

GPHIN Daily Report for 2020-10-29

Special section on Coronavirus

Canada

Areas in Canada with cases of COVID-19 as of 28 October 2020 at 19:00 EDT

Source: Government of Canada

Province, territory or other	Number of confirmed cases	Number of active cases	Number of deaths
Canada	225,586	26,687	10,032
Newfoundland and Labrador	291	4	4
Prince Edward Island	64	1	0
Nova Scotia	1,102	5	65
New Brunswick	337	47	6
Quebec	102,814	8,987	6,189
Ontario	72,885	7,474	3,108
Manitoba	4,701	2,334	61
Saskatchewan	2,908	666	25
Alberta	26,565	4,793	313
British Columbia	13,875	2,370	261
Yukon	22	5	0
Northwest Territories	9	1	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

Statement from the Chief Public Health Officer of Canada on her Report on the State of Public Health in Canada 2020—From Risk to Resilience: An Equity Approach to COVID-19

From: [Public Health Agency of Canada](#)

Statement

On October 28, 2020, Dr. Theresa Tam, Canada's Chief Public Health Officer, issued the following statement on her Report on the State of Public Health in Canada 2020.

"Today, the Honourable Patty Hajdu, Minister of Health, tabled in Parliament my annual report entitled From Risk to Resilience: An Equity Approach to COVID-19. The report describes COVID-19's broader consequences and is a call to incorporate a health equity approach into pandemic preparedness, response and recovery.

COVID-19 is a powerful example of the serious threat that emerging infectious diseases continue to pose to Canadians now and into the future. It has also jolted our collective consciousness into recognizing that our health depends on our social and economic well-being.

Equity matters—not only to those who are unjustly excluded—but to all of us. While the COVID-19 pandemic affects us all, the health impacts have been worse for seniors, workers who provide essential services, racialized populations, people living with disabilities and women. A health equity agenda means that sustained efforts to improve employment conditions, housing and access to social and health services can better protect people in Canada from health crises, build resilience and create lasting equitable opportunities.

Driven by the evidence summarized in the report, I am calling for action in three key areas:

- **Sustain leadership and governance at all levels for structural change** across health, social and economic sectors. Practically, this means that data needs to be stratified to understand the multiple needs (e.g. housing, safety and employment) of people. Pandemic plans that are multi-sectoral need to be tested on a regular basis. And, the progress of subsequent collaborative actions need to be measured and adjusted until inequities are eliminated.
- **Harness the power of social cohesion** as a key ingredient to controlling and minimizing the negative impacts of this pandemic. Communities and countries that have strong norms of taking care of each other can better prevent and control resurgences. Everyone has a role to play to make this happen. Public health leaders, media and political leaders all need to share evidence, stories and demonstrate willingness to work together on the ongoing response to the pandemic. These actions can provide Canadians with the information and the confidence to take daily public health action and to call for supports for others who are most at risk.
- **Strengthen public health capacity** to ensure that Canada has a health system that is able to surge and adapt during a crisis while maintaining capacity to address on-going critical issues. Usually public health efforts are invisible to the general population. A pandemic makes obvious the need for a robust and agile public health system that has the workforce and tools needed to tackle emergencies and inequities. It offers an opportunity to re- evaluate what sustained investments and the future of public health would look like.

The COVID-19 pandemic has demonstrated the complexities of responding to a global public health crisis. It has shown the power of collaboration and the commitment of Canadians united to control the virus. It has also shown the interconnectedness of our health, social and economic policies and supports. How these sectors work together, with the engagement of civil society and communities, will influence our success against COVID-19 resurgences and help to mitigate the impacts of future health emergencies.

No one is protected from COVID-19 until everyone is protected."

Dr. Theresa Tam
Chief Public Health Officer of Canada

Related Products

- [The Chief Public Health Officer of Canada's Report on the State of Public Health in Canada 2020, From Risk to Resilience: an equity approach to COVID-19](#)
- [Backgrounder](#)

Associated Links

- [Biography: Dr. Theresa Tam, Chief Public Health Officer of Canada](#)

<https://www.canada.ca/en/public-health/news/2020/10/statement-from-the-chief-public-health-officer-of-canada-on-her-report-on-the-state-of-public-health-in-canada-2020from-risk-to-resilience-an-equit.html>

Statement from the Chief Public Health Officer of Canada on October 28, 2020

From: [Public Health Agency of Canada](#)

Statement

Dr. Theresa Tam, Canada's Chief Public Health Officer, issued the following statement on COVID-19. October 28, 2020 - Ottawa, ON - Public Health Agency of Canada

In lieu of an in-person update to the media, Dr. Theresa Tam, Canada's Chief Public Health Officer, issued the following statement today:

"As the resurgence of COVID-19 activity continues in Canada, [we are tracking a range of epidemiological indicators](#) to monitor where the disease is most active, where it is spreading and how it is impacting the health of Canadians and public health, laboratory and healthcare capacity. The following is the latest summary on national numbers and trends, and the actions we all need to be taking to maintain COVID-19 at manageable levels across the country.

Since the first cases were reported in March 2020, there have been 222,887 cases of COVID-19 reported in Canada. **Sadly, we are reporting over ten thousand deaths for the first time today, with 10,001 deaths among the total cases to date. These cumulative numbers tell us about the overall burden of COVID-19 illness to date.** Though the cumulative number is high and continues to increase, it is important to remember that the vast majority of Canadians remain susceptible to COVID-19. This is why it is important for everyone to continue with [individual precautions](#) that will keep ourselves, our families and our communities safer.

At this time, there are 26,422 active cases across the country. The latest national-level data indicate daily averages of 2,743 new cases (Oct 21-27) and close to 75,000 people tested, with 3.1% testing positive (Oct 11-17). Outbreaks continue to contribute to COVID-19 spread in Canada. These vary in size from just a few cases to larger clusters occurring in a range of settings including long-term care and assisted living facilities, schools, congregate living settings, industrial work settings and large social gatherings.

. Provincial and territorial data, indicate that an average of 1,095 people with COVID-19 were being treated in Canadian hospitals each day during the most recent 7-day period (Oct 21-27), including 228 of whom were being treated in intensive care units. During the same period, there were an average of 30 COVID-19-related deaths reported daily.

As hospitalisations and deaths tend to lag behind increased disease activity by one to several weeks, the concern is that we have yet to see the extent of severe impacts associated with the ongoing increase in COVID-19 disease activity. As well, influenza and respiratory infections typically increase during the Fall and Winter, placing increased demands on hospitals. This is why it is so important for people of all ages to maintain public health practises that keep respiratory infection rates low.

Canada needs a collective effort to sustain the public health response through to the end of the pandemic, while balancing the health, social and economic consequences. We can all do our part by keeping our number of in-person close contacts low and committing to proven effective public health practises; [stay home/self-isolate](#) if you have any [symptoms](#), maintain [physical distancing](#), [wear a face mask as appropriate](#), and keep up with [hand, cough](#) and [surface](#) hygiene. Canadians can also go the extra mile by sharing **credible** information on [COVID-19 risks and prevention practises](#) and [measures to reduce COVID-19 in communities](#) and by downloading the [COVID Alert](#) app to help limit the spread of COVID-19.

Read my backgrounder to access more [COVID-19 Information and Resources](#) on ways to reduce the risks and protect yourself and others.”

<https://www.canada.ca/en/public-health/news/2020/10/statement-from-the-chief-public-health-officer-of-canada-on-october-28-2020.html>

There were 7,000 ‘excess deaths’ in Canada during coronavirus 1st wave: StatCan

ID: 1008140012

Source: globalnews.ca

October 28, 2020 1:30 pm

As coronavirus cases are rising across Canada, so too are “excess deaths,” according to Excess mortality reflects data on the number of deaths that exceed what is considered normal during a given period. Throughout the pandemic, some countries have used this as an indicator that the actual death toll related to the coronavirus is much higher than official tallies.

The provisional data, released Wednesday, suggests that the number of deaths attributed to COVID-19 by public health authorities largely aligns with official death statistics.

Between March and June, public health offices across the country reported 8,145 deaths attributable to COVID-19, about five per cent more (7,755) than figures from the Canadian Vital Statistics Death Database, which is the official source of data on deaths in Canada.

While still considered high, Statistics Canada said deaths fell back to normal levels — “that would be expected had there not been a pandemic” — by July. The greatest number of COVID-19 deaths occurred in April and May.

However, things began to look grim again by early fall.

In the first 10 days of October alone, the number of COVID-19 deaths reported by the Public Health Agency of Canada was higher than the monthly totals reported in the entire months of August and September.

“Overall, if the similarities between public health surveillance figures and official death data persist through the resurgence of cases, Canada will likely experience an increase in excess deaths in October,” StatCan said in the report.

Canada is in the midst of what is being considered the second wave of the coronavirus, with daily case

counts rising in nearly all provinces — some higher than in the spring.

Over the past two weeks, daily case count records have been broken in Ontario, British Columbia, Alberta, Saskatchewan and Manitoba. On Tuesday, Canada's death toll surpassed 10,000. The country's total number of coronavirus infections now stands above 222,600.

There are some potential hiccups in the data, as StatCan notes. The deaths are based on confirmed cases of the virus, which means it might not include all cases where someone died of the virus before getting tested. The figures may also include deaths where COVID-19 was a contributing cause of death or an underlying cause of death.

StatCan points to this as one reason why there is a difference in the number of deaths tallied by public health agencies versus those from Canada's national death source.

"While they may not always include those who died prior to getting tested, they are within five per cent of the provisional death figures reported by vital statistics offices," the agency wrote.

There are direct and indirect mortality links also at play here, according to experts.

In direct mortality, people may have had COVID-19 and died without ever being tested for the virus.

In indirect mortality, changes and disruptions in the health-care system during the pandemic may have contributed to a death. For example, people who suffered heart attacks may have died because they were avoiding hospitals.

Some excess deaths during the March-June period could still be the result of "indirect impacts," StatCan said.

"It shows that the majority of excess mortality can be accounted for by COVID-19, but there could be other excess mortality sometimes as a result of some of the measures that we've put in," Canada's top doctor, Theresa Tam, said of the report on Wednesday.

"I think we need to look at the severe impacts in a more holistic way, not just COVID-19, but other deaths as well."

Disproportionate impact

A separate but related report highlights how Canada's mortality rate due to COVID-19 had a disproportionate effect on visible minorities.

It emphasizes what Canada and other countries have experienced throughout the pandemic — that there is a significant variation in coronavirus-related deaths based on socioeconomic and demographical factors.

In Quebec, Ontario, Alberta and British Columbia, which had the highest number of COVID-19 deaths between March and June, the mortality rate was found to be higher in neighbourhoods with more Canadians identified as visible minorities.

In Quebec and Ontario, the mortality rate for neighbourhoods with these large population groups was three times higher than that with fewer visible minorities. In British Columbia — despite having a lower number of deaths comparatively — the mortality rate was 10 times higher in these neighbourhoods.

<https://globalnews.ca/news/7426785/excess-deaths-spiking-coronavirus-second-wave-canada/>

Canada

Quebec workplaces linked to almost 30% of new coronavirus cases: data; The report was released this week as public-health officials plunge the province into a prolonged lockdown in an attempt to curb workplace outbreaks

Source: The Globe and Mail (Breaking News)
Unique ID: [1008134629](#)

COVID-19 infections in workplaces have been surging for six weeks in Quebec, according to new data from the province's public-health institute, a troubling trend that has contributed to the tightest pandemic restrictions in the country.

Data from the Institut national de santé publique du Québec details a mountainous spike leading into the second wave of the pandemic across factories, grocery stores and restaurants, and spreading from urban centres into rural towns. It's the most comprehensive information on workplace outbreaks released in Canada to date.

More than one-quarter, or 29 per cent, of all new COVID-19 cases in the second week of October were linked to workplace outbreaks, according to the data from the INSPQ and the province's health ministry – a data point that few provinces have made available.

The report was released this week as public-health officials plunge the province into a prolonged lockdown in an attempt to curb workplace outbreaks. Premier François Legault announced on Tuesday that Quebec is keeping venues such as restaurants, bars and fitness centres closed for an extra month in most of the province.

"Now we have to decrease [cases] and unfortunately we have to keep bars and restaurants closed for another month," Mr. Legault said.

The shutdown, which launched on Oct. 1, has spurred criticism from local business organizations and owners who have questioned the province's decision to implement the lockdown.

But the INSPQ reporting, divided into 18 weekly snapshots from June 14 to Oct. 17, trace a steep spike in work-related infections beginning in September. As the second wave hit the province, workplace-related cases climbed from less than 500 each week into the thousands.

Not including workplaces where outbreaks ended, the number of outbreaks for the most recent week jumped by 30 per cent to 501 from 386, and related cases climbed 35 per cent to 2,061 from 1,536.

The data also dives into individual industries. Of the nearly 900 individual workplaces that had outbreaks from mid-June to mid-October, the hardest hit sectors include manufacturing with 174 workplaces affected, retail with 157 and restaurants and accommodation with 120.

But in recent months, weekly restaurant outbreaks hovered near the bottom of the list, reporting 10 outbreaks during the week of Oct. 17, far below the most affected industries, including manufacturing with 37 outbreaks and 111 cases, and retail with 22 outbreaks and 57 cases.

Is my city going back into lockdown? A guide to COVID-19 rules across Canada
How many coronavirus cases are there in Canada, by province, and worldwide? The latest maps and charts
COVID-19 news: Updates and essential resources about the pandemic

The Chamber of Commerce of Metropolitan Montreal, which has been calling for better access to data on workplace outbreaks, said businesses that interact directly with customers invested in preventative measures after the first lockdown in the spring and have closely followed provincial COVID-19 guidance, and the data prove that those efforts were effective in curbing the spread of the coronavirus.

"These businesses feel that they did everything right and, at the end of the day, the message they're getting is that to protect the overall population, we're asking them to remain shut," said Michel Leblanc, president and chief executive officer of the CCMM. "But if [the province] communicates this data well, then it helps people accept the decisions and the measures and it helps reassure workers and the public that these types of businesses and stores are safe."

Most outbreaks involve fewer than five cases, which suggests that there are fewer opportunities for transmission in the workplace, or that infections are being brought into the business by the community, said Matthew Oughton, an infectious-disease specialist at Montreal's Jewish General Hospital.

"Perhaps this is saying that people are generally better protected when they're on the job rather than when they've finished for the day and gone home," he said.

Data on COVID-19 workplace-linked transmission across the country is patchwork at best, with the INSPQ's reporting publicizing the most comprehensive information on workplace outbreaks to date.

In Alberta, workplace outbreaks represent about 15 per cent of cases, provincial Chief Medical Officer of Health Deena Hinshaw said on Monday. Alberta Health also publishes the names of workplaces with continuing outbreaks on its website, but does not include the number of cases. In other provinces, including British Columbia and Ontario, individual public-health units offer a hodgepodge of outbreak information. In the Toronto and Peel Region, some of the hardest-hit areas in the country, city councillors

and mayors have repeatedly called for enhanced transparency on cases linked to workplaces. But accessible public data on workplaces is one of the most important tools to helping quell the pandemic, according to Dr. Oughton.

"If you want control of this disease as it's in the community, then you need accurate data and, almost more importantly, speed," Dr. Oughton said. "This data does you very little good if it's published three months later. You need to see this data in real time or as close to it as possible."

<https://gphin.canada.ca/cepr/showarticle.jsp?docId=1008134629>

The search for COVID-19 treatments: 32 clinical trials happening right now in Canada

ID: 1008139983

Source: CTV News

Published Wednesday, October 28, 2020 11:45AM EDT

TORONTO -- Medical researchers around the world are scrambling to find ways to prevent and treat COVID-19, and many Canadian scientists are doing their part to help.

There are 32 active clinical trials related to efforts to stop the novel coronavirus in Canada as of Wednesday morning, according to Health Canada.

They run the gamut from attempts to stop the progression of the disease in the most severely ill patients to experiments on what drugs found to be effective against other illnesses do to COVID-19.

Another 30 clinical trials are listed as pending, which means they have not officially begun, while three more, all involving hydroxychloroquine, have been closed.

Newsletter sign-up: Get The COVID-19 Brief sent to your inbox

Here is information on each potential treatment – and the one potential vaccine – currently being evaluated in Canadian clinical trials:

20-5449: Nitric oxide – not to be confused with nitrous oxide, also known as laughing gas – is being tested in intubated COVID-19 patients to see if it inhibits the disease.

2149: Some critically ill COVID-19 patients at Sunnybrook Health Sciences Centre in Toronto are subjects in this trial, which uses anesthetic drug isoflurane.

ARBS CORONA II: Normally used to treat high blood pressure, losartan is being tested on COVID-19 patients in this trial.

CATCO: Toronto's Sunnybrook Research Institute is handling the Canadian side of the World Health Organization-backed trial of remdesivir in hospitalized COVID-19 patients.

CINC424J12301 RUXCOVID: Ruxolitinib, a drug used to treat high-risk myelofibrosis, is being tested to see if it can stop the cytokine storm created when a body's response to COVID-19 kicks its immune system into overdrive.

CIRCA-19: Tests of a cellular immunotherapy treatment are being conducted by a team from the Ottawa Health Research Institute.

COLCORONA-MHIPS-2020-01: The Montreal Heart Institute is behind one of two Canadian trials involving colchicine, a medication normally used to treat gout. This trial is partially sponsored by the Bill and Melinda Gates Foundation and is expected to be completed by December.

CONCOR-KIDS: Some pediatric COVID-19 patients in Alberta hospitals are being given this treatment, which uses frozen plasma from recovered patients.

CONTROL-COVID-FAVIPIRAVIR-1: Nova Scotia-based Appili Therapeutics is behind this trial of favipiravir, an antiviral drug most commonly used in Japan.

CORIPREV-1: Lopinavir/ritonavir was approved for treatment of HIV/AIDS infections in 2000, and is now being tested by Unity Health Toronto to see how it affects COVID-19.

COVACTA: Drugmaker Hoffmann-La Roche is testing Actemra, a relatively new arthritis medication, to see how patients with severe pneumonia related to COVID-19 respond to it.

COVID-CTP-01: This is another trial involving nitric oxide, this one being carried out in Quebec by Vancouver-based R&D firm SaNotize.

GRAAL-2020-01: A team from Hamilton Health Sciences is behind a trial that uses plasma from recovered patients to treat hospitalized adults who have acute cases of COVID-19.

GS-US-540-5821: Another trial investigating antiviral drug remdesivir, this one is being conducted by pharmaceutical company Gilead.

HEROS-1: Hydroxychloroquine is being given to front-line health-care workers for this trial run by the

University Health Network in Toronto.

IC.8: The only ongoing Canadian trial to involve a potential vaccine, this tests involves recruiting patients at higher risk of severe complications and giving them IMM-101, a bacteria designed to boost their immune system and keep COVID-19 at bay.

JF-4-2020: The Toronto-based University Health Network is taking part in this trial involving peginterferon-lambda, a part of the human antiviral immune response that proponents believe may have a lower risk of serious side effects than other potential COVID-19 treatments.

LAU-20-01: Fenretinide, which has been found to be effective in fighting some cancer cells, is being tested against COVID-19 in this trial run by Laurent Pharmaceuticals.

LOVIT-COVID: Researchers at the Sherbrooke University Hospital are examining whether high doses of vitamin C can lessen organ dysfunction in hospitalized patients.

MK-4482: Some hospitalized adults with COVID-19 are taking part in this trial, which involves an experimental influenza drug known as MK-4482.

MP-31-2019-2945: COVID-19 patients in intensive care are eligible for this Sherbrooke University Hospital trial examining how high doses of vitamin C affect organ dysfunction.

NCT04405102: A multiple sclerosis-fighting drug known as ozanimod is being given to COVID-19 patients who require oxygen in this Quebec-based trial.

OZM-113: The University of Manitoba is behind this trial, which gives therapeutic doses of blood thinners to participating hospitalized COVID-19 patients.

PHRI.ACT.COVID19: The other Canadian trial to use gout-fighting drug colchicine, this one is being carried out by Hamilton Health Sciences.

PREP2020: Another trial run by researchers from the University of Manitoba, this one involves hydroxychloroquine.

PROTOCOL 214094: COVID-19 patients with severe pulmonary symptoms may be eligible for this trial from pharmaceutical company GlaxoSmithKline, which uses an antibody known as Otilimab.

RAPID COVID COAG: This Toronto-based trial involves the use of blood thinners as a COVID-19 therapy.

REMAP-CAP: This trial involving intensive care patients tracks the effectiveness of several therapies being studied in other entries on this list, including lopinavir/ritonavir, blood thinners and frozen plasma.

SAIL-004: Baricitinib, an arthritis drug, is being tested in hospitalized COVID-19 patients in a trial run by Dr. Lisa Barrett of Dalhousie University.

SAR153191: Another drug normally used to treat arthritis, sarilumab is being tested on some hospitalized COVID-19 patients by pharmaceutical company Sanofi.

U-DEPLOY: This is the second of two Canadian trials involving anti-myelofibrosis treatment ruxolitinib. Researchers in Toronto are monitoring how many COVID-19 patients' symptoms worsen after they are given the drug.

VASCEPA-COVID-19-CARDIOLINK-9: Icosapent, a drug primarily used to help prevent heart issues and strokes, is the focus of this trial.

RELATED IMAGES

<https://www.ctvnews.ca/health/coronavirus/the-search-for-covid-19-treatments-32-clinical-trials-happening-right-now-in-canada-1.5164404>

Yukon's COVID-19 cluster a 'landmark event,' chief medical officer of health says

Source: National Post

ID: [1008140940](#)

Summary The cluster occurred in two family groups in the same circle of transmission, and contact tracing has not turned up any further cases. Dr. Brendan Hanley says the cluster is the first to occur outside of the territory's capital and the source of the virus may never be known. Premier Sandy Silver says the cluster and subsequent investigation is a good reminder that it's important for people to not let their guard down.

WHITEHORSE — Yukon's chief medical officer of health says a cluster of five COVID-19 cases in Watson Lake is a landmark event.

Dr. Brendan Hanley says the cluster is the first to occur outside of the territory's capital and the source of

the virus may never be known.

He says the cases are a reminder that the territory is not impervious to COVID-19.

The cluster occurred in two family groups in the same circle of transmission, and contact tracing has not turned up any further cases.

Premier Sandy Silver says the cluster and subsequent investigation is a good reminder that it's important for people to not let their guard down.

Hanley says residents should avoid indoor Halloween parties this weekend, with potential gatherings of over 10 people limited to outdoor spaces.

"I'm not trying to make life more difficult for people, in fact it's the opposite. I'm trying to help us get through this pandemic with as little damage as possible," Hanley says.

Hanley also defended the time it took to notify residents about the exposure.

The cases were reported Oct. 22, with the government holding a news conference a day later to announce the cases.

Hanley says for officials to turn around the health data related to the cases in less than 24 hours is "pretty good."

"There's always going to be a lag when we actually learn the results," he said. "We do not carry out contact tracing overnight or during the night ... that begins first thing in the morning."

The government also announced a new charge of failing to self-isolate against a person, bringing the total number of charges issued in the territory during the pandemic to 20.

Yukon has had 22 cases of COVID-19, with 17 of those having recovered.

This report by The Canadian Press was first published Oct. 28, 2020.

<https://nationalpost.com/pmnl/news-pmnl/canada-news-pmnl/yukons-covid-19-cluster-a-landmark-event-chief-medical-officer-of-health-says>

2nd Inuvik resident confirmed positive for COVID-19

Source: CBC

ID: 1008140869

Summary The case is related to last week's case in which another Inuvik resident who had travelled to the town from Alberta by road was confirmed positive for COVID-19. The chief public health officer also said Wednesday that the exposure notice for Anytime Fitness in Yellowknife and the RCMP Yellowknife detachment public waiting area has been lifted. The two locations in the capital were identified as potential places with risk of exposure stemming from a case in Yellowknife.

Northwest Territories' chief public health officer says the presumptive positive case of COVID-19 in Inuvik, announced Tuesday, has been confirmed.

Dr. Kami Kandola said the case was confirmed by a lab at Stanton Territorial Hospital in Yellowknife. She made the announcement during a weekly COVID-19 media briefing Wednesday.

The case is related to last week's case in which another Inuvik resident who had travelled to the town from Alberta by road was confirmed positive for COVID-19.

Kandola says the transmission occurred within the same household where the two individuals had been self-isolating. She says the new case does not pose a threat to the public.

The chief public health officer also said Wednesday that the exposure notice for Anytime Fitness in Yellowknife and the RCMP Yellowknife detachment public waiting area has been lifted.

Kandola said more than 14 days have passed since the exposure risk was identified, which means the incubation period is over.

The two locations in the capital were identified as potential places with risk of exposure stemming from a case in Yellowknife.

'No cause for alarm'

Kandola called for calm after the recent cases. The territory had gone about half a year without any new cases.

"I want to assure you there's no cause for alarm simply because there are cases of COVID-19. It is a reminder that we need to be diligent in protecting each other. It does not mean we should panic," she said.

As cases rise down South, the risk of importation grows and Kandola says there will be more cases in the territory. But rather than focusing on individual cases, she says the real risk to residents is exposure to the virus as people go about their daily lives.

"If we want to continue to be as open as possible, we ask people just to take those steps ... avoid overcrowding, wear masks if you have to, keep your social contacts small and your spaces large," she said.

She also encouraged people who are required to self-isolate to do so responsibly.

Gahcho Kué case

When asked about the source of a positive case of a Yellowknife worker at the Gahcho Kué mine, Kandola declined to give specifics, citing patient confidentiality.

Public health identified a "likely source of the infection" from a "high-risk contact" who recently travelled outside the territory.

Kandola says there is currently no indication of ongoing transmission at the mine or in any community in the territory.

She also apologized after two separate errors caused some confusion in recent days. Her office cited a clerical error leading to a false positive at Gahcho Kué last week. Then on Tuesday, public health mistakenly sent out a press release indicating that what was then a presumptive case in Inuvik had been verified positive.

<https://www.cbc.ca/news/canada/north/covid19-update-nwt-october-28-1.5780588?cmp=rss>

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

United States

PPE still lacking in nursing homes as COVID doubles down

Source: Centre for Infectious Disease Research and Policy (CIDRAP)

GPHIN ID: 1008138850

Two new studies detail US nursing home preparedness amid the COVID-19 pandemic, one finding that 20% of facilities had less than 1 week's supply of at least one type of personal protective equipment (PPE), and the other showing that homes owned by private equity firms performed on par with those under other types of ownership in terms of coronavirus cases and deaths but stored less PPE.

Deficits worsened over the summer

The first report, published yesterday by the US Public Interest Research Group (US PIRG) and the Frontier Group, said that, 7 months into the pandemic, shortages of critical PPE like N95 respirators and medical gowns had worsened rather than improved. The shortages were reported to the US Centers for Medicare & Medicaid Services by 2,981 (19.9%) of the nation's 15,000 nursing homes; in total, the affected homes have 226,495 residents.

From May to August, 46% of all nursing homes reported that they didn't have even a week's supply of at least one type of PPE. The dearth of supplies worsened over the summer, with three times as many facilities reporting that they had no N95s, gowns, or eye protection in late August as in mid-July.

As of late August, about 2,500 homes (16.8%) were low on or out of N95s, 1,400 (9.3%) were low on surgical masks, 1,600 (10.7%) were nearly out of gowns, 1,250 (8.4%) were running out of eye protection, 700 (4.6%) were low on gloves, and 600 facilities (3.9%) had no hand sanitizer or were about to run out of it.

The report authors noted that a 1-week supply of PPE is the minimum acceptable amount because facilities can use up that supply in 1 or 2 days if an outbreak occurs, leading to PPE rationing or foregoing of it all together, amid uncertainty as to when the next shipment will arrive.

The supply shortages could be attributed to the US government offering provision of only a 2-week supply of PPE, supply chain interruptions, defective or expired PPE, large outbreaks that required much more PPE than usual, the reopening of businesses and the medical sector, limited finances, poor planning, politics, or a combination of these reasons, the report said.

Teresa Murray, US PIRG Education Fund consumer watchdog, said in the organization's press release that the way the country treats vulnerable people such as senior citizens is "appalling." "It's unconscionable that the United States is dealing with severe PPE shortages at this point in the pandemic," she said. "It's affecting everyone, including hospitals, businesses, and schools. ...We can and must do better."

The authors noted that although nursing homes house less than 0.5% of the US population, they have been the source of 3% of the country's COVID-19 cases and 27% of the deaths, because residents tend to be older and in poor health and must be in close contact with the healthcare staff without adequate PPE.

They said that the PPE crisis will persist if urgent action isn't taken. "We face the possibility of a brutal fall and winter if another wave of COVID-19 combined with a normal flu season further strains PPE supplies," the authors wrote in the report.

The report called for use of the Defense Production Act to increase US manufacture of PPE, allocation of money for nursing homes in any upcoming government stimulus package, federal and state prioritization of PPE for the most strapped facilities, passage of the Medical Supply Transparency and Delivery Act to centralize supply chains and stabilize PPE prices amid competition from different sectors, and, if it doesn't pass, creation of multistate consortiums to gird regional supply chains.

Likelihood of having N95 respirators, gowns

Published today in JAMA Network Open, the second study, led by researchers at Weill Cornell Medical College, evaluated the performance of US nursing homes owned by private equity firms.

While proponents of private equity–owned nursing homes say that they bring management expertise and health information technology resources, the authors prefaced the study by noting that these firms have long been suspected of taking on large amounts of debt to buy nursing homes in order to turn high short-term profits for investors with no plans to stay in business beyond 3 to 5 years.

Under inexperienced leadership, this model could lead the homes to cut costs by operating with as little PPE and few staff as possible, compromising patient care. These concerns have only been heightened by the pandemic, they said.

The study involved analysis of 11,470 nursing homes from May 17 to Jul 2. Mean rates of COVID-19 cases among residents were 8.8% at the 7,793 for-profit facilities, 6.7% at the 2,523 nonprofit homes, 4.0% at the 511 government-owned facilities, and 11.1% at the 543 private equity–owned homes.

Mean rates of coronavirus-related deaths were 6.2% at for-profit facilities, 6.6% at nonprofit homes, 5.6% at government-owned facilities, and 8.0% at private equity–owned homes. And mean rates of all-cause deaths were 7.8% at for-profit facilities, 9.2% at nonprofit homes, 6.8% at government-owned facilities, and 8.8% at private equity–owned homes.

After an adjusted analysis, government-owned facilities reported a 3.6% lower rate of coronavirus cases than those owned by private equity firms, but the rate of cases in private equity–owned facilities was not statistically different from those in for-profit or nonprofit facilities, and there was no significant difference in COVID-19 or all-cause deaths between for-profit, non-profit, government-owned, or private equity–owned nursing homes.

However, for-profit, nonprofit, and government-owned facilities were all more likely than private equity-owned homes to have at least 1 week's supply of N95 masks and medical gowns. And government nursing homes were 6.9 percentage points more likely than other types of homes to report nursing shortages.

"In this cross-sectional study, PE [private equity]-owned nursing homes performed comparably on staffing levels, resident cases, and deaths with nursing homes with other types of ownership, although their shortages of PPE may warrant monitoring," the authors concluded.

"Further study, including longitudinal studies, are needed to determine whether PE-owned nursing homes perform better or worse than non-PE-owned nursing homes on broader measures of clinical quality and whether they are associated with higher or lower health care spending."

<https://www.cidrap.umn.edu/news-perspective/2020/10/ppe-still-lacking-nursing-homes-covid-doubles-down>

United States

HHS, DOD Collaborate on Plans to Purchase of Lilly Investigational Therapeutic to Treat COVID-19
Source: U.S. Department of Health & Human Services (HHS)

FOR IMMEDIATE RELEASE

October 28, 2020

Contact: HHS Press Office

202-690-6343

media@hhs.gov

As part of the Trump Administration's goal of delivering life-saving vaccines and therapeutics in record time through Operation Warp Speed, the U.S. Department of Health and Human Services ([HHS](#)) and Department of Defense ([DoD](#)) today announced an agreement with Eli Lilly and Company to purchase the first doses of the company's COVID-19 investigational antibody therapeutic bamlanivimab, also known as LY-CoV555. These doses will be available for patient care if the U.S. Food and Drug Administration ([FDA](#)) authorizes use of the therapeutic, as outlined in agency [guidance](#).

"This agreement with Eli Lilly is part of Operation Warp Speed's efforts to position the federal government to distribute potential therapeutics, allowing faster distribution if trials are successful," said HHS Secretary Alex Azar. "More good news about COVID-19 therapeutics is constantly emerging, and the Trump Administration's commitment to supporting potentially lifesaving therapeutics will help deliver these products to American patients without a day's delay."

The Biomedical Advanced Research and Development Authority ([BARDA](#)), part of the HHS Office of the Assistant Secretary for Preparedness and Response, collaborated with the DoD Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense and Army Contracting Command to provide \$375 million for an initial purchase of 300,000 doses of bamlanivimab 700 mg from Lilly over the next two months. Under the agreement, the federal government can purchase up to 650,000 additional doses through the end of June 2021 for up to an additional \$812.5 million.

If the FDA authorizes use of the drug, the federal government will allocate the doses to state and territorial health departments which, in turn, will determine which healthcare facilities receive the intravenous (IV) infusion drug for use in outpatient care. These government-purchased doses would become available to the American people at no cost, although as is customary with such government-purchased products, healthcare professionals could charge for administering the medicine.

Bamlanivimab currently is being evaluated in phase 3 clinical trials funded by the company in addition to clinical trials as part of the Accelerating COVID-19 Therapeutic Interventions and Vaccines ([ACTIV](#)) public-private partnership led by the National Institutes of Health with funding and other support from BARDA. ACTIV is part of a coordinated research strategy to prioritize and speed development of the most promising treatments and vaccines.

FDA is reviewing bamlanivimab as a possible treatment for COVID-19 in outpatients. The monoclonal antibody used in the drug were identified from a blood sample taken from one of the first U.S. patients

who recovered from COVID-19. Monoclonal antibodies, which mimic the human immune system, are produced outside of the body by a single clone of cells or a cell line with identical antibody molecules and then delivered to patients by injection or infusion. The antibodies bind to certain proteins of a virus, reducing the ability of the virus to infect human cells.

About Operation Warp Speed (OWS):

OWS is a partnership among components of the Department of Health and Human Services and the Department of Defense, engaging with private firms and other federal agencies, and coordinating among existing HHS-wide efforts to accelerate the development, manufacturing, and distribution of COVID-19 vaccines, therapeutics, and diagnostics.

About HHS, ASPR, and BARDA:

HHS works to enhance and protect the health and well-being of all Americans, providing for effective health and human services and fostering advances in medicine, public health, and social services. The mission of ASPR is to save lives and protect Americans from 21st century health security threats. Within ASPR, BARDA invests in the innovation, advanced research and development, acquisition, and manufacturing of medical countermeasures – vaccines, drugs, therapeutics, diagnostic tools, and non-pharmaceutical products needed to combat health security threats. To date, 56 BARDA-supported products have achieved FDA approval, licensure or clearance. For more on BARDA's portfolio for COVID-19 diagnostics, vaccines and treatments and about partnering with BARDA, visit [medicalcountermeasures.gov](https://www.mediccountermeasures.gov). To learn more about federal support for the all-of-America COVID-19 response, visit [coronavirus.gov](https://www.coronavirus.gov).

About the JPEO-CBRND:

The Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO-CBRND) protects the Joint Force by providing medical countermeasures and defense equipment against chemical, biological, radiological and nuclear (CBRN) threats. JPEO-CBRND's goal is to enable the Joint Force to fight and win unencumbered by a CBRN environment. JPEO-CBRND facilitates the rapid response, advanced development, manufacturing and acquisition of medical solutions, such as vaccines, therapeutics, and diagnostics, to combat CBRN and emerging threats such as COVID-19. To learn more about JPEO-CBRND's COVID-19 response, visit <https://www.jpeocbrnd.osd.mil/coronavirus> or follow JPEO-CBRND on social media at @JPEOCBRND.

<https://www.hhs.gov/about/news/2020/10/28/hhs-dod-collaborate-plans-purchase-lilly-investigational-therapeutic-treat-covid-19.html>

United States

Contract staffing in nursing homes linked to SARS-CoV-2 outbreaks

Source: Healio
GPHIN ID: 1008138864

Heavy use of contract staffing was associated with an increased risk for a COVID-19 outbreak in nursing homes, according to research presented at this year's virtual IDWeek.

"Nursing home residents account for just over 40% of SARS-CoV-2-related deaths in the U.S., and staff are a known vector of transmission," Stefan Gravenstein, MD, MPH, a professor at Brown University's Alpert Medical School and School of Public Health, said during the presentation. "Nursing homes, which utilize more contract nursing, may have more transmission of contagious infections, and contract nursing may also be a proxy for nursing home quality."

Gravenstein and colleagues conducted a large, pragmatic cluster randomized influenza vaccine trial in 965 nursing homes across the United States. During the trial, they also prospectively collected data on SARS-CoV-2 outbreaks from February through April to evaluate the association between contract staffing and reported outbreaks.

Among the nursing homes, 69% reported information on SARS-CoV-2 outbreaks, and 13% of facilities had at least one reported outbreak, the researchers found. Of the reported outbreaks, 0.5% occurred in February, 10.8% occurred in March and 30% occurred in April.

Gravenstein and colleagues determined that facilities with SARS-CoV-2 outbreaks were larger — with an average of 151 beds in facilities with outbreaks and 117 beds in those without — but were otherwise similar in functional and cognitive status.

They also found that facilities that had heavy use of contract staffing — more than 223 hours per quarter — had a relative risk for SARS-CoV-2 outbreaks of 1.56 (95% CI , 1.22-1.99).

“We conclude that we observed facilities with heavy use of contacted staffing also had a higher risk of SARS-CoV-2 [in the] early period of the pandemic,” Gravenstein said during the presentation.

<https://www.healio.com/news/primary-care/20201028/contract-staffing-in-nursing-homes-linked-to-sarscov2-outbreaks>

Joint Solution for Workplace Protection Biosecurity COVID-19 Rapid Test

ID: 1008140023

Source: prnewswire.com

SAN ANTONIO, Oct. 28, 2020 /PRNewswire/ -- **Bio Testing Supplies and InGenesis announce a joint COVID-19 screening solution which enables businesses to protect their workforce during the global pandemic. The biosecurity solution includes an FDA-authorized rapid COVID-19 test administered by qualified healthcare professionals.**

"Our joint solution is unique because it includes a global network of High Complexity CLIA laboratories using the latest Saliva PCR processes and high throughput equipment," said James Strader, President and Chairman of Bio Testing Supplies. "In addition, we have developed ready to deploy High Complexity CLIA Testing with a single saliva sample that will identify COVID-19 along with Influenza A and B. This technology is a game changer worldwide."

Bio Testing Supplies and InGenesis offer an integrated occupational health COVID-19 testing service with a turnkey, scalable solution that is compliant with FDA and CDC guidelines. The COVID-19 testing and screening services can be utilized as a standalone or as an integrated service.

"Employers are beginning to imagine and manage to a new normal, one that requires taking proactive measures to protect the health, safety, and well-being of their workforce," said Dr. Veronica Muzquiz Edwards, InGenesis CEO. "Together our solution integrates and combines strategy with end-to-end execution, delivering measurable outcomes at every juncture while incorporating potential eventualities, such as immunization initiatives."

Bio Testing Supplies' SARS-CoV-2 antibody tests are FDA-authorized to identify rapidly and accurately those who are in a late state infection as well as those who have developed immunity to SARS-COV-2.

Bio Testing Supplies' Saliva RT-PCR test has been validated as a laboratory developed test in response to the need for easy-to-collect and rapid turnaround time testing solutions to detect a current infection.

About Bio Testing Supplies

Our mission is to help healthcare operations around the world access critical supplies that are not only cost-effective, but also guarantee consistent quality for rapid sourcing, aggregation, and quality control through a single point of contact. Visit Biotestingsupplies.com

About InGenesis

InGenesis, Inc. is a privately-owned company, one of the largest workforce solutions firms in North America and one of the largest healthcare total talent agencies in the nation. The company's mission is to Improve lives by connecting quality people with purposeful work. Learn more about travelers, COVID-19 occupational health and MSP programs at InGenesis.com.

InGenesis Bio Testing Supplies

10231 Kotzebue St. 1-800-849-1460

San Antonio, Texas 78217 www.biotestingsupplies.com

1-866-448-0033

www.ingenesis.com

View original content:<http://www.prnewswire.com/news-releases/joint-solution-for-workplace-protection-biosecurity-covid-19-rapid-test-301162128.html>

SOURCE InGenesis, Inc.

/Web site: <http://www.ingenesis.com>

(END)

<https://www.prnewswire.com/news-releases/joint-solution-for-workplace-protection-biosecurity-covid-19-rapid-test-301162128.html>

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

India

Fake negative certificate racket: Govt suspends 3

Source: The Times of India - Bangalore Edition

Unique ID: [1008135607](#)

Bengaluru: Bruhat Bengaluru Mahanagara Palike (BBMP) brass on Tuesday suspended three health officials including a medical officer for allegedly rigging Covid-19 tests to provide negative reports. Health minister K Sudhakar said he has directed top officials to file a criminal case against Mahalakshmi, a lab technician, Dr Shailaja, medical officer on contract and Shanthi, an Asha worker.

The three were working at Pobbathi maternity hospital near Sajjan Rao Circle, Bengaluru, and Shanthi was allegedly facilitating the racket by approaching people who sought negative test reports, which are needed to fulfil various requirements. She allegedly would assure them of a negative certificate without them having to undergo tests.

The certificate is needed to travel to some states and some companies also demand negative certificates from employees who work out of office.

Taking advantage of the situation, Shanthi would demand anywhere between Rs 1,000 to Rs 2,500 to provide a negative certificate, officials said. She would allegedly collect the phone number of the person, but not collect their swab samples. Once the SRF ID was generated, she and her associates would concoct a sample using water. It was then sent for tests.

Officials said they followed the same procedure for both rapid antigen (RAT) and RTPCR tests. With this, they were not only making money through bribes, but were also reaching testing targets set for them, officials claimed.

<https://gphin.canada.ca/cepr/showarticle.jsp?docId=1008135607>

Russian Federation

Russia applies for accelerated registration for its coronavirus vaccine

Source: ECNS

GPHIN ID: 1008137818

Russia has made applications to the World Health Organization (WHO) for an Emergency Use Listing (EUL) and prequalification of its COVID-19 vaccine "Sputnik V," a Russian sovereign wealth fund said on Tuesday.

According to a statement of the Russian Direct Investment Fund (RDIF), accelerated vaccine registration under the EUL procedure would make the Russian vaccine available to the globe faster than usual, and WHO prequalification and assessment of the quality, safety and efficacy of medicines would include the vaccine in the list that guides bulk purchasing of medicines by international procurement agencies and countries.

The vaccine, based on a platform of human adenoviral vectors, was developed by Moscow's Gamaleya Research Institute and marketed by the RDIF.

Russia was the first country to grant regulatory approval for a COVID-19 vaccine before large-scale trials were complete.

<http://www.ecns.cn/news/2020-10-28/detail-ihacfvrp0929428.shtml>

Russian Federation

Rospotrebnadzor named the number of asymptomatic carriers COVID-19

Source: RG.ru

GPHIN ID: 1008138405 (RU)

Coronavirus occurs without symptoms in about half of the patients in Moscow. This was announced by the head of the capital's Rospotrebnadzor Elena Andreeva. According to her, many people learn that they have COVID-19 only after testing, as no symptoms appear. "The number of asymptomatic forms on average is kept at the level of 45 - 50 percent," Andreeva said. That's why public transport, she says, has increased monitoring of anti-cancer measures. The capital's transport, Elena Andreeva stressed, remains a high-risk zone. That's why, she recalled, it's so important to wear masks and gloves, and to keep a social distance. <https://rg.ru/2020/10/28/reg-cfo/rospotrebnadzor-nazval-chislo-bessimptomnyh-nositelej-covid-19.html>

France, Germany announce new COVID-19 lockdowns

ID: 1008140076

Source: CIDRAP

Oct 28, 2020

As the global COVID-19 total passed 44 million today, partly driven by Europe's quickly growing second surge, **France and Germany today announced national partial lockdowns, replacing piecemeal efforts in individual regions.**

Lockdowns follow steady increases

Over the past month, Europe has become one of the world's biggest pandemic hot spots, with France among the top five countries reporting the world's most daily cases.

In an address to the nation this evening, following a meeting with government ministers, **French President Emmanuel Macron said the country will go back into a national lockdown this week to keep the outbreak from spiraling out of control, Reuters reported.**

People can go to work if they can't work from home, and most schools will stay open. But **the new rules say people have to stay home, except to buy essential goods, seek medical care, or exercise outdoors for 1 hour each day. The measure takes effect Oct 30 and will last until Dec 1.**

Macron warned that the virus is circulating faster than the most pessimistic projections and that the second surge will probably be harder and deadlier than the first.

Currently, more than half (58%) of the country's intensive care unit (ICU) beds are occupied by COVID-19 patients.

Earlier today, **German Chancellor Angela Merkel, following an emergency meeting with leaders from German states, announced a 1-month partial lockdown that goes into effect Nov 2, Reuters reported. The action temporarily shuts restaurants, bars, theaters, movie theaters, pools, gyms, and concert venues but will keep schools and shops open if they follow distancing and hygiene rules.**

Also, **professional sports can continue without spectators, and people have been asked to limit travel to essential trips.**

Germany's announcement also came with a \$11.82 billion aid package to assist those affected by the new restrictions, especially small businesses and people who are self-employed.

The country, praised for how it has handled the pandemic, hasn't been hit as hard in the second surge as some of its European neighbors, but cases doubled over the past week.

In another development from Germany, reports from the country's media said the Robert Koch Institute, a federal infectious diseases agency, sustained a cyber attack on Oct 22, just days before its building was hit by an arson attack. Its computer system was down for 2 hours, but no sensitive data were lost.

Cases in other European hot spots soar

The Czech Republic, reported to have of the continent's highest infection rates alongside Belgium, reported a record daily high of 15,663 cases today, along with rising hospitalizations. A nationwide nighttime curfew begins today.

Belgium yesterday reported a steep daily rise in hospitalizations, 689, which is dramatically up from the average daily number of 421 over the past 2 weeks and is above levels seen in March, CNN reported.

Among other countries reporting record daily cases include Italy with 24,991, Poland with 18,820, and Sweden with 1,980.

Developments in China, Mideast

Mass testing in China's Xinjiang province outbreak, meanwhile, turned up 20 more cases, raising the total to 183, CNN reported. Of those, 22 patients have symptoms and the rest are asymptomatic.

The outbreak was first detected last week with one asymptomatic case found during routine testing, and health officials ordered a lockdown and are just completing testing on nearly 5 million residents of the province's Kashgar district.

Elsewhere, Iran today recorded a daily high in deaths, 415, and also added 6,824 new cases to its total, Kuwait News Agency reported. And Pakistan's health ministry announced that the country is now in its second wave of infections, CNN reported.

In other global developments:

Sanofi and GlaxoSmithKline today pledged 200 million doses of adjuvanted, recombinant, protein-based COVID-19 vaccine to the COVAX initiative, an effort led by the World Health Organization to pool the risk of developing vaccines and secure equitable doses for countries across all income levels.

The WHO today announced in an email sent to journalists that its COVID-19 emergency committee will meet for the fifth time tomorrow virtually to assess the latest developments, gauge if the situation still warrants a public health emergency of international concern, and adjust recommendations as needed.

The global total today climbed to 44,304,816 cases, and 1,171,119 people have died from their infections, according to the Johns Hopkins online dashboard.

<https://www.cidrap.umn.edu/news-perspective/2020/10/france-germany-announce-new-covid-19-lockdowns>

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

Flu vaccine may lower risk for severe COVID-19, study suggests

Source: Latest News - UPI.com

ID: 1008140889

Summary 28 (UPI) -- People who received the flu vaccine in the year before testing positive for COVID-19 are nearly 2 1/2 times less likely to be hospitalized with a severe form of the disease than those who were not vaccinated, an analysis published Wednesday by the Journal of the American Board of Family Medicine found. Public health experts, including Dr. Anthony Fauci, director of the National Institute for Allergy and Infectious Diseases, have predicted that the approaching winter season will see a twin pandemic of the seasonal flu and COVID-19 in the United States, further stressing the nation's overburdened health system. In addition, those vaccinated against the flu within a year of being

diagnosed with COVID-19 were more than three times less likely to be admitted to an intensive care unit because of the new coronavirus, according to researchers at the University of Florida.

Oct. 28 (UPI) -- People who received the flu vaccine in the year before testing positive for COVID-19 are nearly 2 1/2 times less likely to be hospitalized with a severe form of the disease than those who were not vaccinated, an analysis published Wednesday by the Journal of the American Board of Family Medicine found.

In addition, those vaccinated against the flu within a year of being diagnosed with COVID-19 were more than three times less likely to be admitted to an intensive care unit because of the new coronavirus, according to researchers at the University of Florida.

Advertisement

The flu vaccine does not, however, offer protection against COVID-19, the researchers said. Instead, it may help prevent progression to severe disease from the virus by "priming" of the immune system against an invading virus, no matter which one, they said.

"We think this gives people a huge incentive to get a vaccination," study co-author Arch G. Mainous III said in a statement.

"It's a double-win in many ways because the vaccination is, of course, helping protect you from influenza, as well," said Mainous, a professor in the Department of Health Services Research, Management and Policy at the University of Florida's College of Public Health and Health Professions.

Nothing in the study, however, implies COVID-19 is identical to flu. The two are caused by different viruses, and COVID-19 is more lethal than influenza, making it a far more serious public health concern, Mainous and his colleagues said.

Public health experts, including Dr. Anthony Fauci, director of the National Institute for Allergy and Infectious Diseases, have predicted that the approaching winter season will see a twin pandemic of the seasonal flu and COVID-19 in the United States, further stressing the nation's overburdened health system.

Fauci and others have urged people in the United States to get vaccinated against the flu because it will at least reduce their risk for getting sickened with the seasonal virus as the pandemic rages on.

For this study, Mainous and his team examined anonymized information for 2,000 patients at University of Florida Health who tested positive for COVID-19 between March and August.

All of the data, including COVID-19 tests, hospitalizations, ICU admissions and influenza vaccination status, came from the patients' electronic health records, the researchers said.

Of these patients, 214 -- or about 11% -- had received the flu vaccine within a year of being diagnosed with the new coronavirus, they said.

More investigation is needed to confirm any links between flu vaccination and prevention of COVID-19, according to the researchers. However, the findings potentially have important implications for protecting people from a disease with few proven effective treatments, they said.

The protective effect they spotted appears to be present even in the absence of actual flu infection, although why vaccine might benefit COVID-19 patients remains unclear, they said.

In addition to boosting the body's immune system, another theory is that components added to the flu vaccine to make it more effective -- called adjuvants -- bolster immune response in general, according to the researchers.

Previous research suggests that vaccines with specific adjuvants might have offered protection to those infected with severe acute respiratory syndrome, or SARS, an earlier, less-deadly coronavirus infection first identified in 2003, study co-author Dr. Ming-Jim Yang said.

The researchers plan to look at whether other types of vaccinations offer the same benefit, particularly the pneumonia vaccine, which typically is administered to older patients, they said.

"One of the biggest problems we have with any preventive measure is getting people to do it," Mainous said. "So, maybe this would be a pretty good push for people to go out and get their flu shot."

https://www.upi.com/Health_News/2020/10/28/Flu-vaccine-may-lower-risk-for-severe-COVID-19-study-suggests/9761603912246/

Netherlands (study)

Researchers say flu shot might reduce your risk of COVID-19 infection

Source: Time Now

GPHIN ID: 1008136811

The quadrivalent inactivated influenza vaccine can induce a trained immunity response, including an improvement of cytokine responses after stimulation of human immune cells with coronavirus.

Researchers say flu shot might reduce your risk of COVID-19 infection

A new study has suggested that getting a flu shot may help reduce your risk of contracting coronavirus infection. Several studies have reported cross-protection between flu vaccination and COVID-19 during the current pandemic, although the mechanism behind such an effect is unknown. Scientists have also revealed that getting vaccinated against the flu virus may offer some shield against severe illness due to COVID-19. The research, published on the preprint server MedRxiv, indicates that getting a flu vaccine may also trigger the human body to produce broad infection-fighting molecules that can help combat COVID-19, the illness caused by the SARS-CoV-2 virus. Flu can cause serious illness, and yearly vaccination is encouraged to prevent infection in high-risk groups.

Flu shot might reduce your risk of COVID-19

In the current study, Mihai Netea, an infectious disease immunologist at Radboud University Medical Center in the Netherlands, and his colleagues investigated the possible induction of trained immunity (long-term boosting of innate immunity) responses by the influenza vaccine used in the 2019-2020 winter season in the Netherlands. The researchers also assessed the link between influenza vaccination, the incidence of COVID-19, and the disease outcome, using the influenza vaccination rates among employees of the Radboud University Medical Center, one of the large academic hospitals of the Netherlands.

The findings showed that hospital's employees who received a flu shot were 39 per cent less likely to test positive for COVID-19 as of June 1, 2020. The researchers also reported that while 2.23 per cent of non-vaccinated employees tested positive, only 1.33 per cent of vaccinated ones did - a statistically significant negative association between influenza vaccination and COVID-19 incidence.

According to the researchers, the quadrivalent inactivated influenza vaccine can induce a trained immunity response, including an improvement of cytokine responses after stimulation of human immune cells with SARS-CoV-2. The researchers also observed no link between influenza vaccination status and COVID-19 duration.

Ellen Foxman, an immunobiologist and clinical pathologist at the Yale School of Medicine, said while this is an intriguing study, it doesn't provide definitive evidence, reported Scientific American.

Studies such as these, which find correlations between behaviors and outcomes, cannot establish cause and effect. Determining whether flu shots actually prevent COVID-19 "requires big clinical trials at the level of the [general] population," added Maziar Divangahi, a pulmonary immunologist at the Research Institute of the McGill University Health Center.

While these findings coupled with similar recent independent reports argued for a beneficial effect of influenza vaccination against flu as well as COVID-19, researchers cautioned that the study is preliminary and more work is required before arriving at a conclusion.

<https://gphin.canada.ca/cepr/showarticle.jsp?docId=1008136811>

Canada (study)

When it comes to COVID-19 vaccines, how good will be good enough?

Source: National Post

GPHIN ID: 1008138086

It's no crystal ball, but when trying to predict when something is likely to happen, one approach is to tap the "wisdom of the crowd" — ask many people their opinions and average their responses.

When a McGill University-led team asked 28 experts, each with an average 25 years experience working with vaccines, when a COVID-19 vaccine is most likely to be available to the general public in the United States and/or Canada, their best-case guess was June 2021 for the soonest, but more likely fall of 2021.

The experts believed there was a three-in-10 chance a safety issue would be discovered only after the first vaccine is approved that would require a boxed warning, and a four-in-10 chance that the first large field study will report a null or negative result.

“Experts predicting that there’s only a 40 per cent chance of a negative result, that to me actually sounds pretty optimistic,” said Jonathan Kimmelman, a professor and director of the Biomedical Ethics Unit at McGill University, and the brief paper’s senior author. Historically, fewer than five per cent of non-pandemic flu vaccines tested in humans ultimately go on to get approved.

Still, “a four-in-10 chance of an undesirable thing happening, those aren’t low odds, either,” said Kimmelman, who has been puzzled by the extreme optimism of credible public health officials like American coronavirus czar Dr. Anthony Fauci who believe an effective vaccine is almost certainly near at hand, that help is on its way to lead us out of the COVID darkness.

Despite the cheering on of the groups in the vaccine race, it’s not a sure thing that the vaccines reaching phase III trials — the final stage before potential approval — are going to deliver us back to normal. Questions are being raised about proposed FDA and international standards for COVID-19 vaccines, about how good is good enough, about the sheer logistical challenges of distributing a two-dose vaccine and getting it into tens of millions of humans in Canada alone, and about persuading the young and people at low risk of the virus to be vaccinated as an act of solidarity.

Canada is already preparing the logistics for a possible roll-out in the first half of 2021. Ottawa has signed pre-order agreements with AstraZeneca, Moderna, Quebec-based Medicago and other companies for up to 358 million doses of different COVID-19 vaccine candidates.

“Work is underway in collaboration with the provinces and territories to review the capacity and capability of the existing vaccine supply chain,” Health Canada said in an email to the National Post. “Any capacity gaps will be addressed to ensure the safe and timely delivery of vaccines,” the department said, likely in an effort to avoid the massive line-ups and botched shortages during the country’s vast H1N1 flu vaccination campaign in 2009. One of the challenges with two-dose vaccines: how to get people to come back for the second dose.

Will the shots save lives or prevent bad outcomes? We don’t yet know. According to BMJ associate editor Peter Doshi, current trials aren’t set up to tell. More than 200 vaccines against the SARS-CoV-2 virus are under development; 11 are in phase III studies, each involving tens of thousands of volunteers, yet “none of those trials currently under way are designed to detect a reduction in any serious outcome such as hospital admissions, use of intensive care, or death,” Doshi wrote last week.

The trials are double blind and placebo-controlled. No one knows who is getting the real vaccine or a pretend one. The studies are designed to end after 150 to 160 COVID infections or “events” have occurred among the study volunteers. A data safety and monitoring board would then look to see whether there were fewer infections among the vaccinated group.

Even mild infections could qualify as an “event,” Doshi wrote. “In Pfizer and Moderna’s trials, for example, people with only a cough and a positive laboratory test would bring those trials one event closer to their completion.”

What we should care about is whether a vaccine is going to prevent deaths, ICU admissions or hospitalizations, and not mild symptoms, because they don’t matter as much from a public health standpoint, Kimmelman said. “Even if you have 50 per cent protection, we still won’t know whether these vaccines actually move the needle on the things we need to move the needle on.”

The difficulty is, hospital admissions and deaths from COVID-19 are uncommon, and it would require a large population over a longer period to accumulate enough deaths to see a difference between the vaccine and placebo group, Kimmelman said.

The U.S. Food and Drug Administration has set a minimum target of 50 per cent efficacy for a COVID-19 vaccine, meaning a vaccine would have to be 50 per cent better than a placebo at preventing disease.

In an early-stage study, Moderna’s COVID-19 vaccine produced neutralizing antibodies in 45 healthy, 18- to 55-year-olds who received two vaccinations, 28 days apart, the company reported in the New England Journal of Medicine. Side effects — fatigue, chills, headache or muscle aches — occurred in more than half the participants.

Dr. Jacqueline Miller, head of Moderna’s infectious diseases development, told last week’s FDA advisory panel meeting that more than 25,000 people have received both doses of its study vaccine, or a placebo, and that the vaccine was designed to evaluate Americans “at the highest risk of severe COVID disease.” Forty-two per cent of study participants are older adults or people with heart disease, diabetes or other underlying conditions, Miller added.

AstraZeneca’s vaccine, developed with Oxford University, has produced an immune response in both the young and old, Reuters reported this week. Less clear is how well an antibody response translates into how well any vaccine can actually fend off COVID.

“We just don’t know what to expect,” said Medicago president and CEO Bruce Clark. “You start asking yourself very practical questions: If something doesn’t work 50 per cent (of the time), then do we really have something? Maybe we do as an emergency response initially, but a 50-per-cent level we would have to imagine over time has to get better than that.”

But even a vaccine that works half the time offers a shot at knocking down the potency of the epidemic, Clark said, especially if it can prevent severe disease and deaths.

It’s possible vaccines with protection as low as 30 per cent could receive emergency authorization under FDA and international standards. The debate then becomes, how low can you go?

“The problem you could create is the following: You push a low-efficacy vaccine out on the grounds it’s better than nothing. Right now, you’ve got zero. Thirty per cent protection? Better than zero,” said Dalhousie University philosopher and university research professor Francoise Baylis.

“The problem then becomes what if vaccine number two is 50 per cent effective, and you’ve now already invested how much in terms of distribution to get the first vaccine into people? What do you do to the confidence of the general public and those who have already received the vaccine,” Baylis said.

“It’s a really difficult question to know at what point do you say, ‘it’s good enough.’”

The point is to make the best choices we can given the evidence we have and to continue collecting evidence so that we can revise our choices if the data turn southward

It’s also not clear how well the first vaccines will be at stopping person-to-person spread.

SARS-CoV-2 is a lethal pathogen, Baylis said. “What’s the ideal? The ideal is we totally understand how this virus works, we get a vaccine, we know that it will stop this pathogen from being able to infect humans and we know that it lasts for a specified time, for example, 10 years, and then you get a second vaccine,” Baylis said.

The reality is that anything that gets rolled out is going to be rolled out with uncertainty. “You can’t wait until you truly understand the scope of the problem because people are dying,” Baylis said.

Authorities need to communicate those uncertainties and the public needs to understand and tolerate them, Kimmelman said. “In medicine we license drugs and vaccines all the time, despite lingering uncertainties regarding impact and safety,” Kimmelman said.

We can’t wait for absolute certainty. “The point is to make the best choices we can given the evidence we have and to continue collecting evidence so that we can revise our choices if the data turn southward.”

<https://nationalpost.com/news/when-it-comes-to-covid-19-vaccines-how-good-will-be-good-enough>

Germany (study)

Study of SARS-CoV-2 outbreak in meat processing plant suggests aerosol transmission in confined places

Source: News Medical Life Sciences

GPHIN ID: 1008138314

Download PDF Copy

Reviewed by Emily Henderson, B.Sc. Oct 28 2020

The importance of maintaining high-quality air flow to restrict transmission of SARS-CoV-2 in confined workspaces has been strongly indicated by the investigation of an outbreak of the virus at a German meat processing plant during May and June 2020. The study, published in *EMBO Molecular Medicine*, found that the outbreak originated from a single worker on the meat processing production line. It also concluded that in such confined spaces where unfiltered air is recirculated at low rates of external air exchange, transmission of SARS-CoV-2 can occur over distances of at least eight meters.

The study is relevant for many workplaces, but especially significant for the meat and fish processing industries that emerged early during the pandemic as hotspots for SARS-CoV-2 around the world. A combination of environmental conditions and operational practices with close proximity between many workers on production lines engaged in physically demanding tasks promoting heavy breathing, along with shared housing and transportation, all conspire to encourage viral transmission in such plants.

Melanie Brinkmann from Technische Universität Braunschweig and Helmholtz Centre for Infection Research, Germany, Nicole Fischer from University Medical Center Hamburg-Eppendorf, Hamburg, Germany and Adam Grundhoff from the Heinrich Pette Institute for Experimental Virology, Hamburg, Germany, together with a group of further researchers conducted a multifactorial investigation at Germany’s largest meat processing plant in the state of North Rhine Westphalia, where the outbreak occurred. They

traced the events starting with an initial outbreak in May, followed by increasing numbers culminating in more than 1,400 positive cases having been identified by health authorities by 23 June.

The investigation of timing of infection events, spatial relationship between workers, climate and ventilation conditions, sharing of housing and transport, and full-length SARS-CoV-2 genotypes, demonstrated that a single employee transmitted the virus to more than 60% of co-workers in a distance of eight meters.

Related Stories

- [Research uncovers SARS-CoV-2 viral traits critical for the virus in human airways](#)
- [SARS-CoV-2 hijacks mitochondria](#)
- [SARS-CoV-2 mutations dictate severity of COVID-19 disease](#)

Viral genome sequencing was conducted and showed that all the cases shared a common set of mutations representing a novel sub-branch in the SARS-CoV-2 C20 clade. Furthermore, the same set of mutations was identified in samples collected in the time period between the initial infection cluster in May and the subsequent large outbreak in June within the same factory, suggesting that the large outbreak was seeded by cases related to the initial infection cluster.

The results indicated that climate conditions, fresh air exchange rates, and airflow, were factors that can promote efficient spread of SARS-CoV-2 over long distances, but that shared accommodation and transport played a smaller role, at least during the initial phase of the outbreak. Earlier studies already suggested that tiny droplets called aerosols may be responsible for so-called super spreading events where a single source transmits the virus to a large number of individuals. Whereas larger droplets typically travel no farther than two meters, aerosols can stay in the air for prolonged periods of time and may deliver infectious viral particles over substantially greater distances, especially in indoor settings.

The recurrent emergence of such outbreaks suggests that employees in meat or fish processing facilities should be frequently and systematically screened to prevent future SARS-CoV-2 outbreaks. Furthermore, immediate action needs to be taken to quarantine all workers in a radius around an infected individual that may significantly exceed two meters.

Additional studies are required to determine the most important workplace parameters that may be altered to lower infection risk, but optimization of airflow and ventilation conditions are clearly indicated.

Source:

[EMBO](#)

Journal reference:

Günther, T., *et al.* (2020) SARS-CoV-2 outbreak investigation in a German meat processing plant. *EMBO Molecular Medicine*. doi.org/10.15252/emmm.202013296.

<https://www.news-medical.net/news/20201028/Study-of-SARS-CoV-2-outbreak-in-meat-processing-plant-suggests-aerosol-transmission-in-confined-places.aspx>

Ireland

COVID-19 incubation period potentially much longer than previously thought

Source: news-medical.net

ID: [1008139843](#)

Researchers at Trinity College Dublin have provided an updated estimate of the incubation period for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) – the agent causes coronavirus disease 2019 (COVID-19).

Initial estimates made during the early stages of the pandemic ranged from around 4 to 7 days.

However, numerous reports have since emerged, estimating an incubation period of anything from one to 34 days.

Currently, governments are planning their mitigation strategies based on a maximum incubation period of 14 days.

Now, Prakashini Banka and Catherine Comiskey have conducted a modeling study highlighting the variability in this period, including the potential for incubation that extends beyond 14 days.

An accurate estimate of the incubation period distribution for SARS-CoV-2 is essential for modeling the virus's spread and the effectiveness of control measures.

Banka and Comiskey warn that since the incubation period may be longer than initially estimated,

detailed surveillance of self-isolation periods and other protective measures is now needed. A pre-print version of the paper is available on the server medRxiv*, while the article undergoes peer review.

The challenges faced in modeling the spread of SARS-CoV-2

Early estimates of the SARS-CoV-2 incubation period ranged from 4.0 to 6.4 days, but since then, several studies have estimated that incubation periods range from one to 34 days.

When an epidemic results in both symptomatic and asymptomatic infections, it becomes difficult to establish disease prevalence and transmission.

"Mathematical modeling of the effective reproductive number R of an epidemic, the spread of infection, and the subsequent decisions on planning and mitigation is fully dependent on accurate and up to date estimates of the key modeling parameters," say the researchers.

Given the improvements in surveillance and monitoring since the first cases were identified, Banka and Comiskey have now conducted a scoping review and meta-analysis of the parameters of the global incubation period of COVID-19.

The aim was to provide an updated estimate of the incubation period distribution that will help improve modeling estimates of the effective reproductive number R and, in turn, estimates of the prevalence of asymptomatic cases.

What did the researchers do?

The team searched five databases, including CINAHL, MEDLINE, PUBMED, EMBASE, ASSIA, and Global Index Medicus for studies published between January 1st, 2020, and July 27th, 2020.

After screening the articles, 64 were included, covering a total of 45,151 people aged 0 to 90 years, with a median age of 43 years.

The minimum incubation period ranged from 1 to 9 days and the maximum incubation period ranged from 4 to 34 days. The mean incubation period (based on 30 studies) was 6.71, with 95% confidence intervals ranging from 1 to 12.4 days.

A confidence interval (CI) is an estimate that indicates the range of values that the actual value could lie within. Therefore, the CI helps to quantify the uncertainty of an estimate when the true value cannot be known.

The median incubation period (based on 58 studies) was 6 days, with an interquartile range (IQR) of 1.8 to 16.3.

The IQR is a measure of where the middle 50% of values lie in a data set, indicating where most values lie. The smaller the IQR, the closer the data are to the median, while the larger the IQR, the further the data are spread from the median.

Banka and Comiskey say this study has found that the mean incubation period may be significantly longer than has previously been estimated.

"The findings highlight the variability in the mean period and the potential for further incubation beyond 14 days," they write.

It is essential to maintain an accurate and updated estimate

The researchers say it is essential to maintain an accurate and up-to-date estimate of the SARS-CoV-2 incubation period as the virus continues to spread so that mitigation measures and advice to the general public can be properly planned.

"It is equally essential that the mitigation strategies on affected communities and hospital planning requirements that are determined from modeling scenarios are based on reliable and accurate global estimates of the incubation period," they add.

"There is an ongoing need for detailed surveillance on the timing of self-isolation periods and related measures protecting communities as incubation periods may be longer," concludes the team.

*Important Notice

medRxiv publishes preliminary scientific reports that are not peer-reviewed and, therefore, should not be regarded as conclusive, guide clinical practice/health-related behavior, or treated as established information.

<https://www.news-medical.net/news/20201025/COVID-19-incubation-period-potentially-much-longer-than-previously-thought.aspx>

United States

NIH scientists discover key pathway in lysosomes that coronaviruses use to exit cells

Targeting cells' 'trash compactor' could lead to new antiviral strategy to fight COVID-19.

Source: US National Institutes of Health

News Releases: Wednesday, October 28, 2020

Researchers at the National Institutes of Health have discovered a biological pathway that the novel coronavirus appears to use to hijack and exit cells as it spreads through the body. A better understanding of this important pathway may provide vital insight in stopping the transmission of the virus—SARS-CoV-2—which causes COVID-19 disease.

In cell studies, the researchers showed for the first time that the coronavirus can exit infected cells through the lysosome, an organelle known as the cells' "trash compactor." Normally the lysosome destroys viruses and other pathogens before they leave the cells. However, the researchers found that the coronavirus deactivates the lysosome's disease-fighting machinery, allowing it to freely spread throughout the body.

Targeting this lysosomal pathway could lead to the development of new, more effective antiviral therapies to fight COVID-19. The findings, published today in the journal *Cell* (link is external), come at a time when new coronavirus cases are surging worldwide, with related U.S. deaths nearing 225,000.

Scientists have known for some time that viruses enter and infect cells and then use the cell's protein-making machinery to make multiple copies of themselves before escaping the cell. However, researchers have only a limited understanding of exactly how viruses exit cells.

Conventional wisdom has long held that most viruses—including influenza, hepatitis C, and West Nile—exit through the so-called biosynthetic secretory pathway. That's a central pathway that cells use to transport hormones, growth factors, and other materials to their surrounding environment. Researchers have assumed that coronaviruses also use this pathway.

But in a pivotal experiment, Nihal Altan-Bonnet, Ph.D., chief of the Laboratory of Host-Pathogen Dynamics at the NIH's National Heart, Lung, and Blood Institute (NHLBI) and her post-doctoral fellow Sourish Ghosh, Ph.D., the study's main authors, found something different. She and her team exposed coronavirus-infected cells (specifically, mouse hepatitis virus) to certain chemical inhibitors known to block the biosynthetic pathway.

"To our shock, these coronaviruses got out of the cells just fine," Altan-Bonnet said. "This was the first clue that maybe coronaviruses were using another pathway."

To look for that pathway, the researchers designed additional experiments using microscopic imaging and virus-specific markers involving human cells. They discovered that coronaviruses somehow target the lysosomes, which are highly acidic, and congregate there.

That finding raised yet another question for Altan-Bonnet's team: If coronaviruses are accumulating in lysosomes and lysosomes are acidic, why are the coronaviruses not destroyed before exiting?

In a series of advanced experiments, the researchers demonstrated that lysosomes get de-acidified in coronavirus-infected cells, significantly weakening the activity of their destructive enzymes. As a result, the viruses remain intact and ready to infect other cells when they exit.

“These coronaviruses are very sneaky,” Altan-Bonnet said. “They’re using these lysosomes to get out, but they’re also disrupting the lysosome so it can’t do its job or function.”

The researchers also discovered that disrupting normal lysosome function appears to harm the cells’ immunological machinery. “We think this very fundamental cell biology finding could help explain some of the things people are seeing in the clinic regarding immune system abnormalities in COVID patients,” Altan-Bonnet said. This includes cytokine storms, in which an excess of certain pro-inflammatory proteins in the blood of COVID patients overwhelm the immune system and cause high death rates.

Now that this mechanism has been identified, researchers may be able to find ways to disrupt this pathway and prevent lysosomes from delivering viruses to the outside of the cell; or re-acidify lysosomes in order to restore their normal functions in coronavirus-infected cells so they can fight COVID. The authors have already identified one experimental enzyme inhibitor that potently blocks coronaviruses from getting out of the cell.

“The lysosome pathway offers a whole different way of thinking about targeted therapeutics,” she said, adding that further studies will be needed to determine if such interventions will be effective and whether existing drugs can help block this pathway. She notes the findings could go a long way toward stemming future pandemics caused by other coronaviruses that may emerge.

Research reported in this study was funded by the Division of Intramural Research of NHLBI, part of the National Institutes of Health. Additionally, the research was supported by NIH grants including NIH R01 AI091985-05; NIH R01 NS36592; F32-AI113973; NIH R37GM058615; and NIH R01AI135270. All other co-authors were supported by intramural NIH and National Cancer Institute funds.

Study: β -Coronaviruses use lysosomes for egress instead of the biosynthetic secretory pathway DOI: 10.1016/j.cell.2020.10.039

This news release describes a basic research finding. Basic research increases our understanding of human behavior and biology, which is foundational to advancing new and better ways to prevent, diagnose, and treat disease. Science is an unpredictable and incremental process — each research advance builds on past discoveries, often in unexpected ways. Most clinical advances would not be possible without the knowledge of fundamental basic research.

About the National Heart, Lung, and Blood Institute (NHLBI): NHLBI is the global leader in conducting and supporting research in heart, lung, and blood diseases and sleep disorders that advances scientific knowledge, improves public health, and saves lives. For more information, visit www.nhlbi.nih.gov.

<https://www.nih.gov/news-events/news-releases/nih-scientists-discover-key-pathway-lysosomes-coronaviruses-use-exit-cells>

Coronavirus: Destructive 'autoantibodies' develop in some survivors

Source: Health News

ID: [1008141096](#)

Summary Teams of researchers have been scouring for answers as to why some people - many of whom were in good health prior to catching coronavirus - become 'long-haulers' while others are over the infection and symptom free in a matter of days or weeks. One study found that 81 out of 110 - about 74 percent - of a group of UK COVID-19 patients who had been hospitalized for the infection were still suffering lingering symptoms three months after they were discharged. But now that the scientists have discovered they can test for these rogue antibodies, they hope they can identify who has them and develop treatments to combat flare ups like those that already exist for older autoimmune diseases.

Immune cells that coronavirus survivors develop in an attempt to fight the infection may turn on some of them, attacking healthy tissues, new research suggest.

The off-target assaults of these rogue immune cells may be the culprit of COVID-19 'long-haulers'

lingering symptoms, the Emory University scientists suspect.

So-called 'autoantibodies' are similar to the autoimmune responses seen in diseases like lupus, some forms of hepatitis and rheumatoid arthritis.

If coronavirus's autoantibodies follow the suit of these conditions, long-covid may not be curable.

But now that the scientists have discovered they can test for these rogue antibodies, they hope they can identify who has them and develop treatments to combat flare ups like those that already exist for older autoimmune diseases.

A growing number of coronavirus survivors are reporting symptoms that linger months after they clear the virus. Emory University researchers think it may be due to 'autoantibodies' the body produces in an effort to combat coronavirus, but which target healthy tissues instead (file)

The number of coronavirus survivors suffering 'long-covid' is hard to pin down, but ever-growing.

One study found that 81 out of 110 - about 74 percent - of a group of UK COVID-19 patients who had been hospitalized for the infection were still suffering lingering symptoms three months after they were discharged.

Other studies have estimated the figure to be closer to a more conservative one in 10.

The lingering symptoms have struck people of all ages, including children and teenagers as well as elderly people and pregnant women.

Some are find themselves periodically breathless, months after they've cleared the virus.

Others are left with draining fatigue, skin rashes or diarrhea.

Teams of researchers have been scouring for answers as to why some people - many of whom were in good health prior to catching coronavirus - become 'long-haulers' while others are over the infection and symptom free in a matter of days or weeks.

The potentially chronic condition seems more common in those who become severely ill, but that, too, leaves open questions about why those individuals become so much sicker than others.

Twelve weeks after release from a UK hospital, 81 out of 110 still had symptoms like breathlessness, excessive fatigue, loss of smell and muscle aches, a recent study found

Some scientists have looked to genetics as a potential explanation, but the Emory team drew a connection between the immune overreaction seen during the course of illness with COVID-19, the pattern of 'flare ups' and other non-infectious disease that behave similarly.

They had also noticed that some of the immune proteins and cells in COVID-19 patients' blood suggested misdirected antibody attacks.

Antibodies are immune proteins manufactured by B cells. They are tailor-made after the body identifies a new bacterium or virus, like SARS-CoV-2. Bits of genetic code from the pathogen become the instructions for B cells to start churning out a bespoke weapon.

But sometimes, this system gets flummoxed and misidentifies bits of human genetic code as the target, and designs a weapon to seek and destroy these.

These are called 'autoantibodies' - antibodies the human immune system makes to fight itself.

'Anytime you have that combination of inflammation and cell death, there is the potential for autoimmune disease and autoantibodies, more importantly, to emerge,' said Dr Marion Pepper, an immunologist at the University of Washington in Seattle told the New York Times.

To test their theory, the Emory team ran a battery of blood tests on 52 discharged coronavirus patients who had been 'severely' or 'critically' ill in the Atlanta, Georgia area.

In 44 percent of the entire group, they found autoantibodies that react to bits of human DNA.

More than 70 percent of the half of the group that had been sickest had these self-destructive immune cells, and many patients also had antibodies that neutralize a protein that plays a critical role in the formation of healthy blood clotting, known as rheumatoid factor.

These malformed autoimmune weapons could well explain both the inflammation and cardiovascular issues seen in many long-haulers.

Antibodies accurately formed against coronavirus have been shown to wane after a few months, which may mean that protection against reinfection does too.

What remains to be seen is whether autoantibodies likewise dissipate over time - or linger for years to come, driving a chronic disease as is the case in lupus or rheumatoid arthritis.

In the latter case, being able to test for these autoantibodies could be the first step toward designing treatments to quell their effects.

But if the phenomenon follows the pattern of other autoimmune disease, there's unlikely to be a cure.

'You never really cure lupus - [patients] have flares, and they get better and they have flares again,' Dr Ann Marshak-Rothstein and Immunologist at the University of Massachusetts, Worcester, told the Times. 'And that may have something to do with autoantibody memory.'

https://www.dailymail.co.uk/health/article-8889811/Some-covid-survivors-develop-autoantibodies-attack-healthy-cells.html?ns_mchannel=rss&ns_campaign=1490&ito=1490

Domestic Events of Interest

Opioid deaths skyrocket, mental health suffers due to pandemic restrictions, new federal report says

Source: CBC News

ID: 1008139561

The COVID-19 pandemic has wreaked havoc on Canadians suffering from mental illness, opioid addiction and other substance abuse problems, says a new study released today by the Public Health Agency of Canada (PHAC) which confirms anecdotal reports warning that the pandemic's health consequences extend well beyond the novel coronavirus itself.

Efforts to curb the spread of COVID-19 through social distancing and shutdowns have kept the Canadian caseload relatively low compared to other jurisdictions globally. But the overall health of the population has deteriorated over the last eight months, with more people turning to drugs, alcohol, tobacco and screen time over physical exercise to cope with the stress.

"This year's annual report describes the heavy toll that the COVID-19 pandemic has had on Canadian society, both directly and indirectly," Chief Public Health Officer Dr. Theresa Tam said Wednesday as she released her agency's annual report.

"These findings are more than just uncomfortable facts about our country during this pandemic. They're the lived realities of countless Canadians."

One pandemic, different levels of risk

Confirming what has been well-documented already, PHAC found that long-term care (LTC) homes have been the epicentre of COVID-19-related deaths because "pandemic preparedness did not extend into these settings." The report said LTC facilities' limited supplies of personal protective equipment, old infrastructure, poor ventilation and chronic understaffing led to more infections.

People of colour in Canada also have been far more likely to contract the virus, PHAC found. The report says Arab, Black, Middle Eastern, Latin American, South Asian and Southeast Asian Canadians accounted for more than 80 per cent of the cases in Toronto, despite collectively making up slightly more than half of the city's population.

While the reasons for this minority/majority split in the caseload numbers are unclear, PHAC suggested that pre-existing health disparities, the stress of racism and the preponderance of low-wage work in high-risk places could be to blame.

Beyond the COVID-19 pandemic, Canada is still in the grips of an opioid crisis — a crisis that is now much worse than it was just a year ago. With travel and border restrictions in place, the local opioid supply has grown more toxic and dangerous, PHAC said.

While Canada made meaningful progress in reducing the rate of overdoses in 2018-19, the number of deaths has increased significantly since the start of this year.

A surge in opioid deaths

In B.C., there were more than 100 "illicit drug toxicity" deaths per month for six consecutive months from March to August 2020, and more than 175 such deaths each month in May, June and July, according to data compiled by PHAC.

B.C.'s highest monthly opioid death toll, in June 2020, was 181, up from 76 in June 2019. First Nations people account for a disproportionate number of these deaths — they were nearly six times more likely to die from an overdose than other B.C. residents.

In July, B.C. paramedics responded to a record high number of overdose calls — a 75 per cent spike in calls compared to the same month last year. Paramedics in B.C. also responded that month to an average of 87 overdose calls a day, or 2,706 calls in total.

Last week, the B.C. Coroners Service said 1,202 people have died of fatal overdoses so far this year, compared to just 983 deaths in all of 2019. The death toll in B.C. in September was more than double the 60 fatalities recorded in the same month last year.

Preliminary data from Ontario also show that the number of confirmed and probable deaths from opioid-related causes has increased by almost 50 per cent, from 148 deaths in January to 220 deaths in May. Alberta also experienced a dramatic increase in opioid-related deaths in the three-month period from April to June 2020 — 302 deaths, up from the previously recorded high of 211 deaths in a three-month period in 2018.

PHAC heard from frontline workers who said that, because of social restrictions, many more people have been using opioids alone, "decreasing the chance of intervention if they overdose and contributing to the increase in overdose-related fatalities."

Physical distancing measures at safe-consumption sites designed to prevent the spread of COVID-19 also resulted in more opioid-related deaths.

At least one supervised consumption site in Ottawa did away with physical distancing measures after several clients overdosed while waiting in line to get in.

We're drinking and smoking more, moving less

Meanwhile, many Canadians have increased their use of alcohol, cannabis and tobacco during this pandemic.

By early summer, based on surveys by Statistics Canada, alcohol consumption was up 19 per cent, cannabis use jumped 8.3 per cent and tobacco smoking rates were up by 3.9 per cent over pre-pandemic levels.

CBC North has documented a surge in alcohol and substance abuse in Canada's northern territories thanks in part to more bootlegging and access to cash through the Canadian emergency relief benefit (CERB) and other relief supports.

WATCH: Dr Theresa Tam says pandemic exposed existing inequities in Canadian society

The pandemic and its resulting restrictions on social and economic life have had a lasting impact on mental health.

PHAC found that, due to shelter-in-place restrictions, more women have had to stay with abusive partners and LGBTQ kids have been confined to homes with homophobic and transphobic parents and caregivers. Child welfare agencies are reporting a drop in abuse or neglect reports — but they fear it's because fewer cases are being reported now that more school-age children are stuck at home without access to school or sports.

"This may be the result of fewer detection opportunities, as children are likely to be isolated at home and without community involvement," PHAC said.

But it's not just the vulnerable and marginalized among us who have seen notable drops in mental wellness.

Canada has gone from one of the happiest countries in the world — ninth out of 156 countries according to a 2019 UN report — to one that is noticeably less so.

Less happy, more anxious

In 2018, 68 per cent of Canadians age 15 years and older reported excellent or very good self-perceived mental health. This figure dropped to 54 per cent in late March and early April 2020 before going lower still to 48 per cent in early May, according to Statistics Canada data.

Indigenous people, the disabled and low-income Canadians also have reported experiencing more suicidal thoughts since the outbreak, PHAC found.

With strict social distancing measures and limits on social gatherings in place, many Canadians feel isolated and are worried about the state of their friendships and familial relationships.

70 per cent of Canadians who responded to a recent Statistics Canada survey said they were concerned about maintaining social ties.

54 per cent of respondents with kids said they were very or extremely concerned about their children's loneliness or social isolation.

While thousands of Canadians have died from COVID-19 — nearly 80 per cent of them in long-term care homes, as of August — there were also more deaths in general this year than last.

"Alberta, British Columbia, Ontario and Quebec all showed increased numbers of deaths compared to the same time period over the past five years. Some of these additional deaths are directly related to COVID-19, however contributions from other causes not directly linked to COVID-19 cannot be excluded," PHAC concluded.

Hospitals have seen a drop in walk-in patients for other maladies in emergency rooms. Surgeries have been cancelled or postponed due to capacity restraints, and health professionals fear that people may be avoiding necessary medical care because of pandemic-related worries.

With gyms closed in many jurisdictions and recreational sports leagues on pause, some Canadians are less active. Those who weren't particularly active before March 2020 lockdown reported being even less so in the months that followed.

More than 60 per cent of Canadians reported spending more time using the internet and watching TV during the pandemic in early April.

"Limited physical activity as a result of public health measures to physically isolate may also have an impact on mental health. Research has demonstrated that people who were able to engage in physical activity outdoors were more likely to report excellent or very good mental health," PHAC said.

<https://www.cbc.ca/news/public-health-annual-report-opioid-deaths-skyrocket-1.5780129>

Canada

Five overdoses in six days may be linked to contaminated drugs in Lindsay

Source: Kawartha Lakes This Week

GPHIN ID: 1008138252

An alarming increase in suspected opioid overdoses in the City of Kawartha Lakes is bringing an alert to be watchful for potentially dangerous drugs in the community.

The Haliburton, Kawartha, Pine Ridge District Health Unit is issuing an alert in collaboration with local police services to support people who use drugs. The alert comes as the Kawartha Lakes Police Services reports five overdose incidents in the last six days. The overdoses are thought to be the result of a contaminated or poisoned drug supply, or inconsistent or increased potency, causing more severe overdose reactions.

"We are very concerned about these recent overdose incidents and are encouraging everyone to be extra vigilant and aware," says health unit substances and harm reduction coordinator Catherine MacDonald.

"This alert is being issued because there are potentially toxic substances present in the community that are putting people's health at risk."

The Health Unit reminds anyone who uses drugs (or those who know someone who does) to:

Test a small amount of drug before use. Never use alone. Ensure that 911 can be contacted in the event of an overdose. Avoid mixing drugs.

Individuals are also encouraged to keep a naloxone kit close at hand. Naloxone is an emergency medicine that temporarily reverses the effects of an opioid overdose until the victim can get to hospital for

treatment. Many local police and emergency responders already carry naloxone. Free kits are also available to people who use opioids, as well as their family and friends. For local sites visit www.ontario.ca/naloxone.

MacDonald also encourages people to intervene if they see someone who is overdosing by calling 911 and giving the person naloxone. The Good Samaritan Act protects anyone trying to help in an emergency from possible legal repercussions and also protects people on the scene of an overdose from being charged for possessing or using drugs.

Signs of an overdose include very large or very small pupils, slow or no breathing, cold and clammy skin, blue or purple fingernails or lips, and snoring or gurgling sounds. Often in drug overdoses, it is also difficult to wake up the person. For more information about harm reduction and COVID-19, please visit the health unit website (www.hkpr.on.ca).

<https://www.mykawartha.com/news-story/10232986-five-overdoses-in-six-days-may-be-linked-to-contaminated-drugs-in-lindsay/>

International Events of Interest

United States

Mystery surrounds two new E. coli outbreaks with genetic links to past Romaine events

Source: Food Safety News

ID: [1008141092](#)

Summary While there have been no specific foods definitively linked to these outbreaks, the FDA has taken a number of actions to prevent foodborne illness outbreaks and strengthen safeguards for consumers as part of our New Era of Smarter Food Safety initiative, including the issuance of the Leafy Greens STEC Action Plan, which outlined actions that the FDA plans to take in 2020 to advance work in three areas: prevention, response and addressing knowledge gaps. In collaboration with the California Department of Food and Agriculture (CDFA), prioritized inspections and other surveillance activities at farms identified by traceback in the 2019 outbreaks during the 2020 growing/harvest season specifically to further investigate harvest operations and factors in the environment that may have contributed to the introduction and transmission of E. coli O157: H7 in leafy greens grown in the Salinas Valley, California, which further increased our understanding of how leafy greens may have become contaminated and the impact of animal activity on adjacent and nearby land.

With Halloween only hours away, **two new E. coli outbreaks have shown up to haunt the nation's Romaine growers because genetic links to the past have been discovered.**

The two outbreaks of Shiga toxin-producing E. coli O157: H7 (STEC) illnesses are under investigation by the Food and Drug Administration (FDA), Centers for Disease Control, and Prevention (CDC), along with various state and local health departments.

“We do not know what food is causing people to get sick or whether it involves an FDA-regulated food product,” said Frank Yiannas, **FDA Deputy Commissioner for Food Policy and Response.** “**However, we have seen similar recurring, emerging, or persistent strains of E. coli in recent outbreaks. E. coli O157: H7 can contaminate many foods, and we cannot assume that the current outbreaks are linked to historically associated foods like romaine and other leafy greens. There is no information currently to indicate that people should avoid any specific food.**”

“We are issuing this update early in our investigation as part of our continued commitment to transparency and early communication,” he added. “We are also working toward making a new resource available soon on our website to provide early updates on new and active investigations. We are closely working with our partners at the CDC and the states to pinpoint the sources of the E. coli O157: H7 illness outbreaks and will share information as it becomes available.”

Additional Information:

Two distinct outbreaks of foodborne illness of E. coli O157: H7 (STEC) are under investigation involving recurring, emerging, or persistent strains.

To support the CDC's epidemiological investigation, the FDA is conducting traceback investigations, on-site inspections, and sampling in an effort to rule in or rule out suspect foods.

While there have been no specific foods definitively linked to these outbreaks, the FDA has taken a number of actions to prevent foodborne illness outbreaks and strengthen safeguards for consumers as part of our New Era of Smarter Food Safety initiative, including the issuance of the Leafy Greens STEC Action Plan, which outlined actions that the FDA plans to take in 2020 to advance work in three areas: prevention, response and addressing knowledge gaps. Actions completed this year include:

Publication of a report following our investigation into three 2019 outbreaks of E. coli O157: H7 in leafy greens grown in the Salinas Valley, California, which further increased our understanding of how leafy greens may have become contaminated and the impact of animal activity on adjacent and nearby land. In collaboration with the California Department of Food and Agriculture (CDFA), prioritized inspections and other surveillance activities at farms identified by traceback in the 2019 outbreaks during the 2020 growing/harvest season specifically to further investigate harvest operations and factors in the environment that may have contributed to the introduction and transmission of E. coli O157: H7 that led to the contamination of romaine lettuce in the Salinas Valley growing area.

Initiated a longitudinal research study with CDFA and other agricultural partners in California to improve food safety through our enhanced understanding of the ecology of human pathogens in the environment that may cause foodborne illness outbreaks. In addition, our inspection activity in the Central Coast, Central Valley, and Imperial Valley in California and in Yuma, Arizona, includes sampling and testing for pathogenic E. coli and Salmonella with a new sampling assignment as well as sampling assignments for the last few years.

Outbreak 1 – possibly linked to the 2018 Yuma Romaine E. coli Outbreak.

As of October 28, 2020, a total of 21 people infected with the outbreak strain of E. coli O157: H7 have been reported from eight states.

Illnesses started on dates ranging from June 6, 2020, to October 5, 2020. Ill people range in age from 2 to 75 years, with a median age of 24 years. Sixty-seven percent of ill people are female. Of 16 ill people with information available, 8 hospitalizations have been reported, including 1 person who developed hemolytic uremic syndrome (HUS), a type of kidney failure. One death has been reported from Michigan.

Several ill people have been identified as part of an illness cluster at a restaurant. An illness cluster is defined as two or more people from different households who report eating at the same restaurant location, attending a common event, or purchasing food at the same grocery store in the week before becoming ill. Investigating illness clusters can provide critical clues about the source of an outbreak. If several unrelated ill people ate or shopped at the same location of a restaurant or store within several days of each other, it suggests that the contaminated food item was served or sold there.

The strain of E. coli O157: H7 causing illness in this outbreak has previously caused outbreaks linked to different sources, including an outbreak linked to romaine lettuce in 2018. However, food linked to a previous outbreak alone is not enough to prove a link in another outbreak of the same strain. This is because different foods can be contaminated by the same strain of bacteria.

Outbreak 2 – possibly linked to 2019 Salinas Romaine E. coli Outbreak.

As of October 28, 2020, a total of 23 people infected with the outbreak strain of E. coli O157: H7 have been reported from 12 states.

Illnesses started on dates ranging from August 17, 2020, to October 8, 2020. Ill people range in age from 5 to 81 years, with a median age of 21 years. Sixty-seven percent of ill people are female. Of 15 ill people with information available, 10 hospitalizations have been reported, including 2 people who developed hemolytic uremic syndrome (HUS), a type of kidney failure. No deaths have been reported.

State and local public health officials are interviewing ill people to determine what they ate and other exposures in the week before they got sick. People have reported eating a variety of foods, including leafy greens. Of the 13 people interviewed to date, all reported eating various types of leafy greens, like iceberg lettuce (9), romaine lettuce (8), mixed bag lettuce (6), and spinach (9).

This outbreak is caused by the same strain of E. coli O157: H7 that caused an outbreak linked to romaine lettuce in 2019. However, food linked to a previous outbreak alone is not enough to prove a link in another outbreak of the same strain. This is because different foods can be contaminated by the same strain of bacteria.

(To sign up for a free subscription to Food Safety News, click here.)

<https://www.foodsafetynews.com/2020/10/mystery-surrounds-two-new-e-coli-outbreaks-with-genetic-links-to-past-romaine-events/>

WHO notes recent flu detections, mainly H3N2, in some countries

Source: WHO, CIDRAP

ID: [1008140091](#)

Summary Though global flu levels are still lower than expected for this time of year, some Northern Hemisphere countries reported some detections, the World Health Organization (WHO) said in an update posted today that covers roughly the first half of October. In the United States, though influenza-like illness (ILI) levels overall are below the national baseline, activity in children ages 0 to 4 years old was just above that marker. Europe reported sporadic flu detections, and China's ILI activity appears to have increased to levels seen over the past three flu seasons.

28 Oct.

Though global flu levels are still lower than expected for this time of year, some Northern Hemisphere countries reported some detections, the World Health Organization (WHO) said in an update posted today that covers roughly the first half of October.

The agency urged caution in interpreting flu trends because of the likely impacts from COVID-19 restrictions and surveillance. In the United States, though influenza-like illness (ILI) levels overall are below the national baseline, activity in children ages 0 to 4 years old was just above that marker. Canada reported an increase in flu detections, though at a lower level than previous seasons.

Europe reported sporadic flu detections, and China's ILI activity appears to have increased to levels seen over the past three flu seasons.

In tropical countries, Ivory Coast and Mali reported some flu positives, and in South Asia, ILI activity rose slightly in Afghanistan, with a further increase in Cambodia and flu detections—mainly from H3N2—in Laos. And elsewhere, flu activity stayed above the epidemic threshold in Argentina, where H3N2 and influenza B are cocirculating.

Globally, of 82,257 respiratory specimens tested at WHO network labs, only 172 were positive for flu. Of the positive samples, 62.8% were influenza A, and, of subtyped influenza A samples, 93.9% were H3N2.

<https://www.cidrap.umn.edu/news-perspective/2020/10/news-scan-oct-28-2020>

https://www.who.int/influenza/surveillance_monitoring/updates/2020_10_26_surveillance_update_379.pdf?ua=1

Researches, Policies and Guidelines

Study (United States)

Health.-Scientists use clues in the human genome to discover a new inflammatory syndrome

Source: CE NoticiasFinancieras

GPHIN ID: 1008135912

MADRID, 28 (EUROPA PRESS) Researchers from the U.S. National Institutes of Health (NIH) have discovered a new inflammatory disorder caused by mutations in the UBA1 gene, whose symptoms include blood clots in the veins, recurrent fevers, pulmonary abnormalities, and vacuoles (unusual cavity-like structures) in myeloid cells, as published in the New England Journal of Medicine. Nearly 125 million people in the United States have some form of chronic inflammatory disease. Many of these diseases have overlapping symptoms, which often makes it difficult for researchers to diagnose specific inflammatory disease in a given patient. Researchers from the National Human Genome Research Institute (NHGRI), which is part of NIH, and collaborators from other NIH Institutes took a unique approach to address this challenge.

They studied the genome sequences of more than 2,500 individuals with undiagnosed inflammatory diseases, paying special attention to a set of more than 800 genes related to the ubiquitylation process, which helps regulate both the various functions of proteins within a cell and the immune system in general. In doing so, they found a gene that is closely related to this new syndrome, called X-linked auto-inflammatory and somatic syndrome, vacuoles, and enzyme E1 (VEXAS), a life-threatening disease. So far, 40% of VEXAS patients who studied the team have died, revealing the devastating consequences of the serious condition. Researchers usually discover a previously unknown disease by studying several patients with similar symptoms and then looking for a gene or multiple genes that may play a role in the cause of the disease. However, this was not a viable option for the NIH research team. "We had many patients with undiagnosed inflammatory conditions coming to the NIH Clinical Center and simply couldn't diagnose them," explains David B. Beck, a clinical member of NHGRI and lead author of the study--. That's when we had the idea of doing it the opposite way. Instead of starting with symptoms, start with a list of genes. Then, study the genomes of undiagnosed individuals and see where it takes us." Of the genome sequences of 2,560 patients with undiagnosed inflammatory conditions, more than 1,000 patients had undiagnosed recurrent fevers and inflammation throughout the body. The rest, part of the NIH's Network of Undiagnosed Diseases, had unusual and unclassified disorders. "Our goal was to see if any of the 2,560 patients shared variations in the same gene," says Daniel Kastner, scientific director of the Intramural Research Program at NHGRI and lead author of the paper--. Instead of looking at clinical similarities, we were taking advantage of shared genomic similarities that could help us discover a completely new disease." Of the 800 genes, one stood out. Three middle-aged males had rare and potentially harmful genomic variants in the UBA1 gene, but each of the three appeared to have two copies of the UBA1 gene with a copy harboring the mutation, which was not unexpected because humans usually have two copies of each gene. However, the UBA1 gene resides on the X chromosome and men have only one X chromosome (and one Y chromosome). "We were surprised to see this and wondered what it might mean. And that's when he clicked: this was only possible if he had mosaicism in these men," Dr Beck recalls. Mosaicism occurs when some people have groups of cells with mutations that are different from the rest of the body. The team predicted that there were specific cells in the bodies of patients carrying the UBA1 gene in its normal form, while other cells carried the gene in its mutated form. Using AND sequencing methodologies, researchers found that mosaicism was present in patients' myeloid cells, which are responsible for systemic inflammation and act as the first line of defense against

infections. They then analyzed genome sequences of additional individuals from various NIH cohorts and databases, which led to the discovery of 22 additional adult men with UBA1 gene mutations. Most people had symptoms that included blood clots in their veins, recurrent fevers, lung abnormalities, and vacuoles (unusual cavity-like structures) in myeloid cells. Of the 25 individuals combined, researchers were able to find a link between the various rheumatological and blood-related clinical diagnoses made for patients. Because these conditions exist in people with UBA1 mutations, the team grouped the various conditions into a new disease: VEXAS. "By using this genome approach first, we have managed to find a thread that unites patients who carry all these seemingly unrelated disparate diagnoses," says Dr Kastner. Researchers hope this new strategy will help health professionals improve disease evaluations and provide appropriate treatments for thousands of patients with a variety of inflammation-related conditions. The study can also pave the way for a new and more appropriate classification of inflammatory diseases. <https://gphin.canada.ca/cepr/showarticle.jsp?docId=1008135912>

United States

GU research helps unlock pathway to fight parasites

ID: 1008141393

Source: spokesman.com

Oct. 28—A study led by Gonzaga University professor Jennifer Shepherd raises the prospects for developing new drugs to kill parasites, which have sickened an estimated 1.5 billion people worldwide. Her work targets parasitic helminths, a class including roundworms and tapeworms that live in soil and colonize human guts through dirty water. Parasitic diseases can have significant and chronic consequences for child development.

Shepherd, chair of Gonzaga's chemistry and biochemistry department, said the new study found that the parasites have a unique enzyme variant allowing them to synthesize rodoquinone, a molecule needed to survive in the low-oxygen space of the human gut and intestines. That enzyme now can be targeted for new treatments.

"We've been trying to find a difference, something that we can selectively target that only parasites have that humans don't, and we have found that now," said Shepherd, who has studied the biosynthesis of rodoquinone for nearly 20 years.

"If we want to develop a drug to kill parasites, we can target now this enzyme variant. We can try to shut it down so it can't work and it can't make this molecule, rodoquinone. Without rodoquinone, they die when they're inside the host."

Parasites can live in both oxygen environments and spaces with little to no oxygen. Once inside a host, they switch to an alternative metabolic pathway — a type of anaerobic or oxygen-independent metabolism — for generating energy to survive.

A global team of researchers including Shepherd seeks to advance understanding of the mechanisms involved in how the parasites make the switch.

Mammals, who use aerobic respiration, don't make or need rodoquinone. Rather, humans use ubiquinone, also named coenzyme Q10 or CoQ10, for aerobic metabolism. Parasites can make both of molecules.

"We've figured out that the parasites have acquired this enzyme variant that humans don't have in order to make rodoquinone," Shepherd said. "To make RQ, parasites need a different enzyme than is needed to make CoQ10."

Parasites affect humans, domestic animals and livestock. Parasite-related illness is considered a neglected tropical disease because large funding typically isn't given for research to study or develop new anti-parasitic drugs, she said. Very few therapeutics are available.

"In the last 30 or 40 years, I think there's only been three new ones developed, and under the current ones, the parasites are gaining resistance to them; that just happens naturally," said Shepherd, who will continue work with the team to find future treatments.

"We really need a new kind of anti-parasitic drug. The current ones that are in use have a number of side effects because they target energy systems or metabolisms that are present in both hosts and the parasites, so humans also can be affected by the drugs negatively.

"That's why we're trying to find a unique pathway that only the parasites have and try to shut that down so that it won't negatively affect the host. Something that's more selective hopefully would be more difficult to gain resistance to. That's why we're interested in that area."

Shepherd also has a personal interest, after spending much time in Ghana, from where she adopted three kids who have been home with her family for 10 years. She's seen many parasitic infections firsthand during her Africa visits.

Such infections are common in less-developed countries, but parasites are found in some North American locations, Shepherd said.

"The infections are in North America, and all over the world, but highly prevalent in third-world countries where they have poor water quality because a lot of these parasitic eggs grow in contaminated water and soil."

The study's leaders also included Gustavo Salinas, a professor at Universidad de la República in Uruguay, and Andrew Fraser, professor of molecular genetics at the University of Toronto's Donnelly Centre for Cellular and Biomolecular Research.

Funding came from the Canadian Institutes for Health Research and Agencia Nacional para la Innovación y la Investigación ANII in Uruguay.

<https://www.spokesman.com/stories/2020/oct/28/gu-research-helps-unlock-pathway-to-fight-parasite/>