

JUNE 2020

PROJECT SOLAS

GLOBAL SCIENTIFIC
DEVELOPMENTS IN COVID-19

EDITION 1



RECONNAISSANCE
GROUP

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The COVID-19 crisis is having an effect on us all, both personally and in our work lives.

We have seen the impact on the economy and businesses around the globe and the fear of what may or may not happen next fluctuates daily.

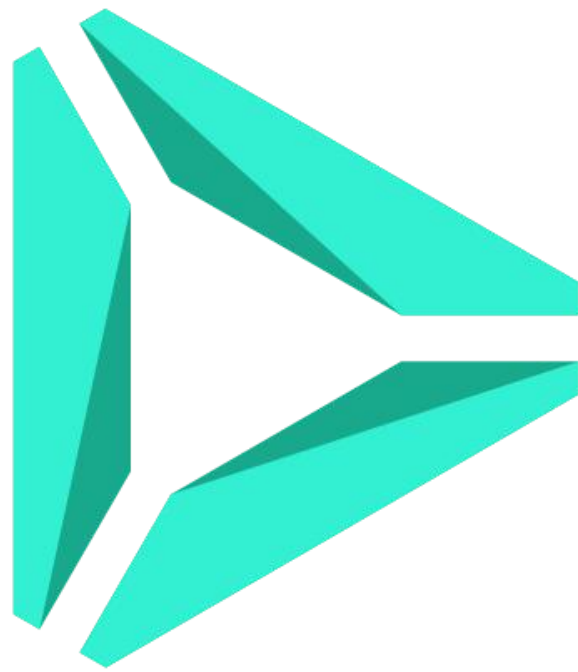
There is some light at the end of the tunnel.

Two of our team, based in Dublin have been working on a research project, Project Solas, focusing on the measures that scientists and doctors around the world are taking to find treatments and vaccines.

The positive news is there has been technological advancements in the fight against COVID-19.

Well done to Caroline Tsang (Business Information Analyst) and Jake Henry (Business Executive) for their hard work on this project and thanks also to Pierre Caillot Dessources (Sales Manager) and Camille Michel (Commercial Manager) for their support in its delivery.

This document is available in Creole, French and English.



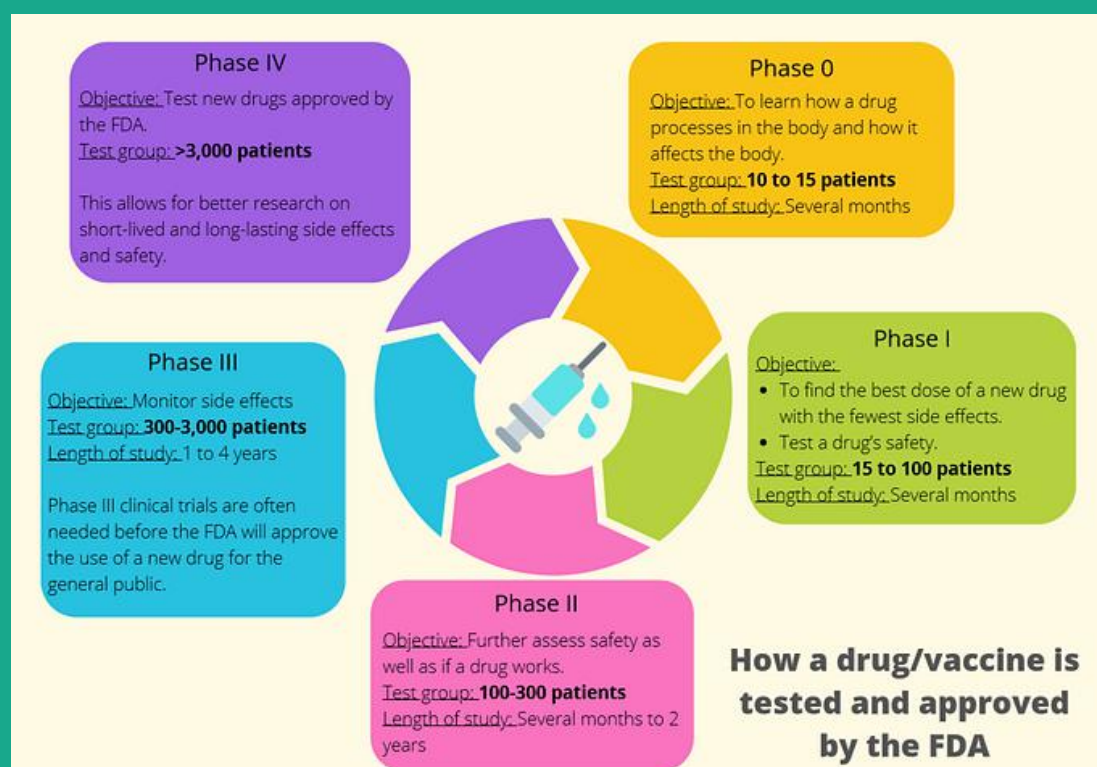
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EXECUTIVE SUMMARY

Drug/ Vaccine Developments

The attached infographic displays the development of a drug/vaccine. The first phase (Phase 0) is more commonly known as the preclinical phase. The main process includes 4 phases, Phase I to IV. For Covid-19, the length of each phase has been shortened meaning, what would normally take years, would now take months to a year.

As of April 14th 2020, there are 171 drugs in Phase 0, 4 drugs in Phase I, 7 drugs in Phase II, and 2 in Phase III. There are no drugs that have moved on to Phase IV. (1)



03

CHANGES IN INDUSTRIES TO HELP FIGHT COVID-19

Certain brewing companies have started producing hand sanitizers and some are giving them away for free to groups who need them. (2)

Large pharmaceutical companies have pledged to donate millions of hydroxychloroquine sulfate tablets (a Malaria drug) to hospitals in the EU and US. (3)

Food retailers in certain countries in Europe have reduced the price of groceries and offered special discounts for frontline workers. (4,5,6)

TECHNOLOGICAL ADVANCEMENTS

An Irish company have developed a new test kit that is able to diagnose whether a patient has the virus in 15 minutes using a small sample of the patient's blood. (7)

A South Korean company is close to launching a self-testing diagnostic kit that can produce results in 15-20 minutes. The company is currently applying for the appropriate accreditation in the EU and US. (8)

A group of scientists in the UK developed a new hand-held smart device (\$126/device) that can be used at any location with minimal training. The device takes in throat and/or nasal swabs, and in 30 minutes it can diagnose patients if they have the coronavirus or not. (9)

04

Abbott, a global pharmaceutical company, launched a new point-of-care device that can detect Covid-19 within 5 minutes, with a negative result in 13 minutes. (10)

An existing healthcare app in the UK called Babylon Health, launched a new and free service for their existing members which allows patients to check their symptoms, monitor their illness and attend a virtual consultation with a doctor if necessary. (11)

Foracare Suisse, a healthcare solutions provider, launched their own temperature monitoring station to assist healthcare systems. The new system provides accurate readings, does not need an operator and can measure forehead temperature remotely with no-contact technology. (12)

Medical imaging software company VUNO has joined the global coalition and has offered 2 AI solutions. The AI solutions can help workers analyze lung x-rays and CT scans taken from patients. (13)



05

ASIA



Prep date: April 2020

Drug/ Vaccine Developments

India begins plasma therapy clinical trials to treat Covid-19 patients. Plasma is a component of blood that contains virus-fighting antibodies. More than 500 Covid-19 patients at two government hospitals are involved in the trials of experimental plasma therapy. The plasma treatment will be given to moderately and critically ill patients. (14)

Celltrion, a South Korean biopharmaceutical company, announced that they are aiming to begin their vaccine treatment for Covid-19 in humans this July. The timeline puts Celltrion on track to be one of a number of companies that begin clinical tests over the summer months. (15)

Samsung Biologics and Vir Biotechnology have signed a \$362 million deal together which Samsung Biologics will perform large scale manufacturing services for Vir's potential Covid-19 vaccine treatment. Vir plans to proceed directly into a phase 2 clinical trial within the next three to five months. Samsung Biologics is expected to commence its manufacturing as early as October with potential commercial batches to be manufactured starting in 2021. (16)

06

China now has three different clinical trials for three possible coronavirus vaccines in the works. Two vaccines have been developed by the Wuhan Institute of Biological Products under the China National Pharmaceutical Group (Sinopharm), and Sinovac Research and Development Co., Ltd, a company based in Beijing. (17) The third vaccine was developed by CanSino Bio which has advanced into Phase II on preliminary safety data. (18)

Changes in industries to help fight Covid-19

New World Development, owners of shopping malls across China, partnered with eight non-government organizations and launched 35 vending machines dispensing free face masks in Hong Kong. New World Development currently has two local mask production lines and will open two more next month with a target of making 7 million face masks. The group had previously donated HK\$10 million (US\$1.3 million) to establish a 'Community Anti-Epidemic' fund offering more than 2 million masks and 10,000 hygiene kits to low-income families in Hong Kong. (19)

07

Carousell, a classified-ad company based in Singapore, is offering up to SG\$2 million (US\$1.3 million) in free advertising for nonprofits serving communities impacted by the coronavirus outbreak. Organizations in Singapore, Malaysia, Hong Kong, and the Philippines engaged in initiatives that support those affected by the pandemic will be eligible for the program. (20)

Taiwanese can order up to three masks a week online and pick them up from convenience stores across the island, a government-led effort to address panic buying after authorities teamed up with manufacturers to boost their daily supply to more than 12 million masks. (21)

The Japanese government has created a new license that will allow more Japanese sake brewers to produce strong alcoholic drinks as a substitute sanitizer for coronavirus. The measure is aimed at making up for supply shortages of alcohol-based sanitizers caused by the coronavirus pandemic. (22)

Toyota Motor Corp. said it will produce face shields and share its manufacturing expertise to equip front-line medical workers. They also will offer its Toyota Production System (TPS) know-how to medical equipment manufacturers to increase production of ventilators. The company plans to offer its JPN Taxi models to transport patients with mild symptoms to other medical institutions, temporary quarantine facilities, homes and other places. Toyota (23)

08

Infosys, an Indian multinational corporation, has dedicated funding for hospital capacity treatment, ventilators, testing kits and protective gear for frontline health workers to mitigate the impacts of Covid-19 across India. Infosys Foundation has also partnered with Narayana Health City in Bengaluru to launch a 100-room quarantine facility for Covid-19 patients. The facility will benefit patients in need in the most vulnerable sections of society - with regular monitoring from doctors, nurses and essential medication provided free of charge. The corporation are currently distributing twenty-one day food packages which includes staples like rice, lentils, cooking oil and other essentials. (24)

In Odisha, the eastern state in India, their Mission Shakti Self Help Groups (SHGs) are making masks in bulk to avoid any shortage. Around 605 SHGs have made 1.5 million cotton masks so far, helping protect the community and medics. More than 7,000 SHGs are working day and night to produce protection gear for those on the frontlines and also running village panchayat-level kitchen centers to cook meals for those in need: so far over 325,000 people. (25)

TECHNOLOGICAL ADVANCEMENTS

South Korea increased exports of Covid-19 testing kits to aid in the global pandemic. In March, a total of 27 South Korean firms exported testing kits, including five local biotech firms whose kits have emergency-use approval from Seoul. Over 120 countries have reached out to the country to purchase the testing kits or ask for a humanitarian donation. (26)



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One method in fighting Covid-19 by the government of China was using an app called Health Code. It works by people inputting their personal details, location and any symptoms of the coronavirus then the app will give the user one of three colors: green, yellow or red. Green allows for people to go anywhere, yellow means the person must self-quarantine for 7 days and red requires 14 self-quarantine days. (27)

Megvii, a Chinese Artificial Intelligence (AI) company, has deployed an AI-enabled temperature screening system across multiple locations in China and overseas. The system can take the temperature of up to 15 people per second, with an accuracy level of $\pm 0.3^{\circ}\text{C}$, and can do so from three meters away. It can trigger an alert when someone with high temperature passes by, indicating the individual should be screened manually or denied entry to a venue. It can be deployed in areas with high foot traffic like airports, subway stations and hospital lobbies. (28)

Engineers at the International Islamic University in Malaysia have created a robot to assist health workers treat patients and check temperatures, something they hope will reduce their risk of contracting Covid-19. The robot called “Medibot” is a 1.5 metre tall white robot, equipped with a camera and screen via which patients can communicate remotely with medics. (29)



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AFRICA AND MIDDLE EAST

Prep date: May 2020

Drug/ Vaccine Developments



As of May 1st 2020, there are 269 drugs in Phase 0, 5 drugs in Phase I, 14 drugs in Phase II, and 2 in Phase III. There are no drugs that have moved on to Phase IV. (30)

Announced in early April, an Ethiopian drug finished laboratory testing and was ready for clinical trials. The drug is hoped to treat patients by boosting their immune system and has proven to be free of toxins (a poisonous substance). (31)

In Kenya, a research team from the University of Nairobi's Kenya AIDS Vaccine Initiative Institute for Clinical Research is identifying candidates for a future national vaccine trial. Egypt's National Research Centre in Cairo is also beginning work on a vaccine. (32)

On March 9, Egyptian researchers have begun developing a vaccine for COVID-19 which is set to be available for the public in 5 months time. (33)

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Changes in industries to help fight COVID-19

South Africa's health department developed its WhatsApp service with South Africa-based non-profit Praekelt.org, using machine learning technology (part of artificial intelligence). Users who send the word "hi" to a WhatsApp number can get questions answered on topics including myths, symptoms and treatments. The WHO noticed the service and partnered with Praekelt.org to launch its own version on March 20. (34)

Companies active across West Africa are sharing information and co-ordinating their responses through the West Africa Private Sector Coronavirus Platform (WAPSCON19). The structure of WAPSCON19 allows each country to contribute and key members in Liberia and Ghana have already volunteered to chair discussions. One senior private sector executive per country will lead the work nationally, and host calls and initiate cooperation with other businesses operating in the same country. (35)

Uganda's automotive manufacturer Kiira Motors Corporation has teamed up with the Makerere School of Public Health to develop a low-cost ventilator that can be rapidly put on use for coronavirus patients. The ventilator is based on open access designs from the Massachusetts Institute of Technology, the University of Florida and other Public License Ventilator Technology Developers. (36)

Majed M. Al Tahan, co-founder & MD of Danube Online told CNBC the Saudi-based hypermarket and supermarket chain is using AI to minimize delivery time. Using 'aisle-mapping' technology, packers can locate items in an online customer's order, which are tracked around stores using an app. (37)

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TECHNOLOGICAL ADVANCEMENTS

In Ghana, an US startup called Zipline are using small drones to transport COVID-19 test samples to healthcare facilities and laboratories in the cities of Accra and Kumasi. The company firstly used their services for blood transfusions in Rwanda back in 2016. The drones are also providing PPE (personal protective equipment) and other vaccines and drugs to rural healthcare facilities. Zipline is doing similar work in Rwanda. (38)

Researchers at the Pasteur Institute in coastal Senegal say they're as little as three months away from releasing \$1 diagnostic kits that can detect the respiratory contagion in 10 minutes. The Senegalese team, which helped the WHO through the region's Ebola epidemic from 2014 to 2016, was one of the first two labs on the continent to be able to identify the coronavirus, fielding samples from other countries. (39)

The African Union Commission and the Africa Centres for Disease Control and Prevention (Africa CDC) launched a new initiative, the Partnership to Accelerate COVID-19 Testing (PACT): Trace, Test & Track (CDC-T3). PACT will focus on testing at least 10 million Africans in the next six months as well as establishing distribution hubs, deploying 1 million healthcare workers, and standardizing common technology platforms. (40)

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CONT...

Nigerian medical delivery company Lifebank has launched two drive-through mobile testing centers to boost coronavirus testing numbers in the country. The test centers, built like restaurant drive-throughs, are located in Lagos, Nigeria's commercial center, and Oyo, in the southwest of the country. Lifebank says it launched the free testing centers in partnership with the Nigerian Institute of Medical research. (41)



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"Solas" translates to **light in Irish, and with news platforms and social media heavily focused on the unpleasant reality of COVID-19, this newsletter is to counterbalance it with **positive** news focusing on different regions.**

EUROPE

Prep date: May 2020

Drug/ Vaccine Developments

Researchers from Belgium and US suggests that a four-year-old llama named Winter and 130 other llamas may hold the key to neutralizing the effects of the virus that causes COVID-19. They found that Winter was immunized from the 2003 SARS and 2016 MERS viruses, as llamas can produce antibodies slightly different than the ones humans can produce. However, the research from the llama studies is still in preliminary stages. (42)

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In Oxford (UK), the first human trial in Europe of a coronavirus vaccine began. Two volunteers out of the 800 recruited were injected on April 23, 2020. The vaccine was developed in under three months by a team at Oxford University. (43)

German company BioNTech and US Pfizer commenced human Phase I/II clinical trials on their potential COVID-19 vaccine in Germany. This will mark Germany's first clinical trial for a vaccine against COVID-19. (44)



French scientists are modifying a measles vaccine to "trick" the body into producing antibodies against the novel coronavirus. The French scientists are from The Pasteur Institute that have an existing track record in fighting infectious diseases such as typhoid fever, tuberculosis, polio, and other conditions. (45)





CHANGES IN INDUSTRIES TO HELP FIGHT COVID

In Sweden, BGI Group has been working with the Karolinska Institute to build a Fire Eye lab in Stockholm. It will perform both virus detection and scientific research for comprehensive monitoring of virus mutations. (46)

Robots, produced by Starship since 2018, have been delivering shopping supplies in the town of Milton Keynes in the UK, while the country remains on lockdown. More than 100,000 autonomous deliveries have now been made using the robots. Since the government imposed strict social distancing measures on March 23, the devices have been busier than ever, delivering for free to National Health Service (NHS) staff and facing increased demand from the general public. (47)

Philips Foundation delivered two mobile isolation care units to the Italian Red Cross for patients affected by COVID-19. The objective is to expand the care capacity of local health facilities, supporting patient screening and hospitalization, as well as providing first aid and quality assistance to people suspected or confirmed to be infected with COVID-19. (48)



L'Oréal group and its family of brands will donate 50,000 hygiene products and hand sanitisers to healthcare workers in Ireland along with 27,000 hand sanitizers to pharmacy and grocery staff. Meanwhile, in France, Clarins converted its production lines to manufacture alcohol-based hand rub and more recently hand lotion to support international efforts. In Ireland, they have distributed 300 pamper packs to frontline medical staff from their Dun Laoghaire HQ. (49)

Technological Advancements

Vienna Airport will offer onsite coronavirus testing to enable passengers entering Austria to avoid having to be quarantined for 14 days. The airport tests, which cost €190 (US\$201), can also be taken by passengers leaving Vienna to demonstrate their virus-free status at their destination. (50)

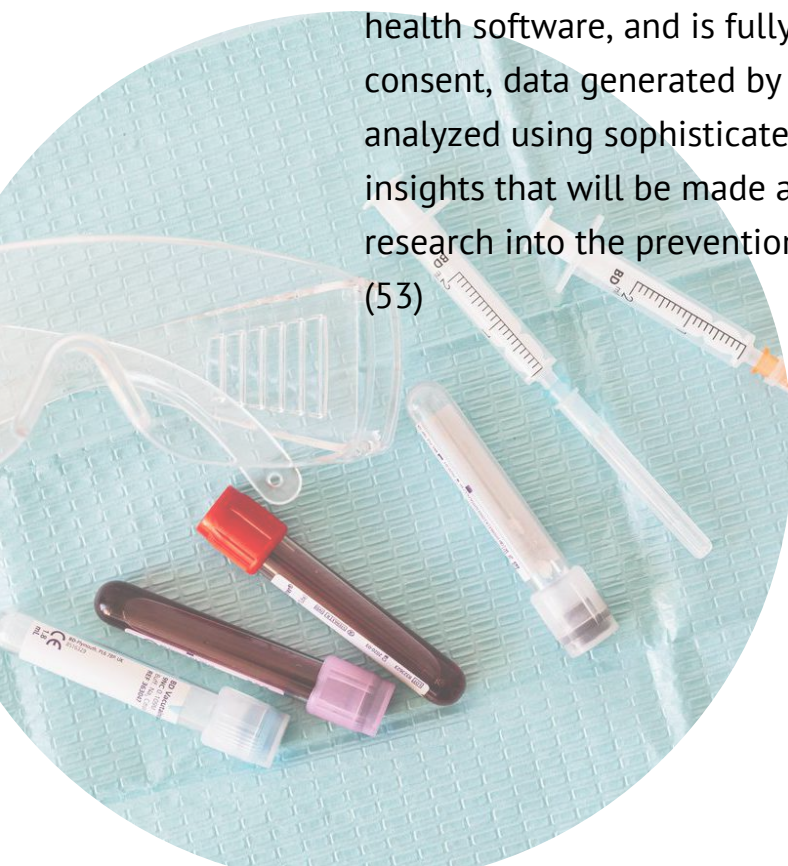
A new clinical support tool called Assessment of COVID-19 Risk of Respiratory Deterioration (ACORRD) was launched in Ireland to help hospitals optimize and scale acute respiratory care for COVID-19 patients. ACORRD allows hospitals to visualize trends, track disease progression, identify patient deterioration early and provide timely advice to care teams on appropriate clinical considerations. The system, which is CE marked as a class I medical device, has gone from concept to deployment in 10 days. (51)

19

CONT...

Coronavirus can be identified automatically from sick patients' lung X-rays using artificial intelligence (AI) developed at Brunel University London. The algorithm, which detects coronavirus diseases including COVID-19, SARS and MERS, uses image analytics to spot signs and deep learning to rank them. The disease identification and classification algorithm is highly accurate and has been tested on X-ray images from real patients with confirmed cases. The model can monitor how the virus develops plus predict the outcome for people infected. (52)

British clinical artificial intelligence (AI) company Sensyne Health has launched Cvm-Health, a webbased app for people to record their COVID-19 related vital signs and symptoms from home. Users can also monitor symptoms on another person's behalf. The app is free to anyone in the UK, with plans for it to be made available internationally. It has been built using Sensyne's validated digital health software, and is fully GDPR and ISO compliant. With users' consent, data generated by the application will be anonymised and analyzed using sophisticated machine learning techniques to derive insights that will be made available free to the NHS and for medical research into the prevention, diagnosis and treatment of COVID-19. (53)



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SOUTH AMERICA

Prep date: June 2020

Drug/ Vaccine Developments



As of June 8th 2020, there are 333 drugs in Phase 0, 7 drugs in Phase I, 31 drugs in Phase II, and 7 in Phase III. There are no drugs that have moved on to Phase IV. (54)

Brazilian scientists in the University of Sao Paulo Medical School's Heart Institute are researching a new approach that differs from others currently done by universities and pharmaceutical companies. This new approach in creating a vaccine involves the use of artificial particles that resembles COVID-19. (55)

Back in March, Argentina joined a two-stage global study named Solidarity along with Bahrain, Canada, France, Iran, Norway, South Africa, Spain, Switzerland and Thailand. The objective of the study is to create a vaccine against COVID-19 by co-ordinating different analysis and comparing results between each country. (56)

US-based BioCryst Pharmaceuticals will conduct a clinical trial in Brazil to see if its investigational anti-viral drug is effective in treating the COVID-19 coronavirus. The drug, galidesivir, has demonstrated potential as a treatment for a variety of serious diseases, including Ebola, Marburg, Yellow Fever, Zika and coronaviruses. (57)

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Technological Advancements

A Brazilian healthtech startup called Hi Technologies produced rapid test kits for COVID-19 and released in the second-half of April. Results can be taken within 15 minutes and for a price of cost of BRL 130 (US\$25). The procedure offered by Hi is done remotely, with the blood sample collected in a capsule and mixed to reagents in a portable device. The gathered data is transmitted instantly to a physical laboratory, where it is then processed using the firm's algorithms before a report is issued. (58)

A diagnostic COVID-19 test kit has been developed by a university in Santiago, Chile which tests asymptomatic patients to see if they have lost sense of smell. One of the symptoms of COVID-19 is the loss of the sense of smell among patients who do not show any other signs of the virus. The test can help diagnose coronavirus patients earlier and for a fraction of the price. (59)

Changes in industries to help fight COVID-19

The Brazilian brewing company, Ambev, will begin to use one of its Brazilian beer breweries to produce half a million sanitizer bottles for public hospitals to fight the spread of coronavirus. Ambev plans to deliver 5,000 sanitizer gel bottles to every public hospital in Sao Paulo, Rio de Janeiro and Brasilia, where most of the country's coronavirus cases are concentrated. (60)



22

Copper 3D, a Chilean company, is using copper to make masks from 3D printers due to the mask shortage. Copper has antibacterial and antiviral properties and has been used as such for centuries. The company released the patent on an open source platform and has been downloaded over 7 million times. (61)

A team in Colombia is to test a ventilator made with a Raspberry Pi computer (a small, low-cost computer) and easy-to-source parts. The design and computer code were posted online in March by a man in California, who had no prior experience at creating medical equipment. The machine will be tested in two universities - the University Hospital of the Pontifical Xavierian University and Los Andes University. (62)

The South American retail company, Grupo Exito, will make advance payments of over 60 billion pesos to 867 small and medium sized suppliers to alleviate cash flow problems created by the COVID-19 pandemic. (63)

In Brazil, Heineken has joined forces with Unilever to produce and deliver Cif sanitizer and alcohol based hand sanitizer to 210 communities in São Paulo. (63)



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NORTH AMERICA

Drug/ Vaccine Developments

Prep date: June 2020



On May 18, Canada approved the country's first COVID-19 vaccine trials which was developed by Chinese company CanSino Biologics. More COVID-19 vaccine candidates are expected to enter clinical trials in Canada in the next few weeks. (64)

In Canada, researchers from the University of Waterloo are developing a vaccine that can be given via nasal route to protect from COVID-19 infection. The aim is to deliver the vaccine to cells in targeted tissues and trigger the production of a virus-like particle (VLP) that will induce an immune response. (65)

An artificial intelligence (AI) software, BenevolentAI (a London startup) identified a rheumatoid arthritis drug (baricitinib) by Eli Lilly Pharmaceuticals that might dampen some of the most severe effects of the virus. Eli Lilly announced it is working with the US National Institute of Allergy and Infectious Diseases on a large clinical trial of the drug in hospitalized COVID-19 patients. (66)

The Autonomous University of Mexico (UNAM) is working on a COVID-19 vaccine based on previous research to develop vaccines for dengue and Zika virus. (67)

Changes in industries to help fight COVID-19

Danone Mexico is donating 800kg of yoghurt every week to 4 main public COVID dedicated hospitals in Mexico for 3 months. (68)

Next Generation Manufacturing Canada (NGen), the industry-led organization behind Canada's Advanced Manufacturing Supercluster, announced it has invested more than \$21 million in projects that will lead to the production in Canada of critically needed technologies, equipment, and medical devices to aid in the fight against COVID-19. The projects approved so far include the development and manufacturing of ventilators and components, test kits, face shields, and a coating material that kills bacteria and viruses on contact. (69)

Kroger, the American supermarket chain, is purchasing 200,000 gallons of milk from dairy farmers who have struggled to find new buyers to purchase their excess supply (much of which was originally destined for foodservice and schools before the pandemic hit). The milk will be redirected to Feeding America's network of food banks across the country. (70)

The Guatemalan food company, Mahler, has delivered 200 laptops to the Guatemalan Ministry of Education, with the aim of facilitating the work of public education teachers in the pandemic. (71)

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Technological Advancements

Mount Sinai hospital in New York has become the first US hospital to use AI to diagnose COVID-19 patients. With a high possibility of false negatives, the AI can provide a 'second opinion' to physicians in cases where CT scans are either negative (in the early course of infection) or shows nonspecific findings, which can be common. (72)

Boston Dynamics helped Brigham and Women's Hospital in Boston by creating a robot dog named Spot. Spot has a tablet for a face where hospital workers can remotely control the dog and speak to patients at a safe distance. Boston Dynamics engineers are hoping that at some point they might enable it to use a thermal camera to take patients' temperatures or strap a UV light to its back to disinfect hospital rooms. (73)



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A research team, which includes research scientists in Brazil and Vietnam, at the University of Canada received funding from the Canadian federal government to develop a low-cost, portable system to test for COVID-19. The portable test is size of a toaster would be able to read 384 patient samples at once and provide a "surge capacity" for testing in smaller, more remote communities. The second component will be a paper-based test that could be used at airports or in seniors' centers. As small as a credit card, the paper would change colors, turning bright purple when the virus is present in a sample. (74)

Spiro Wave, a "bridge" ventilator that helps patients to breathe when their condition is not critical enough to require a standard ventilator, was approved by the FDA and released onto the market within a month after New York City realized it was facing a critical shortage of ventilators. (75)

Pharmatech (US) have developed a rapid COVID-19 test that can detect the viral antibodies in blood, serum or plasma. The test can produce a result in to 10 minutes and is intended to be administered by healthcare professionals via a finger-prick blood sample at point-of care. (76)



AUSTRALASIA

Prep date: June 2020

Drug/ Vaccine Developments

As of May 29th 2020, there are 317 drugs in Phase 0, 5 drugs in Phase I, 26 drugs in Phase II, and 85 in Phase III. There are no drugs that have moved on to Phase IV. (77)

Novavax, a US biotechnology company, began injecting a coronavirus vaccine candidate into 131 volunteers in Australia with hopes of releasing a proven vaccine this year. The results of the first phase of clinical trials in Melbourne and Brisbane are expected to be known in July. (78)

The University of Queensland in Australia has reported positive findings from early preclinical testing of its COVID-19 vaccine candidate. According to the data, the vaccine candidate raised significant levels of antibodies to neutralize the virus. The University of Queensland is also working with Viroclinics Xplore in the Netherlands to expedite the vaccine's development. (79)



A photograph of three young adults sitting together and looking at a smartphone. The person on the left is a man with short brown hair wearing a black face mask and a blue denim jacket with a white fur collar. The person in the middle is a woman with long brown hair wearing a black face mask, white headphones, and a black leather jacket. The person on the right is a man with short brown hair wearing a black face mask and a black jacket. They are all looking down at a white smartphone held by the woman in the middle.

CHANGES IN INDUSTRIES TO HELP FIGHT COVID

The government of Fiji received locally-made 3D face shields to assist health workers in Fiji against the COVID-19 pandemic. According to a Facebook post in the 'Australia in Fiji' page, Australian High Commissioner to Fiji, John Feakes, was present at the delivery of locally-made 3D face shields to Health Minister, Dr Ifereimi Waqainabete – a first of its kind for Fiji and the Pacific. (80)

Gold exploration and development firm Newcrest Mining is supporting an initiative for the procurement of personal protective equipment (PPE) for national distribution to Papua New Guinea's (PNG's) frontline health workers. It has invested AUD600,000 (\$392,303) towards a UNICEF initiative to get PPE to PNG's frontline health workers. The gold explorer is working with the Australian Department of Foreign Affairs and Trade, the World Bank and the Japanese Government to support the procurement by UNICEF. (81)

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The Royal Flying Doctor Service (Queensland Section) has taken delivery of some timely, and extremely precious, cargo thanks to the Australian brewing company, Carlton & United Breweries (CUB). More than 1000, 500ml bottles of hand sanitizer have been donated by CUB, with the product to be distributed to RFDS frontline workers and aeromedical bases across Queensland. The donation is part of an initiative by Carlton & United Breweries to give at least 30,000 liters of hand sanitizer to those who need it most, including doctors and nurses, in the fight against COVID-19. (82)



New Zealand based supermarket company, Foodstuffs, have made a commitment to donate more than \$1 million to help New Zealanders who are facing tough times due to COVID-19. Foodstuffs have pledged immediate, additional support for more than 30 organizations to-date throughout New Zealand so they can continue to help individuals in need. (83)



To allow apprentices and trainees to enhance their qualifications, the Australian mining company Rio Tinto has committed funding toward the upskilling of out of work apprentices across various industries by covering their fees for a course in automation. This will allow for the enrolment of up to 200 apprentices who have had their apprenticeships suspended or cancelled due to COVID-19. (84)

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Technological Advancements

The 'Bomb Bio' system is being promoted as a much-cheaper method of COVID-19 testing by researchers in Otago University, New Zealand. It extracts DNA from samples using microscopic magnetic beads - and it's being used worldwide as countries ramp up testing. 'Bomb Bio' is a community platform - and costs about 1% of the cost of traditional testing. It's being used in regions in the UK, US, and Colombia where kits are in short supply and governments are ramping up community testing. (85)

Automation consultant Blackbook.ai designed a virtual assistant to help health professionals in Australia deal with an overwhelming amount of contact tracing. The robot processes all the information and finds peoples' contact numbers for nurses to call and ask relevant questions, which are also recorded. (86)

New Zealand-based diagnostics and research company called DNature began developing a rapid, on-site DNA diagnostic test that can give results in 15 minutes and detect the difference between influenza and COVID-19. It currently takes up to 48 hours from COVID-19 test to result in many places across New Zealand, and the test needs to be run at a specialized laboratory. (87)

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