

## GPHIN Daily Report for 2020-10-20

### Special section on Coronavirus

#### Canada

#### Areas in Canada with cases of COVID-19 as of 19 October 2020 at 19:00 pm EDT

Source: Government of Canada

Province, territory or other	Number of confirmed cases	Number of active cases	Number of deaths
Canada	201,437	21,988	9,778
Newfoundland and Labrador	287	11	4
Prince Edward Island	63	3	0
Nova Scotia	1,097	6	65
New Brunswick	313	103	3
Quebec	94,429	8,856	6,044
Ontario	65,075	6,047	3,050
Manitoba	3,382	1,743	42
Saskatchewan	2,396	398	25
Alberta	22,673	3,138	292
British Columbia	11,687	1,681	253
Yukon	17	2	0
Northwest Territories	5	0	0
Nunavut	0	0	0
Repatriated travellers	13	0	0

A detailed [epidemiologic summary](#) is available.

<https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html#a1>

#### Canada – Coronavirus disease (COVID -19) Outbreaks and Outcomes (Official and Media)

#### Canada

#### Canada Extends Non-Essential U.S. Travel Ban Until Nov. 21

ID: 1008075816

Source: Financial Post.

(Bloomberg) — Canada prolonged its ban on non-essential U.S. travel for another month in an effort to stop the spread of Covid-19, with both countries in the grips of a second wave. Restrictions along the world's longest undefended border — which began in March — will remain in place until Nov. 21, Public Safety Minister Bill Blair announced Monday. "Our decisions will continue to be based on the best public health advice available to keep Canadians safe," he said in a tweet. An exception for trade means most commerce between the two nations continues. Hard-hit airlines and the battered tourism sector are nonetheless pressuring Justin Trudeau's government to loosen restrictions. The prime minister signaled in a radio interview last week that his government would like to keep the U.S. border closure in place until the coronavirus is under control.  
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<https://financialpost.com/pm/business-pmn/canada-extends-non-essential-u-s-travel-ban-until-nov-21>

## Canada

### **B.C. announces second wave of COVID-19, 499 new cases over weekend**

Source: citynews1130.com

ID: 1008078431

VICTORIA (NEWS 1130) — B.C. is in its second wave of COVID-19, Provincial Health Officer Dr. Bonnie Henry declared as she announced 499 new cases and two deaths over the past three days.

On Monday, Canada surpassed 200,000 cases total. The bulk of the country's caseload has been concentrated in Ontario and Quebec.

But numbers have been rising in much of the country in recent weeks as Canada deals with a second wave of the global pandemic, which Prime Minister Justin Trudeau declared at the end of September.

Earlier this month, Henry said B.C. is again flattening the pandemic curve and held back from declaring a second wave in B.C., calling it a surge or storm.

"One can say that we are in our second wave here of our COVID-19 storm in B.C., but we have control over what that wave looks like," Henry said Monday. "This virus has not gone away. And it has shown us that it is now quite able to hide and spread in our communities around the province."

However, she said B.C. is not seeing exponential growth.

"We do have more people in hospital than we did a few weeks ago, but that has also stabilized. What we are seeing is continued, ongoing growth."

Of particular focus are hotspots in the most populous parts of the Lower Mainland, she added. "We need, however, to make sure that we are doing what we can to avoid a steep and sudden increase in new cases that we have seen in other parts of Canada, in our neighbouring countries, and around the world," Henry said as the number of confirmed COVID-19 cases across the planet has surpassed 40 million.

Sudden increases can overwhelm a healthcare system.

<https://www.citynews1130.com/2020/10/19/b-c-second-wave-covid-19/>

## Canada

### **At least 86 COVID-19 cases now tied to Prince Albert gospel centre superspreader**

Source: CBC News

Newer "third generation" of cases tied to the outbreak can be hard to pin down, Saskatchewan's chief medical health officer says.

At least 86 cases of COVID-19 have been traced back to the Prince Albert gospel centre

superspreader — not including a newer "third generation" of cases that Saskatchewan's chief medical health officer says can be hard to pin down.

"That's where, sometimes, the trail starts getting cold," Dr. Saqib Shahab said at his last COVID-19 news conference on Friday. "Public health is working very quickly to identify contacts of all cases."

Health officials have broken down cases connected to Prince Albert's Full Gospel Outreach Centre in three categories.

A first generation of people attended meetings at the church (where food was served and singers went unmasked) from Sept. 14 to Oct. 4 and tested positive for the virus.

A second generation of people came into contact with church attendees. Both first- and second-generation cases live primarily in communities north of Prince Albert.

First- and second-generation cases related to the superspreader total 86, the Saskatchewan Health Authority (SHA) stated on Monday. That's up from 79 cases on Friday.

"Many of the newer cases and outbreaks arising in the north are now third-generation cases from this event," Monday's release said, without specifying how many third-generation cases have been found. Cases connected to the event are present in 17 communities and 450 people have been called by contract tracers so far, the SHA said.

"It is a very tragic situation that could have been avoided by compliance with distancing and masking," said Dennis Kendel, a Saskatoon-based health policy consultant.

Holders of gatherings must take names at the door

The gospel centre offered food and a place of worship for the needy. Shahab was asked if contract tracing homeless and vulnerable people was difficult. He said contract tracers have had "challenges" in reaching some contacts connected to the superspreader.

"We have to recognize that as the weather cools, if individuals are unable to isolate as cases or contacts, they will need support," he added.

Shahab said anybody who holds a gathering, whether at a business or private home or venue, needs to keep a list of all attendees and their contact information.

"That makes it easy [so] that, if there were a case at that event, you know, you just hand over that list," he said.

Shahab noted that many places of worship require people to register before they can attend events.

"Of course, the names and numbers have to be reliable," he said.

Although the SHA says many northern communities have been affected by the superspreader, the extent to which particular regions in the north have been impacted is unclear, as individual cases are typically not publicly tied to any one event when reported.

Here's what we know:

Early in the outbreak, Peter Ballantyne Cree Nation said a woman from Southend tested positive for the virus after attending one of the Prince Albert church meetings as well as a funeral in Pelican Narrows. That person reportedly infected four other people: an elderly person in Southend and three people in Deschambault Lake.

On Friday, the First Nation declared an outbreak in Southend. The province's Far North East 1 division, which includes Southend, is currently one of the most active COVID-19 hotspots in the north, with 29 known active cases as of Sunday.

English River First Nation said a person who went to both Prince Albert's Full Gospel Outreach Centre and a later gospel-themed concert in Beauval tested positive for COVID-19. The First Nation cited two cases in Île-à-la-Crosse, although it was not clear if the church- and concert-goer was from Île-à-la-Crosse.

As of Sunday, the Far North West 1 region, which includes Île-à-la-Crosse, had 12 active cases.

The Far North West 1 region includes Île-à-la-Crosse, where two cases were identified shortly after the gospel centre outbreak was declared. (Government of Saskatchewan)

2nd superspreader fine issued

Ian Lavalée, an evangelist who led meetings at the Prince Albert gospel and who said singers went unmasked (despite masks being offered at the door), was fined \$2,800, including a victim surcharge, last week.

Lavalée declined to comment to CBC News, but wrote on his Facebook page that he received the fine for failing to comply with the physical distancing and masking rules outlined in [Saskatchewan's "places of worship" guidelines](#).

The pastor at the gospel centre, Vern Temple, was previously fined \$14,000, including a victim surcharge.

- [Supporters rally to help Prince Albert gospel outreach centre pay \\$14K COVID-19 fine](https://www.cbc.ca/news/canada/saskatoon/covid-19-prince-albert-superspreader-north-1.5767835)

<https://www.cbc.ca/news/canada/saskatoon/covid-19-prince-albert-superspreader-north-1.5767835>

## Canada

### Alberta hits new record for highest number of active COVID-19 cases

Source: Edmonton Journal

GPHIN ID: 1008082454

Alberta recorded a total of 898 new cases of COVID-19 over the weekend, surpassing a provincial record for the highest number of active cases.

The latest COVID-19 numbers released by the province on Monday show there are 3,138 active cases.

The previous record was on April 30 when 3,022 active cases were identified.

Of the 898 new cases of COVID-19, 311 were identified on Friday, 231 on Saturday and 356 on Sunday after a total of 42,155 tests were completed.

Cases continue to surge in the Edmonton Zone, which remains on the province's enhanced COVID-19 watchlist. The zone, which includes the City of Edmonton and surrounding municipalities, reported 431 new cases over the weekend bringing the total confirmed cases to 7,736. The Edmonton Zone has 1,604 active cases while the City of Edmonton has 1,320.

Alberta hospitals are treating 117 people with COVID-19, including 18 in the intensive care unit.

Article content continued

Four more deaths were confirmed in the province over the weekend, bringing the total to 292. These are a man in his 80s from the South Zone, a man in his 20s from the Central Zone, a man in his 70s from the Calgary Zone and another man in his 80s from the Calgary Zone, linked to the outbreak at the Foothills Medical Centre.

The Misericordia Community Hospital in Edmonton also reported a death on Monday linked to COVID-19 outbreaks in three units.

A total of 14 patients have tested positive for the virus, unchanged since Friday. Ten staff members have tested positive, an increase of one since the hospital's last update.

"This case is not a new case, however; it was linked to the outbreak through the investigation by Occupational Health, Safety and Wellness," a statement posted on the hospital's website reads.

At Millwoods Shepherd's Care Centre, there are now 102 confirmed cases of COVID-19. Of those, 61 are in residents and 41 are in staff members.

At Edmonton Catholic Schools, an outbreak was declared at Mother Margaret Mary school after two separate cases of COVID-19 were identified on Monday.

Flu shots now available

Meanwhile, Alberta's influenza immunization program launched on Monday. The province ordered 1.96 million doses of the vaccine — a 20 per cent increase from last year — that are now available at pharmacies and doctors' offices across Alberta. Shots are also available by appointment for those under five years old and those in their households.

Article content continued

The province is urging all Albertans to get the flu shot this year amid the COVID-19 pandemic.

"The flu shot won't prevent COVID-19, but it will reduce your chances of getting sick with influenza and spreading it to others," Dr. Deena Hinshaw, Alberta's chief medical officer of health said in a news release.

"While getting immunized helps, it's also crucial to wash your hands often, cover coughs and sneezes and stay home when sick. If you have flu symptoms, book a test for COVID-19 as symptoms are similar. Let's all do our part to keep one another safe."

Last year, Alberta's immunization rate was 33 per cent.

<https://edmontonjournal.com/news/local-news/alberta-hits-new-record-for-highest-number-of-active-covid-19-cases>

**United States - Coronavirus Disease 2019 (COVID-19) - Communication Resources (Official and Media)**

**United States**  
**Holiday Celebrations**  
Source: CDC

As many people in the United States begin to plan for fall and winter holiday celebrations, CDC offers the following considerations to help protect individuals and their families, friends, and communities from COVID-19. These considerations are meant to supplement—**not replace**—any [state, local, territorial](#), or [tribal](#) health and safety laws, rules, and regulations with which holiday gatherings must comply. When planning to host a holiday celebration, you should assess current COVID-19 levels in your community to determine whether to postpone, cancel, or limit the number of attendees.  
<https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/holidays.html>

**United States**  
**Coronavirus hospitalizations are growing in 37 states as Fauci warns the world not 'on the road' to ending pandemic yet**  
ID: 1008076087  
Source: CNBC

Medical workers deliver a patient to the Maimonides Medical Center on September 14, 2020 in the Brooklyn borough of New York City.  
Spencer Platt | Getty Images

Coronavirus hospitalizations are growing in a majority of U.S. states as Dr. Anthony Fauci, the nation's leading infectious disease expert, warns that the world is not yet "on the road" to ending the pandemic. Coronavirus hospitalizations, like the so-called positivity rate and deaths, are a key measure because they help scientists gauge the pandemic's severity.

Covid-19 hospitalizations were growing by 5% or more in 37 states as of Sunday, according to a CNBC analysis of data collected by the Covid Tracking Project, an increase from 36 states a week earlier. Figures are based on a weekly averages to smooth out daily reporting.

Arrows pointing outwards

Alaska, Iowa, Kentucky, Montana, Nebraska, Oklahoma, South Dakota, Utah, Wisconsin and West Virginia all hit record highs in the average of hospitalizations, the Covid Tracking Project data shows. The District of Columbia and Hawaii are the only two places where hospitalizations are declining, according to the data.

"What's concerning here is that it's only mid-October and there is a long fall and winter," said Dr. Isaac Bogoch, an infectious disease specialist and professor at the University of Toronto.

"We are clearly in the second wave in many parts of the Northern Hemisphere and we really need to have more control of this infection at the community level," he said. "We know exactly what it's like when health-care systems are spread beyond capacity. We saw that in New York City. We saw that in Houston. We saw that in many other parts of the United States."

The increase in hospitalizations comes after U.S. cases have grown in recent weeks following a late-summer lull. Over the past seven days, the country has reported an average of about 56,000 new cases per day, up more than 13% compared with a week earlier, according to a CNBC analysis of Johns Hopkins University data. That remains lower than the roughly 70,000 new cases a day the U.S. was reporting earlier this year but is higher than the roughly 30,000 cases per day in early September and is increasing.

U.S. health officials and infectious disease experts have repeatedly warned that the outbreak could get worse as temperatures cool and people begin to head indoors. The increase in hospitalizations could be especially dire as flu season approaches, medical experts warn.

The former U.S. Food and Drug Administration commissioner, Dr. Scott Gottlieb, told CNBC on Monday that the U.S. is likely to continue face even greater challenges from the pandemic as cases rise this fall without widely available treatments or a vaccine.

"We're going to get through it. We're probably in the 7th inning of the acute phase of this pandemic right now, but the hardest part is probably ahead," Gottlieb said on CNBC's "Squawk Box."

Fauci, the director of the National Institute of Allergy and Infectious Diseases, told CBS News Chief Medical Correspondent Dr. Jon LaPook in an interview that aired on Sunday that the world isn't near the end of the pandemic.

“When you have a million deaths and over 30 million infections globally, you can not say that we’re on the road to essentially getting out of this. So quite frankly, I don’t know where we are. It’s impossible to say,” he said according to a transcript of his remarks.

While the pandemic will remain a challenge, Fauci said the U.S. may not have to shut down.

The outbreak would have to get “really, really bad,” he said. “First of all, the country is fatigued with restrictions. So we want to use public health measures not to get in the way of opening the economy, but to being a safe gateway to opening the economy.”

He continued, “Put ‘shut down’ away and say, ‘We’re going to use public health measures to help us safely get to where we want to go.’”

—CNBC’s Kevin Stankiewicz and Nate Rattner contributed to this report.

<https://www.cnbc.com/2020/10/19/coronavirus-hospitalizations-are-growing-in-37-us-states.html>

## International - Coronavirus disease (COVID-19) Outbreak and Outcomes (Media)

### UN

#### UN stockpiling billion syringes for COVID-19 vaccine

Unique ID: 1008075786

Source: Eyewitness News

Unicef, the UN Children's Fund, said it aims to get 520 million syringes in its warehouses by the end of this year, to guarantee an initial supply in countries ahead of the vaccine.

GENEVA - The United Nations said Monday it would stockpile one billion syringes around the world by the end of 2021, to be used for the delivery of any future coronavirus vaccine.

Unicef, the UN Children's Fund, said it aims to get 520 million syringes in its warehouses by the end of this year, to guarantee an initial supply in countries ahead of the vaccine.

"The world will need as many syringes as doses of vaccine," Unicef said in a statement.

Unicef said it was also buying five million safety boxes for used syringes.

The number of confirmed coronavirus cases worldwide passed 40 million on Monday, according to an AFP tally based on official sources. More than 1.1 million deaths have been recorded across the globe.

"Vaccinating the world against COVID-19 will be one of the largest mass undertakings in human history, and we will need to move as quickly as the vaccines can be produced," said Unicef executive director Henrietta Fore.

"By the end of the year, we will already have over half a billion syringes pre-positioned where they can be deployed quickly and cost-effectively."

The syringes will be used by Covax, the international coronavirus vaccine procurement, production and distribution pool created by the World Health Organization (WHO).

Covax is run by the Gavi vaccine alliance, which will reimburse UNICEF for the syringes.

A public-private partnership, Gavi helps vaccinate half the world's children against some of the deadliest diseases on the planet.

Syringes have a five-year shelf life and tend to be shipped by sea, rather than vaccines, which are heat-sensitive and transported more quickly by air freight.

The billion syringes come on top of the 620 million that Unicef would purchase for other vaccination programmes against diseases such as measles and typhoid.

The WHO says 42 vaccine candidates are currently being tested on humans, of which 10 have reached the mass testing third and final stage.

A further 156 are being worked on in laboratories in preparation for human testing.

Typically, only around 10% of vaccine candidates make it through the trials.

Download the EWN app to your iOS or Android device.

<https://ewn.co.za/2020/10/19/un-stockpiling-billion-syringes-for-covid-19-vaccine>

### ECDC

#### COVID-19 infection prevention and control measures for primary care, including general practitioner practices, dental clinics and pharmacy settings: first update

Source: ECDC

Technical report

19 Oct 2020

This document provides guidance on infection prevention and control measures to healthcare providers in the European Union/European Economic Area and the United Kingdom in order to prevent COVID-19 infection.

<https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-infection-prevention-primary-care-dental-clinics-pharmacy-october-2020.pdf>

<https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-infection-prevention-primary-care-dental-clinics-pharmacy-october-2020.pdf>

## **Slovenia**

### **UPDATE - Slovenian Government Declares COVID-19 Nationwide Epidemic**

ID: 1008076109

Source: UrduPoint News

The government of Slovenia has declared the coronavirus disease a nationwide epidemic effective from Monday as a resurgence in new cases hit an all-time high

BELGRADE (UrduPoint News / Sputnik - 19th October, 2020) The government of Slovenia has declared the coronavirus disease a nationwide epidemic effective from Monday as a resurgence in new cases hit an all-time high.

On Saturday, Slovenian health authorities reported 898 confirmed cases per day, the national record since the start of the epidemic. Another 726 cases were confirmed on Sunday, resulting from 3,765 conducted tests, pushing up the infection rate to 19 percent. To date, Slovenia has confirmed 13,144 COVID-19 cases, including 188 deaths.

"According to the official data on the number of infected people in Slovenia, we have reached the second wave of COVID-19. We are seeing its rapid and exponential spread among the population, significantly exceeding the normal incidence. The current epidemiological situation with the spread of the SARS-COV-2 virus requires an immediate declaration of an epidemic throughout the Republic of Slovenia, as all statistical regions have either reached or surpassed the threshold required for declaring an epidemic," the Slovenian cabinet said in a statement.

In a bid to slow down the spread of infection, the government has also imposed a nationwide curfew.

"Like other EU countries, we have restricted the movement of citizens from 9.00 p.m. to 6.00 a.m. [19:00 to 04:00 GMT]," the cabinet wrote on Twitter.

The decree also bans public events and ceremonies, including church services and private celebrations.

Violators will face fines ranging from 400 to 4,000 Euros (\$471-\$4,714).

Last Thursday, Slovenia introduced new measures against COVID-19 in seven of its 12 statistical regions. The movement between these seven regions was restricted and wearing masks was made mandatory both indoors and outdoors. Large sports events were canceled and learning was made remote for students of grades five and higher, while gatherings of no more than 10 people remained allowed.

Slovenia officially declared the end of the COVID-19 pandemic in May and recorded only a relatively small number of new infections during the summer. However, a large increase in cases was registered last week. The country has now been divided into green, orange and red zones, based on the number of coronavirus cases and rate of infections.

<https://www.urdupoint.com/en/world/update-slovenian-government-declares-covid-1061071.html>

## **Russia**

### **Russia plans to start supplying its COVID-19 vaccine to Latin America in December**

Source: CE NoticiasFinancieras

ID: 1008078436

Russia plans to begin supplying the Sputnik V anti-influenza vaccine, developed by the Gamaleya Epidemiological and Microbiology Research Center, to Latin America next December, announced the director of the Russian Direct Investment Fund (FIDR), Kiril Dmitriev.

"We believe that as early as December we will be able to start supplies to Latin America. In December we will produce tens of millions of doses, some of the vaccines will be produced in November, and supplies will become very active in January," he said at a telematics conference dedicated to the drug.

The Russian official, who commented in mid-September that Russia wants to vaccinate "the entire Latin American continent" against COVID-19, noted that "Latin America is a very important partner, these are countries with which we understand each other well."

"We are going to produce the vaccine in Brazil, with the company Uniao Quimica. The Brazilian market is of critical importance to us, we will do clinical tests there. We will soon announce agreements with Argentina and Peru, in addition to existing ones with Mexico, Brazil and others," he said.

Although it is guaranteed that Russia will be able to supply large quantities in December because the drug will be produced in India, Brazil, South Korea and China, much will depend on the approval of local regulators.

"We will work with regulators to quickly obtain permits, which is why it is important for regulators to use data from clinical studies conducted in Russia, the United Arab Emirates and India," he said.

Dmitriev defended the Sputnik V vaccine, noting that the 16,000 phase III tests in clinical trials prove "a very high effectiveness of the vaccine".

Venezuela was the first Latin American country to receive a batch of 2,000 doses of Sputnik V in early October, in order to participate in the last phase of Russian drug development.

## International

### Coronavirus vaccine storage issues could leave 3 billion without access

Source: Global News

GPHIN ID: 1008077125

The chain breaks here, in a tiny medical clinic in Burkina Faso that went nearly a year without a working refrigerator.

From factory to syringe, the world's most promising coronavirus vaccine candidates need non-stop sterile refrigeration to stay potent and safe. But despite enormous strides in equipping developing countries to maintain the vaccine "cold chain," nearly three billion of the world's 7.8 billion people live where temperature-controlled storage is insufficient for an immunization campaign to bring COVID-19 under control.

The result: poor people around the world who were among the hardest hit by the virus pandemic are also likely to be the last to recover from it.

The vaccine cold chain hurdle is just the latest disparity of the pandemic weighted against the poor, who more often live and work in crowded conditions that allow the virus to spread, have little access to medical oxygen that is vital to COVID-19 treatment, and whose health systems lack labs, supplies or technicians to carry out large-scale testing.

Maintaining the cold chain for coronavirus vaccines won't be easy even in the richest of countries, especially when it comes to those that require ultracold temperatures of around minus 70 degrees Celsius. Investment in infrastructure and cooling technology lags behind the high-speed leap that vaccine development has taken this year due to the virus.

With the pandemic now in its eighth month, logistics experts warn that vast parts of the world lack the refrigeration to administer an effective vaccination program. This includes most of Central Asia, much of India and southeast Asia, Latin America except for the largest countries, and all but a tiny corner of Africa.

After its refrigerator broke last fall, the clinic could no longer keep vaccines against tetanus, yellow fever, tuberculosis and other common diseases on site, nurse Julienne Zoungrana said. Staff instead used motorbikes to fetch vials in insulated carriers from a hospital in Ouagadougou, making a 40-minute round-trip drive on a narrow road that varies between dirt, gravel and pavement.

A mother of two who visits the Gampela clinic says she thinks a coronavirus inoculation program will be challenging in her part of the world. Adama Tapsoba, 24, walks four hours under scorching sun to get her baby his routine immunizations and often waits hours more to see a doctor. A week earlier, her 5-month-

old son had missed a scheduled shot because Tapsoba's daughter was sick and she could only bring one child on foot.

"It will be hard to get a (COVID-19) vaccine," Tapsoba said, bouncing her 5-month-old son on her lap outside the clinic. "People will have to wait at the hospital, and they might leave without getting it."

To uphold the cold chain in developing nations, international organizations have overseen the installation of tens of thousands of solar-powered vaccine refrigerators. Keeping vaccines at stable temperatures from the time they are made until they are given to patients also requires mobile refrigeration, reliable electricity, sound roads and, above all, advance planning.

For poor countries like Burkina Faso, the best chance of receiving a coronavirus vaccine is through the Covax initiative, led by the World Health Organization and the Gavi vaccine alliance. The goal of Covax is to place orders for multiple promising vaccine candidates and to allocate the successful ones equitably.

The United Nations' children's agency, UNICEF, began laying the global distribution groundwork months ago, in Copenhagen. At the world's largest humanitarian aid warehouse, logistics staff are trying to foresee shortages by learning from the past, especially the spring chaos surrounding global shortages of masks and other protective gear that were commandeered off airport tarmacs or stolen and traded on the black market.

Currently, 42 coronavirus vaccine candidates are in clinical trials and another 151 are in pre-clinical evaluation, according to WHO. The ones most likely to end up in the Covax mix must be stored at 2-8 degrees Celsius (25-46 F).

A Pfizer candidate is among the ones in advanced testing requiring storage at ultracold temperatures. The company, which has designed a special carrying case for its vaccine, has expressed interest in Covax and signed contracts with the United States, Europe and Japan.

Medical freezers that go down to minus 70 degrees Celsius are rare even in U.S. and European hospitals. Many experts believe the West African countries that suffered through a 2014-16 Ebola outbreak may be the best positioned, because a vaccine against that virus also requires ultracold storage.

A worker moves boxes at Snowman Logistics, India's largest cold storage company in Taloja, on the outskirts of Mumbai, India, Saturday, Oct. 17, 2020.  
A worker moves boxes at Snowman Logistics, India's largest cold storage company in Taloja, on the outskirts of Mumbai, India, Saturday, Oct. 17, 2020. AP Photo/Rajanish Kakade  
For more than two-thirds of the world, however, the advanced technology is nowhere on the horizon, according to a study by German logistics company DHL. Meanwhile, billions of people are in countries that don't have the necessary infrastructure to maintain the cold chain for either existing vaccines or more conventional coronavirus candidates, the study said.

Opportunities for vaccines to be lost expand the farther a vaccine travels. DHL estimated that 15,000 cargo flights would be required to vaccinate the entire planet against COVID-19, stretching global capacity for aircraft and potentially supplies of materials such as dry ice.

"We need to find a bridge" for every gap in the cold chain, DHL chief commercial officer Katja Busch said. "We're talking about investments ... as a society, this is something we have to do."

Gavi and UNICEF worked before the pandemic to supply much of Africa and Asia with refrigeration for vaccines, fitting out 40,000 facilities since 2017. UNICEF is now offering governments a checklist of what they will need to maintain a vaccine supply chain and asking them to develop a plan.

"The governments are in charge of what needs to happen in the end," said Benjamin Schreiber, who is among the directors of UNICEF's vaccination program.

Even when flights are cold and frequent enough, air freight carries other potential hazards. WHO estimates that as much as half of vaccines globally are lost to wastage, sometimes due to heat exposure or vials breaking while in transit. With coronavirus vaccines, which will be one of the world's most sought-after products, theft is also a danger.

"They can't be left on a tarmac and fought over because they would actually be spoiled and they would have no value — or worse still, people would still be trying to distribute them," said Glyn Hughes, the global head of cargo for the International Air Transport Association.

Tinglong Dai, a Johns Hopkins University researcher who specializes in health care logistics, said creativity will be needed to keep the cold chain intact while coronavirus vaccines are distributed on a global scale. Gavi and UNICEF have experimented with delivering vaccines by drone. Indian officials have floated the idea of setting aside part of the country's vast food storage network for the coronavirus vaccines.

"If people can figure out how to transport ice cream, they can transport vaccines," Dai said.

Yet chances for something to go wrong multiply on the ground as vaccines are prepped to leave national depots. Since the cold chain is so fragile, logistics planning is crucial; syringes and disposal boxes must be available as soon as vaccine shipments arrive.

By the end of the year, UNICEF expects to have 520 million syringes pre-positioned for coronavirus vaccines in the developing world and maps of where the refrigeration needs are greatest "to ensure that these supplies arrive in countries by the time the vaccines do," Executive Director Henrietta Fore said.

The last vaccine requiring cold storage that India's national program adopted was for rotavirus, a stomach bug that typically affects babies and young children. Dr. Gagandeep Kang, who led the research for that vaccine, estimated that India has about 30 per cent less storage capacity than it would need for a coronavirus vaccine.

In countries such as India and Burkina Faso, a lack of public transportation presents another obstacle to getting citizens inoculated before vaccines go bad.

Dr. Aquinas Edassery, who runs two clinics in one of India's poorest and least developed regions, said patients must walk for hours to receive health care. The trip on a single road that winds 86 kilometers (53 miles) over steep hills and washes out for months at a time will pose an insurmountable barrier for many residents of the eastern district of Rayagada, Edassery said.

As with most logistics, the last kilometer (mile) is the hardest part of delivering a coronavirus vaccine to the people who need it. In Latin America, perhaps nowhere more than Venezuela provides a glimpse into how the vaccine cold chain could go dramatically off course.

When a blackout last year left much of the nation in the dark for a week, doctors in several parts of Venezuela reported losing stocks of vaccines. The country's largest children's hospital had to discard thousands of doses of vaccines for illnesses like diphtheria, according to Dr. Huníades Urbina, head of the Venezuelan Society of Childcare and Pediatrics.

"We won't be able to halt either the coronavirus or measles," Urbina said.

Preserving the cold chain has only grown more difficult since then. Gas shortages limit the ability to move vaccines quickly from one part of Venezuela to another. Dry ice to keep vaccines cool during transport is harder to find. And after years of economic decline, there also are fewer doctors and other professionals trained to keep the chain intact.

“I’m not optimistic on how the vaccine would be distributed in the inner states because there is no infrastructure of any kind to guarantee delivery — or if it gets delivered, guarantees the adequate preservation under cold conditions,” Dr. Alberto Paniz-Mondolfi, a Venezuelan pathologist, said.

Venezuela presents an extreme example, but a coronavirus vaccine also is likely to test parts of Latin America with more robust health care systems. In Peru, private businesses that typically transport fish and beef have offered their trucks, though it remains unclear whether the Health Ministry will accept.

Back in Burkina Faso, vaccination days became an ordeal at the Gampela clinic when the refrigerator went out, said Zoungrana, the nurse. Staff members on hospital courier runs must buy fuel they often can’t afford and make a second trip to and from the capital to return any unused doses.

“We’re suffering,” said Zoungrana, who was run off the road on her motorbike just a few weeks ago.

Days after journalists from The Associated Press visited the clinic this month, a long-awaited solar refrigerator arrived. With technicians in short supply, the clinic was waiting to be sure the appliance would function properly before stocking it with vaccines.

Nationwide, Burkina Faso is about 1,000 clinical refrigerators short, and less than 40 per cent of the health facilities that conduct vaccinations have reliable fridges, national vaccination director Issa Ouedraogo said.

Multi-dose vials — the equivalent of bulk storage for vaccines — can drastically reduce global transportation costs. But once a vial is opened, its shelf life counts down even faster; if too few people show up for their jabs in time, whatever remains in the larger vials must be discarded.

“It’s really upsetting to have wastage like that. It’ll result in loss of lives and pain and suffering. It’s a waste of resources,” said University of Massachusetts at Amherst professor Anna Nagurny, who studies supply chain logistics.

For now, UNICEF is betting on 20-dose vials of coronavirus vaccine and hoping that the amount wasted will stay below three per cent for closed vials and 15 per cent for open multi-dose vials that do not get used up, according to Michelle Siedel, one of the U.N. agency’s cold chain experts.

If Burkina Faso were given one million doses of a coronavirus vaccine today, the country wouldn’t be able to handle it, Jean-Claude Mubalama, UNICEF’s head of health and nutrition for the African nation.

“If we had to vaccinate against the coronavirus now, at this moment, it would be impossible,” he said.  
<https://globalnews.ca/news/7405054/coronavirus-vaccine-storage-three-billion/>

## Studies Related to Coronavirus disease (COVID -19) Outbreak (Media)

### International

#### Higher perception of COVID-19 risk, greater compliance in women

Source: CIDRAP

ID: 1008077829

A study in the Proceedings of the National Academy of Sciences last week found that women are more likely to see COVID-19 as a serious health problem and more likely to agree and comply with containment measures, highlighting the importance of gender-based public health messaging.

Scientists have documented higher COVID-19 mortality in men worldwide, with a number of factors speculated to play a role, such as differences in biology, preexisting conditions, occupation, and likelihood of seeking health care. Gender differences in public policy compliance behaviors have not been fully examined but may help explain observed mortality differences, the authors said.

The study conducted a two-wave survey of 21,649 participants in eight countries with high per-capita income and advanced health systems in March and April. Participants were asked to rate the seriousness of expected COVID-19 health consequences in their country, and their agreement and level of compliance with public policy measures.

Women were more likely to consider COVID-19 a very serious health problem (59.0% vs 48.7% in March; 39.6% vs 33.0% in April). Overall agreement with restraining measures decreased for both men and women over time, but women remained more like to agree (54.1% vs 47.7% in March; 42.6% vs 37.4% in April).

Notably, compliance with public policy rules was markedly higher in women, and gender differences persisted despite overall decreases in compliance from March to April (88.1% vs 83.2% in March; 77.6% vs 71.8% in April). The study authors found smaller differences among cohabiting married couples and among individuals most directly exposed to the pandemic, suggesting that gender differences in beliefs and behavior may decrease with exposure to similar information and first-hand experience.

**The authors suggest that higher compliance in women may reduce the likelihood of contracting and spreading the disease, pointing to the role of gender-related behavioral differences in disease transmission.** In a news release from Bocconi University in Milan, lead author Vincenzo Galasso, PhD, said, "Policy makers who promote a new normality made of reduced mobility, face masks and other behavioral changes should, therefore, design a gender-differentiated communication if they want to increase the compliance of men."

<https://www.pnas.org/content/early/2020/10/14/2012520117>

<https://www.cidrap.umn.edu/news-perspective/2020/10/news-scan-oct-19-2020>

## **United States**

### **Study finds high rates of asymptomatic infection in nursing facilities**

Source: CIDRAP

ID: 1008077806

A large, multistate study of SARS-CoV-2 infection in skilled nursing facilities (SNFs) in JAMA Internal Medicine today finds high asymptomatic and presymptomatic infection, underscoring the importance of universal testing to identify and isolate cases. The study also identified more asymptomatic and presymptomatic cases in areas with high rates of local community infection, pointing to SNF location as a predictor of outbreaks.

Previous studies in the general population suggest that an estimated 40% to 45% of COVID-19 infections are asymptomatic at the time of testing. There is little data on prevalence in nursing facility settings, but some reports point to higher asymptomatic rates in SNFs.

The study authors used electronic medical record data and daily infection logs from a multistate long-term care provider with around 350 SNFs to identify polymerase chain reaction–confirmed cases from Mar 16 to Jul 15. Residents were considered symptomatic if they displayed COVID-19–related symptoms at the time of testing or in the 5 days prior, presymptomatic if they developed symptoms in the 14 days following testing, and asymptomatic if they developed no symptoms in the 14 days after a positive test.

The authors analyzed cumulative case counts for SNFs that underwent one or more testing surveys, either facility-wide (all residents tested) or unit-based (all residents on specific units tested), and compared case counts in counties with varying levels of countywide COVID-19.

The researchers identified 5,403 cases in SNFs overall, with 40.6% classified as asymptomatic, 19.1% presymptomatic, and 40.3% symptomatic at the time of testing. Facilities that underwent at least one facility-wide survey had slightly higher rates of asymptomatic and presymptomatic infection (40.9% and 19.3%, respectively) than those that performed unit-based surveys only (37.0% and 16.3%, respectively).

SNFs in counties with higher SARS-CoV-2 prevalence had higher counts of asymptomatic and presymptomatic cases than those in counties with lower prevalence, adding to evidence that SNF location and community prevalence are predictive of facility outbreaks.

<https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2771816>  
<https://www.cidrap.umn.edu/news-perspective/2020/10/news-scan-oct-19-2020>

## United States

### **Trial finds no significant COVID effect of pre-exposure hydroxychloroquine**

Source: CIDRAP

ID: 1008077788

A randomized, controlled clinical trial involving high-risk healthcare workers found that pre-exposure prophylaxis with hydroxychloroquine once or twice weekly did not significantly reduce COVID-19 compared with placebo, researchers reported late last week in *Clinical Infectious Diseases*.

The randomized, double-blind trial, led by researchers with the University of Minnesota, enrolled 1,483 healthcare workers in the United States and Manitoba from Apr 6 to May 26. Participants were assigned in a 2:2:1:1 ratio to receive 400 milligrams of hydroxychloroquine once weekly or twice weekly for 12 weeks or placebo prescribed in a matched fashion. High-risk healthcare workers were defined as working in an emergency department or intensive care unit, on a dedicated COVID-19 ward, or as a first responder. Overall, 79% of the healthcare workers reported performing aerosol-generating procedures.

The primary outcome was COVID-19–free survival time by laboratory-confirmed or probable compatible illness. A prespecified subgroup analysis was conducted to investigate whether hydroxychloroquine drug concentrations correlated with COVID-19 protection.

Overall, confirmed or probable COVID-19–compatible illness occurred in 29 participants (5.9%) receiving once-weekly hydroxychloroquine, 29 (5.9%) receiving twice-weekly hydroxychloroquine, and 39 (7.9%) receiving placebo. The corresponding incidence of COVID-19 or compatible illness was 0.27 and 0.28 events per person-year for those taking hydroxychloroquine once or twice weekly, compared with 0.38 events per person-year for those who received placebo. Compared to placebo, the hazard ratios were for COVID-19 or compatible illness were 0.72 (95% confidence interval [CI]; 0.44 to 1.16; P = 0.18) with once-weekly and 0.74 (95% CI, 0.46 to 1.19; P = 0.22) with twice-weekly hydroxychloroquine, respectively.

Hydroxychloroquine blood concentrations did not differ between participants who developed COVID-19–compatible illness and those who did not.

The authors note that enrollment in the study ended prematurely, after a severe decline that followed several studies that highlighted hydroxychloroquine safety concerns, and a subsequent warning from the Food and Drug Administration. As a result, the study was underpowered. In addition, the doses of hydroxychloroquine may have been insufficient, they said.

"There was no statistically significant reduction in the incidence of COVID-19 in our study," the authors wrote. "However, investigation into more frequent dosing may be warranted."

<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa1571/5929230>  
<https://www.cidrap.umn.edu/news-perspective/2020/10/news-scan-oct-19-2020>

## United States

### **Mouthwashes may inactivate human coronaviruses: Study**

Source: Outbreak News Today

ID: 1008079120

Certain oral antiseptics and mouthwashes may have the ability to inactivate human coronaviruses, according to a Penn State College of Medicine research study. The results indicate that some of these

products might be useful for reducing the viral load, or amount of virus, in the mouth after infection and may help to reduce the spread of SARS-CoV-2, the coronavirus that causes COVID-19.

Craig Meyers, distinguished professor of microbiology and immunology and obstetrics and gynecology, led a group of physicians and scientists who tested several oral and nasopharyngeal rinses in a laboratory setting for their ability to inactivate human coronaviruses, which are similar in structure to SARS-CoV-2. The products evaluated include a 1% solution of baby shampoo, a neti pot, peroxide sore-mouth cleansers, and mouthwashes.

The researchers found that several of the nasal and oral rinses had a strong ability to neutralize human coronavirus, which suggests that these products may have the potential to reduce the amount of virus spread by people who are COVID-19-positive.

“While we wait for a vaccine to be developed, methods to reduce transmission are needed,” Meyers said. “The products we tested are readily available and often already part of people’s daily routines.”

Meyers and colleagues used a test to replicate the interaction of the virus in the nasal and oral cavities with the rinses and mouthwashes. Nasal and oral cavities are major points of entry and transmission for human coronaviruses. They treated solutions containing a strain of human coronavirus, which served as a readily available and genetically similar alternative for SARS-CoV-2, with the baby shampoo solutions, various peroxide antiseptic rinses and various brands of mouthwash. They allowed the solutions to interact with the virus for 30 seconds, one minute and two minutes, before diluting the solutions to prevent further virus inactivation. According to Meyers, the outer envelopes of the human coronavirus tested and SARS-CoV-2 are genetically similar so the research team hypothesizes that a similar amount of SARS-CoV-2 may be inactivated upon exposure to the solution.

To measure how much virus was inactivated, the researchers placed the diluted solutions in contact with cultured human cells. They counted how many cells remained alive after a few days of exposure to the viral solution and used that number to calculate the amount of human coronavirus that was inactivated as a result of exposure to the mouthwash or oral rinse that was tested. The results were published in the Journal of Medical Virology.

The 1% baby shampoo solution, which is often used by head and neck doctors to rinse the sinuses, inactivated greater than 99.9% of human coronavirus after a two-minute contact time. Several of the mouthwash and gargle products also were effective at inactivating the infectious virus. Many inactivated greater than 99.9% of virus after only 30 seconds of contact time and some inactivated 99.99% of the virus after 30 seconds.

According to Meyers, the results with mouthwashes are promising and add to the findings of a study showing that certain types of oral rinses could inactivate SARS-CoV-2 in similar experimental conditions. In addition to evaluating the solutions at longer contact times, they studied over-the-counter products and nasal rinses that were not evaluated in the other study. Meyers said the next step to expand upon these results is to design and conduct clinical trials that evaluate whether products like mouthwashes can effectively reduce viral load in COVID-19-positive patients.

“People who test positive for COVID-19 and return home to quarantine may possibly transmit the virus to those they live with,” said Meyers, a researcher at Penn State Cancer Institute. “Certain professions including dentists and other health care workers are at a constant risk of exposure. Clinical trials are needed to determine if these products can reduce the amount of virus COVID-positive patients or those with high-risk occupations may spread while talking, coughing or sneezing. Even if the use of these solutions could reduce transmission by 50%, it would have a major impact.”

Future studies may include a continued investigation of products that inactivate human coronaviruses and what specific ingredients in the solutions tested inactivate the virus.

<http://outbreaknewstoday.com/mouthwashes-may-inactivate-human-coronaviruses-study-61120/>

## United Kingdom

### Kidney disease tied to high death rates in COVID patients

Source: CIDRAP

ID: 1008077769

COVID-19 patients who have chronic kidney disease (CKD) or develop coronavirus-related kidney injury in the intensive care unit (ICU) face higher odds of death than their otherwise-healthy peers, according to a study published late last week in Anaesthesia.

Led by researchers at Imperial College London, the retrospective study involved 372 adult COVID-19 patients in four ICUs in the United Kingdom from Mar 10 to Jul 31. Of the 372 patients, 216 (58%) had kidney impairment, 22% of which was CKD (48 patients) and 78% of which developed during hospitalization (168 patients).

#### Degree of injury, need for dialysis

In total, 139 of 372 patients (37%) died. Of the 156 patients with healthy kidneys, 32 (21%) died in the hospital, in contrast with 81 of 168 patients (48%) with newly developed kidney injury and 11 of 22 (50%) with CKD stage 1 through 4.

Among the other 26 patients who had CKD, 9 of 19 patients (47%) with end-stage renal failure (ESRF), who had already required routine outpatient dialysis, died. The death rate was highest in CKD patients who had undergone kidney transplant (6 of 7 [86%]).

Death rates rose along with worsening kidney injury classified by Kidney Disease: Improving Global Outcomes (KDIGO) classification; of 157 patients with stage 0 (least) injury, 33 (21%) died, compared with those with more serious stages 1 to 3 injury (91/186 [49%]).

Those who died were more likely to have needed dialysis than survivors (64/139 [46%] vs 57/233 [24%]). But once dialysis was started, death rates were not significantly different between survivors and non-survivors in patients with new kidney injury (39/82 [48%] vs 43/82 [52%]) or non–end-stage CKD (8/17 [47%] vs 9/17 [53%]).

Among 216 patients with kidney impairment, 121 (56%) needed dialysis in the hospital, and 9 of the 48 survivors who required dialysis for the first time in the ICU (19%) continued to need it after they were released, suggesting that COVID-19 may lead to long-term kidney impairment. Most patients (337 of 372 [91%]) required mechanical ventilation. Median Acute Physiology and Chronic Health Evaluation (APACHE) II score was 15, with 0 the least likely to die in the ICU and 71 the most likely.

#### Vigilance, intensive care

The authors said that were surprised that the death rate in patients with ESRF and on dialysis, who usually have poorer outcomes in many other illnesses, wasn't significantly higher than in those with less-serious CKD and coronavirus-related kidney injury. The finding, they noted, suggests that COVID-19 patients receiving dialysis—including those with ESRF—have a similar chance for survival as those with less severe disease or injury and thus should be considered for ICU care.

But the researchers caution that their results may have been subject to selection bias, in which some patients with ESRF who were too sick for admission to the ICU may not have been included in the study during the peak of the last UK COVID-19 surge.

Patients were, on average, about 60 years old, 72% of them were men, and 76% were black or Asian.

The authors said that they don't know exactly why patients with impaired kidneys are more likely than others to die of COVID-19 but theorize that it could be because the virus causes inflammation of the kidney blood vessels, similar to how it inflames the lungs; the enhanced immune response ("cytokine storm") triggered by the virus injures the kidneys; or multiorgan failure leads to kidney tissue death.

"Our data demonstrate that renal impairment in patients admitted to intensive care with COVID-19 is common and is associated with a high mortality and requirement for on-going renal support after discharge from critical care," the authors wrote. "Attention needs to be paid to patients with COVID-19 with any form of renal impairment and every effort made to prevent progression of renal injury in order to reduce mortality."

The researchers also remarked that patients who require dialysis in the hospital have a much lower survival rate than those who don't, which could have implications for resource allocation. "The impact on

resource utilisation is considerable, especially in a pandemic situation where resources may have to be rationed," they wrote.

<https://www.cidrap.umn.edu/news-perspective/2020/10/kidney-disease-tied-high-death-rates-covid-patients>

## United Kingdom

### Pirbright collaborates on breakthrough virus test | Vet Times

Unique ID: 1008075243

Source: Vettimes

Scientists from The Pirbright Institute have helped develop a test that can detect antibodies that prevent COVID-19 infecting neighbouring cells.

Being able to test for antibodies that block cell-to-cell fusion is a valuable tool for analysing the antibody response against multiple viruses, including respiratory syncytial virus, Nipah virus and SARS-CoV-2, which causes COVID-19.

Collaboration

The method, developed in collaboration with the University of Queensland and the University of Oxford, can be used in tandem with other tests to assess the effectiveness of vaccines, therapeutics and antivirals.

Most antibody tests focus on detecting neutralising antibodies, which block viruses from entering the cell to prevent infection. However, some viruses spread by forcing the cells they infect to fuse with their neighbours, creating multi-nucleated cells known as syncytia.

Protection

Until now, limited tools existed to assess whether the neutralising antibodies could also prevent these cell fusion events and whether halting this process would result in better protection against the virus.

However, studies described in the Journal of General Virology have demonstrated this new method – dubbed the micro-fusion inhibition test (mFIT) – can determine whether antibodies are effective at preventing syncytia formation, which can facilitate further research into whether this characteristic improves the protection offered by antibodies.

'Valuable tool'

Pirbright scientists are now actively using the mFIT to assess a number of COVID-19 vaccines to provide more in-depth information about the immune responses triggered, as part of extensive collaborations within the vaccine development field.

Dalan Bailey, head of the Viral Glycoproteins Group at Pirbright, said: "The broad applications of this test, alongside its reliability and high throughput nature, make the mFIT a valuable tool that can be used in tandem with standard neutralisation tests to provide new insights into the importance of cell fusion in infection and immunity.

"This test gives us additional markers to assess when developing vaccines, antivirals and therapies, and could ultimately help us to improve their effectiveness."

<https://www.vettimes.co.uk/news/pirbright-collaborates-on-breakthrough-virus-test/>

## Study

### Hospitalised COVID-19 patients can have ongoing symptoms for months –study

Unique ID: 1008075204

Source: National Post

LONDON — More than half of COVID-19 patients discharged from hospital still experienced symptoms of breathlessness, fatigue, anxiety and depression for two to three months after their initial infection, according to the findings of a small UK study.

The research, led by scientists at Britain's Oxford University, looked at the long-term impact of COVID-19 in 58 patients hospitalized with the pandemic disease.

It found that some patients have abnormalities in multiple organs after being infected with the novel coronavirus and that persistent inflammation caused problems for some for months.

The study has not been peer-reviewed by other scientists but was published before review on the MedRxiv website.

"These findings underscore the need to further explore the physiological processes associated with

COVID-19 and to develop a holistic, integrated model of clinical care for our patients after they have been discharged from hospital,” said Betty Raman, a doctor at Oxford’s Radcliffe Department of Medicine who co-led the research.

An initial report by Britain’s National Institute for Health Research (NIHR) published last week showed that ongoing illness after infection with COVID-19, sometimes called “long COVID,” can involve a wide range of symptoms affecting all parts of the body and mind.

<https://nationalpost.com/pmnh/health-pmnh/hospitalised-covid-19-patients-can-have-ongoing-symptoms-for-months-study>

## Domestic Events of Interest

### Canada

#### Fraser Health issues Overdose Alert for Surrey

ID: 1008077330

Source: Surrey North Delta Leader

Fraser Health issues Overdose Alert for Surrey  
Health authority reports spike of overdoses in the last 24 hours

AARON HINKSOct. 19, 2020 9:36 a.m.LOCAL NEWSNEWS

Drug overdoses, resulting from cocaine contaminated with fentanyl, have spiked in the City of Surrey over the past 24 hours, Fraser Health has reported.

In an Overdose Alert issued Oct. 17, the health authority says there has been an increase in emergency room admissions for overdoses in the city.

Reports suggest that the overdoses have been connected to cocaine that is contaminated with an opioid, like fentanyl.

Fraser Health offers a number of suggestions for people who use substances, including to use less than they normally would; try using a small amount before taking a regular dose; do not use alone; carry naloxone; stagger use with friends so someone can respond if needed; call 911 when something isn’t right.

<https://www.surreynowleader.com/news/fraser-health-issues-overdose-alert-for-surrey/>

## International Events of Interest

### China

#### China disease warning: More cases confirmed as bacterial outbreak continues to spread

ID: 1008074810

Source: Express

NEW cases of brucellosis have been confirmed in China, according to reports.

Further cases of the bacterial disease were recorded in Inner Mongolia and the provinces of Gansu and Shaanxi in recent days. The brucellosis outbreak started in July 2019 after the bacteria leaked out during vaccine production.

Related articles

On September 8, it was reported that five children at the Xi’an Children’s Hospital had contracted the disease.

One woman, who lives near the plant where authorities said the outbreak started, told the Epoch Times she was diagnosed with brucellosis in January.

She has suffered sweating and pain in her waist, foot and leg.

A man, who works on a farm in Inner Mongolia, claimed he and six colleagues had contracted brucellosis.

He said: "I was diagnosed in September last year and have been undergoing treatment.

"My early symptoms were fatigue and sweating.

READ MORE: China outbreak: Thousands infected with bacterial disease

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"Now I have joint pains and inflammation - mainly in the shoulder and elbow joints, and partly in the reproductive system."

Brucellosis can be caught from drinking unpasteurised milk or eating dairy products made from unpasteurised milk.

It can also be caught from eating raw or undercooked meat, or from contact with bodily fluids of farm animals.

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China bubonic plague fears SOAR as cases reach highest in decades [ANALYSIS]

It is rare to catch brucellosis from other people.

Symptoms can appear suddenly or over a number of weeks.

They include a high temperature, loss of appetite, sweating, headaches, tiredness and back and joint pain.

The infection is diagnosed with a blood test and treated with antibiotics.

Brucellosis is rare in the UK.

The NHS advises avoiding contact with livestock and wild animals while travelling in places where brucellosis is an issue.

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<https://www.express.co.uk/news/world/1349467/china-news-china-disease-brucellosis-outbreak-china>

## Researches, Policies and Guidelines

### United States

#### Researchers discover how a small molecule is the key to HIV forming capsules

Unique ID: 1008075693

Source: phys.org

A group of University of Chicago scientists announced a groundbreaking study that explores the role of a small molecule, called IP6, in building the HIV-1 virus capsid.

The genetic information of the HIV virus is surrounded by a layer of proteins called a capsid, which works as the armor of the virus. Figuring out how this capsid is formed provides an important avenue to developing treatments, yet researchers have struggled for decades to recreate stable capsids in the laboratory.

"The HIV capsid has a very unique conical shape that needs to be closed to contain the viral genetic material," said postdoctoral fellow and lead author of the study Alvin Yu, which was published Sept. 16 in Science Advances.

Part of the secret to assembling the capsid is the incorporation of defects into the lattice. The majority of the capsid is composed of hexameric protein arrangements that consist of six subunits. However, there are twelve points on the capsid that are pentameric—consisting of five protein subunits.

"Without these pentamers, the HIV capsid protein would just assemble into long tubes open on two ends," explained Professor Gregory Voth, an expert in multiscale computer simulation studies of biomolecules. Recent experiments had shown that once IP6 was added, the capsids would enclose and create the correct conical structure that would persist for hours rather than minutes. However, little was known about why and how this occurred or the specific molecular role of IP6.

To explore what was happening on a molecular level, the researchers used a highly specialized computer called Anton, specifically built for molecular dynamics simulations. This allowed the scientists to see how IP6 binds to the capsid, which is difficult to see experimentally.

The researchers analyzed the physical movements of the molecules over a period of time, giving a view of how the system changes. Their analysis showed that IP6 energetically prefers binding with pentamers to stabilize these conformations, even though there are far fewer of them than the hexamers. This is important because whatever interaction is energetically favorable and most stable is the most likely to happen, and to last.

"This study is the smoking gun that shows exactly why IP6 prefers to bind to pentamers and the mechanisms behind it," said Voth.

Understanding these mechanisms creates a deeper grasp of how small molecules can regulate protein assembly. When it comes to HIV, further understanding of how the virus builds its armor could open the door to new treatments. One of the binding spots of IP6 is already a known target of drug inhibitors.

"The stability of the capsid is essential to whether the virus can deliver its payload into host cells. Understanding how to modulate capsid stability, could lead to a new route for inhibitors to disrupt the virus," said Yu.

More information: Alvin Yu et al. Atomic-scale characterization of mature HIV-1 capsid stabilization by inositol hexakisphosphate (IP6), *Science Advances* (2020). DOI: 10.1126/sciadv.abc6465  
<https://advances.sciencemag.org/content/6/38/eabc6465>

Journal information: *Science Advances*

Provided by University of Chicago

<https://phys.org/news/2020-10-small-molecule-key-hiv-capsules.html>