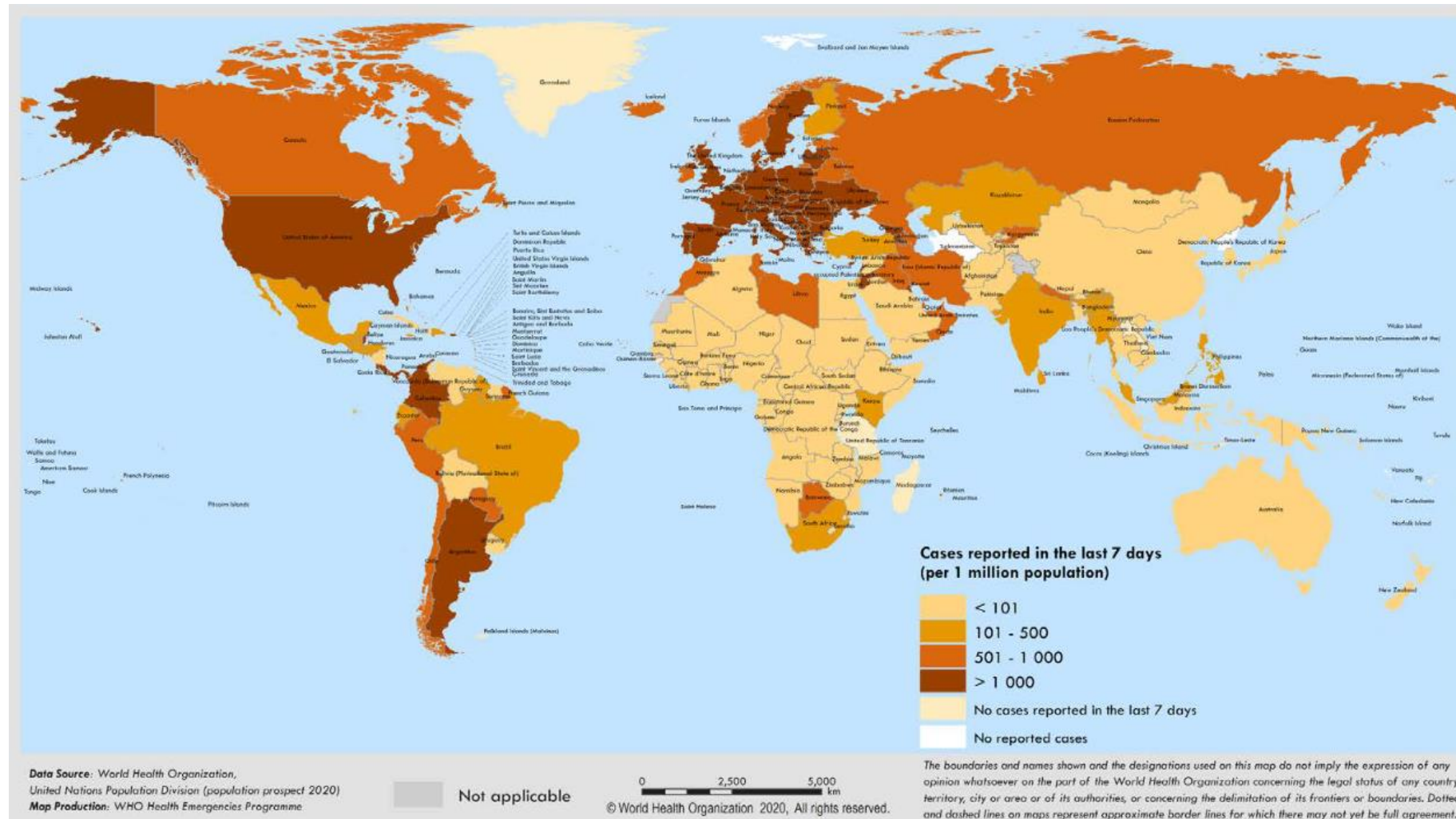
1 932 711
confirmed cases
1 443 393 recovered
33 184 deaths

Please click on the headlines to jump into the document

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Map of countries with reported COVID-19 cases (last 7 days)



Worldwide Situation

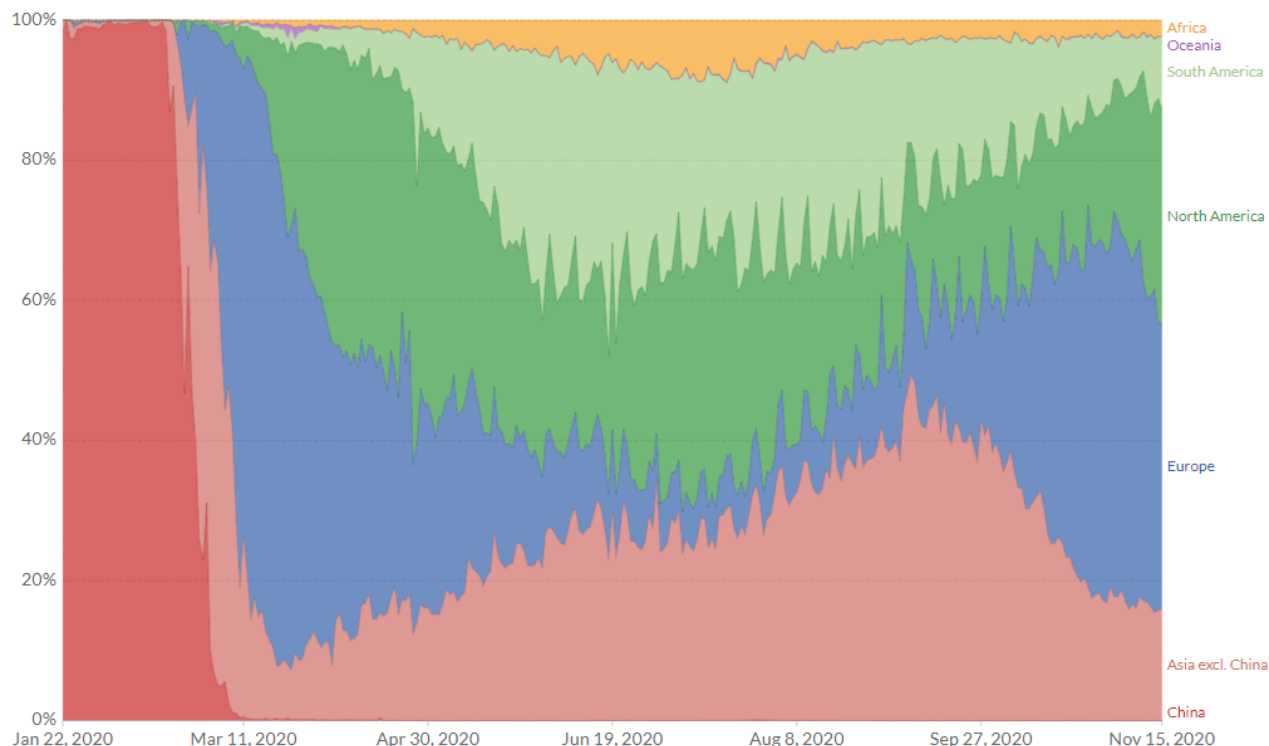
Global Situation

Daily confirmed COVID-19 cases

The number of confirmed cases is lower than the number of total cases. The main reason for this is limited testing.

Our World in Data

☒ Relative



Source: European CDC – Situation Update Worldwide – Last updated 16 November, 10:06 (London time)

OurWorldInData.org/coronavirus • CC BY

WHO weekly operational update on COVID-19 as of 13th November 2020:

See information about partnership, logistics, health learning, medicines and health products, funding/donors and regional highlights in the document as well as links to Technical guidance and latest publications. To assess household transmission, a case-ascertained study was conducted by the CDC in Nashville, Tennessee, and Marshfield, Wisconsin, commencing in April – September 2020.

Rapid antigen tests arriving in four countries in the Americas

The Regional Office of the Americas has deployed 190,000 new COVID-19 antigen diagnostic tests to Ecuador, El Salvador, Honduras and Suriname and is conducting training to implement pilot testing of their operation. In addition, consultations and training on implementation of the COVID-19 antigen-based rapid diagnostic test are being undertaken in Jamaica, Bolivarian Republic of Venezuela, Honduras, Costa Rica, and Trinidad and Tobago. These tests, recently approved by WHO, could transform COVID-19 response by allowing health workers to undertake accurate, rapid testing of symptomatic patients, even in remote communities. These diagnostic tests will be particularly useful in hard to reach areas, which have been disproportionately impacted by the pandemic and which are without easy access to a laboratory. PCR diagnostic tests, which are highly accurate and must be conducted in laboratory settings remain the gold standard for testing but take more time for results to become available. Antigen detection tests do not replace PCR but can be useful for mild or ambulatory suspected cases, and eventually for contacts of confirmed patients in close settings. PAHO's Strategic Fund, a regional mechanism for pooled procurement of essential medicines and health supplies, is facilitating access to these diagnostic tests, which are a part of the WHO Access to COVID-19 Tools Accelerator to develop, procure and distribute critical new tools to fight the pandemic.

Persistent fatigue following SARS-CoV-2 infection is common and independent of severity of initial infection

Extreme fatigue is one of the possible symptoms of COVID-19 disease. However, many sufferers report that they remain exhausted even after the disease has ended. This is now also underpinned by a study by Irish scientists that appeared in the specialist magazine "Plos One". Accordingly, more than half of the former COVID-patients surveyed reported persistent fatigue, even weeks after the infection had ended.

Exhaustion even twelve weeks after the first corona symptoms

For the study, the researchers examined 128 participants. The team used the so-called Chalder fatigue scale (CFQ) for this. It asks things like: Do you need to rest more often? Do you have less muscle strength? Do you find it harder to find the right word?

67 of the study participants (around 52 percent) reported persistent fatigue, 22 of them (32.8 percent) felt exhaustion even twelve weeks after the first symptoms appeared. A third of the participants who had a job before the illness had not returned to it at the time of the study.

Fatigue regardless of the severity of the COVID-19 disease

The scientists also looked into the question of whether the fatigue depends on the severity of the symptoms of the disease and whether those affected had to go to hospital, received additional oxygen or even intensive care. Here they could not find any connection. The study underlines, the researchers write, "how important it is to examine those recovering from COVID-19 for symptoms of severe fatigue, regardless of the severity of the disease." Gender and depression increase risk of persistent fatigue. However, the researchers working with Liam Townsend from Trinity College Dublin found two other connections: Study participants with previously diagnosed depression or anxiety disorder had an increased risk of developing post-COVID fatigue. 13.4 percent of the participants with persistent fatigue said they had received a corresponding diagnosis. Among those who showed no fatigue, it was only 1.6 percent. According to the study, women are also more prone to post-viral fatigue. Around 67 percent of the participants affected by exhaustion were female. Women only made up around 39 percent of those without fatigue. According to the researchers, it is the first study to look at post-viral fatigue in recovered COVID-19 patients.

Also reports of fatigue in 2002 SARS epidemic

Scientists were also able to observe persistent exhaustion, post-viral fatigue, in those affected by the SARS epidemic of 2002/2003. It can also occur after other viral diseases. For most people, however, this disappears again. Therefore, in the first six months after an infection, doctors initially only speak of post-viral fatigue. Only then is it possible to diagnose a chronic disease, i.e. CFS (chronic fatigue syndrome).

Source: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0240784>

See how your community is moving around differently due to COVID-19

As global communities respond to COVID-19, we've heard from public health officials that the same type of aggregated, anonymized insights we use in products such as Google Maps could be helpful as they make critical decisions to combat COVID-19.

These Community Mobility Reports aim to provide insights into what has changed in response to policies aimed at combating COVID-19. The reports chart movement trends over time by geography, across different categories of places such as retail and recreation, groceries and pharmacies, parks, transit stations, workplaces, and residential.

Each Community Mobility Report is broken down by location and displays the change in visits to places like grocery stores and parks.

Source: <https://www.google.com/covid19/mobility/>

Country reports:

IND: India has registered as few new corona infections within a day as it has not in four months. Just over 30,000 new cases were confirmed on Monday. The number of new infections has been falling since mid-September. The developments in the capital New Delhi, however, are worrying; there are more infections than in any other state. Experts attribute this to festivals, air pollution and a drop in temperatures. It is feared that the health system in New Delhi will not be able to cope with the large number of sick people. India is the country with the most confirmed coronavirus cases after the US.

USA: The US states Michigan and Washington are tightening the corona restrictions due to increasing numbers of infections. Universities, restaurants and venues in Michigan will have to remain closed as of Wednesday, says Governor Gretchen Whitmer. In Washington, indoor gatherings are banned and outdoor meetings are limited to five people and restaurants and gyms are closed, says Jay Inslee, governor of the US state.

AUS: Corona cases have reappeared in Australia after successful containment: In the metropolis of Adelaide in the south of the country, the authorities in connection with a quarantine hotel confirmed at least 17 cases on Monday. It is the largest number of cases reported in the region since April. It was only at the beginning of November that Australia announced that it had not registered any new infections for the first time in almost five months. Because of the corona pandemic, extremely strict conditions were in place in Australia. Overall, Australia has come through the crisis relatively well so far. With a population of 25 million, a good 27,500 corona infections and 907 deaths were recorded.

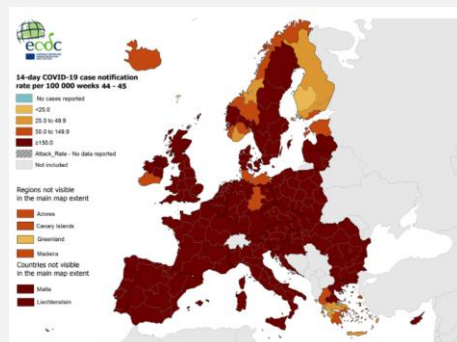
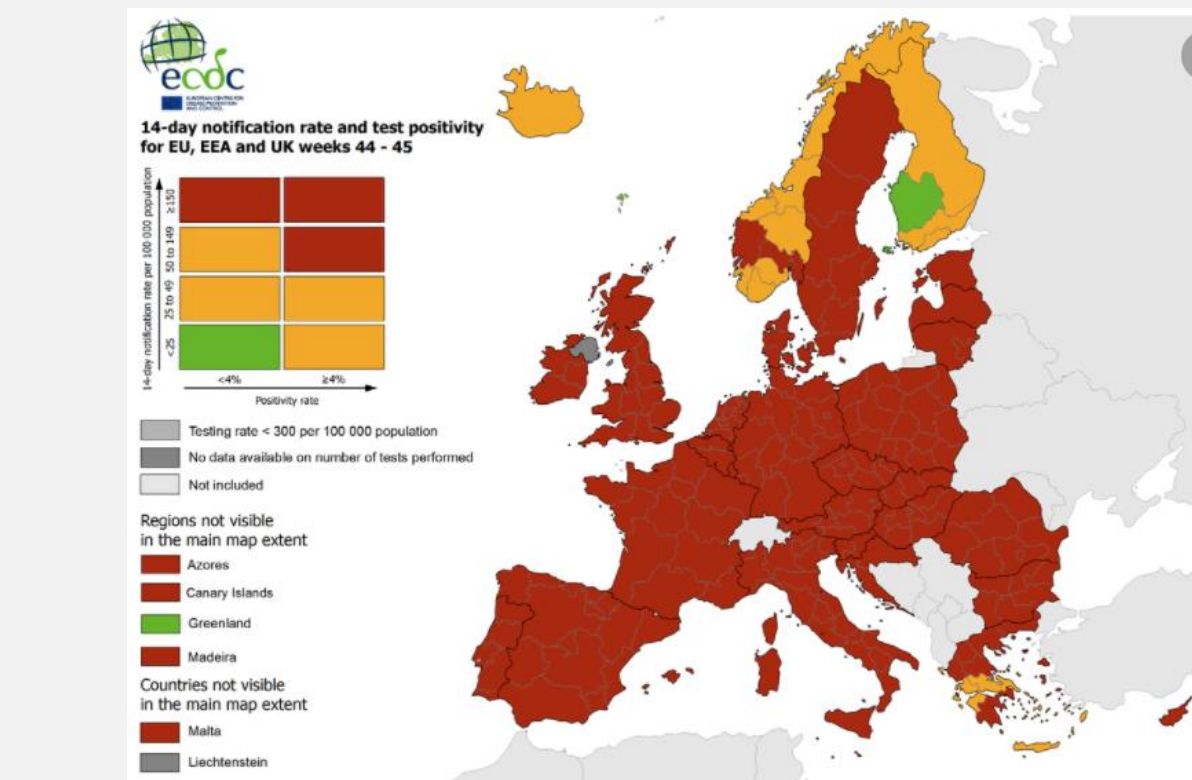
JAP: The Olympic Games in Tokyo, which have been postponed to summer 2021 due to the corona pandemic, are to be held as planned. The head of the International Olympic Committee (IOC), Thomas Bach, agreed on this with the Japanese Prime Minister Yoshihide Suga in Tokyo on Monday. He is determined to host the games in his country's capital next year, Suga said, according to local media. Bach thanked Suga for his commitment to hosting the games. They should become a symbol of soldiery in the post-Corona era, said Bach. He ruled out a final Olympic cancellation. In Tokyo, he was confident that the games would not take place without spectators.

PSE: The number of daily new infections with the coronavirus has risen to a record level in the Gaza Strip. As the Ministry of Health announced in the area controlled by the Islamist Hamas, 453 cases were reported within 24 hours - more than ever before in a day since the outbreak of the pandemic. A total of 2,438 tests were carried out, which corresponds to a positive test rate of 18.6 percent. In total, the authorities in the Gaza Strip have so far registered 10,985 infected people. The pandemic was initially mild there. In the past few weeks, however, the number of cases has increased. Around two million people live in precarious conditions in the area. A strong spread of the virus is considered a horror scenario.

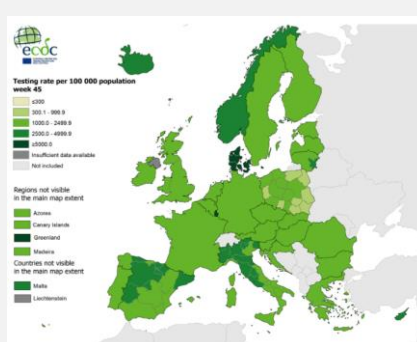
KOR: After hundreds of new corona cases, restrictions on gatherings are to apply again in South Korea. Among other things, meetings of more than 100 people at demonstrations, festivals and congresses were again banned from Thursday in the greater Seoul area and parts of Gangwon province in the east of the country. In the theater, at concerts and in libraries, a space should be left free between visitors. Sports stadiums are only allowed to be occupied by 30 percent. With strict restrictions and contact follow-ups, South Korea got through the crisis comparatively well and was largely able to return to normal in many areas of life in October. On Tuesday, the number of new infections every day was over 200.

Situation in Europe

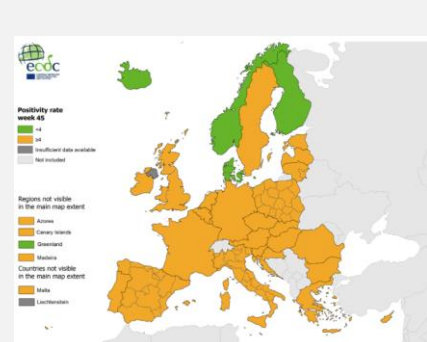
[Maps in support of the Council Recommendation on a coordinated approach to the restriction of free movement in response to the COVID-19 pandemic in the EU, as of 12 November 2020](#)



14-day case notification rate per 100 000 inhabitants



Testing rates per 100 000 inhabitants



Positivity rates

[ECDC COVID-19 surveillance report Week 45, as of 13 November 2020](#)

Weekly surveillance summary

This summary presents highlights from two separate weekly ECDC surveillance outputs, using data up to the end of the current reporting week (week 45, ending Sunday 8 November 2020).

- The [COVID-19 country overview](#) provides a concise overview of the evolving epidemiological situation with the COVID-19 pandemic, both by country and for the European Union/European Economic Area (EU/EEA) and the United Kingdom (UK) as a whole, using daily and weekly data from a range of sources.
- The [COVID-19 surveillance report](#) presents the epidemiological characteristics of COVID-19 cases reported to The European Surveillance System (TESSy) to date and assesses the quality of the data.

Additional weekly surveillance bulletins relevant to the COVID-19 pandemic in Europe include [EuroMOMO](#) (estimates of all-cause mortality) and [Flu News Europe](#) (including primary care sentinel and hospital-based surveillance for respiratory disease), which are published every Thursday and Friday, respectively.

The data behind most of the figures in this report are available to download in multiple formats from [ECDC's website](#).

Trends in reported cases and testing

- By the end of week 45 (8 November 2020), the 14-day case notification rate for the EU/EEA and the UK, based on data collected by ECDC from official national sources from 31 countries, was 602.9 (country range: 49.5–1506.3) per 100 000 population. The rate has been increasing for 112 days.
- Among 30 countries with high case notification rates (at least 60 per 100 000), sustained increases (for at least seven days) were observed in 22 countries (Austria, Bulgaria, Croatia, Cyprus, Denmark, Estonia, France, Germany, Greece, Hungary, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Norway, Poland, Portugal, Romania, Slovakia, Spain and Sweden). No countries had increases of less than seven days' duration. Stable or decreasing trends in case rates of 1–8 days' duration were observed in eight countries (Belgium, Czechia, Iceland, Ireland, Malta, the Netherlands, Slovenia and the UK).
- Based on data reported to TESSy from 25 countries, among people over 65 years of age, high levels (at least 60 per 100 000) or sustained increases in the 14-day COVID-19 case notification rates compared to last week have been observed in 24 countries (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia and Spain).
- Notification rates are highly dependent on several factors, one of which is the testing rate. Weekly testing rates for week 45, available for 30 countries, varied from 1 019 to 11 046 tests per 100 000 population. Luxembourg had the highest testing rate for week 45, followed by Denmark, Malta, the UK and Norway.
- Among 26 countries in which weekly test positivity was high (at least 3%), 17 countries (Austria, Bulgaria, Cyprus, Estonia, Germany, Greece, Hungary, Italy, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Spain and Sweden) had positivity that had increased compared to the previous week. Test positivity remained stable or had decreased in nine countries (Belgium, Croatia, Czechia, France, Ireland, Latvia, the Netherlands, Slovenia and the UK).

Primary care

- In the one country that reported data from primary care sentinel surveillance for COVID-19 up to week 45, using the systems established for influenza, four detections of SARS-CoV-2 were reported among the 27 patients tested.

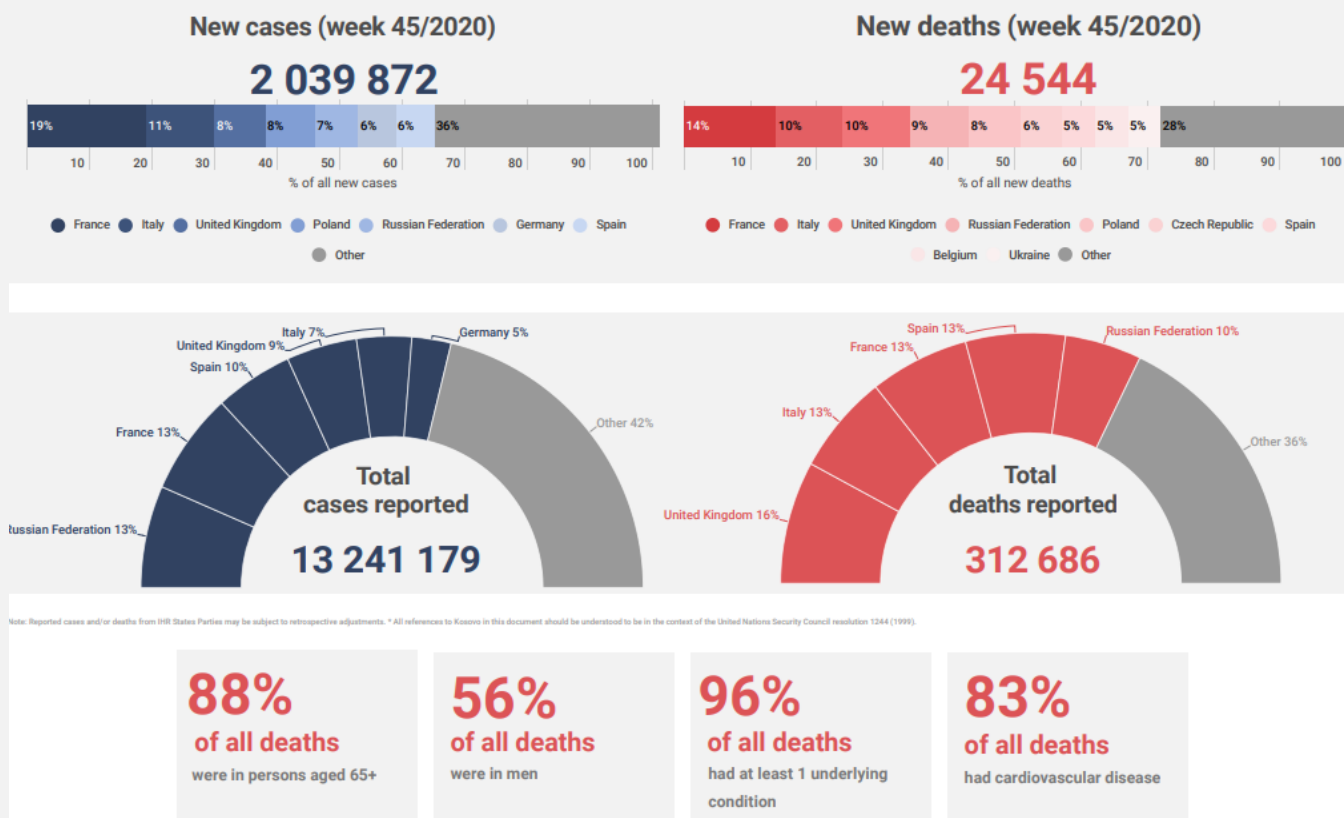
Hospitalisation and ICU

- Pooled data from 18 countries for week 45 show that there were 1.7 patients per 100 000 population in ICU due to COVID-19, which is 76% of the peak ICU occupancy observed during the pandemic. Pooled weekly ICU admissions based on data from 11 countries were 3.4 new admissions per 100 000, which is 87% of the peak rate to date.
- Hospital and/or ICU occupancy and/or new admissions due to COVID-19 were high (at least 25% of the peak level during the pandemic) or had increased compared to the previous week in 29 countries (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK). No other increases have been observed, although data availability varies.

Mortality

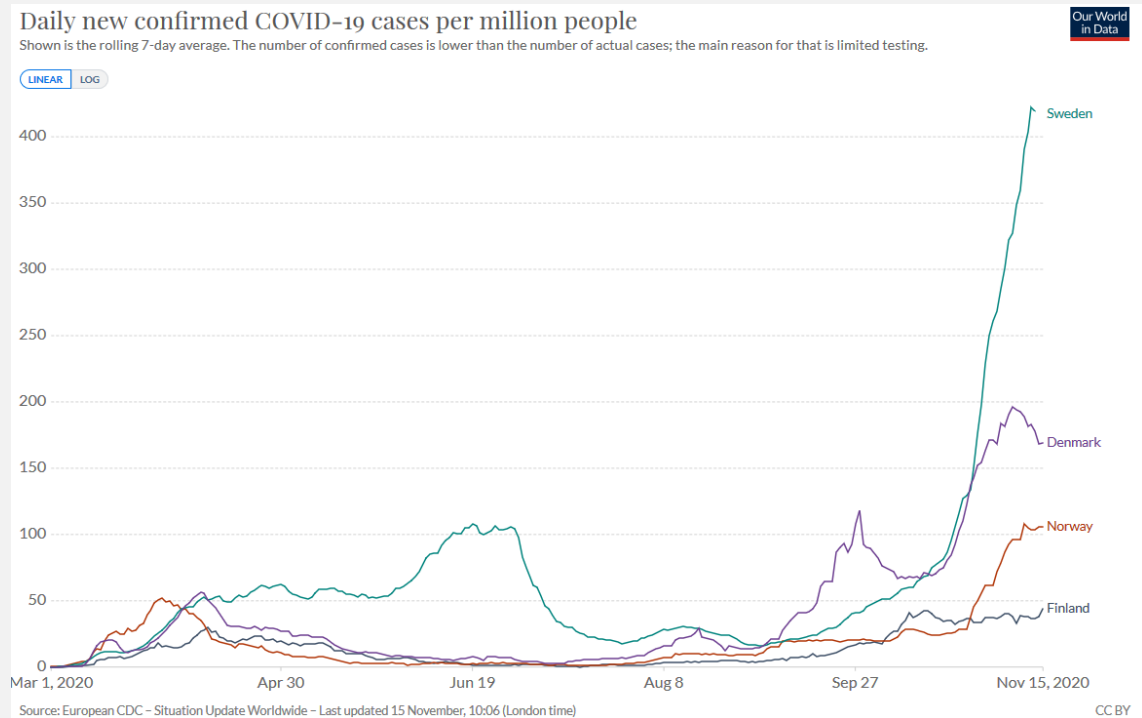
- The 14-day COVID-19 death rate for the EU/EEA and the UK, based on data collected by ECDC from official national sources from 31 countries, was 64.0 (country range: 0.0–244.5) per million population. The rate has been increasing for 58 days.
- Among 26 countries with high 14-day COVID-19 death rates (at least 10 per million), sustained increases (for at least seven days) were observed in 21 countries (Austria, Belgium, Bulgaria, Croatia, Czechia, France, Germany, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden and the UK). Three countries (Greece, Iceland and Spain) had increases of less than seven days' duration. Stable or decreasing trends in death rates of 1–5 days' duration were observed in two countries (Ireland and Liechtenstein).

COVID-19 situation update for the WHO European Region (2 – 8 November 2020 Epi week 45)



Finland

Background: Among the Scandinavian countries, SWEDEN stands out primarily due to its specific strategy to contain SARS-CoV-2. Until now, the SWE approach has not been adopted by the other Scandinavian countries. Among the Scandinavian countries directly bordering SWE (10.2 million PE), DENMARK (5.8 million PE), FINLAND (5.5 million PE) and NORWAY (5.4 million PE), FIN stands out, because in the current, so-called second wave of the pandemic, the comparatively lowest rate of new infections can be observed here.



When considering the FIN approach, a number of "hard" factors are initially apparent:

Quick action: After the virus first appeared in early 2020, the FIN government imposed a nationwide, albeit comparatively mild, lockdown in the spring. This was paired with a ban on travel to and from the largest FIN conurbation, HELSINKI, as well as a general ban on tourist trips to FIN. Proactive, data-based action paired with a centralized form of government and effective protection of external borders has characterized the actions of the FIN government since then.

Extensive depots: In contrast to SWE, NOR and DNK (as well as most other European countries) the depots for raw materials for ammunition production, oil, agricultural equipment, grain, as well as medical goods such as masks and personal protective equipment NOT dissolved. FIN was able to draw on this fund in the first months of the pandemic and did not have to laboriously procure the goods on the free market like many other countries.

Scalability of medical facilities: Along with the stocking of essential goods in a nationwide network of depots at secret locations, many of the medical facilities in FIN can be quickly expanded due to preparations for a possible (military) emergency. These precautions include both logistical and personnel aspects.

Digitization: The degree of digitization of FIN working life and state institutions, which is very high in European comparison, has made it easier for many FIN employees to switch to the home office and thus contributed very effectively to minimizing contact. The digitization of the schools that has already taken place, coupled with an already small class size, was also advantageous in this regard.

Efficient test strategy: Since the beginning of the pandemic, FIN tests have been carried out quickly and regionally. Due to the close test regime, extensive data sets are available that allow the FIN authorities to react specifically to local outbreaks. For example, the latest results from the beginning of November show quite precisely that in FIN currently 60% of new infections occur within families, 10-15% at private meetings and celebrations, 10% at work, 8% during recreation and sport, 5% are carried in outside and only about 2-7% can be proven to have their origin in public spaces (e.g. restaurants,

bars, shops). In addition, systematic wastewater monitoring for SARS-CoV-2 has been in operation in FIN for over half a year- the resulting data are incorporated into the situation report.

Effective contact tracking: Based on the robust data on new infections, the FIN health authorities were able to establish a very effective system of contact tracking. This includes in particular the nationwide use of the Koronavilkku app by the FIN population: at the beginning of November, more than 2.5 million (approx. 5 million FIN inhabitants installed the app on their mobile phone.

Koronavilkku

Koronavilkku is a contact tracing app produced by the Finnish Institute for Health and Welfare (THL) to help you find out whether you may have been exposed to coronavirus. If you have a coronavirus test and are diagnosed as infected, you can use the app to share this anonymously with those you have been in close contact with. Your privacy is strongly protected.



[Read more about the app >](#)



In addition to these "hard" factors that help contain the pandemic, a number of "soft" factors can also be identified:

High degree of resilience: Due to the history of the country, the psychological resilience of the FIN population to disasters is more pronounced than in many other European countries. To be prepared for any kind of emergency is part of the Finnish DNA ("prep mentality").

Social behavior in FIN: Finns are seen as more introverted and relatively cautious in dealing with others, especially people they do not know. Physical contact is not the social norm, which makes it easier to keep distance rules.

High level of trust in the government: Traditionally, the FIN population has high levels of trust in authorities and state organs and the measures they have ordered. There is therefore no significant resistance to corona measures in FIN.

Modern crisis communication: From the start, the government tried to explain its measures and communicate them openly. In addition to the use of conventional channels, this also included, for example, integrating influencers in a combined digital and analog communication strategy.

Is Finland a pioneer or model in the fight against the pandemic?

As in other wealthy European countries, especially NOR and DEU, the economic preconditions for the fight against the pandemic in FIN were very good. FIN is a welfare state which, due to its changeable history, was always disproportionately well prepared for times of crisis. However, the number of new infections has recently increased again across the country and the R-value is currently around 1.15 to 1.20. The authorities have therefore recently recommended wearing masks in public and reserve the right to take stricter measures.

<https://www.helsinkitimes.fi/finland/finland-news/domestic/18052-thl-presence-of-coronavirus-in-wastewater-of-some-localities-a-warning-signs.html>

<https://thl.fi/en/web/thlfi-en/-/the-presence-of-coronavirus-in-waste-water-may-be-a-warning-of-increased-infections-the-number-of-waste-water-findings-increased-in-august>

<https://thl.fi/en/web/infectious-diseases-and-vaccinations/what-s-new>

<https://www.nytimes.com/2020/04/05/world/europe/coronavirus-finland-masks.html>

<https://koronavilkku.fi/en/>

Country Reports:

AUT: A strict **lockdown** came into force in Austria today. The new measures to contain the corona pandemic provide for schools and shops to be closed as well as a full-day curfew. The only exceptions are for commuting to work, going to the doctor or going shopping, as well as for sports and walks outdoors. Trade has to close, only grocery stores, pharmacies, drug stores, banks and post offices remain open. The measures initially apply **until December 7th**.

In Austria, the number of new infections drops one day before the second complete lockdown. The authorities report 4,657 new positive tests within 24 hours. 4,297 people are being treated in the hospital for the corona virus, 612 of them in intensive care units. The numbers are usually lower on Monday, as fewer cases are reported over the weekend.

DEU: According to the German Hospital Association, 3,500 corona patients are currently being treated in intensive care units in Germany. This is 20 percent more than in the first wave in spring. There are currently 15,000 corona patients in the normal wards of the clinics.

RUS: The number of new infections in Russia has reached a new high. Within one day, the authorities reported 22,778 new corona cases, 6,360 of them in the capital Moscow alone. This means that 1.9 million people in Russia have been infected with the corona virus since the beginning of the pandemic.

ROU: Ten people were killed during a fire in a clinic in the Romanian city of Piatra Neamt. According to the authorities, the fire broke out in the hospital's intensive care unit. At least seven people were injured. The doctor on duty, who wanted to help the patients connected to ventilators, suffered second- and third-degree burns, according to the rescue workers. The public prosecutor's office initiated an investigation into the cause of the fire. The Ministry of Health named a short circuit as a possible trigger. The local authorities set up a crisis team and Health Minister Nelu Tataru was expected to visit the hospital.

Romania experienced a comparably light first corona wave. In the past few weeks, the number of new infections and corona patients in hospitals has increased steadily.

CZE: In the Czech Republic, the number of new infections every day is slowly falling after the tightening of the corona restrictions. The authorities reported 2,850 confirmed infections within 24 hours. That is around 5,500 less than a week ago.

The death toll also increased, but the increase is less than the highs in early November, when the Czech Republic was hit hard by the second wave. The number of Covid-19 patients in hospitals also fell to 7,200. However, the Czech Republic still has the highest per capita rate in Europe with 26.7 deaths per 100,000.

FRA: For the first time since September, the number of Covid-19 patients admitted to hospitals in France has decreased. The country imposed new nationwide exit restrictions two weeks ago. The number of patients in intensive care units also fell for the first time in six weeks, according to data from Saturday evening. Nevertheless, virus patients still occupied 96 percent of the regular beds in French intensive care units. The number of weekly infections per 100,000 inhabitants has now decreased for 14 days in a row. Some doctors say they are seeing the first signs of relief from the overused intensive care units.

GRC: In view of the rising number of cases, Greece is tightening its corona restrictions. Kindergartens and elementary schools should be closed from Monday to the end of the month, the authorities said. Secondary schools and universities have already switched to distance learning. Until now the country has managed the pandemic better than many other countries in Europe, having taken strict lockdown measures just a few weeks after the beginning of the outbreak in Europe in February.

SWE: In the first six months of this year, around ten percent of deaths in Sweden are due to COVID-19. The disease caused by the corona virus was the third most common cause of death. In the first half of 2020, around 51,500 people died in Sweden, 14,000 of them from heart and circulatory diseases, 11,600 from tumors and 5500 from COVID-19. The disease has contributed to the fact that the mortality has increased compared to the same period last year in women by 10% and in men by 14%. In April, COVID-19 was even the most common cause of death. Sweden has recorded more deaths from the pandemic than other Scandinavian countries. Sweden was one of the few countries that left public life largely unrestricted at the start of the pandemic.

Subject in Focus

Heating, ventilation and air-conditioning systems in the context of COVID-19

Heating, ventilation and air-conditioning (HVAC) systems

HVAC systems are used to provide comfortable environmental conditions (temperature and humidity) and clean air in indoor settings such as buildings and vehicles. HVAC systems can be configured in a variety of ways, depending on their application and the functions of the building or vehicle. Ventilation systems provide clean air by exchanging indoor and outdoor air and filtering. Air-conditioning systems can be part of integrated HVAC systems or stand-alone, providing air filtering and/or cooling/warming and dehumidification. Stand-alone systems usually recirculate the air without mixing it with outdoor air. Poor ventilation in confined indoor spaces is associated with the increased transmission of respiratory tract infections such as influenza, tuberculosis and rhinovirus infection. Similarly, SARS-CoV-2, there transmission is particularly effective in closed spaces, including from pre-symptomatic COVID-19 cases. Although the role of ventilation in preventing SARS-CoV-2 transmission is not currently well-defined (i.e. by preventing the dispersal of infectious particles to minimise the risk of transmission or preventing the transfer of an infectious dose to susceptible individuals, it is thought to be primarily transmitted via large respiratory droplets; however, several reports point to aerosols playing a role in COVID-19 outbreaks. Aerosols consist of small droplets and droplet nuclei that remain suspended in the air for longer than large droplets. There is a debate in the scientific community over the long-standing terminology that defines droplets as having an average particle size $\geq 5 \mu\text{m}$ and aerosols as having an average particle size.

Evidence for SARS-CoV-2 transmission in closed spaces and the role of HVAC systems

SARS-CoV-2 transmission is particularly effective in crowded, confined indoor spaces such as workplaces (offices, factories) and other indoor settings, such as churches, restaurants, gatherings at ski resorts, parties, shopping centres, worker dormitories, dance classes, cruise ships and vehicles. There are also indications that transmission can be linked to specific activities, such as singing in a choir or during religious services characterised by the increased production of respiratory droplets and including aerosols through loud speech and singing. However, there is as yet no evidence of human infection with SARS-CoV-2 caused by air distributed through the ducts of HVAC systems. In a study of 318 outbreaks in China, SARS-CoV-2 transmission occurred in indoor spaces in all but one of the outbreaks. The only case of outdoor transmission identified in this study involved two people. However, outdoor events have also been implicated in the spread of COVID-19, typically those associated with crowds, such as carnival celebrations and football matches, highlighting the risk of crowding even at outdoor events. Nevertheless, outdoor events often have adjacent closed spaces, such as bars, food areas and restrooms, which can be crowded. The length of time that people stay in indoor settings appears to be associated with the attack rate. For example, in a 2.5-hour choir practice in Washington State in the United States, there were 32 confirmed and 20 probable secondary COVID-19 cases among 61 participants (85.2%). In an epidemiological investigation at a call centre in South Korea, there was an attack rate of 43.5% among 216 employees on the ninth floor of the call centre, indicating extensive transmission in a crowded indoor workplace environment. Nearly all the infected employees were sitting on the same side of the ninth floor, and there was no obvious relationship between the risk of transmission and the distance from the index case on this side of the floor. The authors also concluded that the length of time people were in contact played the most important role in the spreading of COVID-19, since the cases were limited almost exclusively to the ninth floor despite interactions with colleagues in other settings such as in elevators and in the lobby. Several studies have addressed the role of ventilation in COVID-19 outbreaks. In a COVID-19 outbreak in a restaurant in Guangzhou, China, there were 10 cases across three families [29]. They developed symptoms between 26 January and 10 February 2020, having eaten lunch on 23 January at the same five-floor restaurant, in which windows could not be opened and ventilation was only provided by the air-conditioning system. Their tables were more than one metre apart. The index case was pre-symptomatic and developed a fever and cough the same evening after leaving the restaurant. The secondary cases were sitting along the line of airflow generated by the air-conditioning system, while diners sitting elsewhere in the restaurant were not infected. The authors of the report attributed transmission to the spread of respiratory droplets carrying SARS-CoV-2 via the airflow generated by the air-conditioning. The investigation of two other outbreaks from China

in January 2020 considered air-conditioning systems using a re-circulating mode as a probable aid to transmission. The first outbreak was associated with a 150-minute event at a temple. The index case, who had previously visited Wuhan, was pre-symptomatic until the evening after the event. The attack rates in the outbreak were the highest among those who shared a 100-minute bus ride with the index case (23 out of 67 passengers; 34%). Passengers sitting closer to the index case did not have a statistically higher risk of COVID-19 than those sitting further away. However, all passengers sitting close to a window remained healthy, with the exception of the passenger sitting next to the index case. This supports the hypothesis that the airflow along the bus facilitated the spread of SARS-CoV-2. In contrast, there were seven COVID-19 cases among 172 other people who attended the same 150-minute temple event, all of whom described having had close contact with the index case. The second outbreak was associated with a training workshop that took place between 12 and 14 January 2020 in Hangzhou city, Zhejiang province. It had 30 attendees from different cities, who booked hotels individually and did not eat together at the workshop facility. The workshop had four group sessions lasting four hours each, which were in two closed rooms of 49 square metres and 75 square metres, respectively. An automatic timer on the central air-conditioners circulated the air in each room for 10 minutes every four hours, using 'an indoor recirculating mode'. No trainees were known to be symptomatic during the workshop. Between 16 and 22 January 2020, 15 of the trainees were diagnosed with COVID-19. Several outbreaks have also occurred among workers in meat-processing facilities [7,9]. Poor ventilation has been one factor implicated in such outbreaks.

Adaptations of HVAC systems to reduce the risk of SARSCoV-2 transmission in closed spaces

Ventilation with outdoor air is deemed to dilute contaminants in closed spaces and increase the time required for exposure to an infectious dose. This process is energy-consuming, but automatically controlled HVAC systems usually lower the air exchange just before and after the use of closed spaces depending on room occupation and can even be switched off during certain periods, e.g. overnight. A 2006-2007 study in crowded dormitories for students at Tianjin University in China showed an inverse association between common cold infection rates and mean air exchanges in winter. Baseline numbers of required air exchanges during customary use are proposed by the American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE) as 7-10 L/s per person. The Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA) recommends ensuring the minimum number of air exchanges per hour, following the applicable building regulations. In addition to the ventilation itself, air filtration could be another way of reducing the risk of transmission of SARS-CoV-2 compared to only increasing the air exchange rate in closed spaces. A study using a case study of airborne transmission of influenza for modelled estimates of relative influenza risk reduction showed, for a hypothetical office, a positive association between risk reductions and the use of higher filter quality according to the MERV (Minimum Efficiency Reporting Value) filter classifications of ASHRAE. The greatest risk reduction at the lowest costs was shown for MERV 13 filters. The filters commonly used in HVAC systems (see Table A3 in the Annex) are capable of retaining large droplets but not aerosols (small droplets and droplet nuclei). High Efficiency Particulate Air (HEPA) filters have demonstrated good performance with particles of the size of SARS-Cov-2 (approximately 70–120 nm) and are used in aeroplanes and in healthcare settings. The role of HEPA filters in buildings outside of healthcare settings in preventing the transmission of infectious diseases is unclear. For SARS-CoV, the virus causing SARS, a modelling study of how the infection risk was modified by three types of ventilation systems in relatively large commercial aeroplanes showed that, among the three systems, the mixing ventilation system had the highest risk and the conventional displacement system had the lowest risk. A relative humidity of 40–60% may help to limit the spread and survival of SARS-CoV-2 within a closed space. Humidity levels in this range could therefore be considered for HVAC systems. However, even new buildings with state of the art HVAC systems cannot usually exceed more than 40% relative humidity, especially in winter, and older systems often cannot exceed much lower relative humidity levels because of the risk of damaging the HVAC system as well as room structures due to the risks of condensation and mould development.

Complementary decentralised air cleaning methods or stand-alone HEPA filter devices

These include ion generators, ozonation and ultraviolet germicidal irradiation (UVGI), as well as standalone HEPA-filter devices. These methods are usually relatively costly, require special maintenance, and can only treat a relatively small volume of air. The potential benefits in reducing

the levels of particles that induce allergic reactions are not considered in this document. Negative ion generators or air ionizers disperse charged ions, which attach to particles in the air, including those containing bacteria or viruses, which are subsequently trapped in the filters of the device. No data are currently available regarding the capacity of negative ion generators to reduce the amount of droplets or aerosols containing SARS-CoV-2. Filters can generate charged particles, such as ozone or volatile organic compounds (VOCs), which are detrimental to health, particularly if they are insufficiently dispersed. Ozonators generate the ozone from oxygen. Ozone is toxic to bacteria and viruses at concentrations that exceed public health standards for ozone concentrations. There are no standardised testing procedures to determine the conditions for use of this method in indoor air spaces that exclude health hazards linked to ion and ozone generators. UVGI causes decomposition through ultra-violet C (UVC) radiation of bacteria and viruses. However, UVC can generate ozone and free radicals, which are hazardous in closed spaces. Its surface disinfection effects are hindered by physical obstacles to direct UVGI. Standardised testing procedures to determine conditions to exclude the health hazards of UVGI, for potential use to reduce SARS-CoV-2 in indoor air spaces, are very limited. International professional societies for HVAC have produced guidelines on the principles and operation of ventilation in indoor spaces as a means to decrease the risk of transmission of SARS-CoV-2. In the context of the COVID-19 pandemic, available national guidelines from EU/EEA countries and the UK and from Canada and the US (see Table A1 in the Annex) consistently recommend an increase of air exchange compared to the pre-pandemic phase, the avoidance of re-circulation of air wherever possible, round-the-clock operation of HVAC systems, and for naturally ventilated closed spaces to create frequent air exchange through the opening of windows. In summary, the available evidence indicates that:

- Transmission of SARS-CoV-2 commonly occurs in closed indoor spaces.
- HVAC systems may have a complementary role in decreasing transmission in closed indoor spaces by increasing the rate of air exchange, decreasing recirculation of air and increasing the use of outdoor air, and using adequate types of filter.
- The risk of human infection with SARS-CoV-2 caused by air distributed through the ducts of HVAC systems is rated as very low.
- The air flow generated by air-conditioning units may facilitate the spread of droplets excreted by infected people over long distances within closed indoor spaces.
- Well-maintained HVAC systems, including air-conditioning units, securely filter large droplets containing SARS-CoV-2. It is possible that aerosols (small droplets and droplet nuclei) containing SARS-CoV-2 spread through HVAC systems within a building or vehicle and through stand-alone air-conditioning units if air is recirculated. However, the extent to which such potential aerosol route contributes to COVID-19 transmission is unknown and rated as very low for well maintained, central HVAC systems.
- There is limited evidence regarding the effect of stand-alone air filtration and other air cleaning technologies on the transmission of SARS-CoV-2.

Guidance:

From outbreak reports and research studies published to date, it is not yet possible to clarify whether aerosols result in transmission through close proximity (airborne transmission), direct contact (aerosol contamination of hands, etc.) or through indirect contact (aerosol contamination of objects/surfaces). In addition, there is a potential for publication bias, with fewer communications of negative findings; and confirmation bias, with published studies re-confirming known science. However, the current body of evidence on COVID-19 more generally demonstrates the high risk of transmission in crowded indoor settings and the importance of combining bundles of prevention measures. The prevention measures proposed below are based on the scientific evidence shown above or, where evidence does not exist, derived from the technical regulations and current recommendations of international professional societies. They are mostly in line with the recommendations from existing national guidelines in EU/EEA countries and the UK. In closed spaces and in the context of COVID-19, there are four groups of non-pharmaceutical interventions (NPIs) that include measures to reduce the risk for airborne transmission of SARS-CoV-2. These are:

1. The control of COVID-19 sources;
2. Engineering controls in mechanically ventilated and naturally ventilated closed spaces;
3. Administrative controls to reduce occupancy; and
4. Personal protective measures

Organisers and administrators responsible for gatherings and critical infrastructure settings in confined spaces should ensure that all relevant measures and controls are in place or followed, and also provide guidance material to participants regarding the application of the preventive measures.

National guidelines for heating, ventilation and air-conditioning (HVAC) systems in EU/EEA countries and the UK in the context of COVID-19, complemented by guidelines from other countries and from international professional associations

All cited guidelines collectively emphasise that HVAC systems must be examined and adapted where necessary and maintained according to the respective national technical recommendations. Measures concordantly include an increase of air exchange compared to the pre-pandemic phase, the avoidance of recirculation of air wherever possible, round-the-clock operation of HVAC systems, and for naturally ventilated closed spaces frequent air exchange through opening of windows. • The list of national guidelines in EU/EEA countries below is based on an inquiry (October 2020) sent to all ECDC National Focal Points (NFPs) for Preparedness and Response and NFPs for Influenza and other respiratory diseases.

Specific points of these guidelines are mentioned below as examples find [here](#)

Non-pharmaceutical interventions (NPIs) to reduce potential SARS-CoV-2 transmission in closed spaces (e.g. office buildings, schools, places of worship, shops, facilities for leisure activities, vehicles)

Non-pharmaceutical interventions

1. **Removal and control of COVID-19 source(s)**
Hold off persons with COVID-19 or with COVID-19-related symptoms from staying with other people in closed indoor spaces.
2. **Engineering controls in mechanically ventilated (by HVAC systems) and naturally ventilated closed spaces**
 - Comply with best practice of maintenance and settings of HVAC systems in the context of COVID-19;
 - Ensure frequently opened windows in naturally ventilated closed spaces.
3. **Administrative controls**
Reduce occupancy of closed indoor spaces.
4. **Personal protective behaviour**
 - Keep physical distance;
 - Practise respiratory etiquette;
 - Wear a community face mask.

Retention capacity of different filter types used in HVAC systems

Ventilation system	Typical type of filter	Retention capacity			
		MERV rating ^a	Degree of separation ^b	SARS-CoV-2-containing droplets (≥ 5µm)	SARS-CoV-2-containing aerosol ^c (< 5µm)
Specialised HVAC systems (operating theatres, special laboratories)	H13 -14 [DIN EN]	16–20	99.99%	Yes	
HEPA filter	H13 [DIN EN]	16–20	99.95 %	Yes	
HVAC systems for office buildings, churches, cruise ships, etc.	ePM1 [EN ISO]	9–13	>80 %	Yes	No
Stand-alone air-conditioners (e.g. apartments, shops, restaurants)	- Fiberglass - Polyester/pleated air filters	1–4 8–13	<40% 45%	Yes	No
Pedestal fans	n/a	n/a		No	

Source: <https://www.ecdc.europa.eu/sites/default/files/documents/Heating-ventilation-air-conditioning-systems-in-the-context-of-COVID-19-first-update.pdf>

Conflict and Health

COVID-19 Crisis Update in Lebanon



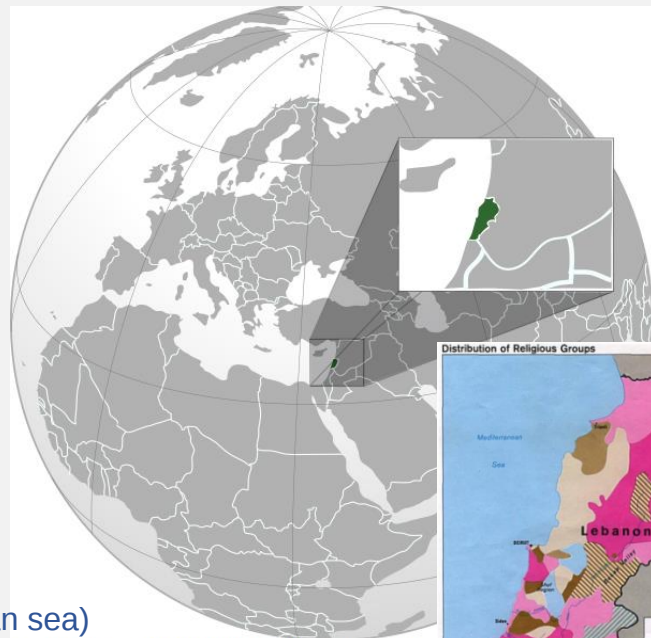
In cooperation with Bundeswehr HQ of Military Medicine

Lebanon at a glance

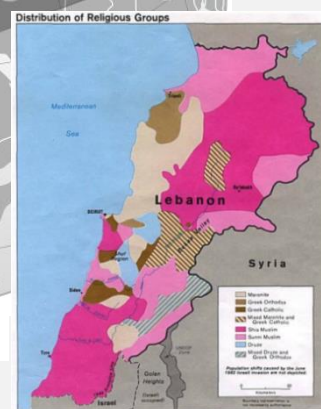
Area:	10,452 km ²
Population:	6,859,408
Capital:	Beirut
Age structure:	
0-14 years:	23,32%
15-24 years:	16,04%
25-54 years:	45,27%
55-64 years:	8,34%
65 years and over:	7,03%

Neighbouring countries:

- Syria (to the north and east)
- Israel (to the south)
- Cyprus (west over the mediterranean sea)



Source: [Indexmundi.com](https://www.indexmundi.com)



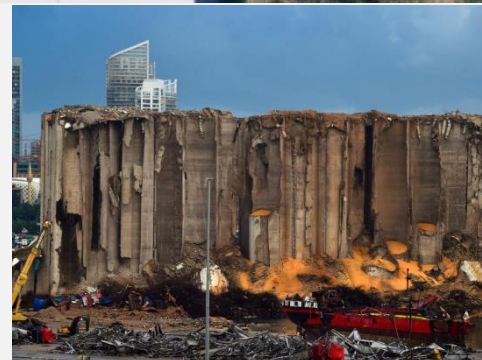
ONE YEAR, 3 CRISES

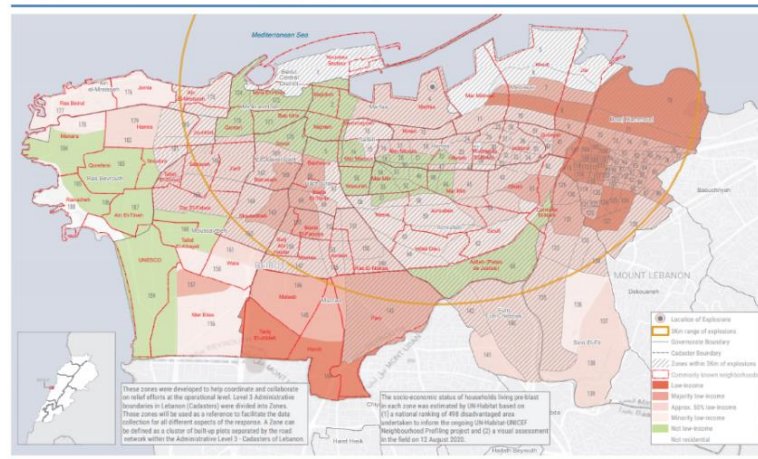
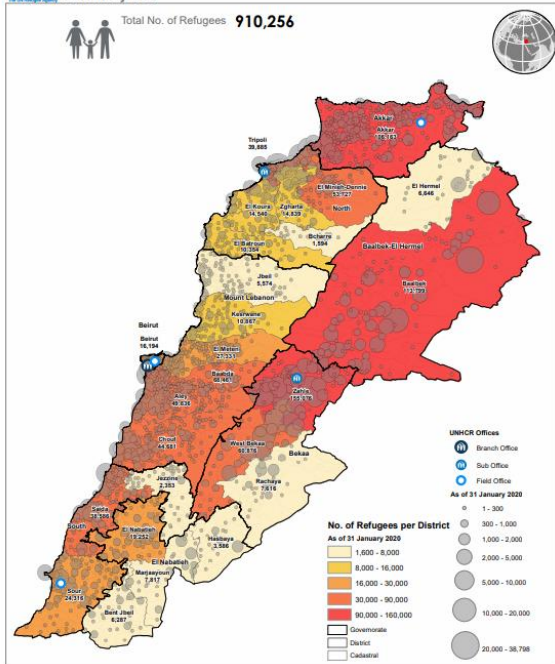
The Lebanese republic, formerly under the French League of Nations, gained independence in 1943. The population consists of approx. 6.2 million people, belonging to 18 different ethnic groups and 2/3 live in an urban area. The geography of small Lebanon is as diverse as its population. The country, which is one of the smallest in the world, is also one of the most densely settled. It is divided into four landscape zones that run parallel to the coast. On the west there is the 225 km long, narrow, steep coastline and on the east the Lebanon Mountains which reach up to 3,000m in altitude. At the same time, there is the fertile Bekaa plain, which is considered the breadbasket of Lebanon and which currently houses around 1.5 million Syrian refugees. The dry Anti-Lebanon mountain range and the Hermon form the border with Syria. The capital Beirut with 2.1 million inhabitants forms the multi-ethnic and multi-religious center of Lebanon.

The former partial autonomy known as "Reglement Organique" is considered to be the nucleus of Lebanese statehood. The principles anchored in it have remained groundbreaking to this day: Belonging to one of the primarily religious communities (Christians, Sunnis, Shiites, etc.) is the key factor of being represented and being able to participate in power. Allocation of power follows a constantly controversial demographic allocation key. Since public positions, jobs, and social services as well as public investments are proportionally allocated to the various religious communities according to the principle of religious-denominational proportional representation, economic and social struggles for distribution are always also religious-denominational disputes. Lebanese domestic politics has always been closely linked to the regional balance of power; substantial change is only possible if the latter shifts significantly. Usually these changes are accompanied by violence. It was only with the reorganization of the balance of power in the region after 1990 that the Lebanese civil war, which had lasted for almost 25 years, was also settled. In an agreement between the USA and Saudi Arabia, the neighboring state of Syria, which was deeply involved in the civil war, was entrusted with the pacification of the country and was present with troops in Lebanon until 2005. The "Document of National Understanding" of 1989 determined a moderate change in the denominational balance of power in favor of Muslims.

Since 2006 the country has been politically divided into two almost equally strong camps, which define themselves politically as well as denominationally. The Sunni-dominated "March 14th Alliance" orients itself towards Saudi Arabia and its regional and western allies, supported the revolution in Syria, opposes alleged Iranian expansion efforts and sees Hezbollah as the greatest threat to democracy in Lebanon. The "March 8th Alliance" led by the Shiite Hezbollah (both alliances are named after major rival demonstrations in spring 2005), conversely, takes sides with Iran and the allegedly "secular" regime of Bashar al-Assad in Syria. It is against a supposed strategy of the USA to reorganize the region in the interests of their interests (and those of Israel) with the help of the regional powers Turkey and Saudi Arabia. The inner-Lebanese power conflict is thus directly linked to a hegemonic conflict of regional and global political importance and cannot be resolved autonomously by the Lebanese actors. This is still valid today and is particularly noticeable in the economic crisis that has ruled Lebanon since October 2019. In October the US dollar was decoupled from the Lebanese currency, which was a guarantee of stability for decades. Since then, the Lebanese currency and economy has been in free fall. There is hardly any foreign currency in the country, the population's assets are no longer accessible and the prices are becoming unaffordable. The population has been demonstrating since October last year against the corrupt government and its incapability of acting, as well as the small power elite that has enriched itself over decades. What is new here is that large parts of the population overcame the religious, political and ethnic barriers and together demonstrated nationwide against the government and the power elite (this elite also consists of members of all religious, political and ethnic groups because of to the demographic key). A new, and for the first time collective Lebanese identity has emerged in this multi-ethnic and religious state. The political elites, however, try to play the various population groups off against each other again through political and religious propaganda and try to bring them back into old patterns of segregation.

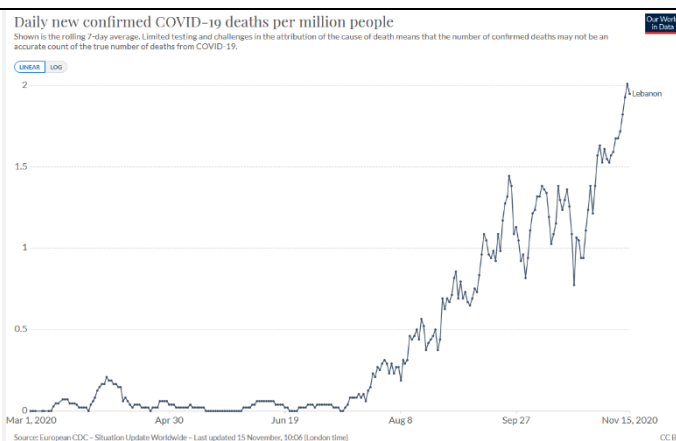
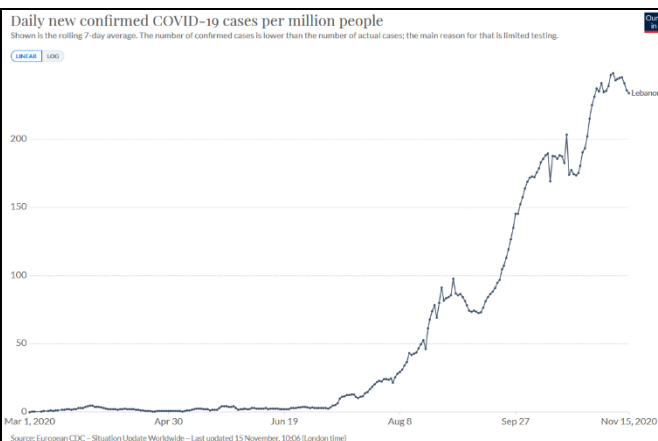
On August 4, 2020 at 6:08 p.m. local time, experts estimate an explosion in the harbor area with the force of one tenth that of the atomic bomb dropped on Hiroshima. The cause is 6.2 tons of ammonium nitrate, which was improperly stored in the port for several years despite constant warnings and reports. According to reports, over 200 people died in the disaster and around 6,000 were injured. The hospitals in Beirut were overloaded with the onslaught of injured people. The pressure wave of the explosion also caused immense material damage: in addition to cars being blown away and buildings being destroyed in the vicinity, even houses several kilometers away were badly damaged. The pressure wave also burst windows 20 kilometers away. Three hospitals were evacuated because they were badly damaged or destroyed; two others also suffered damage. According to the Konrad-Adenauer-Stiftung's Beirut office, the power station in Beirut got destroyed. Countless video recordings documented devastated parts of the city. Between 200,000 and 300,000 people are said to have become homeless. According to initial estimates, the amount of property damage caused by the disaster is up to five billion US dollars (just under 4.25 billion euros and many insurance companies refuse to pay out the sums insured). Around 85% of all goods in Lebanon were imported in the past; the largely destroyed trading port of the Lebanese capital was one of the most important transshipment points in Lebanon.





Several countries sent specially trained rescue teams to Beirut for urban rescue missions as well as medical aid and other supplies. International sympathy and help came from all parts of the world, even from warring Israel. Lebanon's state development aid and participation are very limited. Politicians fear to acknowledge their responsibility by making a public statement and being present at the site of the explosion. Almost all construction, clean-up work as well as humanitarian and relief operations are carried out by the population and NGOs. The population also calls for aid and donations not to be made available by the Lebanese government, as they fear that these will seep away into the state apparatus and into corruption. The health system in Lebanon is or was until recently considered to be one of the best in the region. Lebanon has or has had 24 public and 138 privately run hospitals. In addition, NGOs and political parties operate about 760 local clinics. According to the Ministry of Health, there are 11,186 doctors, 4,200 dentists and 4,667 pharmacists in Lebanon.

Health services in Lebanon are generally of an average to good level. Lebanon has the best hospitals and doctors in the region. Nevertheless, the supply in rural areas is moderate. In addition, the qualitative differences between the public and private sectors are very large. The high number of doctors (1/270 inhabitants) and the modern, highly developed technology of the country ensure fast and comprehensive, but very expensive medical care. Only a small share of the Lebanese is a member of the National Social Insurance Fund. The Ministry of Health spends 80% of its budget on paying private hospitals to cover the cost of medical care for patients who are not socially or privately insured and cannot pay their hospital bills. This means that the proportion of the population with access to health services is very high. Maternal and infant mortality rates are lower in Lebanon than most countries in the region. However, the fact that state benefits are only available to Lebanese citizens who have had Lebanese citizenship for at least ten years has to be mentioned. This excludes the hundreds of thousands of Palestinian refugees who have lived in the country for decades. These and the millions of Syrian refugees are cared for by aid organizations. As a fourth pillar of health care, it remains to be mentioned that the Shiite party and militia Hezbollah operates its own social and health system for its supporters and thus secures their loyalty (as long as it works and financial aid flows in from Iran). However, the current economic development and the conflict between the population and the government have a very strong (negative) impact on the relatively good situation described here. The shortage of foreign currency has an immense impact on health care as a large number of medical devices and medical infrastructure have to be paid for in foreign currency. At the same time, the state no longer has any money to pay for health services. There is not only a shortage of food, but also a shortage of medical supply. In the meantime it is reported that various hospitals and around 300 pharmacies are closing. Renowned hospitals are laying off hundreds of employees and at the same time many skilled workers are leaving the country to work abroad.



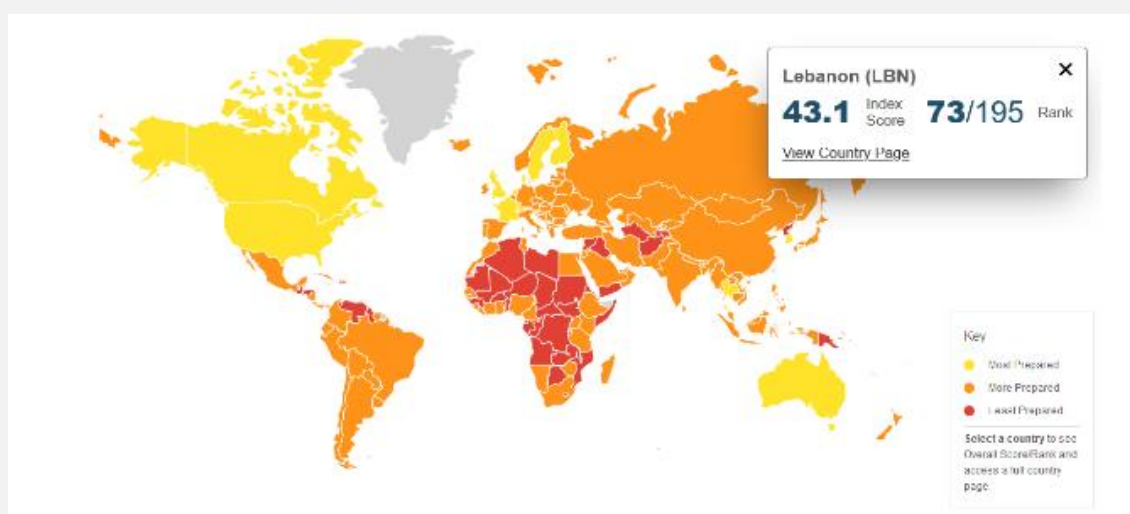
These are and were not good prerequisites for fighting the COVID-19 pandemic, which has been present since March, after the first cases were registered by Shiite pilgrims from Iran. To date, 105,430 COVID-19 cases and 817 deaths have been reported, a twenty-fold increase in cases since the last report in August 2020. The number of cases rose sharply after the easing in July and led to a new lockdown at the beginning of August, which was paused after the blast to allow the cleanup. Since the beginning of August, especially after the explosion, the numbers have been rising steadily (see graphs). The government is currently reporting that 90 to 95 percent of the intensive care capacities for COVID-19 patients are fully utilized. The current situation prompted the authorities to impose a new complete lockdown from November 14th until November 29th.

Conclusion from last year:

Approx. 50 percent of the population slipped into poverty, 300,000 people were left homeless in seconds, COVID-19 cases are increasing unchecked. Health care in Lebanon, one of the best in the region, reached its limits shortly before the explosion due to rising COVID-19 cases.

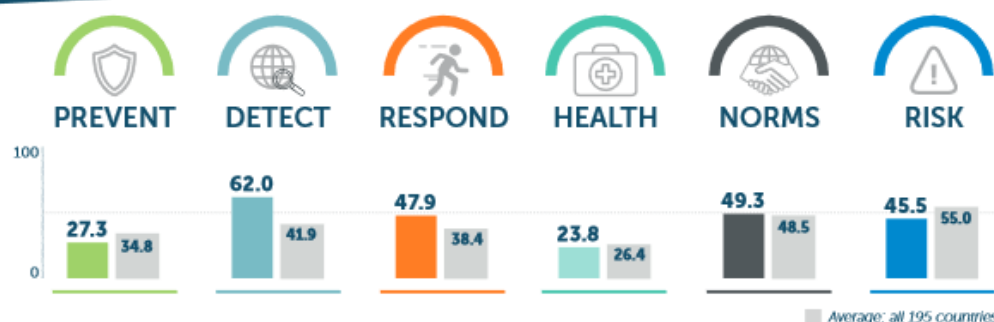
Health care in Lebanon, one of the best in the region, reached its limits shortly before the explosion due to rising COVID-19 cases. The extreme economic crisis as well as the lack of international aid (e.g. IMF) for the government, which is blocked by the regional and global hegemonic conflicts and the lack of reforms, support the free fall of the entire country. Due to the catastrophic destruction of the explosion, the health system is also on the ground and, after the first emergency response, also needs short, medium and long-term support in all areas of health care in order to cope with the physical and especially mental damage of this explosion. This requires a comprehensive public health approach. A coordinated fight against the COVID-19 pandemic is currently out of the question, and the increase and the uncontrolled community spread have also been confirmed.

It is also still unclear whether international pressure will set a process of reforms in motion that not only enables reconstruction, but also brings the population together on a path towards a common future. If the old system prevails in Lebanon, Lebanon will very likely sink into sectarian chaos and corruption again and the population will continue to suffer in this tragedy.



Lebanon

43.1 Index Score **73/195**



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.3	34.8	HEALTH SYSTEM	23.8	26.4
Antimicrobial resistance (AMR)	41.7	42.4	Health capacity in clinics, hospitals and community care centers	37.4	24.4
Zoonotic disease	13.8	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	30.4	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	93	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	62.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	49.3	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	61.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	25	42.3	International commitments	37.5	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	47.9	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	45.5	55.0
Emergency response operation	33.3	23.6	Political and security risks	14.3	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	69.1	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	82.4	72.7	Environmental risks	56.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	59.5	46.9

*Average: all 195 countries
Scores are normalized (0-100, where 100 = most favorable)

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<https://www.nytimes.com/interactive/2020/09/09/world/middleeast/beirut-explosion.html>
https://apps.who.int/iris/bitstream/handle/10665/136909/ccsbrief_lbn_en.pdf;jsessionid=5223EABF84C90409EFCA5D36618323DB?sequence=1
<https://www.liportal.de/libanon/gesellschaft/>
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<https://www.thenationalnews.com/world/mena/lockdown-in-lebanon-as-hospitals-run-out-of-beds-1.1109195>

MilMed CoE VTC COVID-19 response

Topic Immunity development versus reinfections of COVID-19	The NATO Centre of Excellence for Military Medicine is putting its expertise and manpower to aid in any way possible during the pandemic. The VTC is for interested participants (experts) to exchange experiences, management regulations and restrictions due to COVID-19. We would like to propose just one of the most important topics in the next iteration. We will have some experts giving a short briefing and then afterward we will have time for questions and experiences as well as a fruitful discussion. Topics former VTCs: • Regulations on the public, military and missions abroad. Medical Treatment Facilities: how equipped they are, is there pooling / isolation of COVID-19 patients in separate facilities. • Testing strategies • Aeromedical evacuation • De-escalation strategy and measures • Collateral damage of COVID-19 emphasizing Mental Health Aspects and other non COVID related diseases • Immunity map, national strategies to measure and evaluate the immunity level” • Mental Health • Treatment of mild symptomatic cases of COVID-19 • Transition home office back to the office • COVID-19 Second Wave prediction and preparedness based on facts/experiences, modelling and simulation • Perspectives of the current COVID-19 vaccine development • National overview on current COVID-19 situation • Long term effects of COVID-19 and the impact on force capability • Overview on current COVID-19 situation in Missions • Civil – military cooperation in view of COVID-19 • Immunity development versus reinfections of COVID-19 Briefer from NATO MILMED COE, POL, USA and GBR reported. NATO MILMED COE Briefer talked about immunity development in lights of notified COVID-19 reinfections The Briefer from POL talked about new given directions by the polish Government related to the antigen tests for COVID-19 GBR Briefer give a short overview of Immunity to COVID-19 in UK Summary: • Reinfections have been observed but are also known from other endemic human coronavirus infections. We can expect more cases of reinfections in future. In addition, there appear to be more reinfections, but due to their asymptomatic course, they may not be detected. It is still unclear whether the next infection will be more or less severe. • Studies shown a certain correlation between severity of symptoms and the magnitude of AB response. • We can recognize that T-cells response plays the significant role in fight with SARS-CoV-2 infection. • SARS-CoV-2 seems to induce an immune memory response from previous endemic coronavirus infections. Next VTC will be postponed to Wednesday 2nd of December with the same topic “The current status of SARS-CoV-2 vaccine development”.
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Recommendations

Recommendation for international business travellers

As of 19th October 2020

Many countries have halted some or all international travel since the onset of the COVID-19 pandemic but now have re-open travel some already closed public-travel again. This document outlines key considerations for national health authorities when considering or implementing the gradual return to international travel operations.

The decision-making process should be multisectoral and ensure coordination of the measures implemented by national and international transport authorities and other relevant sectors and be aligned with the overall national strategies for adjusting public health and social measures. [WHO Public health considerations while resuming international travel.](#)

Travel has been shown to facilitate the spread of COVID-19 from affected to unaffected areas. Travel and trade restrictions during a public health event of international concern (PHEIC) are regulated under the International Health Regulations (IHR), part III.

The majority of measures taken by WHO Member States relate to the denial of entry of passengers from countries experiencing outbreaks, followed by flight suspensions, visa restrictions, border closures, and quarantine measures. Currently there are exceptions foreseen for travellers with an essential function or need.

In the case of non-deferrable trips, please note the following

- Many airlines have suspended inbound and outbound flights to affected countries. Contact the relevant airline for up-to-date information on flight schedules.
- Check your national foreign office advices for regulations of the countries you're traveling or regulations concerning your country.
- Information's about the latest travel regulations and De-escalation strategy measures you can find at [IATA](#) and [International SOS](#). For Europe you will find more information [here](#).

Most countries implemented strikt rules of contact reduction:

- Everyone is urged to reduce contacts with other people outside the members of their own household to an absolutely necessary minimum.
- In public, a minimum distance of 1.5 m must be maintained wherever possible.
- Staying in the public space is only permitted alone, with another person not living in the household or in the company of members of the own household (for most countries, please check bevor traveling).
- Follow the instructions of the local authorities.

Risk of infection when travelling by plane:

The risk of being infected on an airplane cannot be excluded, but is currently considered to be low for an individual traveller. The risk of being infected in an airport is similar to that of any other place where many people gather. If it is established that a COVID-19 case has been on an airplane, other passengers who were at risk (as defined by how near they were seated to the infected passenger) will be contacted by public health authorities. Should you have questions about a flight you have taken, please contact your local health authority for advice.

General recommendations for personal hygiene, cough etiquette and keeping a distance of at least one metre from persons showing symptoms remain particularly important for all travellers. These include:

- Perform hand hygiene frequently. Hand hygiene includes either cleaning hands with soap and water or with an alcohol-based hand rub. Alcohol-based hand rubs are preferred if hands are not visibly soiled; wash hands with soap and water when they are visibly soiled;
- Cover your nose and mouth with a flexed elbow or paper tissue when coughing or sneezing and disposing immediately of the tissue and performing hand hygiene;
- Refrain from touching mouth and nose; See also: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
- If masks are to be worn, it is critical to follow best practices on how to wear, remove and dispose of them and on hand hygiene after removal.

- WHO information for people who are in or have recently visited (past 14 days) areas where COVID-19 is spreading, you will find [here](#).

Travellers who develop any symptoms during or after travel should self-isolate; those developing acute respiratory symptoms within 14 days upon return should be advised to seek immediate medical advice, ideally by phone first to their national healthcare provider.

Source: WHO and ECDC

European Commission:

On 13 May, the European Commission presented [guidelines and recommendations](#) to help Member States gradually lift travel restrictions, with all the necessary safety and precautionary means in place.

On 13 October, EU Member States adopted a [Council Recommendation on a coordinated approach to the restriction of free movement in response to the COVID-19 pandemic](#).

1. Common criteria

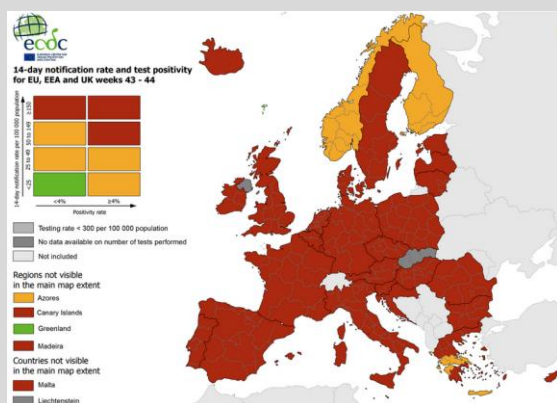
- **the notification rate** (the total number of newly notified COVID-19 cases per 100 000 population in *the last 14 days* at regional level)
- **the test positivity rate** (the percentage of positive tests among all tests for COVID-19 infection carried out during the last week)
- **the testing rate** (the number of tests for COVID-19 infection per 100 000 population carried out during the *last week*)

2. A common map

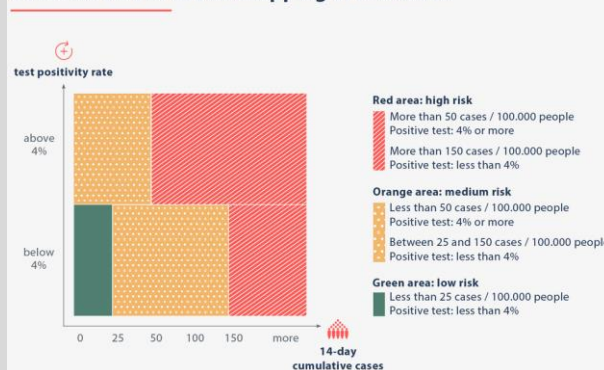
The ECDC will publish a map of EU Member States, broken down by regions, which will show the risk levels across the regions in Europe using a traffic light system. See also [“Situation in Europe”](#).

Areas are marked in the following colours:

- **green** if the 14-day notification rate is lower than 25 cases per 100 000 and the test positivity rate below 4%;
- **orange** if the 14-day notification rate is lower than 50 cases per 100 000 but the test positivity rate is 4% or higher or, if the 14-day notification rate is between 25 and 150 cases per 100 000 and the test positivity rate is below 4%;
- **red** if the 14-day notification rate is 50 cases per 100 000 or higher and the test positivity rate is 4% or higher or if the 14-day notification rate is higher than 150 cases per 100 000;
- **grey** if there is insufficient information or if the testing rate is lower than 300 cases per 100 000.



Common colour codes: mapping of risk areas



3. A common approach for travellers

Common framework for COVID-19 travel measures

■ Green areas



No restriction of free movement of persons should be applied

■ Orange and red areas



Measures should be proportionate and respect differences in the epidemiological situation of orange and red areas



In principle, entry should not be refused to travellers from orange/red areas but requirements could be applied



Possible requirements for travellers coming from orange/red areas: quarantine/ self-isolation, COVID-19 testing prior to/ after arrival



Measures should take into account the epidemiological situation in their own territory



Inform other affected EU countries 48 hours before applying measures



Travellers could be asked to submit passenger locator forms



Exceptions: no quarantine requirement for travellers with essential function or need while performing that function

4. Clear and timely information to the public about any restriction

As a general rule, information on new measures will be published 24 hours before they come into effect.

All information should also be made available on [Re-open EU](#), which should contain a cross-reference to the map published regularly by the European Centre for Disease Prevention and Control.

More information about traveling in the EU by the European Commission you will find here: https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/travel-and-transportation-during-coronavirus-pandemic_en
<https://www.consilium.europa.eu/en/policies/coronavirus/covid-19-travel-and-transport/>

Risk Assessment

Global	- Because of global spread and the human-to-human transmission the moderate to high risk of further transmission persists. - Travellers are at risk of getting infected worldwide. It is highly recommended to avoid all unnecessary travel for the next weeks. - Individual risk is dependent on exposure. - National regulation regarding travel restrictions, flight operation and screening for single countries you will find here. - Official IATA changed their travel documents with new travel restrictions. You will find the documents here. - Public health and healthcare systems are in high vulnerability as they already become overloaded in some areas with elevated rates of hospitalizations and deaths. Other critical infrastructure, such as law enforcement, emergency medical services, and transportation industry may also be affected. Health care providers and hospitals may be overwhelmed. - Asymptomatic persons as well as infected but not sickened persons could be a source of spreading the virus. Therefore, no certain disease-free area could be named globally.
Europe As of 23rd of October 2020	ECDC assessment for EU/EEA, UK as of 23 October 2020: Under the current classification system, based on epidemiological indicators, the epidemiological situation in countries is classified as <i>stable</i>, <i>of concern</i> or of <i>serious concern</i>. The majority of countries in the European region are currently classified as experiencing an epidemiological situation of serious concern due to the increasing case notification rates and/or test positivity $\geq 3\%$ as well as the high notification rates in the older age groups and/or high mortality rates. Countries have implemented various non-pharmaceutical interventions, but these have not been sufficiently effective in controlling transmission due to several factors: - adherence to the measures was sub-optimal; - the measures were not implemented quickly enough; - or the measures were insufficient to reduce exposure. As a result, the epidemiological situation is now rapidly deteriorating in most countries. There are currently only six countries in the region that are classified as experiencing a <i>stable epidemiological situation</i>. - In countries where the epidemiological situation is stable: - the probability of infection for the population is generally low but the impact of infection still varies depending on the individuals affected; - the risk for the general population in these countries is low; - for vulnerable individuals, including the elderly and people with underlying medical conditions, the risk is moderate. Nevertheless, in these six countries, there is still ongoing transmission and the situation must be closely monitored. Based on the latest available data to ECDC, there are currently no countries categorised as having an epidemiological situation ‘<i>of concern</i>’. In countries where the epidemiological situation is of serious concern: - there is a high risk to the general population, - and for vulnerable individuals the COVID-19 epidemiological situation represents a very high risk. In these countries the continuously increasing trend in notification rates calls for strong public health action in order to prevent the imminent risk that health care systems will be overwhelmed, rendering them unable to provide safe, adequate care.

References:

- European Centre for Disease Prevention and Control www.ecdc.europa.eu
- World Health Organization WHO; www.who.int
- Centres for Disease Control and Prevention CDC; www.cdc.gov
- European Commission; https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/travel-and-transportation-during-coronavirus-pandemic_en
- Our World in Data; <https://ourworldindata.org/coronavirus>
- Morgenpost; <https://interaktiv.morgenpost.de/corona-virus-karte-infektionen-deutschland-weltweit/>

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