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Review Article

Life and Livelihood during the COVID 19 Pandemic

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Abstract

The SARS-CoV-2pandemic has created a global health crisis that has had a deep impact on the way we perceive our world and our everyday lives. On January 30, 2020, the WHO declared the COVID-19 (SARS-CoV-2) outbreak a global health emergency and on March 11, 2020, as a global pandemic. Since the initial outbreak, SARS-CoV-2, has spread to 216 countries around the world. It has been responsible for millions of infections globally, causing hundreds of thousands of deaths. The disease is more likely to cause symptoms in older adults and those with underlying health conditions. Researchers are currently working on creating a vaccine specifically for this virus, as well as potential treatments for the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). There is some evidence that certain medications may have the potential to be effective with regard to preventing illness or treating the symptoms of COVID-19.An outbreak related to SARS-CoV-2 was first reported in Wuhan, China in December 2019. An extremely high potential for dissemination resulted in the global coronavirus disease 2019 (COVID-19) pandemic in 2020. A worldwide virus attack has shut down cities, big and small, and even entire countries. A vaccine for the novel coronavirus will help deal with the global health crisis. We need to create simple, cheap, more accessible testing for SARS-CoV-2, the virus that causes COVID-19, both in humans and on various surfaces. We have to develop a faster way to identify antibodies that neutralize the virus. Researchers have to generate lung tissue models called organoids to test candidate drugs for COVID-19 and harness the power of individual genomes to identify variants that raise or lower people's risk of serious illness when infected by SARS-CoV-2. Global solidarity during crisis period is need of the hour.Now is the time to work all together to defeat COVID19.

Keywords: COVID 19; Pandemic; Coronavirus; Epidemic; Endemic; Vaccine; SARS-CoV-2; Disease burden; Telemedicine; Remdesivir

Introduction

The COVID-19 pandemic is the defining global health crisis of our time and the greatest challenge we have faced since World War Two. Since its emergence in Asia late last year, the virus has spread to every continent except Antarctica. The pandemic is moving like a wave countries are racing to slow the spread of the virus by testing and treating patients, carrying out contact tracing, limiting travel, quarantining citizens, and cancelling large gatherings. Educational institutions are closed. COVID-19 has the potential to create devastating social, economic and political crises that will leave deep scars. Every day, people are losing jobs and income, with no way of knowing when normality will return.

An epidemic is actively spreading; new cases of the disease substantially exceed what is expected. It refers to any problem that's out of control, such as "the opioid epidemic." An epidemic is often localized to a region, but the number of those infected in that region is significantly higher than normal. For example, when COVID 19 was limited to Wuhan, China, it was an epidemic. The geographical spread turned it into a pandemic.

Endemics, on the other hand, are a constant presence in a specific location. Malaria is endemic to parts of Africa. Ice is endemic to Antarctica.

A disease is endemic when its presence or usual prevalence in the population is constant. When the cases begin to rise, it is classified as an epidemic. If this epidemic has been recorded in several countries and areas, it is called a pandemic.

An endemic disease refers to "the constant presence of a disease or infectious agent within a given geographic area or population group; may also refer to the usual prevalence of a given disease within such an area or group." When epidemics become endemic, they become "increasingly tolerated" and the responsibility of protecting against it shifts from the government to the individual. This means, rather than government agencies actively engaging in tracking and identifying cases, the individuals themselves will be responsible for managing risk from the disease and seeking care. Moreover, the socio-political response to the disease may also change, with investment in the disease becoming institutionalised along with the disease-inducing behavioural changes in people. Once people become aware of the risks of infection, they will alter their behaviour and mitigate the consequences.

If R0, which is the rate at which the virus is transmitted is equal to 1, then the disease is endemic. When R0>1, it implies that the cases are increasing and that the disease will eventually become an epidemic. If R0<1, it implies the number of cases of the disease are decreasing.

Disease Burden

The recent SARS-CoV-2 outbreak began in Wuhan, China, in December 2019. The virus has resulted in more than 13,260,000 cases and over 576,200 deaths (as on 14 July 2020).SARS-CoV-2 infection causes a respiratory illness called COVID-19.COVID-19 has now been reported on every continent except Antarctica.Countries with the most confirmed cases are: United States, Brazil, India,Russia, Peru, Chile, Mexico, Spain and United Kingdom.

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The novel coronavirus transmits from one person to another silently, in large number of cases. A substantial number of infectious people are asymptomatic. Experts believe that the actual number of Covid-19 positive cases is much higher worldwide.It is argued that many countries are hiding the actual figures (cases and deaths) like the USA, Mexico, United Kingdom, India, etc.Most affected countries have inadvertently under-reported deaths. Studying mortality data in 12 countries, The New York Times found that in March at least 40,000 more people died during the coronavirus pandemic than the official death counts. These include deaths from the contagion as well as those from other likely causes [1-4].

A Financial Times analysis of overall fatalities during the pandemic in 14 countries found that the death toll from coronavirus may be almost 60% higher than reported in official counts."Mortality statistics reveal 122,000 deaths in excess of normal levels across these locations, considerably higher than the 77,000 official Covid-19 deaths reported for the same places and time periods. Overall deaths rose 60 per cent in Belgium, 51 per cent in Spain, 42 per cent in the Netherlands and 34 per cent in France during the pandemic compared with the same period in previous years" [5].

Conservative testing in India may be masking the actual number of Covid-19 cases in the country. Many say the actual number of novel coronavirus infections in India is exponentially higher than the official figure. Some people having hidden their possible exposure to novel coronavirus.People at the risk of coronavirus exposure were harassed by neighbours, in most cases out of fear for their own lives. People should be educated about the dangers of attaching stigma to COVID 19 patients. Awareness through animations showing how stigma hampers the fight against Covid-19 is one of the modes of creating awareness.

Diagnostic Facilities

When a virus invades the body, the immune system produces antibodies to fight it. Kits detect the presence of antibodies using components from the virus, known as antigens. Tests generally fall into one of two categories: lab tests that need to be processed by trained technicians and take about a day, and point-of-care tests that give rapid, on-the-spot results within 15 minutes to half an hour. Several companies, offer point-of-care kits, which are designed to be used by health professionals to check if an individual has had the virus. Antibody tests in people who might be actively infected can be an important part of managing patients at hospitals, and contact tracing, although the results need to be interpreted cautiously [6,7].

Several tests available now are not accurate enough at identifying people who have had the disease, a property called test sensitivity, and those who have not been infected, known as test specificity. A high-quality test should achieve 99% or more sensitivity and specificity, adds Collignon. Testing should turn up only about 1 false positive and 1 false negative for every 100 true positive and true negative results [1-3].

Antibody tests might be used to help stem the COVID-19 pandemic. Antibody tests have captured the world's attention for their potential to help life return to normal by revealing who has been exposed, and might now be immune, to the new coronavirus.

Antibody tests are also being used by researchers globally to estimate the extent of coronavirus infections at a population level, which is extremely valuable given that many places arenot doing enough standard testing, and people with mild or no symptoms will probably be missed in official case counts.

A high-throughput device could test up to 1 million samples simultaneously for SARS-CoV-2, using genetic bar coding to keep track of each patient's sample and deliver their positive or negative result [1-3].

Many countries still do not have testing that is sensitive and will allow them to rapidly identify which patients should be grouped into which part of the service going forward. There is a need to create a testing protocol for patients coming for procedures that applies across all specialties and healthcare providers.

It is argued that a lack of widespread testing, variations in how cause of death is recorded, and the virus' economic and social disruption are hiding the full extent of the pandemic's death toll. The antiviral effect is postulated to be mediated by its affinity for AP2-associated protein AAK1 leading to reduced SARS-CoV-2 endocytosis. Baricitinibis an oral inhibitor of Janus kinase (JAK)1 and JAK2 that is approved for the treatment of moderately to severely active rheumatoid arthritis in adults. Baricitinib also inhibits numb-associated kinase (NAK) family members that includes AAK1 and that baricitinib exerts some antiviral effects against SARS-CoV-2 in in liver organoids, although at relatively high concentrations [1-3].

Treatment

Despite the worsening trends of COVID-19, no drugs are validated to have significant efficacy in clinical treatment of COVID-19 patients in large-scale studies. Remdesivir is considered the most promising antiviral agent; it works by inhibiting the activity of RNA-dependent RNA polymerase (RdRp). The other excellent anti-influenza RdRp inhibitor favipiravir is also being clinically evaluated for its efficacy in COVID-19 patients. The protease inhibitor lopinavir/ritonavir (LPV/RTV) alone is not shown to provide better antiviral efficacy than standard care. The roles of teicoplanin (which inhibits the viral genome exposure in cytoplasm) and monoclonal and polyclonal antibodies in the treatment of SARS-CoV-2 are under investigation. Avoiding the prescription of non-steroidal anti-inflammatory drugs, angiotensin converting enzyme inhibitors, or angiotensin II type I receptor blockers is advised for COVID-19 patients [1-3,8].

ACE inhibitor and ARB need to be prescribed with caution. Compared with NSAIDs, acetaminophen might be a safer agent for treating fever in COVID-19 patients. Low-dose hydrocortisone might be prescribed for treatment of refractory shock in patients with COVID-19.

On June 16, 2020, scientists at the University of Oxford in the United Kingdom announced the first drug proven to reduce mortality in people with severe COVID-19. Physicians can immediately start treating hospitalized patients with dexamethasone. This is a cheap, readily available steroid that has been in widespread use for decades. Dexamethasone has a clear advantage over novel treatments and vaccines; after a relatively swift clinical trial, national drug regulators can immediately approve their use.

RNA-dependent RNA polymerase inhibitors

Remdesivir is shown to be the most promising and hopeful anti-viral therapeutic. It works by targeting viral RNA-dependent

RNA polymerase (RdRp) while evading proofreading by viral exoribonuclease [9], resulting in premature termination of viral RNA transcription. Remdesivir is a phosphoramidate prodrug with broad-spectrum activity against many virus families [10,11].

An intravenous 10 mg/kg dose of remdesivir could lead to a remarkably high intracellular concentration (>10 μM) of active triphosphate form in peripheral blood mononuclear cells for at least 24 h [12], supporting its clinical potential in the treatment of human SARS-CoV-2 infection. Patients receive 200 mg on day 1, followed by 100 mg once daily from day 2. Clinical efficacy of remdesivir have been reported recently [13]. Remdesivir reduces hospital stays by 31%, compared to a placebo [8].

Favipiravir

The other RdRp inhibitor favipiravir is known to be active in vitro against oseltamivir-resistant influenza A, B, and C viruses. After being converted into an active phosphoribosylated form, favipiravir is easily recognized as a substrate of viral RNA polymerase in many RNA viruses. The recommended dose of favipiravir against influenza virus is 1600 mg administered orally twice daily on day 1, then 600 mg orally twice daily on day 2-5, and 600 mg once on day 6. Clinical studies have shown favipiravir to have promising potency in treatment of Chinese patients with SARS-CoV-2 infection [14,15].

Ribavirin

Ribavirin is a guanosine analogue antiviral drug that has been used to treat several viral infections, including hepatitis C virus, respiratory syncytial virus (RSV), and some viral hemorrhagic fevers. The in vitro antiviral activity of ribavirin against SARS-CoV was estimated to be at a concentration of 50 μg/mL [15]. Nevertheless, it has the undesirable adverse effect of reducing hemoglobin, which is harmful for patients in respiratory distress [8].

Interferons

Treatment with interferon β (IFNb)-1b, an immunomodulatory agent, was shown to result in clinical improvement among MERS-CoV-infected common marmosets, but the benefits of IFNb-1b for SARS patients remains uncertain [16].

Protease inhibitors

Lopinavir/ritonavir: Protease inhibitors (PIs) are important agents in the contemporary treatment of patients with chronic human immunodeficiency virus (HIV) infection. In the Ortho corona virinae family, the targets of PIs are papain-like protease and 3C-like protease [17]. The efficacy of remdesivir was superior to that of LPV/RTV-IFNb against MERS-CoV in terms of viral load reduction and improvement in extent of pathologic change in lung tissue.

Chloroquine, hydroxychloroquine, and azithromycin: Chloroquine is active against malaria as well as autoimmune was recently reported as a potential broad-spectrum antiviral drug for treatment of viruses such as influenza H5N1 in an animal model. Chloroquine was shown to increase endosomal pH, which prevents virus/cell fusion. It is not recommended in light of safety concerns and will likely result in a major shortage of anti-malarial armamentaria. Hydroxychloroquine is also proposed to control the cytokine storm that occurs in critically ill late phase SARS-CoV-2 infected patients [8].

Azithromycin has shown to be active in vitro against Ebola viruses. Furthermore, azithromycin is thought to have good potential in preventing severe respiratory tract infections among pre-school children when it is administrated to patients suffering viral infection.

Teicoplanin and other glycopeptides: Teicoplanin was demonstrated to potently prevent the entry of Ebola envelope pseudotyped viruses into the cytoplasm, and also has an inhibitory effect on transcription-as well as replication-competent virus-like particles in the low micromolar range (IC50, 330 nM). Teicoplanin specifically inhibits the activities of host cell's cathepsin L and cathepsin B, which are responsible for cleaving the viral glycoprotein allowing exposure of the receptor-binding domain of its core genome and subsequent release into the cytoplasm of host cells.

Dexamethasone: A recent report on a clinical trial showed that the corticosteroid drug dexamethasone decreased the risk of dying in very ill hospitalized COVID-19 patients. The initial clinical trial results from the Oxford University reveals that dexamethasone can be life-saving for patients who are critically ill with COVID-19. For patients on ventilators, the treatment was shown to reduce mortality by about one third, and for patients requiring only oxygen, mortality was cut by about one fifth. Many doctors, including those in the United States, have been treating very ill COVID-19 patients with corticosteroids since the pandemic began. It makes biologic sense for those patients who have developed a hyper-immune response (a cytokine storm) to the viral infection. In these cases, it is the immune system's overreaction that is damaging the lungs and other organs, and too often leading to death.

Ibuprofen: Some French doctors advise against using ibuprofen for COVID-19 symptoms based on reports of otherwise healthy people with confirmed COVID-19 who were taking an NSAID for symptom relief and developed a severe illness, especially pneumonia.The WHO initially recommended using acetaminophen instead of ibuprofen to help reduce fever and aches and pains related to this coronavirus infection, but now states that either acetaminophen or ibuprofen can be used. Rapid changes in recommendations create uncertainty.

Potential antimicrobial agents

The mechanism of action in case of drugs like Remdesivir, Favipiravir, Ribavirin is Inhibition of the RNA-dependent RNA polymerase; for TMPRSS2 inhibitor (camostat mesylate) by inhibition of spike protein on SARS-CoV-2 (non-endosomal pathway); for Chloroquine, hydroxychloroquine (azithromycin is reported to greatly enhance the anti-SARS-CoV-2 activity of hydroxychloroquine) by inhibition of endosomal acidification (early endosomal pathway); for Inhibition of endosomal acidification (early endosomal pathway) by inhibition of viral exocytosis; for Lopinavir/ritonavir by inhibition of papain-like protease and 3C-like protease; for Teicoplanin by inhibition of cathepsin L and cathepsin B in host cells (late endosomal pathway); for Azithromycin by enhancement of the anti-SARS-CoV-2 activity of hydroxychloroquine. Monoclonal or polyclonal antibodies have been suggested as prophylactic and therapeutic tools (targeting hemagglutinin binding) against some viral infections, such as influenza [1-3,8].

Use of stem cells against COVID-19 has been under evaluation in China recently. Additionally, tocilizumab is a monoclonal antibody that is used in the treatment of RA exacerbation. It was designed to

inhibit the binding of interleukin-6 to its receptors, thus alleviating cytokine release syndrome. Currently, it is also being investigated for treatment of COVID-19 [1-3].

Convalescent plasma: Convalescent plasma has also been used as a last resort to improve the survival rate of patients with various viral infections.The immunoglobulin antibodies in the plasma of patients recovering from viral infection might suppress viremia. Following plasma transfusions, improvements in clinical condition are observed, including normalization of body temperature within three days, decrease in Sequential Organ Failure Assessment score, rise in PaO2/FiO2, resolution of ARDS, a success of weaning from mechanical ventilation, and decline in viral loads and increase in SARS-CoV-2–specific ELISA and neutralizing antibody titers. The use of convalescent plasma transfusion is beneficial among patients infected with SARS-CoV-2, even though the sample number in this study is small.

Antimicrobial agents for potential co-infection: The prevalence of co-infection varied among COVID-19 patients, ranging from 0% to 50% among non-survivors. Reported co-pathogens included bacteria, such as Mycoplasma pneumoniae, Candida species, and viruses (influenza, rhinovirus, coronavirus, and HIV). Influenza A virus was the commonest co-infective virus [7]. Co-administration of anti-influenza agents and anti-bacterial agents in patients with COVID-19 pneumonia was common. Consequently, a cautious prescription of effective antibiotic(s) covering Staphylococcus aureus, multidrug-resistant Streptococcus pneumoniae, Klebsiella pneumoniae, and Pseudomonas aeruginosa as well as Acinetobacter baumannii species for patients undergoing long hospitalization (>6 days) is advised [7].

Doxycycline and Ivermectin combo may emerge as one of the effective treatments for COVID 19.

Vitamins: There is some evidence to suggest that vitamin D might help protect against becoming infected with, and developing serious symptoms of, COVID-19. It may help boost our bodies' natural defence against viruses and bacteria. Moreover, it may help prevent an exaggerated inflammatory response, which has been shown to contribute to severe illness in some people with COVID-19.The recommended dietary dose of vitamin D is 600 IU each day for adults 70 and younger and 800 IU each day for adults over 70. A daily supplement containing 1,000 to 2,000 IU of vitamin D is likely safe for most people.

Some critically ill patients with COVID-19 have been treated with high doses of intravenous (IV) vitamin C to hasten recovery. There is no clear or convincing scientific evidence that it works for COVID-19 infections.

Some patients with suspected COVID-19 have more severe disease or risk for more severe disease and warrant hospital care. Management of such patients consists of ensuring appropriate infection control, supportive care, and possible use of agents with potential activity against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Effectiveness of drugs: Despite the worsening trends of COVID-19, no drugs are validated to have significant efficacy in clinical treatment of COVID-19 patients in large-scale studies. Remdesivir is considered the most promising antiviral agent; it works by inhibiting the activity of RNA-dependent RNA polymerase (RdRp). The other excellent anti-influenza RdRp inhibitor favipiravir is also being clinically evaluated for its efficacy in COVID-19 patients. The protease inhibitor lopinavir/ritonavir (LPV/RTV) alone is not shown to provide better antiviral efficacy than standard care. However, the regimen of LPV/RTV plus ribavirin was shown to be effective against SARS-CoV in vitro. Another promising alternative is hydroxychloroquine (200 mg thrice daily) plus azithromycin (500 mg on day 1, followed by 250 mg once daily on day 2-5), which showed excellent clinical efficacy on Chinese COVID-19 patients and anti-SARS-CoV-2 potency in vitro. The roles of teicoplanin (which inhibits the viral genome exposure in cytoplasm) and monoclonal and polyclonal antibodies in the treatment of SARS-CoV-2 are under investigation. Another promising alternative is hydroxychloroquine (200 mg thrice daily) plus azithromycin (500 mg on day 1, followed by 250 mg once daily on day 2-5), which showed excellent clinical efficacy on Chinese COVID-19 patients and anti-SARS-CoV-2 potency in vitro. The roles of teicoplanin (which inhibits the viral genome exposure in cytoplasm) and monoclonal and polyclonal antibodies in the treatment of SARS-CoV-2 are under investigation. Avoiding the prescription of non-steroidal anti-inflammatory drugs, angiotensin converting enzyme inhibitors, or angiotensin II type I receptor blockers is advised for COVID-19 patients [1-3,8].

Cost of treatment will be an inhibiting factor in underdeveloped and developing economies. Drug to treat COVID 19 may cost $5,080 [INR 350,000] per course. Remdesivir could be priced up to $5,080 per course based on benefits shown in Covid-19 patients. Affordability, therefore, is an important issue that needs attention of multinational drug companies.

It is crucial to identify any antibodies that inadvertently help the virus enter cells so researchers who are developing vaccines can avoid including those antibodies. There are some opportunities to pursue other interventions in the short- and long-term that could save lives.

Tackling Inequalities

World is facing such an unprecedented global crisis. Every day, refugee and migrant children, and those affected by conflict face major threats to their safety and well-being. Nations must keep food supply chains alive and protect the most vulnerable. What the world needs right now is solidarity along with bold & courageous leadership guided by science, data, ethics and empathy. Recovery from COVID can steer the world toward a safer, healthier, more sustainable and inclusive path.

The pandemic is deepening inequalities, and millions more women and girls now risk losing the ability to plan their families and protect their bodies and their health. Countries must address the fragilities, inequalities and gaps in social protection that have been so painfully exposed, and place women and gender equality front and centre.

Scientists and researchers across the globe are racing against the time to develop a vaccine for the novel COVID-19. As of now, over 100 research groups are working round the clock to develop a potential vaccine for COVID-19 [1-3].

Viruses have no nationality. In the fight against COVID, there is no room for racism. The covid-19 pandemic could also lead to the spread of other preventable diseases. Economic recovery from COVID 19 will be much harder.

Rising nationalism and protectionist responses will prolong the economic recession into a depression, sharpening inequalities and polarisations. Greater unpredictability and more turbulent times lie ahead.

Impact and Implications

We find ourselves in a time of great economic, social, and medical uncertainty. The world now feels strange and that health professionals are susceptible to human anxieties. The pandemic demands action on many fronts, from prevention to testing to treatment. We need to create simple, cheap, more accessible testing for SARS-CoV-2. A faster way has to be developed to identify antibodies that neutralize the virus. The biggest challenge is to determine which vaccine is effective and safe. Remdesivir may prove to be a magic bullet [1-3].

We are experiencing a new world altogether. This unexpected and adverse shift in habits and mindset has impacted the economies heavily. Many have taken a bad hit. But in some cases, the results are exponentially positive. The adaptability and creative decision making will play a key role in the sustainability of the enterprises.

Health and wellness are adversely affected by the pandemic. Loss of lives has been coupled with loss of livelihoods. Post pandemic, the definition of health and wellbeing will have to be redefined. A holistic approach of health will include physical, emotional, social, spiritual, financial, occupational, and environmental wellness.

Patients will focus on building good immunity levels so as to be able to fight the infection better. Immune Supplements will see an uptick. Organic Foods will be preferred. A new consciousness and a significant lifestyle change is inevitable.… a new beginning in pursuing 'lifestyle health'.

The pandemic has resulted in mass unemployment, depleted social safety nets, starvation, increase in gender-based violence, homelessness, alcoholism, and millions slipping into poverty. This will lead to an increase in chronic stress, anxiety, depression, and overall rise in morbidity, suicides and the number of disability-adjusted life years linked to mental health. For developing economies this is the perfect storm. Workers around the world will want to be able to feel safe in their workplaces, reassured that they are not exposed to undue risks of the virus, and more. Remote testing methodologies exist. The general public will insist on new technologies that don't force them to visit hospitals or clinics. So, Telemedicine will surge. Digital platforms are amplifying consumer actions. The Internet of Medical Things (IoMT), on which the patient's vital signs are monitored and stored, will help doctors to access the health statistics and vital data of a patient, over time. Artificial Intelligence (AI) and Machine Learning will allow agglomeration of patient data, its comparison, its benchmarking and its rapid deployment in situations like the current pandemic, based on the learnings from thousands of like-profiled patients. Implantables will become a common reality. AI has emerged as a powerful tool in the time to fight against pandemic. These applications can be effective to diagnose, envision, and treat Covid-19 disease. Robotic Process Automation (RPA) is the future. To contain the spread of the disease, returning travelers from abroad will need to be tested for the virus and contact tracing done for long periods of time. The cost of healthcare, going into the next few months and years is set to increase quite substantially. The beauty & wellness industry will experience a tectonic transformation.

During the pandemic treatment suffers. Patients with diseases like cancer, diabetes, renal failure, CAD and pregnant women need special attention. As the pandemic pushes up levels of hunger among the global poor, governments must prevent devastating nutrition and health consequences for children missing out on school meals amid school closures. A structured and well-coordinated approach is critical for tackling this global crisis.

Migrant Workers

India declared a sudden, severe andabsolute lockdown with 4 hour's notice on 24 March 2020. Millions of migrant workers rendered jobless and unsafe. Group upon group of terrified, starving, exhausted people leave the cities they built, carrying with them precious items packed into sacks. Cellphones to reach out to relatives at home in villages they were born, hundreds of miles away. Some clothes, biscuit packets, bread. They flee on foot, bicycles, hitch a ride on goods-laden trucks - hungry, thirsty and tired - to rest under the shade of a tree or a school converted into a shelter for migrants. "Stick around. These have gone silent in the nationwide stay-home order to stop a contagion from spreading.

What is required is burying dead with dignity, giving human face to lockdown, citizen-state engagement, creating a social-security net for poor. Moreover, this is the time of reason & science not rhetoric.[1-3]

Both life and livelihood are important. Deprivation is unacceptable. Shelter, food, healthcare and subsistence for poor are the key challenges.

Education Matters

As schools remain closed during the pandemic, the education of many children for whom long distance learning is unavailable stands at great risk. Nations must do everything in their power to protect children from the dire consequences. Teens are feeling lonely and anxious in isolation. Poor children with limited access and illiterate/semi-literate parents are in serious trouble. They are losing out. This will impact them severely. According to UNICEF, nearly half of the schools around the world do not have basic handwashing facilities, affecting 900 million children. According to UNICEF, nearly half of the schools around the world do not have basic handwashing facilities, affecting 900 million children. Governments must prevent devastating nutrition and health consequences for children missing out on school meals amid school, closures.

Failures and Successes

The U.S. does not yet have the coronavirus under control and is seeing a "disturbing surge" of infections in some parts of the country. The number of cases and deaths are several times more than officially declared. If the United States had started social distancing just a week earlier, it could have prevented the loss of at least 36,000 lives to the coronavirus. The response to the coronavirus outbreak served as a critical reminder for why strong government leadership is needed during a global crisis.

There is a massive surge in COVID cases and deaths in India. The trend is disturbing. During the first 139 days of pandemic, India witnessed 100,000 cases, that reached 200,000 cases in another 16 days, 300,000 in another 11 days, to 400,000 in another 9 days and to 500,000 in another 7 days. It is argued that the number of cases is

much higher than officially declared. Another reason is that in a country of 1.38 billion 50,000 to 100000 tests are now conducted per day (initially it was 10,000 cases per day). Mass testing facilities are not available. The number of deaths in hospitals and those that occur at home have to be properly and transparently. documented.

Around 80% of deaths in India still happen at home, including deaths from infections like malaria and pneumonia. Maternal deaths, and deaths from sudden coronary attacks and accidents are more often reported from hospitals. In the absence of a robust public health surveillance system, experts say mobile phones could be used to find out whether there was an unusual surge in influenza-related deaths which could be linked to Covid-19. More than 850 million Indians use mobile phones and they could be persuaded to report any unusual death in their villages on a toll-free number. Authorities could then follow up the deaths by visiting the families and conducting "verbal autopsies".

Some Indian health professionals have reported that many people were dying of Covid-19 symptoms without getting tested or "treated". Then there's the question of wrong diagnosis in a country where health professionals misdiagnose the cause of death.

Tracking deaths is far more reliable than cases. The key is to make sure all deaths or a good random sample or snapshot of deaths is captured.

India might be missing some deaths and not diagnosing every patient correctly for COVID-19. But the fatalities are unarguably low.

India has a week public health system. Over 70 percent health facilities are in the Private Sector and nearly 30 percent in the government sector. Public health facilities are not only inadequate but overstretched. Private health facilities are very expensive and at times unaffordable. In public sector, fatigue factor is already in with the health professionals.

While 67% of all positive patients numbering are under the age group of 50 years, followed by 18% of patients aged 60 and above and 16% of patients between 50 and 59 years of age, the mortality rate was highest for persons aged 60 and above at 6.16%, followed by 3.54% for people in the age bracket of 50 to 59 years and 0.58% for persons under the age group of 50. India now has 1,016 diagnostic labs dedicated to Covid-19.

Delhi, Chennai, Thane, Mumbai, Palghar, Pune, Hyderabad, Ranga Reddy, Ahmedabad and Faridabad are the 10 districts and cities that have so far reported a larger number of coronavirus cases. The mortality rate continues to be low in the northeast, with no deaths reported so far from the states of Manipur, Mizoram, Nagaland, and Sikkim. The North-eastern states have a lower number of Covid-19 cases compared to the rest of the country, death rate continues to be low, with no deaths in Manipur, Mizoram, Nagaland and Sikkim. Maharashtra remains the worst-hit state by the coronavirus pandemic, accounting for almost one-third of the country's total count with the state tally. National capital Delhi is in second spot. There is a massive surge in COVID cases and deaths in India. The trend is disturbing. During the first 139 days of pandemic, India witnessed 100,000 cases, that reached 200,000 cases in another 16 days, 300,000 in another 11 days, to 400,000 in another 9 days and to 500,000 in another 7 days and 940,000 by July 14, 2020. It is argued that the number of cases is much higher than officially declared. Another reason is that in a country of 1.38 billion 50,000 to 100,000 tests are now conducted per day (initially it was 10,000 cases per day). Mass testing facilities are not available. The number of deaths in hospitals and those that occur at home have to be properly and transparently documented.Kerala, which achieved great success with its elaborate contact tracing strategy in the early stages of the pandemic, has obvious benefits.

The success story of Kerala is an example for others to emulate. Kerala is small and densely populated, but relatively well-off. It has a 94% literacy rate, the highest in India, and a vibrant local media. A strong health service and clear communication is key to Kerala's success in tackling Covid-19. Kerala started from a strong baseline. Its socioeconomic development is an example of what investments in human capital can do for poverty reduction and prosperity. Kerala has better health outcomes than the rest of India. A culture of thriving grassroots democracy with power devolving effectively to the village councils. This mainly helped in community outreach, rigorous contact tracing and mass quarantine A severe lockdown was implemented before the national one: schools were shut, gatherings were banned, a stricter and longer quarantine than the national norm was deployed, and a few pious people who still insisted on praying in groups were even arrested. But this iron-fist approach was matched by socially valuable outreach policies. Supplies were delivered at home, midday meals from schools were sent to children even when schools were shut, regular and clear communication channels were established to dispel fake news, migrant labourers from other states were well taken care of, and mental health helplines were established across the state. The "Break-the Chain" campaign to limit the Covid-19 spread was particularly successful. Kerala is also riding the tiger of a strict economic lockdown in the rest of the country. When the next wave of novel coronavirus hits, the state will be ready. A strong game-changer was the decentralised health care system. The village councils took upon themselves to enforce and monitor mass quarantine with the consent of the people. The devolution of power in Kerala - local government, community-driven village councils, vigilant municipalities - have helped the state tackle the pandemic. The three-tier public health system, involving functioning government hospitals, is the result of a more than half-century long legacy of spending on healthcare. Kerala has spent more on health and education than most Indian states.

Hopes for the Future

COVID-19 is an emerging, rapidly evolving situation. There is an urgent need to speed delivery of accurate, easy-to-use, scalable tests, speeding innovation, development and commercialization of COVID-19 testing technologies, a pivotal component needed to return to normal during this unprecedented global pandemic. Researchers should come together to advance diagnostic technologies to bring the best and most innovative technologies forward to make testing for COVID-19 widely available. While diagnostic testing has long been a mainstay of public health, newer technologies offer patient-and user-friendly designs, mobile-device integration, reduced cost and increased accessibility both at home and at the point of care. It seems unthinkable that for the foreseeable future doctors will be able to examine in hospitals while COVID-19 is endemic and movement of healthcare staff between sites creates a risk for all involved. Many patients are shielding or have increased risks from COVID-19. We will need to assess skills in virtual consultations as this becomes a major form of patient interaction, and also how people perform when

communication and examination is limited by PPE. Using PPE in this setting would be unethical at the moment but hopefully we can move to a position when there is more than enough PPE around to allow it.

The counterargument to this is that doctors know clinical examination and communication skills are the defining characteristics of effective doctors and physician associates, so whatever solutions doctors find doctors must ensure we test these skills. Simulation and virtual reality will have a place but are less accessible in poorer parts of the world.

Health care workers around the world have shown unimaginable bravery, dedication and commitment to helping others during the pandemic, often at great risk to themselves.

Managing Information

Mass media have long been recognized as powerful forces shaping how we experience the world and ourselves. This recognition is accompanied by a growing volume of research, that closely follows the footsteps of technological transformations (e.g. radio, movies, television, the internet, mobiles) in an attempt to map mass media major impacts on how we perceive ourselves, both as individuals and citizens. It is crucial to stop misinformation by promoting effective health communication for the adoption of sustainable preventive measures. Public health communication to increase psychological resources and resilience in distinct age groups and socioeconomic conditions. Health and wellness have been severely impacted by the ongoing pandemic. Loss of lives has been coupled with loss of livelihoods. Both having a debilitating effect on health and morale. Epidemics commonly cause negative psychological responses in people, e.g. post-traumatic stress disorder (PTSD), sleep disorders, mood and anxiety disorders, and these issues do not simply disappear after a crisis has passed.

Conclusion

Most emerging human disease, coronavirus initially jumped undetected from an animal to a human.However, it remains unclear whether that animal was linked to the now infamous Wuhan wildlife market in China. The COVID-19 pandemic demands action on many fronts, from prevention to testing to treatment. Future pandemics are likely to happen more frequently, spread more rapidly, have greater economic impact and kill more people if we are not extremely careful about the possible impacts of the choices we make today. Nations have to build a healthier world by focusing on the shared good health of human and nature. Decisive action, going hard and going early, helps to stamp out the worst of virus. Testing must be done widely. Early intervention and aggressive response in controlling the Covid-19 pandemic is crucial.

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