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Stay At Home

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The Right Understanding of Covid-19 Paves Way for the Right Response

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This is the second in a series of blog posts by ACCESS Health India Country Director Dr. Krishna Reddy. Dr. Reddy is a board certified cardiologist with a long and distinguished career, marked by his leadership of the CARE Hospital Group which he helped create. The hospital group is now recognized as the most advanced, complete cardiac care center in the country. In this new series of posts, Dr. Reddy will reflect on the impact of the novel coronavirus outbreak on health from his perspective as the director of ACCESS Health India and as a healthcare provider. To access other blog posts click: ***Part 1****.*

Infectivity: It denotes number of people who will develop infection when exposed to an infected person. Epidemiologically, it is denoted by Ro (R-naught) and the rate is given by 1-1/Ro. If Ro is 2.5, infectivity rate will be 60% (1-1/2.5), i.e., 60 people out of 100 exposed will develop infection if no precautions are taken. If precautions are taken, this can be brought down to manageable levels. Hence, at Ro values of 2.0, 1.5, and 1.2, the infection rate drops to 50%, 40%, and 20% respectively. It becomes zero when Ro is equal to 1. Infection happens through breathing infected droplets or touching surfaces where these droplets settle. In the absence of vaccination, social distancing (wherein a person is outside of 6 feet distance from an infected person) and personal protection (well-fitting face masks and handwashing) are the best means to reduce this risk.

Case Fatality Rate: It is the number of infected people who are at risk of death. The rate is low in younger people (<40 years old), and in females. The risk increases with increasing age and presence of comorbidities like heart, lung, and kidney disease, hypertension, diabetes etc. Infected people may be asymptomatic, develop mild flu-like (cough, sore throat, muscle pains, headache, change in smell and taste etc) illness or severe acute respiratory illness requiring hospitalization.

It is still not clear as to how many of infected people are asymptomatic. The rates available from preliminary data have ranged from 10% to 75%. In the absence of true number of total infected people, case fatality rates are being calculated for only symptomatic cases. Mean age of Indian population is ~29 years. For the demographic profile of India, estimated case fatality rate will be ~1%, i.e., I in 100 infected and symptomatic people will have the risk of death. Hence, the only way to reduce deaths, in the absence of specific treatment, is reduce the risk of getting infected. The only way to reduce the risk of getting infected in the absence of vaccine is to follow social distancing and personal protection.

Testing: Currently we have two methods of testing – one, to detect the virus in the nose and throat with swabs and the other, to detect antibodies in the blood. The first one needs stringent personal safety precautions while taking the sample and doing the test, while the second one is safe, simple, rapid, and can be done anywhere. If virus is detected in a sample, it confirms that the person is infected with the virus. It may come negative if the test is done very early after exposure.

Hence, a second test is done to completely rule out infection. When a person gets infected, he/she mounts immune response by releasing antibodies that bind to the virus and inactivate them. There are two types of antibodies – IgM, that are released within 1 week to 10 days and are suggestive of recent infection with the virus, and IgG, that gets released after 10 days to 2 weeks and may remain permanently in the body offering protection against reinfection.

The duration of protection may last from months to years and is still unknown for Covid-19. Each test has to be interpreted as per the probability of a person having the infection, sensitivity and specificity of each test, what it detects – the virus or the antibody to the virus, and at what phase of the illness (upon contact, on developing symptoms, on recovering from the illness, or randomly) the test is done. India has been following a graded testing strategy as per the perceived stage of the disease. The positive yield for virus detection test so far has been ~4.5%, i.e., around 5 people testing positive out of 100 tests, and is similar to South Korea, Singapore, and China. The positive yield in most of the Western countries is in the range of 20 to 40%.

Most of the Asian countries, including India have adopted stringent containment strategies. Low rates in these countries may be reflection of testing at a stage where there is no community spread or may be a reflection of lower than expected infectivity rate. There has been some confusion and concern about antibody tests introduced recently. The confusion may be either due to faulty kits or faulty testing. If antibody tests are done too early in the course of infection (less than 1 week), they will come wither negative or equivocal. Antibody tests are useful to asymptomatic case rates and population level seroconversion rates.

People with positive antibody tests are likely to be protected from reinfection for some time; hence, they can be brought into frontlines. There is a general lack of clear understanding about testing and is reflected in diverse public discourses aired in media.

Containment: In the absence of either vaccines or drugs, the only method to contain the spread of the virus is to avoid getting infected. The best method to avoid getting infected is to avoid people at close (< 6 feet) distances, to avoid inhaling infected droplets in the air (by face masks), to avoid carrying virus from the surfaces (tables, clothes, mobiles, bottles etc.) where the droplets may have settled to the nose by washing hands (20 second soap wash or alcohol-based sanitizer hand rub) and avoiding frequent touching of face and nose.

Population level methods are to close borders (national, state, district, or a locality), closing down crowded places (schools, malls, cinemas, religious congregations), avoiding mass transport (buses, trains, planes, ships etc.), isolating people who are exposed, and quarantining infected people. Given the speed of spread of the pandemic, lock-downs help in buying time to create adequate awareness amongst people, get breathing time to make preparations on multiple fronts (medical, essential supplies, education, economy etc.), and importantly prevent or reduce community spread.

Containment is painful; however, it is unavoidable. We undertake radical surgery and aggressive chemo and radiotherapy to contain or cure cancer. In the process we are forced to remove healthy tissues and cause injury, some of which can be permanent. This is termed as collateral damage. In medicine, we take decisions based on ‘risk vs benefit’ and ‘cost vs benefit analysis’. If the risk of doing harm is far less than the benefit of saving life, we give an informed choice to the patient or family.

Communication: In medicine, we also follow the principle of ‘informed consent’ to undertake a treatment modality. The information provided to the patient or the family should be in the language they can understand and in a style that they can

comprehend. However, in an extreme emergency, we go ahead with the treatment without waiting for a consent. When a patient comes with cardiac arrest, we don't have time to take consent! We go ahead and give the shock. In situations like Covid-19, providing right information, in a language people can understand, in a style people can comprehend, and in a manner that is consistent becomes highly essential.

However, in the age of tsunami of information (online info, endless debates by experts and pseudo experts, print media, social media, gossips, rumors), people do not know what is right and what is wrong information. In this hour of crisis, everyone – the government, media, experts, political leadership, and every citizen – have individual and collective responsibility to provide right communication or to avoid wrong communication. More harm can be done by wrong communication than by the virus itself!

Climate: Global lock-down is the first, and probably the last social experiment, where it is obvious to every person on earth that we are responsible for the polluted air that we breath, unsafe water that we drink, and the killer roads that we travel on. It also is a demonstration of how little is necessary to meet our needs and how vast amounts of nature we destroy to meet our greed. Millions of lives are lost every year due to polluted air & water and road accidents. Nearly 1 million children die every year in India of diarrheal illnesses due to unsafe water.

If we have learnt these simple lessons from the greatest social experiment, the suffering resulting from the lock-down is worth it. If we haven't learnt this, humanity has no bright future! The experiment also raises the question – do we need cities, that have become death traps?

The road ahead: As long as people are not infected, not immune, and are vulnerable and as long as we do not have vaccines to prevent or drugs to treat, we have no choice but to follow social distancing at home, at work, in community, while travelling, in public places, in shopping stores. We have to follow personal protection methods like wearing masks, sneezing or coughing into our elbows and washing hands. If people have the right understanding and follow right behavior, we can hope for a life of 'new normal'. If not, we continue to bear the pain of complete or partial lockdowns.

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