

Corona: Pandemic in Times of Technology and Innovation

by

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Multidrug resistant bacterial infections, resurgence of drug resistant Tuberculosis, global spread of HIV and increasing occurrences of various forms of cancers have been few of the biggest concerns and challenges for the health authorities all over the world last few decades. These concerns have every now and then been accompanied by the multiple outbreaks of viral illnesses that cause influenza and respiratory illnesses intensifying the looming global health threats. According to WHO, every year, there are an estimated 1 billion such cases; 3-5 million severe cases, and 290000-650000 influenza related respiratory deaths.

The history of known Influenza and respiratory illnesses dates almost 300 years back, killing millions of people across Europe and Asia during these centuries. Though the discovery of antibiotics has been the major breakthrough for humanity that has helped greatly curtail infectious diseases, but emergence of viral infections especially the ones originating from animals has been a challenge. There are a number of influenza and other virus strains and their subtypes worldwide that cause flu and other respiratory illnesses in humans and animals. Fortunately, such infections are usually self-limiting and only spread to a limited number of people. However, sometimes humans are infected with viruses that originate from animals, such as influenza viruses like avian influenza virus subtypes A(H5N1) and A(H9N2), swine influenza virus subtypes A(H1N1) or corona viruses like SARS-CoV. Most recent and well known addition in this group is the novel COVID-19 that took the world by storm starting at the end of 2019.

Such infections that are transmitted from animals tend to be severe and more likely to cause an epidemic since immunity against such infections is previously absent in the humans. As the world is becoming a global village chances of such infections spreading to other areas have increased exponentially thus making them more likely to cause a global emergency.

In 2003, SARS and later on other sporadic outbreaks of infections like Middle Eastern Respiratory syndrome became responsible for epidemics that affected thousands of people causing loss of life in many. The recent outbreak of newest subtype CoVID-19 in China has also caused outbreak of Corona virus started in December 2019 that soon became a pandemic, with the live animal market of Wuhan

city as the possible source of infection. The mode of infection, symptoms and complications of CoVID-19 infection are just like the SARS-CoV as both are respiratory illnesses. The infection spreads from person-to-person through sneezing, coughing, or touching contaminated surfaces making it highly infectious.

Scientists and researchers all over the world continue their efforts to find vaccines, treatments and cure to such infections and ways to prevent and control the spread. In case of novel corona virus, new and innovative technologies are making a huge contribution to such efforts. Technology has helped stakeholders to devise techniques to diagnose new cases, ways to manage the existing ones without getting infection, isolate the patients from the health population and more importantly prevent the infection from becoming a nightmare pandemic in this era of extensive travel among the countries. The situation could have been worse, had there been no technology supported systems to assess the affected areas and ultimately their cordoning, faster diagnostic methods and better isolation.

An outlook on how technologies have been helping in this epidemic that has now become a global health emergency shows multiple areas where technologies are being utilized. World Health Organization and Centre for Disease Control U.S have developed dashboards with interactive maps to graphically update the situation of new confirmed cases, deaths reported and recoveries. The maps utilize the data collected from various transparent and reliable sources.

Applications to track the spread of the virus through Artificial intelligence (AI) are another example of use of technology. An application, developed in Canada, is using large data sources about the reported cases, airline and other travels and using data analysis algorithms to predict the possible spread and route of the COVID infection. Things have fast evolved since then throughout the world.

China, the country most affected with the recent outbreak is at the forefront of using digital applications like the one that allows the users to track if they have been in close contact with a corona affected person. The application works by collecting and analyzing data on public transport records, patient data and national identification number. The application then indicates whether the person using app has been in contact with virus. Similarly, another application assigns QR codes to the users through AI that designates whether they are at risk of contracting the coronavirus. On basis of these codes, people who

have travelled are recommended to self-quarantine for 7 or 14 days. Additionally, alerts to local health officials is also generated in this regard.

In another development, a start-up Yitu Technology, telecoms gear provider Huawei and Alibaba developed AI supported services to help analyze the images of computerized axial tomography (CAT) scans of suspected corona virus patients within few seconds as compared to a doctor who may take 5 to 15 minutes to analyse a CAT scan.

Outside China, in recent developments, AI is being used to find effective treatments against the strain. Insilico medicine has used artificial intelligence to identify thousands of new molecules that could be turned into potential medicines against the virus. The use of drones is another example how technology is being utilized in this battle against the CoVID-19. Drones equipped with thermal imaging technology are being used in China to detect those with fever. Drones are also being used to transport medical supplies and patient samples and other necessities as lock downs of the cities and quarantine restrictions have impacted normal supply routes along road, rail and water. In another project, robots are being installed in the hospitals to automatically deliver cooked food and medication to patients' bedsides.

In the current age of ICTs, online health consultations, availability of informative and education materials have increased all around the world as millions of people are visiting to corona-related training programs and looking for other information on internet.

In this connection, Internet's involvement includes social media that is for many a ready means of information as well as "disinformation". At one hand social media gives support in the form of interest groups, awareness about the illness and guidance in best practices and treatment while on the other hand it also gives unqualified people making commentary on this crucial topic and fast spread of wrong information.

Since the news of outbreak, in December last year, there has been a storm of fake news and information on social media triggering great fear among the populations. The WHO has labeled this spread of fake information as "infodemic" that spreads faster than the virus. The experts have equally responded well in time with swiftly refuting the fake news, but the problem persists.

Overall, technology has been more of a beneficial tool in the whole COVID scenario especially when compared to the SARS epidemic back in 2003. Twenty years ago, it was not possible to track the spread of diseases; swiftly make leaps towards finding treatment and developing vaccines and take care of the affected people without too much risk of exposure.