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To: gphin / rmisp (PHAC/ASPC)
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Good morning,

Please find below the daily Summary and articles collected by GPHIN for your review and risk assessment.

[Canada \(Update\) - Coronavirus disease \(COVID-19\) Outbreak \(Official\)](#)

As of 29 September 2020 at 19:00 EDT, a total of 156,961 cases have been recorded in Canada including 9,291 deaths. The cases are reported in Newfoundland and Labrador (273 confirmed cases, 3 deaths), Prince Edward Island (59 confirmed cases), Nova Scotia (1,087 confirmed cases, 65 deaths), New Brunswick (200 confirmed cases, 2 deaths), Quebec (73,450 confirmed cases, 5,833 deaths), Ontario (51,085 confirmed cases, 2,844 deaths), Manitoba (1,953 confirmed cases, 20 deaths), Saskatchewan (1,899 confirmed cases, 24 deaths), Alberta (17,909 confirmed cases, 266 deaths), British Columbia (9,013 confirmed cases, 234 deaths), Yukon (15 confirmed cases), Northwest Territories (5 confirmed cases), Nunavut (0 confirmed case), and repatriated travellers (13 confirmed cases). A detailed [epidemiological summary](#) is available. The risk will vary between and within communities, but given the increasing number of cases in Canada, the risk to Canadians is considered [high](#).

[International \(Update\) - Coronavirus disease \(COVID-19\) Outbreak \(Media\)](#)

As of 30 September 2020, 11:07 GMT, there were 33,884,087 cases of COVID-19 and 1,013,457 deaths reported globally. Top 10 countries with the highest number of cases, by alphabetical order are: Argentina (736,609 cases, 16,519 deaths), Brazil (4,780,317 cases, 143,010 deaths); Colombia (824,042 cases, 25,828 deaths); India (6,229,474 cases, 97,541 deaths); Mexico (738,163 cases, 77,163 deaths); Peru (811,768 cases, 32,396 deaths); Russia (1,176,805 cases, 20,722 deaths); South Africa (672,572 cases, 16,667 deaths); Spain (758,172 cases, 31,614 deaths); United States (7,406,729 cases, 210,797 deaths).

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

- [A Calgary hospital was postponing surgeries and restricting visitors on 28 September 2020 as the number of people infected in multiple COVID-19 outbreaks climbed](#). Alberta Health Services reported 26 patients and 27 workers at the Foothills Medical Centre had contracted the novel coronavirus. Alberta Health Services has postponed 39 surgeries that were scheduled for 28 September 2020 due to staff restrictions and a reduced number of in-patient beds at Foothills. AHS communicated that the procedures are being rescheduled as quickly as possible, most within the next week. The United Nurses of Alberta's labour relations director wrote to the CEO of Alberta Health Services last week urging more support for workers forced to isolate due to workplace COVID-19 outbreaks.
- [The Ontario government is investing \\$52.5 million to recruit, retain and support over 3,700 more frontline health care workers and caregivers](#) to ensure the health care system can meet any surge in demand, while continuing to provide safe and high-quality care to patients and long-term care residents. In order to increase and stabilize the health care workforce, the province is investing an additional \$26.3 million to support personal support workers (PSWs) and supportive care workers; including: Investing \$200,000 to improve the matching algorithm for the Ontario Matching Portal which will enable employers to get faster matches that best meet their needs. [Details of the program were provided on 28 September 2020 by Ontario's Premier and the Deputy Premier and Minister of Health](#).
- [The Canadian Medical Association \(CMA\) is raising an alarm about the challenges physicians continue to face ahead of a second wave](#), including obtaining personal protective equipment and getting access to the flu vaccine. A survey shows that 68 per cent of community-based doctors -- those working in offices or walk-in clinics are worried that suppliers will not have sufficient stocks of PPE while 62 per cent expect orders to be delayed. While there have been improvements in the supply and distribution of PPE, a survey of CMA members found that 54 per cent of physicians continue to encounter procurement challenges. The survey was conducted between 19-24 August 2020 by the CMA, with 1,459 physician members responding. In addition to concerns around personal protective equipment, the CMA found that Canadian physicians are also worried about getting access to the flu vaccine.

- A British Columbia health officer has reported a five-case community outbreak linked to the [Calvary Chapel Church in Kelowna, the church reported three deaths over past three days](#). There were three health-care outbreaks reported over the past three days, including at the Holy Family Hospital in Vancouver where 21 people have already died in earlier outbreaks. The Calvary Chapel is on the grounds of the Kelowna Christian School, however the outbreak only affects people who attended the 10:30 a.m. service on September 2020. The church stated on 28 September 2020 that there were 267 cases of COVID-19 reported between noon Friday and noon Monday (68/125/74) and three deaths.
- Minister of Public Services and Procurement and the Minister of Health have announced that the [Government of Canada has signed an agreement with Abbott Rapid Diagnostics ULC to purchase up to 7.9 million ID NOW rapid point-of-care tests, pending Health Canada authorization of the tests](#). If authorized, these tests would be deployed to provinces and territories to support them in ramping up surge capacity for COVID-19 testing. Under the agreement with Abbott, the Government of Canada is also purchasing up to 3,800 analyzers, which are the devices that perform the test and deliver the rapid results.
- [Quebec will adopt the federal government's COVID-19 exposure alert app in the coming days](#), reversing earlier opposition to the technology amid a rapid increase in infections.
- The [Minister of Transport has announced implementation of temperature screening for travellers at 11 additional Canadian airports](#). Temperature screening stations have been in place since 30 July 2020 at the four largest airports in Canada: Montréal, Toronto, Calgary, and Vancouver. This includes temperature screening for both departing passengers as well as non-passengers (e.g., airport workers, flight crews). Since 23 September 2020, temperature screening is being conducted at these additional Canadian airports: St. John's, Halifax, Québec City, Ottawa, Toronto – Billy Bishop, Winnipeg, Regina, Saskatoon, Edmonton, Kelowna and Victoria. In addition, all employees and personnel that enter or work in the restricted area of these airports are subject to temperature screening procedures by Canadian Air Transport Security Authority personnel.

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

- On 28 September 2020, [The U.S. State Department in a statement it was now advising Americans to reconsider travel to Guatemala and Nicaragua](#) as well as Eswatini in southern Africa, after issuing an advisory to avoid all travel early in the coronavirus pandemic.
- The [Food and Drug Administration has approved Windtree Therapeutics' application to begin mid-stage testing of its potential treatment for adult Covid-19 patients with acute lung injury](#). The Bucks County biotech and drug device company expects to begin a phase-II trial for its KL4 surfactant drug Iyo lucinactant in Covid-19-associated lung injury and acute respiratory distress syndrome patients within the next several weeks. Windtree (NASDAQ: WINT) expects recruitment to take three to six months. Lucinactant is also used in the Warrington company's drug and device combination development program called Aerosurf, which is being developed for treating pre-term infants with respiratory distress syndromes.

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

- According to the media, [a Chinese company claims its coronavirus testing machine will return results faster than a lab and more reliably than at-home screening kits](#). The Flash 20 “is currently the fastest machine in the world for PCR tests for the new coronavirus,” declared the founder of the biotechnology company Coyote. PCR (polymerase chain reaction) tests are the industry standard and a major weapon against the pandemic. The tests are already used at hospitals and airports in China, and according to the company, the device can process four samples at a time and deliver results in half an hour.
- [On 29 September 2020 by Mexico's Health Department ups COVID-19 'estimate' to 89,612 deaths](#). The new numbers are higher because they were calculated by adding two new groups: those who never were tested but had symptoms, and those who had tests, which could not be analyzed because the samples were not handled properly. Officials revealed on 27 September 2020 that almost 96,000 test swabs—equal to about 5% of all tests in Mexico—had to be thrown out because they never reached a lab, arrived too late or were not preserved in the right conditions to be tested. However, in the case of infections, the new estimates would boost Mexico from eighth place in total cases, to fifth place, behind Russia with about 1.15 million cases.
- [More than 60 million people in India—10 times the official figure—could have contracted the novel coronavirus](#), the country's lead pandemic agency has said citing a nationwide study measuring antibodies. The blood tests were collected from just over 29,000 people in 21 states or territories between mid-August and mid-September. The new figures are a sharp jump from the first sero-survey results, which the Indian Council of Medical Research (ICMR) said showed that around 0.73 percent of adults in India—about six million people—were infected by May. Other antibody studies conducted in the capital New Delhi and financial hub Mumbai have suggested more infections than the official numbers say.
- [Regeneron Pharmaceuticals Inc has said its experimental two-antibody cocktail reduced viral levels and improved symptoms in non-hospitalized patients with mild-to-moderate COVID-19](#). The company said it plans to “rapidly” discuss the early trial results with regulatory agencies, including the U.S. Food and Drug Administration.

- [Germany's CureVac has said it has started a mid-stage study testing its experimental coronavirus vaccine](#) and plans to begin a much larger trial in the fourth quarter.
- The [first cruise ship to sail in Greece post-coronavirus lockdown was forced to dock on 29 September after 12 crew tested positive for the contagion](#). The 12 crew members and 24 others who had been in contact with them remained in isolation awaiting further test results with all 922 passengers also forced to stay on the ship, which docked in Piraeus. Greek officials also administered another PCR test. If Greek authorities give the all clear, the ship will continue its planned voyage, which includes a trip to the western island of Corfu.
- [Russia plans to share preliminary results of its COVID-19 vaccine trial based on the first six weeks of monitoring participants](#). This means Russia has a high chance of becoming the first worldwide to announce any data from a final-stage, or phase-three, trial. The first of 5,000 volunteers was vaccinated on 9 September, which means interim results could be issued some time after October 21. Russia's sovereign wealth fund, which has invested in the vaccine's rollout, has said it expects interim results to be published in October or November.

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

- The Korea Disease Control and Prevention Agency ([KDCA](#)) [announced in a briefing, the conclusion that nine in ten coronavirus patients reported experiencing side-effects](#) such as fatigue, psychological after-effects and loss of smell and taste after they recovered from the disease. In an online survey of 965 recovered COVID-19 patients, 879 people or 91.1% responded they were suffering at least one side-effect from the disease. The research comes as the global death toll from COVID-19 passed 1 million on 29 September, a grim milestone in a pandemic that has devastated the global economy, overloaded health systems and changed the way people live.
- [COVAXX has started dosing healthy adult participants in a Phase I clinical trial of its Covid-19 vaccine candidate, UB-612, in Taiwan](#). It is developed via genetic fusion of the Spike protein S1 subunit receptor-binding domain (RBD) to a single chain Fc domain of human IgG1 (S1-RBD-sFc). COVAXX has started dosing healthy adult participants in a Phase I clinical trial of its Covid-19 vaccine candidate, UB-612, in Taiwan. UB-612 is a multipeptide-based vaccine candidate that is meant to activate the B and T-cell arms of the immune system. This trial expands COVAXX's global partnerships following deals with diagnostic medicine company Dasa and The University of Nebraska Medical Center for large-scale human efficacy studies in Brazil and the US, respectively. The results of the Phase I trial will be analysed to determine an appropriate dose and advance the vaccine candidate to a Phase II/III trial.
- According to media, a statement by [Johnson & Johnson's Covid-19 Vaccine confirmed that produced Immune Response in Earlier-Stage](#). The study results supported J&J's decision to start a larger late-stage study of up to 60,000 people that will provide more definitive evidence of whether the vaccine safely protects people from Covid-19. Among the vast majority of certain subgroups of trial subjects, the study presented that a single dose of the vaccine induced so-called neutralizing antibodies to the coronavirus when measured in blood samples about four weeks after vaccination. The large Phase 3 study could yield initial results by the end of the year or early 2021. If they are positive, the company said it would seek government authorization of emergency use.
- On 28 September 2020, [Inovio Pharmaceuticals Inc's announced that the latest delay due to the FDA's "partial clinical hold" was not due to any side effects in the early-stage study of the vaccine](#), which was continuing. Inovio stated that it will respond to FDA's queries in October 2020. The U.S. health regulator has put a hold Inovio's plans to start final trials of its coronavirus vaccine as the agency seeks more information, including details on a delivery device used to inject genetic material into cells.
- [A study reported in PLOS ONE found that Vitamin D May Protect against Worst Clinical Outcomes of COVID-19](#). The study observed that hospitalized COVID-19 patients who had sufficient vitamin D—i.e., they had blood levels of 25-hydroxyvitamin D of at least 30 ng/mL—had a significantly lower risk of adverse clinical outcomes, including becoming unconscious, hypoxia, and death, than patients who were vitamin D deficient. The results of the study led by researchers at Tehran University of Medical Sciences, and Boston University Medical Center, suggest that improving vitamin D status in the general population, and in particular in patients hospitalized with COVID-19, could help to reduce the severity of COVID-19 disease and associated deaths.
- [A research team in Beijing University of Chemical Technology tested the effect of human breast milk on cells exposed to the Sars-CoV-2 virus](#). The milk was collected in 2017, well before the start of the pandemic, and the cell types tested varied from animal kidney cells to young human lung and gut cells. The results were the same: most living virus strains were killed by the milk. The breast milk was "blocking viral attachment, entry and even post-entry viral replication. Breastfeeding has previously been seen as increasing the risk of viral transmission. The research was published on 25 September 2020 on the [Journal biorxiv](#).
- According to the latest [Morbidity and Mortality Weekly Report \(MMWR\)](#), during 2 August – 5 September 2020, weekly COVID-19 cases among persons aged 18–22 years increased 55% in United States. Increases were greatest in the Northeast (144%) and Midwest (123%). Increases in cases were not solely attributable to increased testing. The researchers have noted that the young adults, including those enrolled in colleges and universities, should take public health precautions, and follow local, state, and federal guidance for minimizing the spread of COVID-19. Institutions of higher education should take action to promote healthy environments.

- According to the latest [Morbidity and Mortality Weekly Report \(MMWR\)](#) a North Carolina university experienced a rapid increase in COVID-19 cases and clusters within 2 weeks of opening the campus to students. Student gatherings and congregate living settings, both on and off campus, likely contributed to the rapid spread of COVID-19 in this setting. Researchers stated that enhanced measures are needed to reduce transmission at institutes of higher education and could include reducing on-campus housing density, ensuring adherence to masking and other mitigation strategies, increasing testing for SARS-CoV-2, and discouraging student gatherings.
- According to a research letter published in [JAMA Internal Medicine](#), all 54 COVID-19 patients who underwent cardiopulmonary resuscitation (CPR) in a Michigan hospital died, leading to questions about the risks and benefits of performing a procedure that exposes healthcare personnel to the coronavirus amid limited supplies of personal protective equipment (PPE). Researchers from the [University of Washington in Seattle](#), pointed out that the lack of effective COVID-19 treatments and delayed initiation of CPR because of the need to first don PPE likely contributed to the 100% death rate.
- [Sitagliptin, a drug to lower blood sugar in type 2 diabetes, also improves survival in diabetic patients hospitalized with COVID-19](#), suggests a multicenter observational study in Italy published in the *Diabetes Care*. Patients given sitagliptin in addition to insulin had a mortality rate of 18 percent as compared with 37 percent in matched patients receiving only insulin. The study involved seven Italian hospitals during the first surge of COVID cases last spring. Although the study was retrospective and observational, the findings have sparked a new randomized, placebo-controlled trial of sitagliptin. That study is now preparing to enroll patients in Europe.
- According to research published in the *Journal of Fluid Mechanics*, a [team from the University of Cambridge found that widely-used 'mixing ventilation' systems, which are designed to keep conditions uniform in all parts of the room, disperse airborne contaminants evenly throughout the space](#). These contaminants may include droplets and aerosols, potentially containing viruses.
- [By examining pre-existing research for other conditions, researchers at the University of Cincinnati have found a potential treatment that could be applied to COVID-19](#). The findings, published in the *Journal of Biological Chemistry*, established that a [lipid](#) found in the [human body](#) could be used to prevent or treat infections with SARS-CoV-2, the virus that causes COVID-19. That lipid, called sphingosine, is a natural element taken from the body and is important in the lipid metabolism of all [cells](#) and the local immune defense in [epithelial cells](#), a type of cell that lines the surfaces of the body including skin, blood vessels, urinary tract and organs. They serve as a barrier between the inside and outside of your body and protect it from viruses.
- [A new research suggests the colds people have had in the past may provide some protection from COVID-19](#). The study, authored by infectious disease experts at the University of Rochester Medical Center, also suggests that immunity to COVID-19 is likely to last a long time—maybe even a lifetime. The study, published in *mBio*, is the first to show that the COVID-19-causing virus, SARS-CoV-2, induces [memory](#) B cells, long-lived [immune cells](#) that detect pathogens, create antibodies to destroy them and remember them for the future. The next time that pathogen tries to enter the body, those memory B cells can hop into action even faster to clear the infection before it starts.
- A [JAMA Network Open](#) survey study of US adults' preferences for COVID-19 vaccine allocation in the event of a limited supply ranks frontline medical workers, high-risk children, and high-risk older adults as highest priority for vaccine distribution.
- [Researchers detected SARS-CoV-2, the virus that causes COVID-19, in the water at four Lake Superior beaches in Duluth earlier in September 2020](#). A "detectable level" of virus was found in water samples at area beaches over the weekends of 11 and 18 September at several beaches, according to the University of Minnesota Medical School, Duluth Campus, which is regularly testing the lake water at eight area beaches. Results showed levels of the virus within 100 to 1,000 copies per liter, 10,000 times lower than levels found in wastewater. However, the researchers indicated that the Centers for Disease Control and Prevention is "not aware of any scientific reports that indicate the virus can spread to people through exposure to lake water.
- The proportion of US pediatric COVID-19 cases has risen substantially over time, with significant geographic variation, according to a study in [Pediatrics](#) and a [joint report](#) from the American Academy of Pediatrics (AAP) and the Children's Hospital Association (CHA). But although children represent a growing percentage of total cases, severe disease remains uncommon, the data show.
- [A Phase 1 trial of an investigational mRNA vaccine to prevent SARS-CoV-2 infection has shown that the vaccine is well-tolerated and generates a strong immune response in older adults](#). The experimental vaccine, mRNA-1273, was co-developed by researchers at National Institute of Allergy and Infectious Diseases (NIAID) and Moderna, Inc. of Cambridge, Massachusetts. The results of the trial were published on 29 September in the [New England Journal of Medicine](#). The study will continue to follow the older volunteers for approximately a year after second vaccination to monitor the long-term effects of the vaccine. According to the researchers, these Phase 1 trial results further support testing of the investigational vaccine in older adults in an ongoing large Phase 3 trial.

Domestic Events of Interest

[Canada - Health Canada reports *Salmonella* cases in B.C., Alberta, Yukon due to pig ear dog treats](#) (Media)

According to the Public Health Agency of Canada, some pig ear treats sold in B.C., the Yukon and Alberta may be tied to an outbreak of *Salmonella*. Health Canada says some of the people who became sick said they had fed their dog Paws Up! and Westen Family brands of pig ear dog treats before they became ill. The brands are sold at Canadian Tire and Save-on-Foods, but will no longer be available. As of 29 September, there are eight confirmed cases of *Salmonella Typhimurium* illness. Five were reported in B.C., Two in Alberta and one in the Yukon. The eight cases took place between late February to early August. Three people were hospitalized and one person died.

International Events of Interest

[ECDC - Avian influenza: EU on alert for new outbreaks](#) (Official)

EU states are being urged to step up surveillance and biosecurity measures to guard against possible new outbreaks of avian influenza this year. The warning follows outbreaks of highly pathogenic avian influenza (HPAI) among wild and domestic birds in western Russia and Kazakhstan over the past few months. This region is a known autumn migration route for wild water birds heading to Europe. Northern and Eastern Europe are likely to be the most vulnerable to new outbreaks given past experience. When HPAI was detected in the same area of Russia in the summers of 2005 and 2016, epidemics followed in northern and eastern Europe. If the pattern is repeated this year, HPAI is expected to arrive in the same areas of Europe in autumn or winter. Subsequent spread to countries in southern and Western Europe is also possible. The alert is included in the latest update on avian influenza in Europe and beyond. The [new report](#) – which is compiled by EFSA, the European Centre for Disease Prevention and Control (ECDC) and the European Union Reference Laboratory for Avian Influenza – covers the period May to August 2020.

Researches, Policies and Guidelines

[Study - UK and Canadian Universities Team Up to Study Teen Vaping](#) (Media)

Funded by the Canadian Institutes of Health Research as part of the Health Effects of Vaping funding opportunity, a multidisciplinary research team of co-investigators and community partners, will be led by the University of Nottingham and Western University. Open discussions about vaping will be encouraged via online focus groups, where teenagers can use avatars and pseudonym screen names to facilitate anonymous participation. When satisfactory data are compiled, the researchers will collaborate with teenagers to develop an age appropriate creative communications campaign, such as a short film or comic strip, in order to deliver the study's findings effectively. The study will be looking into the roles that school, home, online sources and retail environments, play in influencing teen vaping

[Study - New research sheds light on why tumour cells become resistant to chemotherapy](#) (Media)

A team of University of Alberta researchers has identified a new mechanism through which tumour cells become resistant to chemotherapy—a discovery that could lead to better treatments for women with breast cancer. More than 20 per cent of breast cancer patients will die due to therapy resistance and metastasis, the spread of the original tumour to other parts of the body. One way therapy resistance occurs is through hypoxia, or low oxygen levels. Hypoxia can occur within a tumour because it grows much more quickly than the surrounding tissue. And because blood vessels aren't able to grow deep into the tumour, there is an area within it that remains deprived of oxygen and nutrients. The study published in [Nature](#), found that mTOR inhibitors did mimic hypoxia and resulted in the production of different versions of three messenger RNAs (mRNAs), information carriers the body uses to produce proteins from our genes.

[Study - Study findings could help develop *E. coli* treatment](#) (Media)

Research by scientists in Australia could help open up new possibilities to treat enterohemorrhagic *E. coli* (EHEC) infections. EHEC is a foodborne pathogen that releases Shiga toxins during infection and can result in a type of kidney failure called hemolytic uremic syndrome. The study results identify a potential new target for the development of drugs that can suppress Shiga toxin production during EHEC infection. The author remark the importance of the study, because there is no commercially available treatment for EHEC infections. The most significant outbreak occurred in South Australia in 1995 and was caused by contaminated mettwurst, a semi-dry fermented sausage made from raw minced pork preserved by curing and smoking. The findings were published in the journal [Proceedings of the National Academy of Sciences](#) (PNAS).

[Study - Study pinpoints heating element in vaping devices as cause for lung injuries](#) (Media)

Early results of an experimental vaping study have shown significant lung injury from E-cigarette (eC) devices with nickel-chromium alloy heating elements. The findings were consistent, with or without the use of nicotine, vitamin E oil or tetrahydrocannabinol (THC), which have previously been thought to contribute to the life-threatening respiratory problem. The research was published in the [Journal of the American Heart Association](#). Scientist from the University of California, Irvine (UCI) School of Medicine and the Huntington Medical Research Institutes (HMRI), observed during a large study

designed to explore the effect of e-cigarette and other vaping product use on the cardiovascular system. Over the course of nearly a year, none of the subjects exposed to vapors from the stainless steel devices, both with and without additives, contracted respiratory distress and only one showed a less than 10% area of inflammation in the lungs. Vaping has been proven to cause increased blood pressure, endothelial dysfunction, and the risk of myocardial infarction and stroke.

India - Cat Que virus: Amid coronavirus, ICMR warns India about new virus from China (Media)

As India struggles to control the spread of the novel coronavirus, a team of scientists at National Institute of Virology (NIV), ICMR in Maharashtra have warned of another new virus, known as 'Cat Que virus' (CQV), from China that has the potential to spread diseases in India. According to a report by the institute published in the *Indian Journal of Medical Research*, the presence of CQV in a species of mosquitos called *Culex*, and also pigs was reported in China and Vietnam. The study was conducted during 2017 to 2018 in the ICMR-National Institute of Virology, Pune after obtaining prior approval from the Institutional Ethics Committee.

Best Regards | Sincères salutations
The GPHIN Team / L'équipe du RMISP

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