Force Health Protection Branch
NATO MilMed COE
Munich

Update 101
COVID-19
Coronavirus Disease
02 February 2022

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GLOBAL
↘
382 131 962
Confirmed cases
323 900 000 recovered
5 690 969 deaths

USA
(7-days incidence 982,2)
↘
74 838 823
confirmed cases
64 750 000 recovered
886 482 death

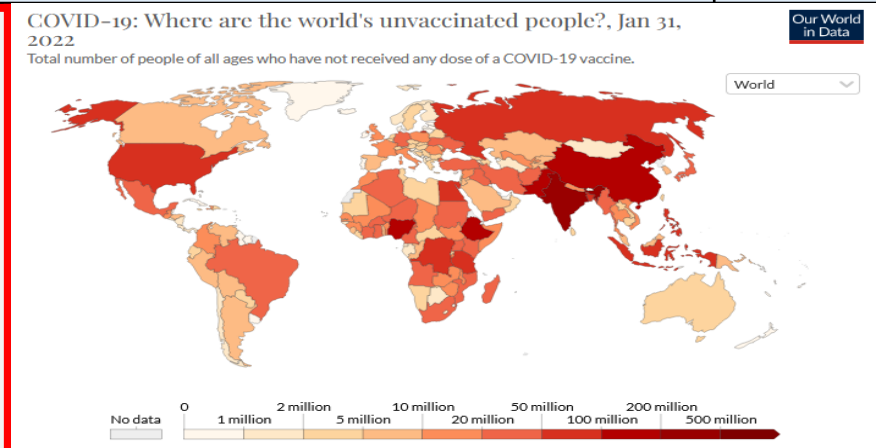
India
(7-days incidence 122,7)
↘
41 630 885
confirmed cases
36 830 000 recovered
497 975 deaths

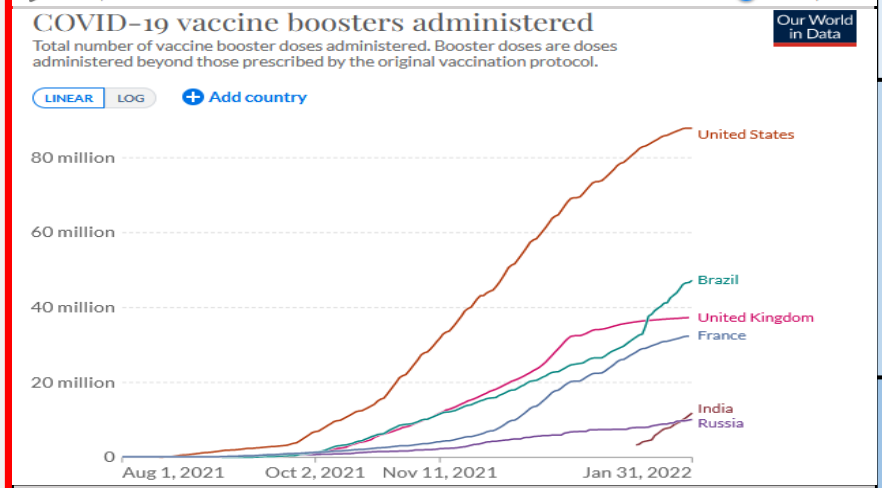
Brazil
(7-days incidence 699,3)
↗
25 634 781
confirmed cases
22 580 000 recovered
628 356 deaths

News:

- **WHO:** Almost 2 years have passed since the first laboratory confirmed case of COVID-19 in the African region. Since then, the region has been hit by four waves of the virus, with the last wave still ongoing in some countries. However, as of 27 January 2022 only 7.5% of the African Region's population has been fully vaccinated against COVID-19, compared to 51% globally on 24 January. Additionally, only 27 countries out of the 47 have attained at least 10% of populations fully vaccinated and fewer than 5 managed to reach the year-end target of 40%.
- **EU:** announced that the 270-day acceptance period for vaccination certificates begins.
  The new rules on a standard acceptance period of 270 days for EU Digital COVID vaccination certificates used for travel within the EU start applying as of 1 Feb. These rules only apply to the vaccination certificates used for the purpose of travel in the EU. The standard acceptance period does not apply to certificates for booster doses.
- **ECDC:** published a risk assessment of the further spread and potential impact of the SARS-CoV-2 Omicron variant of concern in the EU/EEA
- **ECDC:** published the third update, Guidance on ending the isolation period for people with COVID-19.
  This update includes new and emerging evidence on the shedding of SARS-CoV-2 variants including the newly emerged B.1.1.529 (Omicron) variant of concern (VOC), and considers options for modifying isolation periods to address pressures on healthcare systems and/or societal functioning.

- **Topics:**
- Global situation
- European situation
- Vaccination news
- Vaccination news - Spotlight on Reinfections
- SARS-CoV-2 VOIs and VOCs
- Subject in Focus: Making RNA vaccines easier to swallow
- Other Infectious Disease Outbreaks





EUROPE
↗
141 456 265
confirmed cases
114 800 000 recovered
1 712 274 deaths

France
(7-days incidence 3.362,0)
↘
19 557 626
confirmed cases
14 190 000 recovered
131 312 deaths

GBR
(7-days incidence 2.078,1)
↗
17 428 349
confirmed cases
15 020 000 recovered
156 875 deaths

Russia
(7-days incidence 504,1)
↗
11 795 059
confirmed cases
10 330 000 recovered
325 321 deaths

Situation by WHO Region, as of 25 January

Global epidemiological situation overview; WHO as of 01 February 2022

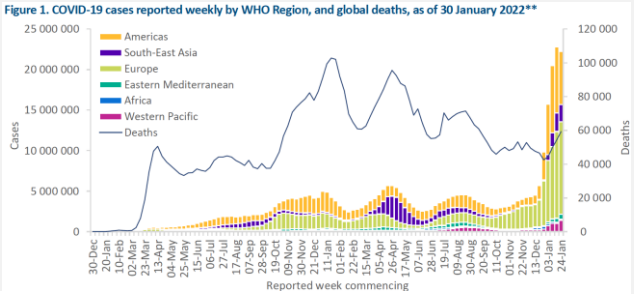
Globally, during the week of 24 to 30 January 2022, the number of new COVID-19 cases remained similar to the number reported during the previous week, while the number of new deaths increased by 9% (figure 1). Across the six WHO regions, over 22 million new cases and over 59 000 new deaths were reported (table 1). As of 30 January 2022, over 370 million confirmed cases and over 5.6 million deaths have been reported globally.

At the Regional level, increases in the number of new cases were reported by the Western Pacific (37%) the Eastern Mediterranean (24%) and the European (7%) Regions, while decreases were reported by the Region of the Americas (20%) and the South-East Asia Region (8%). The number of new cases reported in the African Region remained similar to that of the previous week. The number of new weekly deaths continued to increase in the South-East Asia Region (41%), the Eastern Mediterranean Region (32%) and the Region of the Americas (16%), while the African Region reported a decrease of 7%. The incidence of deaths remained similar to the previous week in the European and the Western Pacific regions.

The **highest numbers of new cases** were reported from:

- United States of America (3 279 226 new cases; 34% decrease)
- France (2 357 129 new cases; similar to previous week),
- India (1 855 258 new cases; 12% decrease),
- Brazil (1 283 024 new cases; 56% increase) and,
- Germany (1 055 768 new cases; 48% increase),

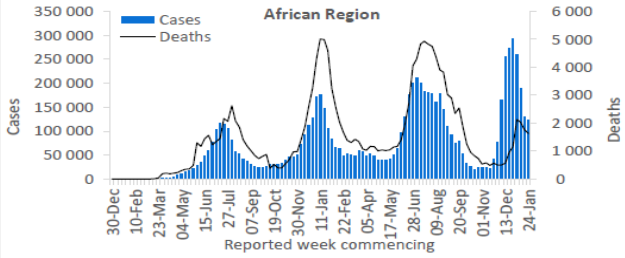
Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 30 January 2022**



African Region

The African Region reported over 125 000 new cases, similar to the number reported during the previous week. This follows on from a decreasing trend in new cases that has been observed for over a month. However, six countries (12%) reported increases of 20% or greater, with the highest increases reported from the Central African Republic (410 vs 190 new cases, a 116% increase), Lesotho (277 vs 165 new cases, a 68% increase) and Algeria. The highest numbers of new cases continued to be reported from Réunion (46 914 new cases; 5240.0 new cases per 100 000 population; a 49% increase), South Africa (22 202 new cases; 37.4 new cases per 100 000; similar to the previous week's figures), and Algeria (14 774 new cases; 33.7 new cases per 100 000; a 63% increase).

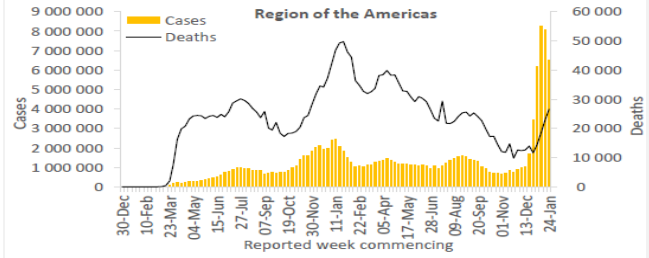
The number of new weekly deaths continued to decline in the Region with over 1600 new deaths reported, a 7% decrease as compared to the previous week. The highest numbers of new deaths were reported from South Africa (842 new deaths; 1.4 new deaths per 100 000 population; a 7% increase), Ethiopia (91 new deaths; <1 new death per 100 000; a 13% decrease), and Algeria (74 new deaths; <1 new death per 100 000; similar to the previous week's figures).



Region of the Americas

Since mid-January 2022, the Region of the Americas has continued to report a decrease in the number of new cases, with over 6.5 million cases reported this week, a 20% decrease as compared to the previous week. Only four countries reported increases of 20% or greater including: the Falkland Islands (3 vs 1 new case, a 200% increase), Chile (157 937 vs 82 574 new cases, a 91% increase), El Salvador (6250 vs 3435 new cases, an 82% increase) and Brazil. The highest numbers of new cases were reported from the United States of America (3 279 226 new cases; 990.7 new cases per 100 000; a 34% decrease), Brazil (1 283 024 new cases; 603.6 new cases per 100 000; a 56% increase), and Argentina (619 108 new cases; 1369.8 new cases per 100 000; a 19% decrease).

Over 26 000 new weekly deaths were reported in the Region, corresponding to a 16% increase as compared to the previous week. The highest numbers of new deaths continued to be reported from the United States of America (13 558 new deaths; 4.1 new deaths per 100 000; a 5% decrease), Brazil (3321 new deaths; 1.6 new deaths per 100 000; an 88% increase), and Mexico (2066 new deaths; 1.6 new deaths per 100 000; a 67% increase).

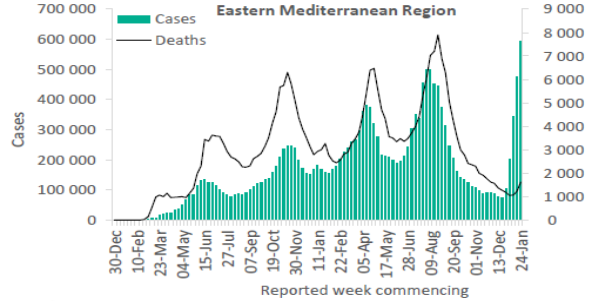


Source: https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---1-february-2022

Eastern Mediterranean Region

Since the end of December 2021, the Eastern Mediterranean Region reported a continued increase in new cases. During the last week, over 596 000 new cases were reported, a 24% increase as compared to the previous week. Over half of the countries (13/22, 59%) reported increases of 20% or greater, with the highest increases reported from the occupied Palestinian territory (33 080 vs 7293 new cases; 354% increase), the Islamic Republic of Iran and Libya (16 399 vs 6692 new cases; a 145% increase). The highest numbers of new cases were reported from the Islamic Republic of Iran (76 837 new cases; 91.5 new cases per 100 000; a 189% increase), Jordan (63 153 new cases; 619.0 new cases per 100 000; a 72% increase), and Tunisia (54 346 new cases; 459.8 new cases per 100 000; an 18% decrease).

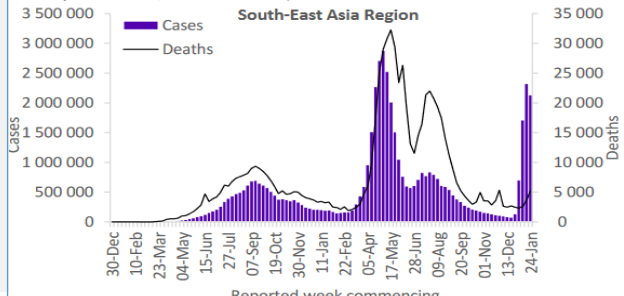
Over 1600 new weekly deaths were reported in the Region, a 32% increase as compared to the previous week. The highest numbers of new deaths were reported from Tunisia (275 new deaths; 2.3 new deaths per 100 000; a 55% increase), Egypt (236 new deaths; <1 new death per 100 000; a 14% increase) and Morocco (215 new deaths; <1 new death per 100 000; a 43% increase).



South-East Asia Region

Following an increase in the number of new cases over the past month, the number of new cases in the South-East Asia Region decreased, with over 2.1 million new cases reported this week, an 8% decrease as compared to the previous week. However, seven out of ten countries in the region reported an increase greater than 20% in the number of new weekly cases, with the largest increases reported from Timor-Leste (69 vs 5 new cases; a 1280% increase), Indonesia and Bangladesh. The highest numbers of new cases were reported from India (1 855 258 new cases; 134.4 new cases per 100 000; a 12% decrease), Bangladesh (100 196 new cases; 60.8 new cases per 100 000; a 49% increase), and Indonesia (56 807 new cases; 20.8 new cases per 100 000; a 286% increase).

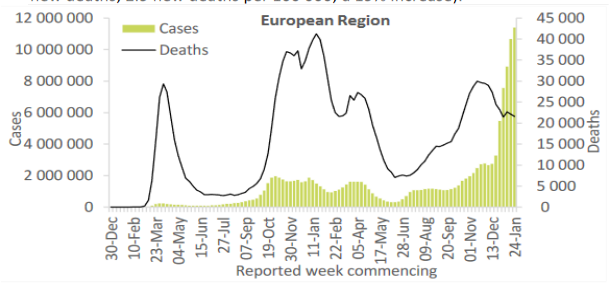
The number of new deaths in the Region increased by 41% as compared to the previous week, with over 5200 new deaths reported. The highest numbers of new deaths were reported from India (4682 new deaths; <1 new death per 100 000; a 40% increase), Bangladesh (140 new deaths; <1 new death per 100 000; a 77% increase), and Thailand (125 new deaths; <1 new death per 100 000; a 17% increase).



European Region

Since mid-December 2021, the number of new cases has continued to rise, with the Region reporting over 11.4 million new cases this week, a 7% increase as compared to the previous week. Twenty-three countries (38%) reported an increase greater than 20%, with the highest increases reported from Armenia (14 722 vs 4094 new cases; a 260% increase), Azerbaijan (19 307 vs 7116 new cases; a 171% increase), and Tajikistan (143 vs 59 new cases; a 142% increase). The highest numbers of new cases were reported from France (2 357 129 new cases; 3624.2 new cases per 100 000; similar to the previous week's figures), Germany (1 055 768 new cases; 1269.5 new cases per 100 000; a 48% increase), and Italy (1 040 184 new cases; 1744.1 new cases per 100 000; a 16% decrease).

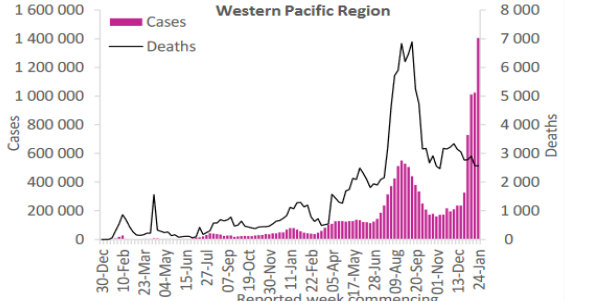
The number of weekly deaths in the Region remained similar to that of the previous week with over 21 000 reported. The highest numbers of new deaths were reported from the Russian Federation (4616 new deaths; 3.2 new deaths per 100 000; similar to the previous week's figures), Italy (2618 new deaths; 4.4 new deaths per 100 000; a 7% increase), and France (1881 new deaths; 2.9 new deaths per 100 000; a 19% increase).



Western Pacific Region

The number of new cases in Western Pacific Region increased by 37% as compared to the previous week, with over 1.4 million new cases reported. Half of the countries in the Region (n=14) reported increases of over 20% in new cases, with the highest proportional increases reported from Papua New Guinea (339 vs 81 new cases; a 319% increase), Kiribati (142 vs 39 new cases; a 264% increase) and Palau (1021 vs 319, a 220% increase). The highest numbers of new cases continued to be reported from Australia (499 935 new cases; 1960.5 new cases per 100 000; a 65% increase), Japan (463 354 new cases; 366.4 new cases per 100 000; a 73% increase), and the Philippines (141 339 new cases; 129.0 new cases per 100 000; a 36% decrease).

The number of new weekly deaths in the Region remained similar to that of the previous week, with over 2500 new deaths reported. The highest numbers of new deaths were reported from Viet Nam (951 new deaths; 1.0 new death per 100 000; an 15% decrease), Australia (565 new deaths; 2.2 new deaths per 100 000; a 31% increase) and the Philippines (465 new deaths; <1 new death per 100 000; a 15% decrease).



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https://www.pna.gov.ph/articles/1166750
https://covid19.trackvaccines.org/country/philippines/
https://www.tagesschau.de/thema/liveblog/

Global Situation

bluedot

CHN: Chinese New Year is celebrated on 1st February 2022. This traditionally leads hundreds of millions of Chinese citizens travelling across the country to meet their families. Despite the zero-COVID strategy still pursued by the Chinese government the CHN Ministry of Transport estimates that approx. 1.5bn travels will be made in connection with Chinese New Year celebrations. Travellers have to present a green pass on their phones confirming that they haven't been to COVID-affected areas before travelling. At the same time numerous cities are put into lockdown with little to no lead time if COVID-19 cases occur.

The Olympic Games are about to start on XXXX. Until now 232 positive cases within the social bubble around the athletes, trainers and journalists participating in the event have been reported by the CHN authorities. The Olympic Committee has decided not to set a threshold of cases at which the games will be terminated early. The head of the Medical Expert Commission Brian McCloskey explained that not only the number of cases is relevant for such a decision but for example also if the cases are related to each other.

EU: The EU has limited the validity of Immunization certificates for vaccination schemes without a booster dose to 270 days (9 months). After this time (calculated from the administration of the last COVID-19 vaccine) people are treated as if they are unvaccinated if they haven't received a booster shot. Affected people will have to self-isolate in many countries after crossing (inner-)EU borders. EU officials stated that the capping of the validity period for the EU immunization certificate for people that haven't received a booster shot reflects the shrining protection provided by the basic immunization scheme.

DEN: Denmark has relaxed virtually all COVID-19 restrictions (including mask wearing requirements) and doesn't treat COVID-19 as "disease that endagers the whole society".

ZAR: South Africa decided to relax almost all restrictions after the fourth wave has faded. Schools return back to normal teaching mode without any distancing rules, people testing positive for SARS-CoV-2 without symptoms don't have to go into quarantine. People that tested positive and show symptoms only have to quarantine for 7 instead of 10 days. People with direct contact to infected individuals only have to isolate if they develop symptoms. The government explained its decision with recent studies according to which about 70% of the South African Population has been infected with COVID-19. The country with 60 million inhabitants reported only 1,366 new cases within a single day.
The only measures that remain in effect are mask-wearing requirements as well as general hygiene rules.

THA: Thailand has relaxed its entry-regulations. Tourists that have completed a basic immunization scheme (usually two doses of an approved vaccine) are allowed to enter Thailand without undergoing a long-lasting quarantine period. The "Test&Go" model has been reintroduced with some tightened rules: Instead of a single test upon arrival, an additional test 5 days after entering the country is now mandatory. While waiting for the test-results tourists have to isolate in a designated hotel. Non-compliance with these rules will be fined.

KOR: South Korea has decided to set up hundreds of "neighbourhood hospitals" to treat Omicron patients. In the past South Korea preferred large well equipped medical centres but according to the Minister of Health Kwon Deok Cheol it is indispensable to improve the local treatment capacities. Approximately 85% of the South Korean population has received at least 2 shots. About half of the population already received a booster shot.

ISR: For the first time since one year Israel reported that more than 1,000 COVID-19 patients with severe symptoms are treated at the countries hospitals. At the same time the hospitals also face numerous patients that seek treatment because of infection with influenza. In the meantime the Omicron wave seems to be fading, with only 53,000 new cases being reported within a single week (compared to 85,000 new cases in the previous week).

TON: The small pacific country Tonga (approx. 100,000 inhabitants) reported the second and third case of COVID-19 since the beginning of the pandemic. Two workers that helped deploying humanitarian aid goods after the volcano eruption tested positive. A lockdown (valid until further notice) has been implemented to prevent further spread of the disease. Authorities will provide updates regarding this measure and the current situation every 2 days. The first case reported from TON was a missionary returning from Africa.

Overview of COVID-19 in Philippines

Disease activity – In the past month, **COVID-19 activity in the Philippines has exponentially increased.** The seven-day rolling average daily number of new cases spiked more than 71-fold from 480 as of December 30, to a peak of 34,898 on January 18. Since then, the seven-day rolling average daily number of **new cases declined to 18,352 on January 30**. Similarly, the seven-day rolling average daily number of new deaths increased from 56 on December 30 to a peak of 141 on January 13 but has since stabilized at 60 on January 30. At the peak of the most recent wave, the 14-day test positivity rate increased from 1.1% on December 30 to 18.9% on January 9. The **test positivity rate** further increased to 47.1% as of January 13 but has slowly come back down to **28.4% as of January 29**. According to news media reports, **the Philippines has experienced one of the worst Omicron-driven surges in southeast Asia**, with the capital of Manila being the hardest hit.

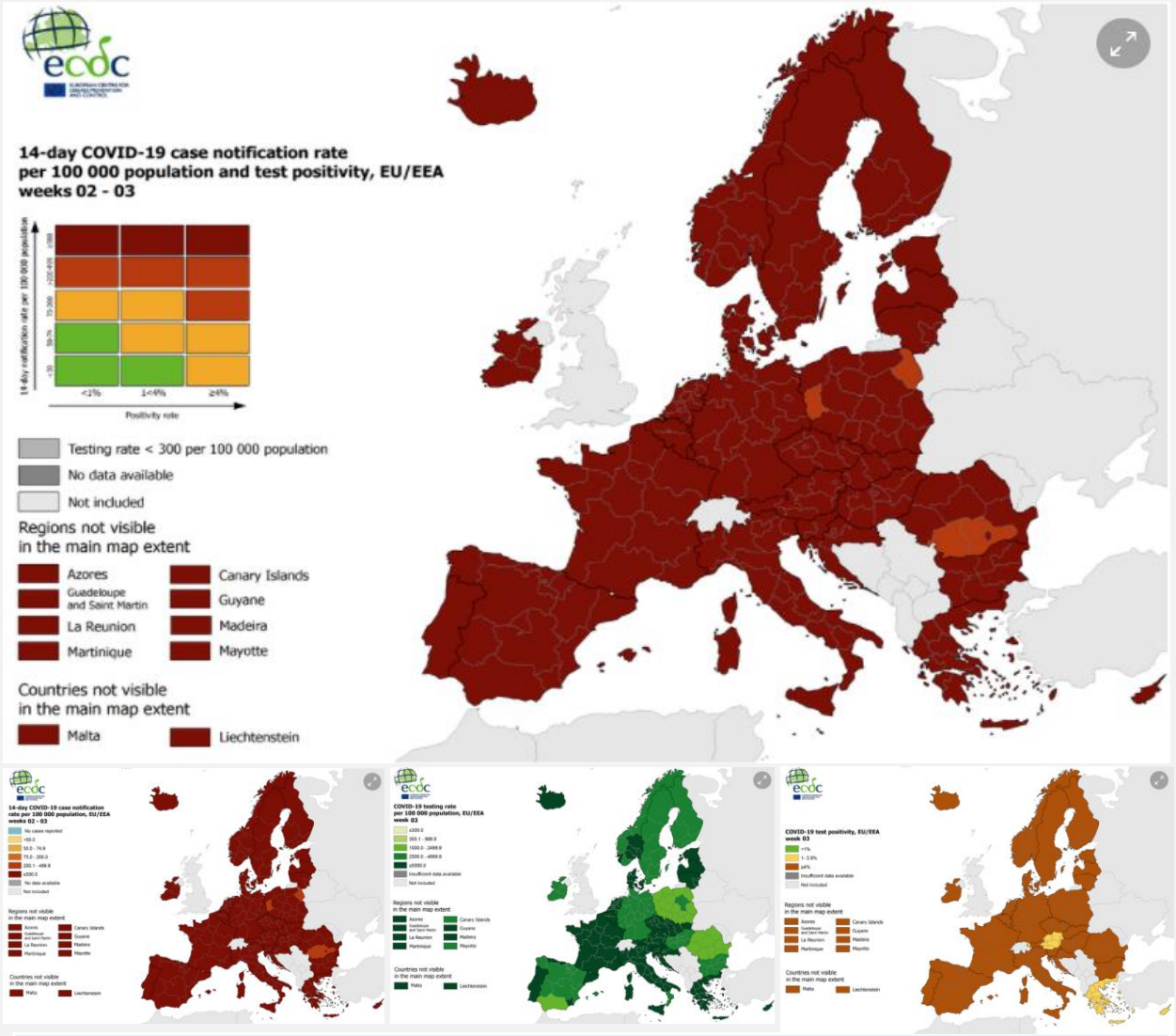
Hospital occupancy – During the peak of the Omicron-driven wave, hospital occupancy across the country quickly increased. As of January 15, according to official sources, 55% of ICU beds, 52% of isolation beds, 69% of ward beds, and 26% of ventilators were being used for COVID-19 patients. As of January 31, **hospital bed utilization has reduced** to 46% of ICU beds, 46% of isolation beds, and 48% of ward beds.

Public measures – According to official sources, as of February 1, the capital of Manila and seven other provinces will be **easing COVID-19 restrictions** from level three to level two due to recently declining infection rates. Since being put in place in mid-January, **Manila is also set to lift the "no vaccination, no ride" policy**, which had previously prevented unvaccinated individuals from using public transportation. **Other restrictions will continue to remain** in place including indoor establishments functioning at 50% capacity for fully vaccinated individuals, 70% capacity for outdoor activities, and the re-opening of in-person school and indoor entertainment venues. As of January 28, government officials have confirmed that vaccinated travellers will be granted permission to travel to the Philippines beginning February 10.

Vaccination coverage – According to the BlueDot COVID-19 Data Suite, as of January 30, of the country's more than 108 million population, **53.8%** (58,149,158) have received **two doses of a COVID-19 vaccine**. Approximately **6.8%** (7,335,558) of the population has been administered a **booster dose**. With vaccine rates relatively low compared to surrounding regions, health officials are aiming to have the 77 million adult population vaccinated by May 2022. As of January 26, 11,281 individuals aged five to 11 years old, and 186,302 individuals aged 12 to 17 years old have registered for a vaccination with the Pfizer/BioNTech vaccine. **Beginning February 2, the younger age group will begin receiving their vaccinations.** To date, 10 COVID-19 vaccines have been approved for use in the Philippines, including Comirnaty (Pfizer/BioNTech), Vaxzevria (Oxford/AstraZeneca), CoronaVac (Sinovac), Sputnik-V (Gamaleya Research Institute), Covaxin (Bharat Biotech), Janssen (Johnson & Johnson), Spikevax (Moderna), Sinopharm BIBP, Sputnik Light (Gamaleya Research Institute), and Covovax (Novovax).

European Situation

Maps in support of the Council Recomendation on a coordinated approach to the restriction of free movement in response to the COVID-19 pandemic in the EU, as of 27 January 2022



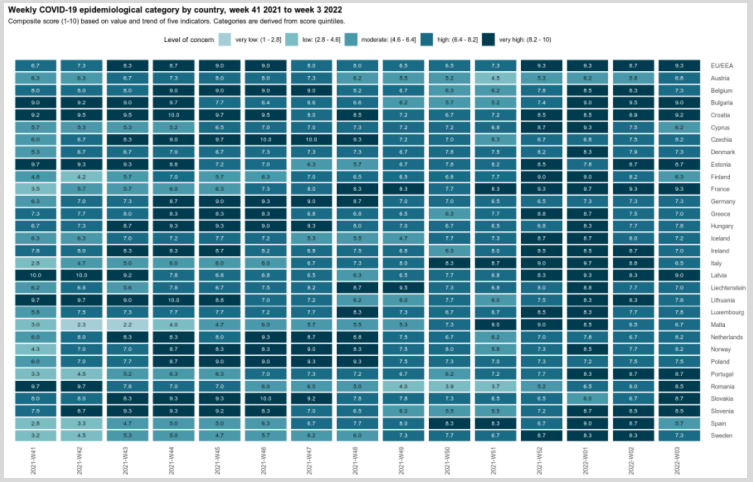
14-day case notification rate per 100 000 inhabitants | Testing rates per 100 000 inhabitants | Positivity rates

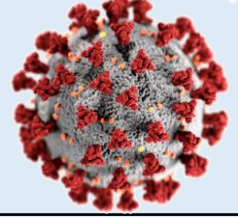
ECDC COVID-19 country overviews report Week 02, as of 27 January 2022

At the end of week 3 (week ending Sunday, 23 January 2022), the overall epidemiological situation in the EU/EEA was characterised by a very high overall case notification rate that has increased rapidly in the past five weeks and an elevated but stable death rate. Case notification rates are currently highest among age groups under 50 years old, but rates among older age groups are also increasing, albeit at a slower rate. Case notification rates and death rates are both forecast to increase over the next two weeks. An epidemiological situation of high or very high concern was observed in 27 EU/EEA Member States. The Omicron variant of concern (VOC) and Delta VOC are co-circulating in some countries. While the Omicron VOC continues to spread rapidly, EU/EEA Member States are at various stages of the Omicron wave. As countries are currently adopting heterogenous testing strategies and face varying constraints on their ability to test, underestimation of case notification rates should not be excluded. The overall COVID-19 case notification rate for the EU/EEA was 3 111 per 100 000 population (2 722 the previous week). This rate has been increasing for five weeks. The 14-day COVID-19 death rate (43.2 deaths per million population, compared with 45.3 deaths the previous week) has been stable for four weeks. Of 28 countries with data on hospital or ICU admissions or occupancy up to week 3, 13 reported an increasing trend in at least one of these indicators compared to the previous week. ECDC's assessment of each country's epidemiological situation is based on a composite score based on the absolute value and trend of five weekly COVID-19 epidemiological indicators. As shown below, for week 3, nine countries (Bulgaria, Croatia, Estonia, France, Latvia, Portugal, Romania, Slovakia and Slovenia) were categorised as of very high concern, 18 countries (Austria, Belgium, Czechia, Denmark, Germany, Greece, Hungary, Iceland, Ireland, Italy, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland and Sweden) as of high concern and three countries (Cyprus, Finland and Spain) as of moderate concern. Compared with the previous week, three countries (Austria, Romania and Slovakia) moved to a higher category, eight countries (Belgium, Cyprus, Finland, Ireland, Italy, Lithuania, Spain and Sweden) moved to a lower category and 19 countries stayed in the same category. By the end of week 3, the cumulative uptake of full vaccination in the EU/EEA was 81.4% (country range: 34.2–94.5%) among adults aged 18 years and older and 70.0% (country range: 28.7–83.5%) in the total population. Cumulative uptake of an additional dose was 51.8% (country range: 9.1–79.6%) among adults aged 18 years and older and 42.6% (country range: 7.4–62.9%) in the total population.

The estimated distribution (median and range of values from 22 countries for weeks 1 to 2, 3 January to 16 January 2022) of variants of concern (VOC) was 83.3% (11.0–99.9%) for B.1.1.529 (Omicron), 14.3% (0.1–86.7%) for B.1.617.2 (Delta) and 0.0% (0.0–0.0%) for B.1.351 (Beta). The distribution was 0.0% (0.0–0.8%) for B.1.1.7 (Alpha), which was downgraded from the list of VOCs on 3 September 2021.

In the same period, B.1.1.529 (Omicron) was the dominant variant (accounting for >50% of sequenced viruses) in 17 of the 22 EU/EEA countries with adequate sequencing volume. A description of trends in aggregate detections and of the epidemiology of 213 335 reported Omicron cases is available in the virus variants summary and variants sections.





Vaccination News

A total of 10 countries accounted for **64.1%** of all vaccinations administered globally as of January 27. The top five countries/territories with the highest number of cumulative people fully vaccinated per 100,000 population are Gibraltar (120,700), United Arab Emirates (92,750), Brunei Darussalam (91,280), Portugal (90,360), and Chile (87,900). Conversely, the top five countries with the lowest number of cumulative people fully vaccinated per 100,000 population are Burundi (50), the Democratic Republic of the Congo (Kinshasa) (180), Haiti (690), Chad (710), and Yemen (1,030).

BioNTech: BioNTech/Pfizer submitted a request for an emergency use authorization of their vaccine for administration to children below the age of 5 to FDA on Tuesday.

IND: Prime Minister Narendra Modi announced that 75% of the adult population have now received a second vaccine. The majority of the 1.3bn inhabitants received AstraZeneca's Covishield vaccine. Two weeks ago India has also started with administering booster shots (primary recipients are health care workers, police and military personnel, COVID-response staff and individuals at high-risk over the age of 60).

Information on incomplete or interrupted vaccination schedules for COVID-19 in the US

According to general vaccines recommendations, the U.S. CDC has stated that there is no need to re-start a COVID-19 vaccine series, no matter how much time passed between doses (1). It is recommended to get the second dose as soon as possible, and the booster (third dose 6 months apart of the 2nd shot).

Recommended immunization schedules should be followed as closely as possible, but in general, regardless of the time between doses, interruption of a vaccine series does not require restarting the series as delays between doses do not result in a reduction in final antibody concentrations for most multi-dose products. However, maximum protection may not be attained until the complete vaccine series has been administered (2). This general recommendation is based on scientific evidence on well-known vaccines administered during the pediatric age.

With COVID-19, it's important to have both doses (full series) so you have the best immune response possible. Studies have shown a significant increase in protection after two doses of a COVID-19 vaccine. Getting both doses, or a complete series, means better and longer protection from COVID-19 and a reduced chance of serious illness if you do get COVID-19.

A booster is considered an additional dose after completing a full series. The booster dose can be Moderna, Pfizer-BioNTech, or Janssen. People who received (3):

- An mRNA primary series should receive a single booster dose at least 6 calendar months after completion of the primary series (2 doses).
- A Janssen primary series should receive a booster dose at least 2 months (8 weeks) after completing their primary series (single dose).
- People 16 through 17 years of age who received an mRNA primary series may receive a single booster dose at least 6 calendar months after completion of the primary series based on individual benefits and risks.

It is important to highlight that there are no studies that have reported on how the immune system will see the spike protein generated by a second dose after the 42-day recommended interval and questions regarding if there is still enough memory from that first dose to muster the full protection exist and data is required. CDC data has shown that of those who have received both doses of the mRNA vaccine, the vast majority (95.6%) received the second dose within the 42-day recommended interval (3). The challenge is that this leaves relatively few people to study to see what may happen if that the second dose is delayed well beyond seven weeks. BlueDot is engaged in providing available data on these matters as soon as it is made available.

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(1) https://www.cdc.gov/cdc-info/vaccines-immunizations.html
(2) https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-1-key-immunization-information/page-10-timing-vaccine-administration.html
(3) https://www.cdc.gov/coronavirus/2019-ncov/vaccines/second-shot.html

Overview of the implementation of COVID-19 vaccination strategies and deployment plans in the EU/EEA

Vaccine COVID-19 rollout overview

- As of 23 January 2022, over 827 million vaccine doses have been administered in the EU/EEA, 317 million people have completed the primary vaccination course and over 198 million individuals have already received a vaccine dose in addition to the primary course (all 30 countries reporting).
- Since the start of COVID-19 vaccine deployment in December 2020, the cumulative vaccine uptake in the total population in the EU/EEA has reached 70% (range: 28.7–83.5%) for the complete primary course and 42.6% (range: 7.4–62.9%) for an additional dose, while among adults (aged 18 years and older) the cumulative vaccine uptake reached 81.4% (range: 34.3–94.5%) for the complete primary course and 51.8% (range: 9.1-79.6%) for an additional dose (pooled data from 30 reporting countries). However, progress differs across countries, with three countries still reporting less than 50% of the total population having completed the primary vaccination course (Bulgaria, Romania and Slovakia).
- As vaccine campaigns expand to younger age groups and to rapidly provide additional doses to eligible individuals, the median uptake of full vaccination with a completed primary course among older adults aged 60 years and above has reached a plateau at just above 90%. However, uptake is still slowly increasing among younger adults (90.8% in those aged 60+ years; 73.3% in 18–24 year-olds; 78% in 25–49 year-olds; 85.1% in 50–59 year-olds; 28 countries reporting), as well as in eligible adolescents and children (18.6% in those aged under 18 years, 29 countries reporting; 70.2% in 15–17 year-olds and 34.8% in 10–14 year-olds, 17 countries reporting). Among older adults aged 60 years and over the median uptake for an additional dose has already reached 78.4% (range: 11.8–96.1%; 28 countries reporting).

Vaccination strategies and policies during roll-out

- All EU/EEA countries offer vaccination to those aged 12 years and over and 23 countries (of the 26 countries who responded) are offering to all children 5–11 years. Twenty-two countries recommend specific COVID-19 vaccine products for particular population groups. The adaptation is mainly based on age-specific recommendations for Vaxzevria, Spikevax and COVID19 Vaccine Janssen.
- All 30 countries recommend an additional primary dose as an extension of the primary course for those with weakened immune systems and all countries are recommending a booster dose to different population groups to improve protection in individuals whose immunity may wane after completing the primary course1. Most EU/EEA countries (19/30) are recommending booster doses for all adults 18 years and over while one country is recommending them to priority groups, including those aged 40 years and over. For younger age groups, a total of ten countries are recommending boosters for adolescents.
- Nineteen countries have changed their vaccination strategy in light of the circulation of the Omicron variant of concern (VOC), with the majority of countries having reduced the timing for administration of the booster dose after completion of the primary course and enhanced risk communication initiatives.
- In the majority of countries vaccination is not mandatory. Six countries have mandatory vaccination in place for different population groups, in particular for healthcare workers and/or workers in long-term care facilities, and two countries are planning to make vaccination mandatory in the future.

Vaccine acceptance, hesitancy, and uptake

- Many countries are trying to reach those population groups that still have low uptake, such as under-served and vulnerable groups and young people.
- Countries are using a range of strategies to encourage vaccine acceptance and address vaccine hesitancy or increase uptake. These include measures such as mobile and pop-up vaccination teams/clinics; targeted communication strategies; outreach initiatives and intersectoral partnerships for community-based interventions. Some countries have also introduced incentives to be vaccinated and many countries require vaccination certificates in order to gain access to places/events.

The roll-out of national vaccination campaigns is an ongoing process, and this report provides a snapshot of the progress to date.

Source:
https://www.ecdc.europa.eu/sites/default/files/documents/Overview-of-COVID-19-vaccination-strategies-deployment-plans-in-the-EU-EEA-Jan-2022.pdf

Global Updates on COVID-19 Vaccine Administration and Research - Spotlight on Reinfections

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Executive Summary Spotlight on Reinfections

Results from a preprint study showed that while both prior COVID-19 infection and vaccination are independently associated with significantly lower risk of COVID-19, vaccination was associated with a significantly lower risk of symptomatic COVID-19 in both the pre-Omicron and Omicron phases.

Based on a COVID-19 Infection Survey in the United Kingdom, the risk of reinfection of COVID-19 was 16 times higher in the Omicron-dominant period compared with the Delta-dominant period.

In line with other research, results from this survey also indicate that people who received any one COVID-19 vaccine, a second Pfizer vaccine 15 to 180 days prior, or any three COVID-19 vaccines (including boosters) were all less likely to test positive compared to those who were unvaccinated.

Vaccine Research Updates

Two doses of the CoronaVac (Sinovac) vaccine provides a reduced protection against COVID-19 infections from the Omicron variant. Reduced antibody protection in individuals double vaccinated suggests a higher risk of breakthrough infections and the likely need for additional booster doses to protect populations. Heterologous boosting may provide more protection than 3rd doses of CoronaVac.

The CORBEVAX vaccine, a new vaccine that uses recombinant DNA technology (a more traditional immunization technique), has the potential to help low- and middle-income countries to increase their vaccine coverage, given that the technology to create this vaccine is readily available in many countries and the intellectual property is openly available.

Vaccine Administration

How many vaccine doses have been administered per country? What percentage of the population does this represent? According to data collected by Our World in Data, more than 10 billion COVID-19 vaccine doses have been administered in 184 countries. As of January 17, the WHO's COVAX program has shipped 1 billion doses to 144 eligible countries. Based on data from Our World in Data, in **Figure 1A** we present a map with the percentage of population fully vaccinated with per country/territory; in **Figure 1B**, we present a map with the total number of vaccine doses administered per country/territory, for those with reported data. In **Figure 1C**, we present a map with the percentage of population vaccinated with a third (booster) dose per country/territory.

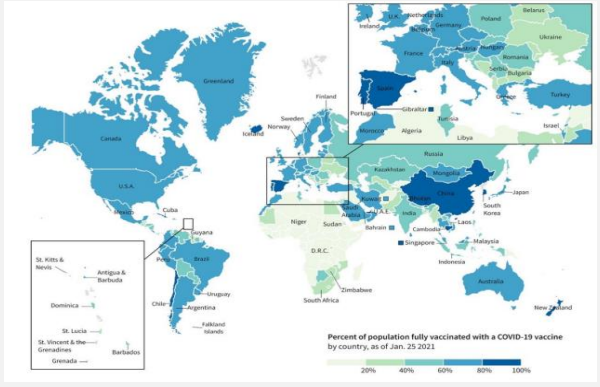

Figure 1A. Percent of country/territory's population that have been fully vaccinated with a COVID-19 vaccine. Values are only provided for countries/territories that report data on the number of people fully vaccinated.

Figure 1B. Total number of vaccine doses administered per country/territory. Values are provided for countries/territories that report total number of vaccine doses administered.

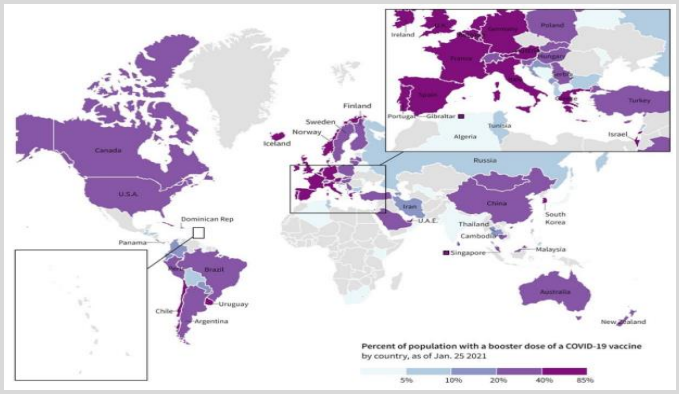

Figure 1C. Percent of country/territory's population that have been fully vaccinated and have an additional dose (booster) of a COVID-19 vaccine. Values are only provided for countries/territories that report data on the number of people that have been fully vaccinated and have an additional (booster) of a COVID-19 vaccine.

Spotlight on Reinfections

Omicron has almost completely replaced the previously dominant variants of concerns in many locations across the world. Two recent studies presented below suggest that re-infections by the Omicron variant among the vaccinated are more likely than prior variants, though vaccinations still offer more protection than not being vaccinated. Do vaccinations after infection provide additional protection against COVID-19, given new variants? A recently published study investigated whether vaccination offers additional protection to persons who have had a prior SARS-CoV-2 infection. Results showed that among 52,238 participants, of which 4,718 (9%) were previously infected and 36,922 (71%) were vaccinated by the study's end, cumulative incidence of COVID-19 was substantially higher throughout the study period for those previously uninfected who remained unvaccinated than for all other groups. Additionally, cumulative incidence of COVID-19 was lower for the vaccinated than unvaccinated, and lower for those previously infected than those with no history of a previous infection. Incidence of COVID-19 increased dramatically in all groups after the Omicron variant emerged. Results showed that while both prior infection and vaccination are independently associated with significantly lower risk of COVID-19, vaccination was associated with a significantly lower risk of symptomatic COVID-19 in both the pre-Omicron (HR 0.60, 95% CI 0.40–0.90) and Omicron (HR 0.36, 95% CI 0.23–0.57) phases. Previously infected subjects without vaccination did not demonstrate a lower risk of symptomatic COVID-19 after the emergence of the Omicron variant in comparison to pre-Omicron period. What has the United Kingdom observed about reinfections with COVID-19? According to a COVID-19 Infection Survey conducted in the United Kingdom, among the 26,528 participants that were defined as eligible for reinfection, the risk of reinfection was 16 times higher in the Omicron-dominant period (December 20, 2021 to January 9, 2022) compared with the Delta-dominant period (May 17, 2021 to December 19, 2021). Furthermore, between December 17, 2021 to December 31, 2021, those who reported receiving one of any COVID-19 vaccine 15 to 90 days ago, a second Pfizer vaccine 15 to 180 days ago, or any three vaccinations (including booster vaccinations) were all less likely to test positive for reinfection than those who were not vaccinated. From July 2, 2020 to January 9, 2022, people who were unvaccinated were approximately twice as likely to be reinfected than people who had their second vaccine 14 to 89 days ago. People who had their second vaccine over 90 days ago were also more likely to be reinfected than people who had their second vaccine more recently from 14 to 89 days ago. In line with other research, results from this survey also indicate that people who received any one COVID-19 vaccine, a second Pfizer vaccine 15 to 180 days ago, or any three COVID-19 vaccines (including boosters) were all less likely to test positive compared to those who were unvaccinated.

Global Updates on COVID-19 Vaccine Administration and Research - Spotlight on Reinfections

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Vaccine Research Updates

What does recent research suggest about the Sinovac vaccine against the Omicron variant? A preprint by researchers at the University of Hong Kong and affiliates, now accepted to Clinical Infectious Diseases, suggests that two doses of the CoronaVac (Sinovac) COVID-19 vaccine provides a reduced protection against infections from the Omicron variant compared to previously circulating variants. The neutralization study assessed the sera, collected 56 days after the first dose, of 50 adults double vaccinated with CoronaVac or Comirnaty (Pfizer/BioNTech) against the Omicron variant compared to the ancestral, Delta, and Beta variants. Of the 25 people vaccinated with CoronaVac, all serum samples indicated neutralization susceptibility against the ancestral strain of SARS-CoV-2. However, neutralization titres were reduced to 68% against the Delta variant. No serum samples produced sufficient levels of antibody against the Omicron variants or the Beta variant. Reduced antibody protection in individuals double vaccinated suggests a higher risk of breakthrough infections and the need for additional booster doses to prevent infections. However, this study does not measure protection against disease derived from a cellular immune response. Further research into efficient vaccine regimens including CoronaVac vaccine to maximize protection against the Omicron variant is warranted as many people globally were immunized with this vaccine in their initial regimen. A recently published phase 4 study in Brazil (n=1,205) assessed the efficacy of heterologous regimens (Johnson & Johnson, Pfizer/BioNTech, AstraZeneca) and homologous regimens (n=281) for a booster dose among individuals who received CoronaVac as their first dose. Booster doses, regardless of vaccine type, increased neutralizing activity 28 days after the dose; however, the study suggested that a heterologous approach may provide greater protection given there was a greater fold-change in virus neutralization using a heterologous booster dose The study also examined a subsample of the study participants to understand neutralization activity of each combination of regimen against recent variants of concern. Twenty samples were selected for each combination of regimen. Among the subsample boosted with CoronaVac, 35% (7/20 samples) indicated detectable neutralizing activity against the Omicron variant and 80% (16/20 samples) against the Delta variant. In comparison, 90% (18/20 samples) of each heterologous regimens had sufficient neutralizing antibody titers against the Omicron variant, and nearly all serum samples indicated neutralization susceptibility against the Delta variant. Clinical follow-up with real-world data is needed to understand whether the laboratory metrics observed (i.e., reduction in neutralization susceptibility in the immunological assay studies) translates to a significant impact to vaccine effectiveness (in preventing symptomatic infections, hospitalizations, or death) among various populations of interest. These findings can potentially have considerable implications on public health measures and additional dose strategies for countries largely relying on the CoronaVac vaccine. What is the CORBEVAX vaccine and what does it mean for low- and middle-income countries? The CORBEVAX vaccine was developed by researchers at the Texas Children's Hospital and Baylor College of Medicine. This new vaccine is a subunit vaccine that uses recombinant DNA technology, a more traditional approach compared to the newer mRNA vaccine methodology. It uses a piece of the spike protein from the SARS-CoV-2 virus to illicit an immune response and prepare the immune system for any future encounters with the virus. An unpublished study conducted in India involving 3,000 volunteers found the vaccine to be 90% effective in preventing symptomatic disease caused by the original COVID-19 virus strain, and 80% effective against the Delta variant. Studies are still being conducted to test effectiveness against the Omicron variant. Like the mRNA vaccines, CORBEVAX also requires a two-dose regimen. This vaccine may also help low- and middle-income countries (LMIC) to increase their vaccine coverage. As the CORBEVAX vaccine uses a more traditional immunization technique (the same technique used for the Hepatitis B vaccine), the technology to create this vaccine is readily available in many countries. Additionally, the intellectual property of the vaccine is available globally, which means that any manufacturer worldwide can produce this particular vaccine. The vaccine can also be stored in a regular refrigerator, making it more accessible to populations in LMIC. On December 28, 2021, the CORBEVAX vaccine received Emergency Use Authorization approval from the Drugs Controller General of India, and the country plans to manufacture at least 100 million doses per month starting February 2022.

What are the updates for vaccine candidates in Phase 3 or Phase 2/3 trials?

Company	Vaccine Candidate	Updates
Gamaleya Research Institute МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ	Sputnik V	• On January 18, 2022, the company stated that the Sputnik V vaccine demonstrated 75% efficacy against the Omicron variant infection.
Pfizer and BioNTech Pfizer BIONTECH	Comirnaty	• On January 25, 2022, the companies jointly announced they have commenced a clinical study of an Omicron-specific COVID-19 vaccine. • The study includes a roster of 1,400 participants divided into three groups that will receive different regimens of either the current Pfizer-BioNTech COVID-19 vaccine (developed against pre-Omicron variants) or revised version of the vaccine based on the Omicron variant.
CanSino Biologics CanSinoBIO	Convidecia (Ad5-nCoV)	• In December 2021, the efficacy of the Convidecia vaccine was determined to be 57.5% against symptomatic COVID-19, while the efficacy against severe disease was 91.7%. • On January 4, 2022, researchers stated that an inhaled booster of this vaccine produced high antibody levels against SARS-CoV-2 infection when administered in individuals who originally received the CoronaVac vaccine.
Washington University and Bharat Biotech Washington University in St. Louis BHARAT BIOTECH	BBV154	• On January 6, 2022, Bharat Biotech received approval to begin a Phase 3 trial of the vaccine as a booster shot. The trial will be conducted in 5,000 people who have previously received either the Covaxin or Covishield vaccine.
Vaxine vaxine	Covax-19 (Spikogen)	• On January 4, 2022, the Spikogen vaccine was registered for a booster shot Phase 3 trial.
Shionogi SHIONOGI NIID 国立感染症研究所 KYUSHU UNIVERSITY	S-268019	• On January 13, 2022, the company registered a Phase 3 trial in Japan to assess their vaccine's effectiveness against the AstraZeneca vaccine
Jiangsu Rec-Biotechnology 瑞科生物 RECBIO	ReCOV	• On January 17, 2022, the company announced their Phase 2/3 vaccine trial was approved to begin in the Philippines.

Sources:

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https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab1041/6463504?login=false
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)00094-0/fulltext#seccestitle150
https://www.texaschildrens.org/texas-children%E2%80%99s-hospital-and-baylor-college-medicine-covid-19-vaccine-technology-securesemergency
https://www.scientificamerican.com/article/a-covid-vaccine-for-all/

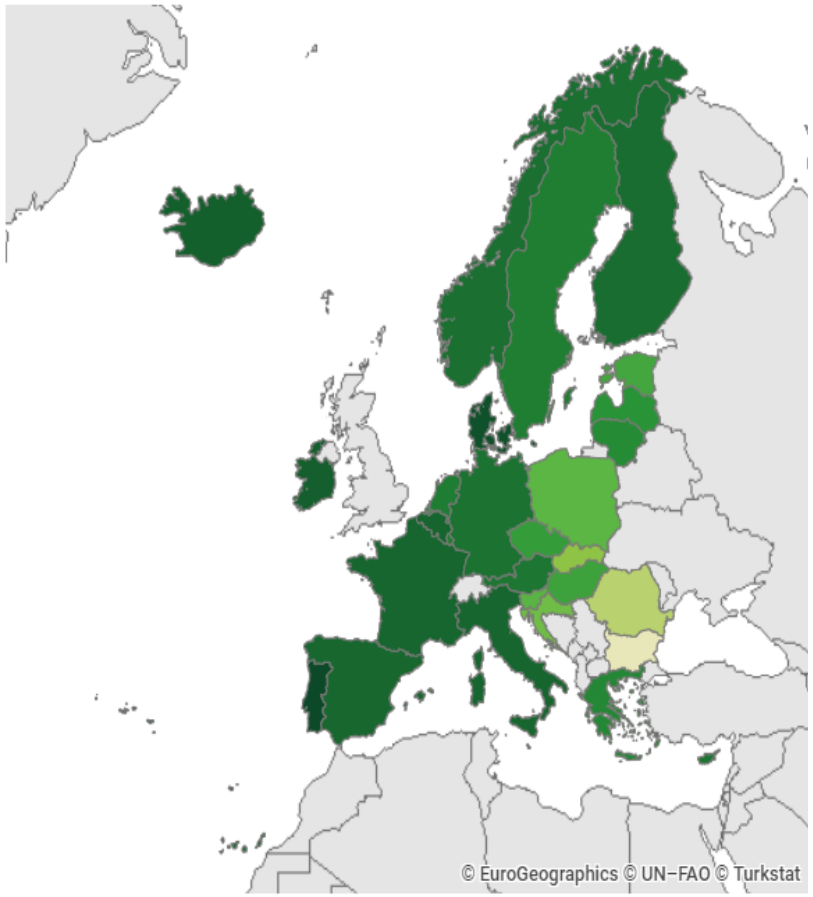
European Situation on Vaccination

Source: https://qap.ecdc.europa.eu/public/extensions/COVID-19/vaccine-tracker.html#uptake-tab

Total doses distributed to EU/EEA countries **1,049,626,230** | **832,069,220** Total doses administered in EU/EEA countries

Indicator: Uptake of the primary course

Cumulative uptake (%) of the primary course in the total population in EU/EEA countries as of 2022-01-28

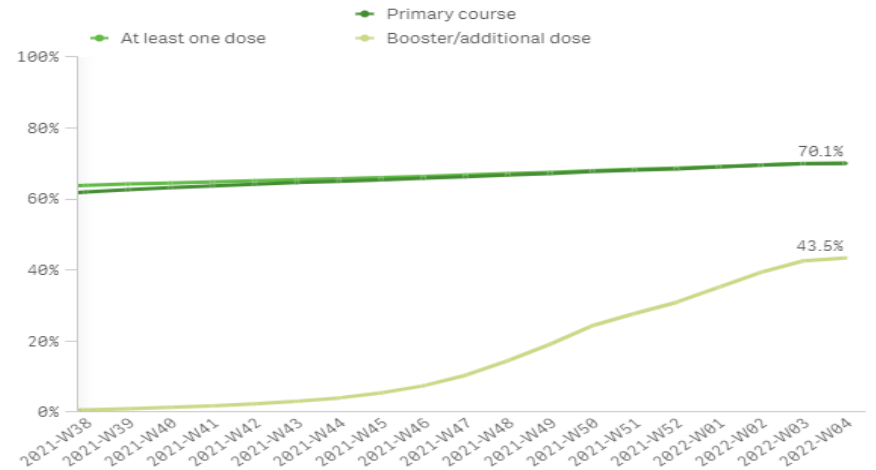


Uptake full vaccination (%)

28.8% 83.5%

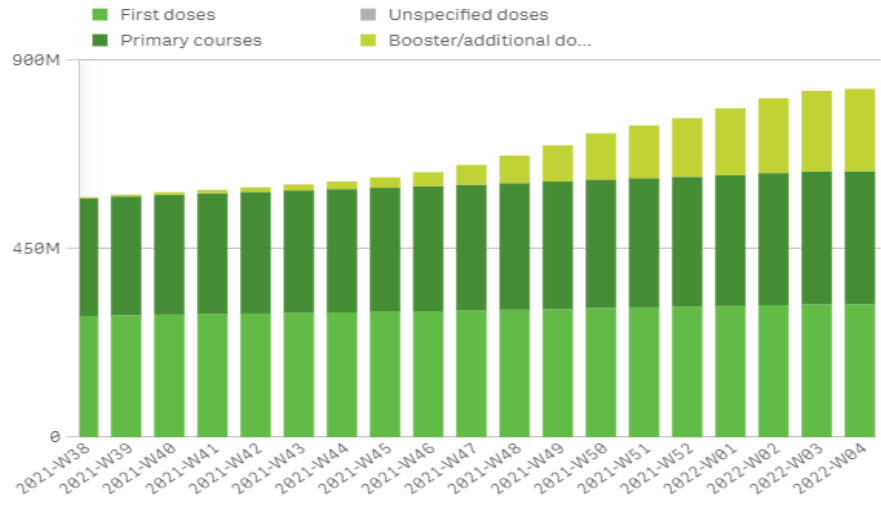
Cumulative vaccine uptake (%) in the total population in EU/EEA countries as of 2022-01-28

by reporting week (data for the current week are preliminary)



Cumulative number of vaccine doses administered to the total population in EU/EEA countries as of 2022-01-28

by reporting week (data for current week are preliminary)



Cumulative uptake (%) of the primary course by age group in EU/EEA countries as of 2022-01-28

Country	60+ years	50-59 years	25-49 years	18-24 years	<18 years
Austria	92.1%	82.1%	75.8%	73.4%	27.6%
Belgium	94.2%	91.3%	84.7%	82.3%	29.9%
Bulgaria	36.9%	38.0%	31.8%	26.7%	1.7%
Croatia	76.9%	69.1%	57.0%	43.3%	3.8%
Cyprus	94.1%	87.7%	83.9%	70.0%	17.2%
Czechia	85.6%	77.9%	64.8%	67.9%	17.7%
Denmark	99.6%	94.1%	85.4%	82.5%	41.2%
Estonia	75.8%	73.6%	66.9%	69.6%	17.7%
Finland	93.9%	86.5%	80.7%	75.8%	26.8%
France	91.3%	90.0%	85.4%	87.4%	25.2%
Germany	89.3%	-	-	-	-
Greece	87.0%	81.4%	73.6%	68.2%	16.2%
Hungary	81.4%	74.9%	64.4%	51.9%	21.0%
Iceland	100.0%	92.4%	87.3%	85.9%	27.7%
Ireland	100.0%	99.5%	89.0%	86.7%	25.7%
Italy	90.8%	85.2%	79.1%	84.6%	29.9%
Latvia	75.0%	77.8%	75.8%	77.9%	18.6%
Liechtenstein	-	-	-	-	0.0%
Lithuania	78.4%	78.7%	79.2%	74.1%	15.5%
Luxembourg	90.9%	87.0%	77.5%	72.6%	26.7%
Malta	99.1%	88.6%	92.7%	84.7%	32.5%
Netherlands	-	-	-	-	21.3%
Norway	99.1%	95.1%	85.5%	84.4%	10.3%
Poland	76.1%	67.5%	59.3%	54.6%	18.3%
Portugal	100.0%	94.5%	88.8%	86.8%	30.6%
Romania	46.0%	55.9%	49.0%	48.2%	6.6%
Slovakia	71.2%	60.2%	51.3%	50.4%	8.6%
Slovenia	83.8%	69.6%	56.3%	57.6%	10.0%
Spain	98.5%	90.7%	78.4%	74.1%	27.4%
Sweden	94.0%	90.0%	80.6%	75.4%	11.9%

SARS-CoV-2 Variant of Concern: Omicron Sub-linage BA.2 follow-up

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BlueDot Assessment:
Unlikely to significantly alter the course of the pandemic. The Omicron sub-lineage BA.2 was deemed a variant under investigation (VUI) due to concerns of possible higher transmissibility compared to its original Omicron strain BA.1. However, with recently increased immunity due to Omicron's high infection rates globally, in addition to proven vaccine effectiveness, the BA.2 sub-variant is unlikely to surpass the original BA.1.

What is known about the BA.2 sub-lineage?
The Omicron variant was deemed a **variant of concern (VOC) by the WHO** on November 26, 2021 and identified sub-lineages of the Omicron variant have since included **BA.1, BA.1.1, BA.2, and BA.3.** Most evidence collected to date regarding the Omicron variant has been based on the sub-lineage BA.1 as it accounts for the majority of sequences reported to date. However, the **Omicron sub-lineage BA.2 has been deemed a variant under investigation (VUI)** by the UK Health Security Agency (UKHSA) due to **concerns regarding its transmissibility and growth rate.** Mutations are generally common in viruses, and diversification within a variant is normal. The BA.2 sub-variant has about 20 mutations that are different from BA.1, with the differences mainly affecting the spike protein of the virus.

Transmissibility
To date, data regarding the transmissibility of the Omicron variant generally refer to the BA.1 sub-lineage, as it has been the predominant sub-lineage reported worldwide. Information regarding the secondary attack rates (the risk of contracting the virus after coming in contact with an infected individual) or biological properties that may be associated with **increased transmissibility for the BA.2 sub-lineage are not currently available as there is limited data regarding this sub-lineage.**
Close evaluation of BA.2 and its characteristics is needed over the coming weeks.

Hospitalization
In Denmark, preliminary analysis from the Statens Serum Institut (SSI) reported no difference in the risk of hospitalization admissions between BA.1 and BA.2.

Vaccine Efficacy

- The SSI in Denmark has initiated studies to investigate antibody neutralization for the BA.2 sub-lineage. While data is not yet available to draw conclusions regarding the effectiveness of vaccines against the BA.2 sub-lineage, the SSI has stated that the expectation is that vaccines also have an effect against serious illness.
- According to the UKHSA on January 27, 2022, an initial analysis of vaccine effectiveness against Omicron BA.2 showed similar levels of protection for symptomatic infection compared to BA.1.
- After dose 2, vaccine effectiveness was 9% (BA.1) and 13% (BA.2) after 25+ weeks.
- After dose 3, vaccine effectiveness was 63% (BA.1) and 70% (BA.2) after 2+ weeks.

Where has the Omicron BA.2 sub-lineage been found?
As of January 25, 2022, according to GISAID EpiCoV, the BA.1 lineage is the predominant B.1.1.529 sequence worldwide (582,648/599,406 sequences, 97.2%). The BA.2 sub-lineage accounts for just 2.2% of the Omicron sequences worldwide. According to Outbreak.info, as of January 27, approximately 18,751 sequences of BA.2 have been detected in 54 countries. Some country highlights include:

- **Denmark:** BA.2 has quickly become the dominant sub-lineage in Denmark, where the most BA.2 sequences have been identified to date (8,357 sequences as of January 26, 2022). Analysis shows that BA.2 is quickly outcompeting BA.1 with a doubling time of about four to five days relative to BA.1.
- **India:** Recent analysis found that despite much noisier data, the growth rate of BA.2 is following similar growth trends to Denmark, with a doubling time of four days compared to other variants. Of the sequenced cases of BA.2 from Asia, almost 2/3 of cases were from India. About 50% of BA.2 cases sequenced in Singapore and 30% in Japan had travel history to India.
- **Germany**: BA.2 has also demonstrated a growth advantage over Delta by about 20% per day, while the original BA.1 is about 15% faster than Delta per day. The highest BA.2 proportion of cases is in Berlin, composing of about 30%.

How effective is detecting this variant through testing (rapid testing, PCR)?

- The commonly used TaqPath RT-PCR assay produces a distinctive S-gene target failure (SGTF) signal that has been used to screen for the Omicron BA.1 VOC as it features the deletion Δ69-70. However, the Omicron BA.2 sub-lineage does not feature the Δ69-70 mutation and therefore the assay does not produce this signal.
- The lack of this mutation in the BA.2 sub-lineage has led media to refer to it as a “stealth” Omicron strain since the SGTF signal can’t be used to indicate that a sample is likely Omicron.
- While the BA.2 sub-lineage cannot be differentiated from other variants using SGTF screening, this does not mean it is undetectable.

PCR tests will still produce positive results for a COVID-19 infection, however, similar to Delta and all other VOCs except Alpha, genomic sequencing (which is more costly and time-consuming to conduct than screening assays) will be needed to identify the specific variant.

Source:
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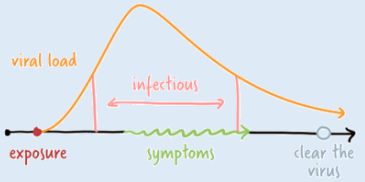
SARS-CoV-2 Variant of Concern:

Charting an Omicron Infection

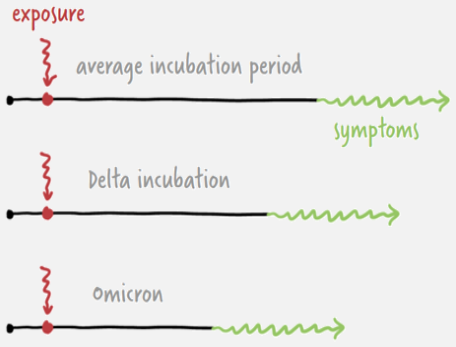


Charting an Omicron Infection

In less than two months, the Omicron variant of the coronavirus has spread around the globe and caused a staggering number of new infections.

Omicron now accounts for more than 99.5 percent of new infections in the United States, according to estimates from the Centers for Disease Control and Prevention.

Omicron moves *fast*. It spreads swiftly through populations, and infections develop quickly in individuals. Research suggests that the original version of the coronavirus and early variants had an incubation period of about five days, on average. The Delta variant seems to move faster, with an average incubation period of about four days. Omicron is swifter still, with an incubation period of roughly three days, according to a recent C.D.C. study.



Viral Load

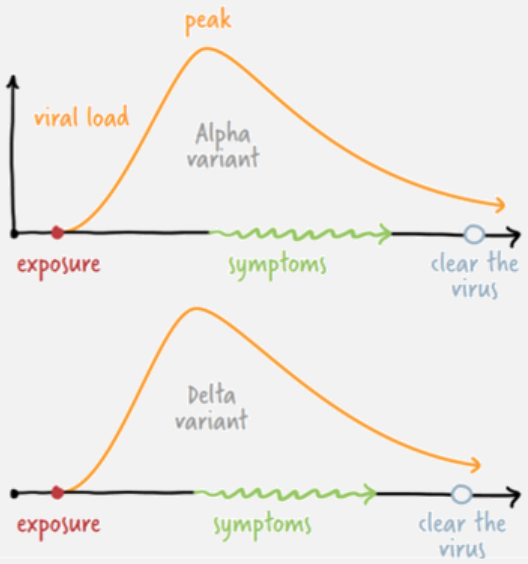
The amount of virus that builds up in someone's body is known as viral load. In general, people are thought to be most infectious when their viral loads are high.

In a recent study of the Alpha and Delta variants, researchers found that people tended to reach their peak viral loads about three days after the virus first becomes detectable, and clear the virus about six days after that, on average.

Whether Omicron follows the same pattern remains to be seen.

In one preliminary study, researchers found that Omicron infections were about a day shorter than Delta infections and resulted in slightly lower peak viral loads, on average. But the difference might be due to higher rates of pre-existing immunity — as a result of vaccination or prior infection — among the people who were infected with Omicron. Another research team found that among vaccinated people with breakthrough infections, Omicron and Delta produced similar levels of infectious virus.

Other data suggest that Omicron may not act like previous variants. Animal and laboratory studies indicate that it may not be as good at infecting the lungs as Delta, but that it may replicate more quickly in the upper respiratory tract.



The variant may have other unique characteristics, too. One small study found that antibodies produced after an Omicron infection seem to protect against Delta, but Delta infections offer little protection against Omicron. If the finding holds up, it means that Delta may soon have trouble finding hospitable hosts — and that Omicron is likely to replace Delta rather than co-exist with it.

Severity

Omicron appears to cause less severe disease than Delta. In one recent study, researchers found that people with Omicron infections were less likely to be hospitalized, end up in the I.C.U. or require mechanical ventilation than those with Delta infections.

One possible explanation is that Omicron is less likely to damage the lungs than previous variants. A variant that proliferates primarily in the upper respiratory tract may cause less severe disease in most people. One indication of reduced severity is that unvaccinated people seem less likely to be hospitalized with Omicron than with Delta.

But Omicron's apparent mildness may also stem from the fact that it is infecting far more vaccinated people than Delta did. Omicron is skilled at evading the antibodies produced after vaccination, which is leading to more breakthrough infections, but vaccinated people are still protected from the most severe disease. Booster shots of mRNA vaccines are 90 percent effective against hospitalization with Omicron, according to the C.D.C. Still, doctors cautioned, although the variant may be milder on average, some patients, especially those who are unvaccinated or have compromised immune systems, may become severely ill from Omicron infections. And it's too early to know whether breakthrough cases of Omicron might result in long Covid.

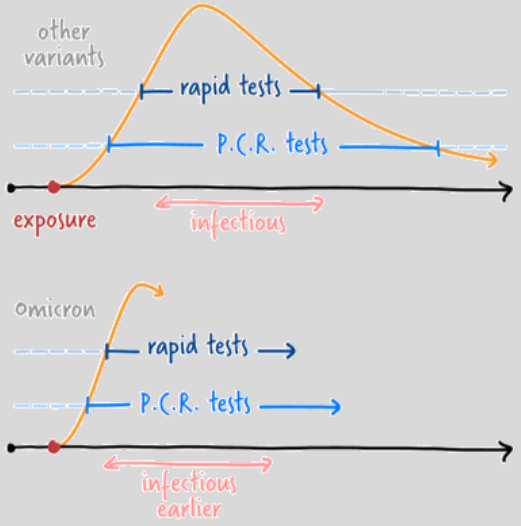
Testing

Because Omicron replicates so fast and the incubation period is so short, there is a narrower window in which to catch infections before people begin to transmit the virus.

Earlier in the pandemic, people were advised to use a rapid test five to seven days after a potential exposure to the virus. Given Omicron's shorter incubation period, many experts now recommend taking a rapid test two to four days after a potential exposure. (They also recommend taking at least two rapid tests, about a day apart, in order to increase the odds of detecting an infection.)

People who are testing to reduce the risk of transmitting the virus to others, for example at an upcoming gathering, should test as close as possible to the event itself, experts said.

There is still debate over whether rapid antigen tests might be less sensitive to Omicron than other variants. P.C.R. tests are more sensitive than rapid tests, which means they are likely to detect the virus earlier in the course of infection, but they take longer to return results.



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Subject in Focus

Making RNA vaccines easier to swallow

Massachusetts Institute of Technology

In a recent publication scientists from the Massachusetts Institute of Technology (MIT) have presented a new and promising way to administer RNA and other large molecules into the human body. This article has been published at the MIT's website. The full study can be found here.

Like most vaccines, RNA vaccines have to be injected, which can be an obstacle for people who fear needles. Now, a team of MIT researchers has developed a way to deliver RNA in a capsule that can be swallowed, which they hope could help make people more receptive to them.

In addition to making vaccines easier to tolerate, this approach could also be used to deliver other kinds of therapeutic RNA or DNA directly to the digestive tract, which could make it easier to treat gastrointestinal disorders such as ulcers.

"Nucleic acids, in particular RNA, can be extremely sensitive to degradation particularly in the digestive tract. Overcoming this challenge opens up multiple approaches to therapy, including potential vaccination through the oral route," says Giovanni Traverso, the Karl van Tassel Career Development Assistant Professor of Mechanical Engineering at MIT and a gastroenterologist at Brigham and Women's Hospital.

In a new study, Traverso and his colleagues showed that they could use the capsule they developed to deliver up to 150 micrograms of RNA — more than the amount used in mRNA Covid vaccines — in the stomach of pigs.

Traverso and Robert Langer, the David H. Koch Institute Professor at MIT and a member of MIT's Koch Institute for Integrative Cancer Research, are the senior authors of the study. Alex Abramson PhD '19 and MIT postdocs Ameya Kirtane and Yunhua Shi are the lead authors of the study, which appears today in the journal *Matter*.

Oral drug delivery

For several years, Langer's and Traverso's labs have been developing novel ways to deliver drugs to the gastrointestinal tract. In 2019, the researchers designed a capsule that, after being swallowed, can place solid drugs, such as insulin, into the lining of the stomach.

The pill, about the size of a blueberry, has a high, steep dome inspired by the leopard tortoise. Just as the tortoise is able to right itself if it rolls onto its back, the capsule is able to orient itself so that its contents can be injected into the lining of the stomach.

In 2021, the researchers showed that they could use the capsule to deliver large molecules such as monoclonal antibodies in liquid form. Next, the researchers decided to try to use the capsule to deliver nucleic acids, which are also large molecules. Nucleic acids are susceptible to degradation when they enter the body, so they need to be carried by protective particles.

For this study, the MIT team used a new type of polymeric nanoparticle that Langer's and Traverso's labs had recently developed.

These particles, which can deliver RNA with high efficiency, are made from a type of polymer called poly(beta-amino esters). The MIT team's previous work showed that branched versions of these polymers are more effective than linear polymers at protecting nucleic acids and getting them into cells. They also showed that using two of these polymers together is more effective than just one.

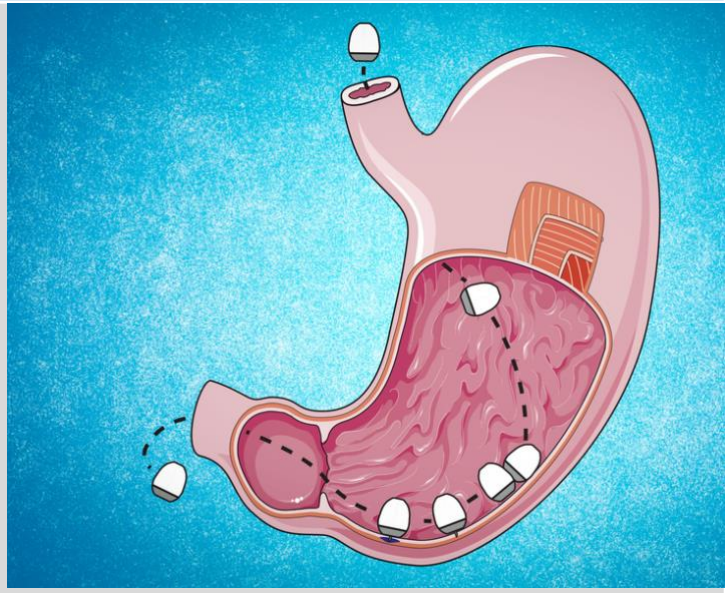
We made a library of branched, hybrid poly(beta-amino esters), and we found that the lead polymers within them would do better than the lead polymers within the linear library," Kirtane says. "What that allows us to do now is to reduce the total amount of nanoparticles that we are administering."

To test the particles, the researchers first injected them into the stomachs of mice, without using the delivery capsule. The RNA that they delivered codes for a reporter protein that can be detected in tissue if cells successfully take up the RNA. The researchers found the reporter protein in the stomachs of the mice and also in the liver, suggesting that RNA had been taken up in other organs of the body and then carried to the liver, which filters the blood.

Next, the researchers freeze-dried the RNA-nanoparticle complexes and packaged them into their drug delivery capsules. Working with scientists at Novo Nordisk, they were able to load about 50 micrograms of mRNA per capsule, and delivered three capsules into the stomachs of pigs, for a total of 150 micrograms of mRNA. This is the more than the amount of mRNA in the Covid vaccines now in use, which have 30 to 100 micrograms of mRNA.

In the pig studies, the researchers found that the reporter protein was successfully produced by cells of the stomach, but they did not see it elsewhere in the body. In future work, they hope to increase RNA uptake in other organs by changing the composition of the nanoparticles or giving larger doses. However, it may also be possible to generate a strong immune response with delivery only to the stomach, Abramson says.

"There are many immune cells in the gastrointestinal tract, and stimulating the immune system of the gastrointestinal tract is a known way of creating an immune response," he says.



Immune activation

The researchers now plan to investigate whether they can create a systemic immune response, including activation of B and T cells, by delivering mRNA vaccines using their capsule. This approach could also be used to create targeted treatments for gastrointestinal diseases, which can be difficult to treat using traditional injection under the skin.

"When you have systemic delivery through intravenous injection or subcutaneous injection, it's not very easy to target the stomach," Abramson says. "We see this as a potential way to treat different diseases that are present in the gastrointestinal tract."

Novo Nordisk, which partially funded the research, has licensed the drug-delivery capsule technology and hopes to test it in clinical trials. The research was also funded by the National Institutes of Health, the National Science Foundation Graduate Research Fellowships Program, a PhRMA Foundation postdoctoral fellowship, the Division of Gastroenterology at Brigham and Women's Hospital, and MIT's Department of Mechanical Engineering.

Source: https://news.mit.edu/2022/oral-rna-vaccines-0131

Other Infectious Disease Outbreaks / Human Disasters

bluedot

Avian influenza

China– The current HPAI H5N1, which started in October 2021, has been spreading in Asia, Europe, Africa, and North America. Until today they are a single confirmed infection in the UK and two new human cases in China.

Source: https://promedmail.org/
https://www.cidrap.umn.edu/news-perspective/2022/01/flu-scan-jan-27-2022

Unknown Respiratory Illness

Bangaldesh- This event is noteworthy as the underlying cause of the deaths due to a pneumonia is under investigation. It would be helpful to understand if there are any underlying conditions, the time between the onset of symptoms and the hospitalizations, and whether certain pathogens including SARS-CoV-2 have been ruled out. Viruses are the most frequent cause of pneumonia among pre-school aged children; however, Streptococcus pneumonia and Haemophilus influenzae are common bacterial pathogen that might complicate the course of a viral infection in this age-group. While children infected with SARS-CoV-2 are less likely to develop severe illness compared with adults, children are still at risk of developing severe illness and complications from COVID-19. In addition, current evidence suggests that children with certain underlying medical conditions and infants (age <1 year) might be at increased risk for severe illness from SARS-CoV-2 infection. Similar to adults, children with severe COVID-19 may develop respiratory failure, myocarditis, shock, acute renal failure, coagulopathy, and multi-organ system failure.

Source: ProMed - https://promedmail.org/promed-post/?id=8701092

Swine Flue

Denmark– According to health officials from the Statens Serum Institut (SSI), an individual in Demark has been infected with swine flu, although the strain remains unknown. As part of extensive laboratory investigations of influenza-like illness, swine flu was confirmed. No further related cases have been reported in Denmark and no other cases of this virus have been detected by laboratory monitoring. It is estimated that the individual became infected with the virus at their place of employment at a Danish pig slaughterhouse. This event is noteworthy since pandemic influenza viruses could emerge when influenza viruses from animals (e.g. birds or swine) infect humans.

Source: https://newsbreak.dk/sundhed/dansk-borger-smittet-med-svineinfluenza/872331!/

Influenza

Europe - Week 3/2022 (17 – 23 January 2022)

- Estonia, Kazakhstan, North Macedonia, Norway, Republic of Moldova, Serbia, Sweden, Ukraine and Kosovo (in accordance with UN Security Council Resolution 1244 (1999)) reported widespread influenza activity and/or medium influenza intensity.
- As observed in week 2/2022, 7% of all sentinel primary care specimens from patients presenting with ILI or ARI symptoms tested positive for an influenza virus.
- Seven countries reported seasonal influenza activity above 10% positivity in sentinel primary care: Armenia (48%), Israel (41%), Serbia (25%), Slovenia (23%), Hungary (23%), France (17%) and Russian Federation (15%).
- Hospitalized cases with confirmed influenza virus infection were reported from intensive care units (1 type A viruses and 1 type B), other wards (5 type A viruses) and SARI surveillance (40 type A viruses).
- Both influenza type A and type B viruses were detected with A(H3) viruses being dominant across all monitoring systems.

Source: https://flunewseurope.org/

Cholera

Asia- Local health authorities are alarmed by the outbreak of diarrhea in 9 sitios of Barangay Santiago here, affecting 265 residents on Monday. The first case was noted on Sunday but on Monday a total of 137 diarrhea cases, including those in other sitios (subvillages) were recorded. Another 4 hours brought about 15 more cases, and later on that day, the number of documented cases surged to 265, covering all 9 sitios (subvillages) of Barangay Santiago.

The outbreak is very alarming based on the rate of increase in the number of patients. There are almost 150 cases recorded in less than 48 hours.

Health authorities were still trying to confirm whether one reported fatality due to dehydration in Barangay Santiago was among the cases. He also warned villagers not to drink water from their faucets. The Davao Oriental provincial health office confirmed on Monday [30 Jan 2022] that cholera, caused by drinking contaminated water, had caused diarrhea. Local officials issued calls for help to bring to affected residents the much-needed potable water and drinks to hydrate them.

Cholera had been reported in the area before. The province's sanitary office had warned that the existing water system had to be rehabilitated as soon as the 1st cholera cases were reported. Limen stressed the need for concerted efforts to contain the outbreak.

Source: ProMed - https://promedmail.org/promed-post/?place=8701206,158

Anthrax

Indonesia – The Department of Agriculture and Food Security of Gunung Kidul Regency, Yogyakarta Special Region, confirmed that 10 residents of Hargomulyo Village, Gedangsari District, were suspected of being exposed to anthrax after consuming dead and slaughtered beef. Furthermore, the beef was distributed to residents who participated in the contribution. There were 30 residents who had consumed this beef. Of these 10 people have experienced symptoms such as anthrax, ranging from fever to blisters on their hands due to injuries. The 10 residents have been treated and samples have been taken to confirm their illness.

Source: ProMed - https://english.alaraby.co.uk/features/sudan-doctors-strike-new-blow-health-system-its-knees

Pseudomonas aeruginosa

Norway - The Norwegian Institute of Public Health warns of an ongoing outbreak of the bacterium _Pseudomonas aeruginosa_ in more than 10 of the country's hospitals. Cases of infection have now been reported in three of the country's four health regions.

The outbreak was discovered in November 2021 when 3 patients admitted to University Hospital of North Norway, located in Tromso for COVID-19 became seriously ill and died of blood poisoning with identical bacterial strains. Helse Nord [Northern Norway Regional Health Authority then established an outbreak group, and so far they have identified a total of 11 patients with the same bacterial strain from different hospitals in the region.

As part of the national handling of such incidents, the National Institute of Public Health (NIPH) asked all health regions to investigate further whether they could identify patients associated with the outbreak. Infection has now been detected in another 15 patients in Health South-East and 3 in Health Central Norway.

There is no definite connection between most patients who have been diagnosed with this bacterium, and further investigations are ongoing.

Source: ProMed - https://promedmail.org/promed-post/?place=8701101,107#promedmailmap

Source: https://covid19.trackvaccines.org/ as of 20.01.2022

Summary of information on the individual national Corona restrictions

The icons are linked to the respective information. Please click on the icons for information.

NATO Member State (click on country for official COVID-19 information)	Approved vaccines										
	Comirnaty	Spikevax	Janssen	Vaxzevria	Nuvaxovid	Sputnik V	CoronaVac	Covishield	Convidecia	Covilo	Turkovac
Albania	x			x		x	x				
Belgium	x	x	x	x	x						
Bulgaria	x	x	x	x	x						
Canada	x	x	x	x				x			
Croatia	x	x	x	x	x						
Czech Republic	x	x	x	x	x						
Denmark	x	x	x		x						
Estonia	x	x	x	x	x						
France	x	x	x	x	x						
Germany	x	x	x	x	x						
Great Britain	x	x	x	x							
Greece	x	x	x	x	x						
Hungary	x	x	x	x	x	x		x	x	x	
Italy	x	x	x	x	x						
Iceland	x	x	x	x	x						

EMA Authorized

EMA & FDA Authorized

Source: https://covid19.trackvaccines.org/ as of 20.01.2022

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NATO Member State (click on country for official COVID-19 information)	Approved vaccines										
	Comirnaty	Spikevax	Janssen	Vaxzevria	Nuvaxovid	Sputnik V	CoronaVac	Covishield	Convidecia	Covilo	Turkovac
Latvia	x	x	x	x	x						
Lithuania	x	x	x	x	x						
Luxembourg	x	x	x	x	x						
Montenegro				x		x				x	
Netherland	x	x	x	x	x						
North Macedonia	x			x		x				x	
Norway	x	x	x		x						
Poland	x	x	x	x	x						
Portugal	x	x	x	x	x						
Romania	x	x	x	x	x						
Slovakia	x	x	x	x	x						
Slovenia	x	x	x	x	x						
Spain	x	x	x	x	x						
Turkey	x					x	x				x
USA	x	x	x								

EMA Authorized

EMA & FDA Authorized

Travel Recommendations and other Useful Links

Travel Recommendations

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.

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.

Information on COVID-19 testing and quarantine of air travellers in the EU and the US you can find following the link:

- **https://www.ecdc.europa.eu/en/publications-data/guidelines-covid-19-testing-and-quarantine-airtravellers**
- **https://www.cdc.gov/coronavirus/2019-ncov/travelers/how-level-is-determined.html**

More information about traveling worldwide:

- National regulation regarding travel restrictions, flight operation and screening for single countries you will find **here** (US) and **here** (EU).
- Official IATA travel restrictions. You will find **here**.

More information about traveling in the EU

- by the ***European Commission*** you will find here:
https://www.consilium.europa.eu/en/policies/coronavirus/covid-19-travel-and-transport/

- The ***ECDC*** publishes a map of EU Member States, broken down by regions, which show the risk levels across the regions in Europe using a traffic light system. Find it **here**.

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.

Useful links

ECDC:

- All info about the COVID-19 pandemic; (situation updates, latest news and reports, risk assessments etc.)
- COVID-19 Vaccine tracker
- SARS-CoV-2 variants dashboard for EU
- Latest Risk assessment on COVID-19 , 15 Feb 2021
- All “guidance's and technical reports” can be found under “All COVID-19 outputs” on this page here

WHO:

- Epi-WIN webinars and updates
- Status of “COVID-19 Vaccines within WHO EUL/PQ evaluation process” and the “Draft landscape and tracker of COVID-19 candidate vaccines”
- Weekly Epidemiological and operational updates
- COVID-19 new variants: Knowledge gaps and research
- COVID-19 Dashboard
- Vaccines explained
- Tracking SARS-CoV-2 variants
- Science in 5: WHO’s series on science and COVID-19
- Quick links

CDC:

- COVID Data Tracker and weekly review
- What´s new and Updated
- Guidance for COVID-19

References:

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- 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/
- BlueDot; https://bluedot.global/