

## Coronavirus Disease – COVID-19

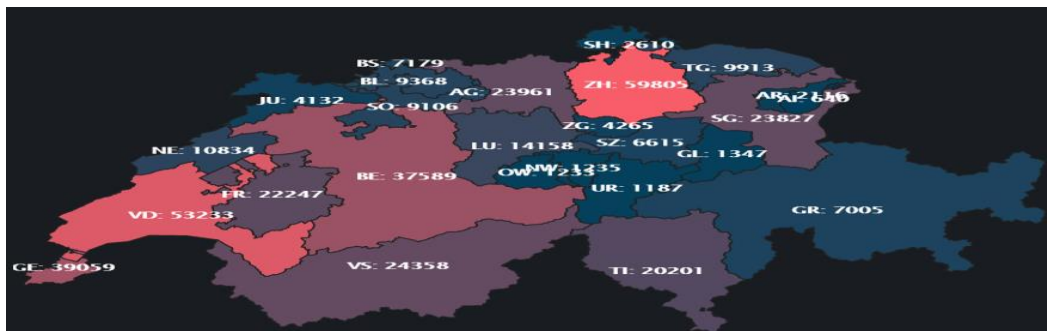
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- The death toll from the coronavirus outbreak is over 1,672,834 worldwide, with the highest number of deaths in USA (318,413) and Brazil (184,992). There have been more than 75,512,756 global cases in 210 countries and territories. [1]
- The COVAX alliance which aims to secure Covid-19 vaccines for the world's most vulnerable people said on Friday it had gained access to nearly 2 billion doses, roughly doubling its supply, with the first deliveries expected in the first quarter of 2021, Reuters reports. The initiative run by the GAVI vaccine alliance and World Health Organization (WHO) said that it aimed to deliver 1.3 billion doses of approved vaccines next year to 92 eligible low- and middle-income economies. [2]
- Spanish scientists are preparing to start clinical trials of a Covid vaccine nasal spray that they say could stop people spreading the virus as well as preventing them from falling ill. The Spanish team is one of a handful across the world working on nasal sprays as a means of delivering a vaccine. The theory is that inhalable vaccines activate the local immune response in the nose, mouth and throat and therefore stem infection there, making it less likely for people to pass the virus on. The vaccine would also deliver the wider systemic immunity that is delivered by any other candidate, the scientists say. A team in China submitted approval for trials of a similar nasal spray vaccine in the autumn, and the team from Spain's CSIC national research council plan to begin human trials early next year. Dr Luis Enjuanes, a virologist at the CSIC who has been studying coronaviruses for the past 40 years, told *"Where do we need the protection most? The virus is largely transmitted by us breathing in aerosols."* Dr Enjuanes said his inhalable vaccine creates *"a sterilising immunity, meaning there is no possibility for the virus to replicate"*. He believes that the unique process his team is using will make their product *"the most powerful"*, claiming that the single-dose spray will offer *"100 per cent protection"* and pointing to good results so far in tests on mice. *"Our system is completely new, the regulatory agencies will be asking for many more controls. That's the reason we'll be a little bit later, assuming we are lucky and there are no negative side-effects when we start testing on humans,"* said Dr Enjuanes. [3]
- British scientists are trying to establish whether the rapid spread in southern England of a new variant of the virus that causes COVID-19 is linked to key mutations they have detected in the strain. The mutations include changes to the important "spike" protein that the SARS-CoV-2 coronavirus uses to infect human cells, a group of scientists tracking the genetics of the virus said, but it is not yet clear whether these are making it more infectious. *"Efforts are under way to confirm whether or not any of these mutations are contributing to increased transmission,"* the scientists, from the COVID-19 Genomics UK Consortium, said in a statement. The new variant, which UK scientists have named "VUI – 202012/01" includes a mutation in the viral genome region encoding the spike protein, which - in theory - could result in COVID-19 spreading more easily between people. The British government on Monday cited a rise in new infections, which it said may be partly linked to the new variant, as it moved its capital city and many other areas into the highest tier of COVID-19 restrictions. [4]
- German Health Minister Jens Spahn on Friday said priority for vaccination would go to over-80s and care home residents and staff as he called on citizens to be patient with the vaccine roll out. He said it could take *"up to two months"* to complete this first wave of vaccinations. [5]

Countries	Deaths	Cases	Recovered
USA	318,413	17,654,984	10,296,261
Brazil	184,992	7,120,103	6,177,702
India	144,914	9,987,949	9,530,530
Mexico	116,487	1,289,298	953,762
Italy	67,220	1,906,377	1,203,814
UK	66,052	1,948,660	N/A
France	59,619	2,427,316	181,506
Iran	53,273	1,145,651	865,474
Russia	49,762	2,791,220	2,228,633
Spain	48,777	1,805,633	N/A
Argentina	41,534	1,524,372	1,352,556
Colombia	39,787	1,468,795	1,343,819
Peru	36,901	991,518	925,893
Germany	25,556	1,454,649	1,069,400
Poland	24,771	1,182,864	915,576
South Africa	24,011	892,813	780,313
Indonesia	19,514	650,197	531,995
Belgium	18,371	618,204	42,402
Turkey	17,364	1,955,680	1,721,607
Ukraine	16,256	944,381	561,222
Chile	16,051	581,135	552,289
Romania	14,157	582,786	484,948
Canada	13,956	490,928	400,404
Ecuador	13,932	204,249	177,951
Iraq	12,670	581,811	517,091
Netherlands	10,321	652,525	N/A
Czechia	10,163	610,006	527,062
Pakistan	9,164	451,494	399,852
Bolivia	9,031	148,665	127,155
Philippines	8,875	456,562	420,666
Sweden	7,993	367,120	N/A
Hungary	7,725	295,977	89,814
Bangladesh	7,217	498,293	433,614
Egypt	7,015	123,701	105,919
Morocco	6,804	409,746	369,998
Switzerland	6,541	403,989	311,500
Bulgaria	6,339	188,288	93,728
Saudi Arabia	6,101	360,690	351,573
Portugal	5,977	366,952	290,690
Austria	5,127	334,913	297,424
China	4,634	86,789	81,851
Guatemala	4,589	132,062	120,257
Greece	4,044	129,584	9,989
Tunisia	4,032	115,966	87,884
Bosnia and Herzegovina	3,549	104,087	69,495
Jordan	3,518	271,514	236,550
Panama	3,481	203,295	168,238
Israel	3,057	370,152	344,372
Croatia	3,023	190,235	165,915
Honduras	3,021	115,474	53,499
Japan	2,783	190,138	160,786
Moldova	2,700	133,360	115,612
Algeria	2,640	93,933	62,089
Armenia	2,596	152,253	131,213
Serbia	2,580	292,640	31,536
Myanmar	2,398	114,198	92,916
Dominican Republic	2,376	157,929	122,406
Slovenia	2,274	103,555	80,935
North Macedonia	2,225	76,251	52,413
Kazakhstan	2,147	145,213	129,525
Ireland	2,143	77,678	23,364
Azerbaijan	2,133	195,422	131,252
Afghanistan	2,037	50,445	38,721
Paraguay	2,032	97,028	69,351
Georgia	2,002	204,003	171,526
Costa Rica	1,980	156,388	124,907
Ethiopia	1,831	118,481	99,751

Nepal	1,765	252,474	241,392
Kenya	1,618	93,405	74,999
Oman	1,483	127,019	119,009
Slovakia	1,440	146,124	104,560
Sudan	1,408	22,265	12,873
Libya	1,346	93,772	63,886
Kyrgyzstan	1,324	78,679	72,051
Belarus	1,308	169,648	147,316
Lebanon	1,248	153,049	106,712
El Salvador	1,234	42,397	38,481
Nigeria	1,201	76,207	67,110
Palestine	1,097	119,612	94,556
Albania	1,055	51,424	26,898
Denmark	1,007	128,321	87,560
Venezuela	975	109,081	103,741
Lithuania	972	106,210	46,560
Kuwait	916	147,531	143,355
Australia	908	28,094	25,700
S. Korea	645	47,515	33,982
UAE	630	191,150	167,306
Montenegro	614	42,995	33,049
Uzbekistan	612	75,675	72,961
Yemen	606	2,087	1,384
Syria	571	9,759	4,616
Finland	489	32,582	22,500
Cameroon	445	25,472	23,851
Malaysia	432	90,816	75,244
Luxembourg	428	43,279	34,609
Latvia	409	29,427	19,072
Norway	404	42,968	37,658
Angola	382	16,484	9,266
Zambia	373	18,575	17,729
DRC	366	15,089	13,010
Senegal	357	17,559	16,449
Bahrain	349	89,743	87,846
Ghana	331	53,553	52,266
Zimbabwe	314	11,866	9,836
Jamaica	283	12,039	8,668
Madagascar	259	17,587	16,992
Mauritania	254	11,805	8,372
Qatar	242	141,716	139,384
Haiti	234	9,648	8,321
Uganda	230	30,071	10,251
Belize	213	9,791	4,779
Mali	211	6,049	3,718
Malawi	187	6,138	5,661
Malta	183	11,569	9,780
Namibia	169	18,041	15,626
Estonia	168	20,658	12,922
Bahamas	164	7,725	6,098
Nicaragua	163	5,938	4,225
Sri Lanka	160	35,763	27,061
Guyana	158	6,042	5,197
Guadeloupe	154	8,524	2,242
Mozambique	146	17,338	15,365
Cuba	137	9,893	8,912
Eswatini	135	7,093	6,579
Ivory Coast	133	21,772	21,401
Hong Kong	127	7,970	6,628
Somalia	124	4,662	3,566
Trinidad and Tobago	123	6,940	6,385
Gambia	123	3,786	3,654
Suriname	117	5,428	5,240
Cabo Verde	110	11,502	11,137
Uruguay	105	11,436	7,406
Chad	102	1,818	1,626
French Polynesia	101	16,118	4,842
Congo	100	6,200	4,988
Tajikistan	89	12,888	12,333
Cyprus	85	16,647	2,057

- Researchers at Oxford University say the coronavirus vaccine they developed with AstraZeneca works best as a two-shot sequence, just as Moderna’s and Pfizer’s vaccines do. In a separate study, they found the vaccine, which is in advanced clinical trials, produces a broad immune response that doctors hope could provide strong immune protection against infection. In one study, the researchers checked to make sure two doses were really necessary, and if so, both had to be two full doses. *“A booster dose of vaccine induced stronger antibody responses than a dose-sparing half-dose boost, although the magnitude of T-cell responses did not increase with either boost dose. These data support the two-dose vaccine regime that is now being evaluated in phase 3 clinical trials,”* they wrote in their report, published in the journal Nature Medicine. [5]
- Many African countries that had initially controlled the spread of COVID-19, with some even flattening the infection curve, are now struggling to control subsequent waves of the pandemic, according to latest health figures. The resurgence comes even as experts warn of increased cases due to Christmas and New Year revelry that feature massive travel from urban centers to rural areas for festive gatherings. Against that backdrop, the Africa Centers for Disease Control and Prevention is urging countries to adapt or adopt best practices, strategies, guidelines and recommendations proposed by the WHO and other health agencies to limit coronavirus transmissions. [3]
- Switzerland will close all restaurants, sports and recreation centres for a month from December 22 to help curb the spread of the coronavirus; ski areas can remain open, the government announced on December 18. Sports and leisure centres, as well as libraries, museums and other cultural institutions are to close. Cantons which have a reproduction rate number under 1 or a 7-day case average that is under the Swiss average may relax the measures for restaurants and sports centres. The seven-day average of new positive daily cases stands at 4,293; this is 3% more than the previous week. [6]



Cases in Switzerland. [7]

## • Funding opportunity for researchers

PRACE (Partnership for Advanced Computing in Europe) Fast Track Call for Proposals

- <https://prace-ri.eu/prace-support-to-mitigate-impact-of-covid-19-pandemic/>

The US Congressionally Directed Medical Research Program - a call for proposals on COVID-19

- <https://ebrap.org/eBRAP/public/ProgramFY.htm?programFYId=256400>

Anyone submitting to US (NIH, DoD) or EU Horizon 2020 calls can contact the Grants Office for support: [grantsoffice@research.unibe.ch](mailto:grantsoffice@research.unibe.ch). The Grants Advisors responsible for the ISPM are Aline Schögler ([aline.schoegler@research.unibe.ch](mailto:aline.schoegler@research.unibe.ch)) and Leah Witton ([leah.witton@research.unibe.ch](mailto:leah.witton@research.unibe.ch)).

## Sources

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- [2] <https://www.theguardian.com/world/live/2020/dec/18/coronavirus-live-news-covid-updates-european-leaders-self-isolate-after-macron-tests-positive?page=with:block-5fdc7d388f08f114e00be8ae#liveblog-navigation>
- [3] <https://www.pressreader.com/canada/covid-19-news/20201215/281603833057523>
- [4] <https://www.reuters.com/article/health-coronavirus-britain-variant/new-coronavirus-strain-spreading-in-uk-has-key-mutations-scientists-say-idUSKBN28P158>
- [5] <https://edition.cnn.com/world/live-news/coronavirus-pandemic-vaccine-updates-12-18-20/index.html>
- [6] <https://www.swissinfo.ch/eng/in-depth/coronavirus>
- [7] <https://www.corona-data.ch/>