Understanding the COVID -19 epidemic and the demands of the Peoples Science Movements and Peoples Health Movements

Background Paper to the provisional Charter of Demands

by

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Dated: 15th March, 2020

What is COVID -19?

The current coronavirus epidemic is the epidemic of a respiratory illness caused by a virus identified and termed as COVID-19 short for Coronavirus Disease 2019. The designation of the new virus is now officially –"severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)" as assigned by the International Committee on Taxonomy of Viruses. This virus is genetically related to but different from severe acute respiratory syndrome coronaviruses (SARS-CoV)(WHO, 2020).

The symptoms of COVID-19

In terms of symptoms there is little to differentiate this illness from seasonal flu – which is caused by a number of other contagious viruses that lead to respiratory illness. Most common types are In*flu*enza A and In*flu*enza B viruses- which are generally referred to as the flu.

Typical flu symptoms include fever, cough, sore throat, muscle aches, headaches, runny or stuffy nose, fatigue and, sometimes, vomiting and diarrhea. Flu symptoms often come on suddenly. Most people who get the flu will normally recover in less than two weeks, and the worst part of the sickness lasts less than a week.

But in some people, the flu causes complications. The most frequent complication is pneumonia. Even more rarely it turns critical. The infection leads to a respiratory failure or multi-organ failure that often becomes fatal. In

such cases death occurs three to four weeks after the onset. Of 1000 persons infected with a seasonal flu about 20 to 50 may get a severe form and about 1 person would die (Rachael Rettner, 2019).

With COVID-19, symptoms in patients are very much similar- and hence one cannot differentiate COVID-19 infection from seasonal flu just based on symptoms. A recent study published in JAMA in February 28th reports that of hospitalized patients in COVID-19 about 83% to 98% of patients develop a fever, 76% to 82% develop a dry cough and 11% to 44% develop fatigue or muscle aches. Several reports also cite shortness of breath as an important symptom. Other symptoms, including headache, sore throat, abdominal pain, and diarrhea, have been reported, but are less common. This pattern was reported from hospitalized patients- who can be categorized as severe or critically ill patients. They are termed critical when they need respiratory support (Del Rio & Malani, 2020).

The pattern of symptoms are the same in the majority of patients with mild or levels of symptoms. It is termed mild when it did not require hospitalization. Patients who are mild may have not even felt the need to report being sick. They are often picked up because they are tested as a contact, i.e. for having come in contact with an infected person.

Those with mild cases of COVID-19 appear to recover in about two weeks, while people with severe or critical disease recover within three to six weeks.

We know that a patient with Coronavirus who develops fever may have been spreading the virus before he developed the fever. This is typical of many viral fevers. There is however one important question that we do not have the answer to. And that is whether a proportion of patients who are infected are completely free of any signs of illness (asymptomatic), but they are nevertheless spreading the disease. Asymptomatic infected persons spreading the infecting germ are a feature of many infections. This feature is usually identified in

retrospect when a sample of the population is surveyed for antibodies and many persons who never developed symptoms are found to be having antibodies. Such studies have just started. There is an initial report of asymptomatic contact spreading the disease (Rothe et al., 2020) and there are many reports of patients with very mild symptoms spreading the disease- including children (discussed later).

Case Fatality and Severity Ratios

In another recent study, researchers from the Chinese Center for Disease Control and Protection analyzed 44,672 confirmed cases in China in January and the first 11 days of February 2020. Of those cases, 80.9% (or 36,160 cases) were considered mild, 13.8% (6,168 cases) severe and 4.7% (2,087) critical. "Critical cases were those that exhibited respiratory failure, septic shock, and/or multiple organ dysfunction/failure," the researchers wrote in the paper published in China CDC Weekly. The death rate in this study was around 23 per 1000 in mainland China. This death rate varied from about 29 per 1000 infected patients in Hubei Province, the place where the outbreak began, to as low as 4 per 1000 in other provinces, according to the China CDC Weekly study (Rachael Rettner, 2019; The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020).

Another study of about 1,099 hospitalized patients in China, published Feb. 28 in the New England Journal of Medicine, found that the overall death rate was slightly lower, around 14 per 1000 (Guan et al., 2020).

This is different from the effects of seasonal flu. For example, in one year, 2017, with about 10 out of 1000 people with seasonal flu in the United States developed symptoms severe enough to be hospitalized and about one died.

Individual's age was the other major determinant with death rates varying from 14.8% in those 80 and older; about 8% among those ages 70 to 79; 3.6%

for those aged 60 to 69; 1.3% for 50 to 59; 0.4% for the age group 40 to 49; and just 0.2% for people aged 10 to 39. No deaths in children under 9 have been reported yet. (The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020)

The report concluded “In light of this rapid spread, it is fortunate that COVID-19 has been mild for 81% of patients and has a very low overall case fatality rate of 2.3%. Among the 1,023 deaths, a majority have been ≥60 years of age and/or have had pre-existing, co-morbid conditions such as hypertension, cardiovascular disease, and diabetes. Moreover, the case fatality rate is unsurprisingly highest among critical cases at 49%, and no deaths have occurred among those with mild or even severe symptoms” (The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020).

The low infections rates and absent mortality in children is perhaps the most surprising difference from the flu- in both its seasonal and its pandemic forms. Typically flu morbidity and mortality is much higher in children than in adults. We really do not know why children, often the most vulnerable, are being spared from severe disease and mortality from COVID-19 infection. This is most fortunate for all of society. However, children are getting infected and one study has shown that even if symptoms are very mild they were shedding virus through both respiratory system and excreta in their convalescent stage- and therefore they could be spreading the disease (Cai et al., 2020).

There are some problems with estimating the case-fatality rate: “An epidemic’s fatality rate can only be definitively calculated after the fact: you take a population in which you know how many died and test a large random sample for antibodies against the pathogen in question —antibodies they will only have in their system if they were once infected. The Chinese authorities have just approved such tests, but they have yet to begin” (The Economist, 2020).

The case fatality rate refers to the number of cases who died (numerator) divided by the total number of infected cases (denominator). This rate is usually over-estimated because we miss many of those who were infected. This could be more so where testing for the virus is not available.

But the number who would be infected depends on the basic reproductive rate (Ro). The basic reproductive rate is a measure of how many persons will catch the disease from one already infected person. This is estimated at 2.0 to 2.5 for COVID-19. This depends on the virulence of the virus. As the disease spread, the virulence (its ability to cause diseases) could change due to mutations. It also depends on the susceptibility of the host. Persons whose immunity is compromised by old age or diseases like diabetes, hypertension, chronic respiratory disease, HIV, kidney disease or stress or under-nutrition are all likely to be more susceptible to severe forms of the disease and death. (China study provides proportional mortality for cardiovascular diseases at 10.5 %, Diabetes 7.3%, Hypertension 6.0 %, Chronic Respiratory Diseases 6.3 %, Cancer 5.6 % -The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020). This rate Ro assumes that there is no public health intervention. But where there is intervention, the rate of spread is lower. The effective reproductive rate (Re) is arrived at after factoring in the preventive measures that the government and people are taking.

Placing the epidemic in context:

We can understand this epidemic better if we look at the history of other epidemics of acute respiratory illness. The most common is common flu, or seasonal flu, but we also have flu pandemics and coronavirus pandemics;

Seasonal Flu morbidity and mortality

An authoritative study that appeared in the Lancet estimated the number of deaths worldwide due to seasonal influenza-related respiratory illnesses each

year at between 291,000 and 646,000 people worldwide. This data was based on a robust, multinational survey of 33 nations which represented 57 percent of the world's population, which had good death records and seasonal influenza surveillance information, and was then modeled further for 185 nations to arrive at global estimates. Data from the other 14 countries were used to validate the estimates of seasonal influenza-associated respiratory death from the statistical models (Sullivan, 2018).

If we look at a study of seasonal flu deaths annually in China alone it works out to about 88 100 influenza-associated excess respiratory deaths per year in the 5 years studied, corresponding to 8·2% of respiratory deaths- and this was due to two strains Influenza A virus and one of B. Of these approximately 71,000 influenza-associated excess respiratory deaths occurred in individuals aged 60 years or older, corresponding to 80% of such deaths (Li et al., 2019).

Another study in Lancet uses systematic review to estimate flu in children under 5 years age in the year 2018, globally. It concludes that "there were an estimated 109·5 million influenza virus episodes (uncertainty range [UR] 63·1–190·6 million), 10·1 million influenza-virus-associated acute lower respiratory infections (ALRI) cases (range 6·8–15·1 million); 870,000 influenza-virus-associated ALRI hospital admissions (range 543,000–1,415,000), 15,300 in-hospital deaths (5800–43 800), and up to 34,800 (13 200–97,200) overall influenza-virus-associated ALRI deaths.

Influenza virus accounted for 7% of ALRI cases, 5% of ALRI hospital admissions, and 4% of ALRI deaths in children under 5 years. About 23% of the hospital admissions and 36% of the in-hospital deaths were in infants under 6 months. *About 82% of the in-hospital deaths occurred in low-income and lower-middle-income countries*. Fortunately the corona virus has not led to death in children but the infected children show shedding of virus (Cai et al., 2020) .

The above estimate of seasonal flu excludes deaths during pandemics of acute respiratory illness.

The Pandemics of Respiratory Illness:

Pandemics of respiratory illness are a global outbreak of a new virus that is very different from the strains that typically circulate and cause outbreaks of seasonal flu every year (CDC, 2019).

But the last 100 years the world seen at least 5 or more such flu pandemics. About a 100 years back what was called the Spanish flu (though it had almost nothing to do with Spain) was the worst recorded flu pandemic in history. Close to 500 million, or about *one thirds of the worlds population* was infected. Case fatality rate was anywhere from 5 to 10% and lead to deaths that ranged between 20 million to 50 million deaths, the highest on record for any epidemic. It relatively spared the elderly (perhaps because they had been made immune by an earlier related flu). But the 1918 flu hit strongly on healthy young adults and those below 5. Also to note- the 1918 flu had three waves- the Spring wave, then one in Fall 1918 and finally in winter 1918. That logic could repeat this time also. (CDC, 2019; Sullivan, 2018).

The other large pandemic flu's were the "Asian flu" of 1957-58 with about 2 million deaths, the "Hong Kong flu" of 1968-69 with about a million deaths, the bird flu of 1997 and most recently the swine flu of 2009 (CDC, 2019). This most recent pandemic of 2009, the swine flu pandemic, is estimated to have killed between 151,000 and 575,000 people worldwide, according to the CDC (Rachael Rettner, 2019) . Not surprisingly mortality in both the seasonal flus and in swine flu was highest in the world's poorest regions - sub-Saharan African countries, then Eastern Mediterranean and Southeast Asian regions. It was also worst in the elderly and the mortality rate decreased with age.

Coronavirus is technically not called a flu, because it is not due to an influenza virus- but it is very similar to these pandemic flus. There have been

two outbreaks of Coronavirus related acute respiratory illness in the recent pass. The first of these is Severe Acute Respiratory Syndrome (SARS) caused by the virus termed SARS-COV which affected 30 countries in the years 2003-04. It affected close to about 8500 persons of which about 813 died – a much higher mortality rate of about 9.5% and one which is closer to that of the 1918 flu. The next epidemic due to a Coronavirus was in Saudi Arabia, and was called MERS or the Middle East Respiratory Disease Syndrome, it affected about 2500 persons and caused 858 deaths- thus having a mortality rate of 34% (Sullivan, 2018).

Lessons from history:

The main lesson from these figures is that we should never have under-estimated the potential seriousness of new flu pandemics and even of seasonal flu as a global public health problem. Preparation for this should have been a global priority.

Though it is considered unlikely that a situation like the one caused by the Spanish flu will be repeated, because of better healthcare systems, it is not impossible. We have better hospital care, but an appropriate drug is not likely to become available within the next few months. As yet, there is no vaccine for COVID-19. But researchers across the world are racing to develop one. The earliest time by which it would become available is about mid 2021. Therefore the reliance is still on the age-old measures of social distancing and of adequate medical care for those severely affected- not unlike what was done in 1918.

Would this work? That would depend a lot on the nature of the epidemic. If there are a large number of asymptomatic disease-spreaders and a very high susceptibility in the population because this is a relatively new virus (unlike the flu)- the mortality could still be high. *Even with a lower case fatality rate of 1% mortality, a disease that could potentially infect 50% of the current adult world population would mean millions of excess deaths in the coming year.*

Public Health Measures:

The world is seized of the problem it is facing and has been reasonably quick to respond to this pandemic. The question is as to the effectiveness of what is being tried as public health measures. And it has to be examined whether the current design and functionality of health systems after three decades of structural adjustment policies is too sub-optimal to respond to the challenge we are facing.

Preventing the Spread of the Disease:

The major public health measures that are being enforced are isolation, quarantine and social distancing. This is based on the scientific understanding that

1. The virus has an incubation period of 1 to 7 days. To be safe, it is now being taken as up to 14 days. This is the period between getting infected and showing symptoms of the disease. Persons could be spreading disease even in this period
2. The virus is either spread through (WHO, 2020):

(a) Direct droplet inhalation- when an infected person coughs or sneezes droplets of water containing the virus are in the air surrounding others who could inhale the virus while breathing normally.

(b) Indirect droplet contact- the droplets with the virus drop to the floor or other surfaces directly from the cough or from the hands of the infected person. The virus will remain active on the hands or on the floor or surface for about 8 to 10 hours, and heat, sunlight, or disinfectants will kill the virus easily. Current understanding is that it could be active for as long as 2 to 3 days (Aubrey, 2020). (WHO has commissioned a number of studies on this). But before that happens if an uninfected persons touches the surface with droplet on it, and then touch their faces, especially near the mucous membranes of the eyes, nose or

mouth- the virus enters through this. The surface could be a shared towel, or a door handle, or a tap knob etc.

Measures to prevent the spread are:

(a) Efforts to identify all patients with COVID-19 and isolate them at once from contact with others, till they recover – *isolation of patients*.

(b) To identify persons who have had likely contact with an infected patient, or who have been in and around an area where there were infected persons and test them for the disease and isolate them for 14 days- *quarantine of contacts*- so that they do not spread infection. Currently this is proposed for all those returning from nations where there are large number of corona virus cases.

(c) Social distancing: To enforce restrictions and reductions on all movement of people and gatherings so that they are much less likely to come into contact with an infected person or infected surface. This is combined with educating and persuading individuals and communities on social distancing which they can voluntarily apply to themselves and their friends and families. This should slow down the spread and could eventually halt it altogether. The least it could do is to *flatten the epidemic curve.* Meaning it will take longer to reach its peak, delaying the spread of the epidemic. This would mean that at any given time, less persons would be affected and government has more time to prepare.

Is community transmission taking place? :

The effectiveness of the above measures depends on whether we are at the stage of imported diseases and contacts- or whether community transmission has set in. Community transmission is said to have set in once there are persons identified who have no knowledge of whom they got it from and no specific contact can be traced. Before it sets in, the quarantines would work to contain the disease. To curb imports, the government is restricting travel to nations with relatively higher incidence of the disease. But after community transmission

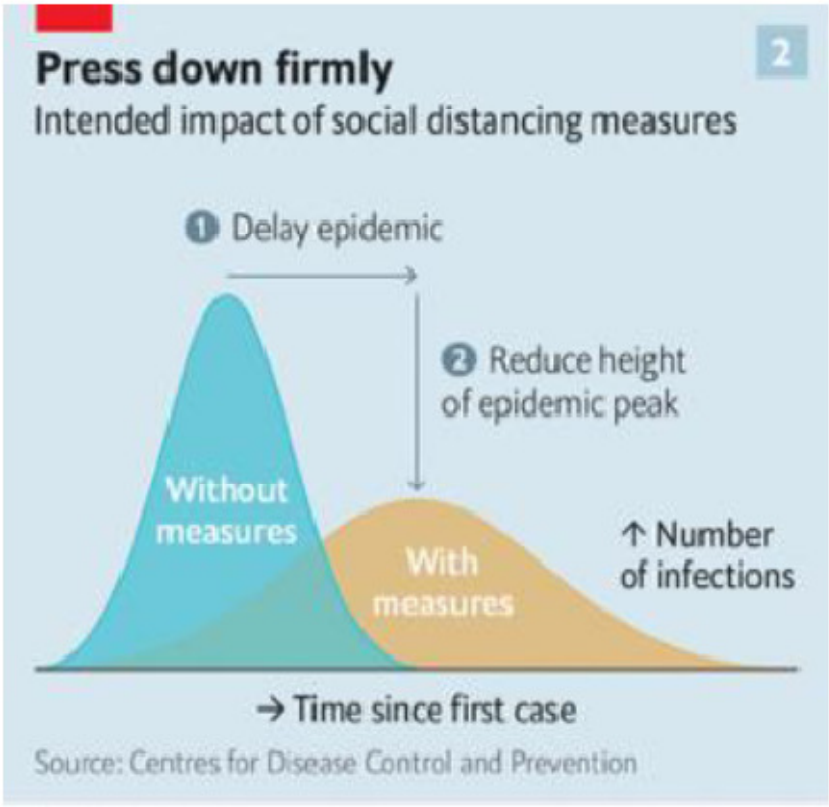
sets in, quarantines and contact tracing alone would not have much effect. *Also if there were infected patients who have no symptoms of the disease, but are spreading it, then the epidemic would be difficult to contain by quarantine.* It is because scientists fear such a situation that government is advising an across the board social distancing – by restriction of movement of all persons at all times, and ban on gatherings etc in addition to travel restrictions to and from high infection nations.

To detect community transmission one has to test many more persons with symptoms of flu- even though most of them will turn out to be seasonal flu and not the coronavirus. Nations that have been unable to institute such mass testing detect less cases- and therefore have apparently higher case mortality rates- and are unable to detect or curb community transmission. In the situation existing in a country like India, it would be advisable to proceed on the basis that community transmission is inevitable.

In India, currently, only about 7000 persons have been tested since the epidemic began (Scroll, 2020). By definition testing has been limited to those with typical symptoms who have either travelled abroad and returned or their contacts. By WHO case definition, those patients with typical symptoms requiring hospitalization are suspect cases, even if there is no history of contact with those travelling abroad. Implicitly they too have been tested. But in India, they are currently not being tested. Even the immediate plan for expanding testing is only to the 52 IDSP laboratories, which is only about two or three per state testing centers. This would be far too low to identify the uneven and unpredictable clusters of high intensity spread. The South Korean example shows how mass testing not only identified community spread, it showed large clusters in unexpected areas and this helped focus mitigation action (Reuters, 2020).

The implication of community transmission is that the objective of all containment measures, including isolation of cases, quarantine and social

distancing, is now to delay and lower the peak of the epidemic, not altogether prevent it. (as shown in the graph below-The Economist, 2020)



The Economist

This delay is important- because it would give time to the government to gear up. But it also means that we are going in for a prolonged period of remaining on alert. The full peak in a nation like India, if we were successful in the containment measures can get pushed to June-July 2020 or even later. Currently most containment measures seem geared to the short run- but we are well advised to think about measures and ways of changing our lives and routines so that we are able to manage for six months- at least.

And we will need to plan our economic and social policies accordingly. Paradoxically, if we let the disease run its course, the surge of patients on healthcare systems and hospitals may be large, but the epidemic may run out sooner, and its damage on the economy could be less. But the number of lives lost would be unacceptable. Most such epidemics eventually run out when the

population has such a large population of infected and therefore immune people, that transmission slows down and ultimately stops. This of course assumes that once infected, the resulting immunity is life long. But that is a relatively safe assumption.

Personal Prophylaxis:(Preventive measures that individuals must take)

For all respiratory viruses, which includes seasonal flu, pandemic flu and the corona virus the following advice requires to be communicated and followed by entire population. But there is also a need to understand how such solutions are feasible for the majority and how some of these measures would affect the poor. Often such suggestions are feasible only for relatively privileged sections – those who can afford not to go to work, or can take paid sick leave, and whose homes have a certain level of comfort. Others are personal habits that do not change easily, even when the person is motivated to do so.

We list some of the essential measures along with problems in implementation below:

a. Wash your hands often with soap and water. That should be for at least 20 seconds and done ensuring that all sides of the hand and fingers are cleaned. This assumes that all households have a limitless supply of water and soap. If however the family is not so privileged, perhaps it is alright for them to do it before you pick up the baby or take care of an elderly relative, and before serving food and some other such specific times.

b. Avoid touching your eyes, nose and mouth with unwashed hands. This too is easier said than done. (The nose itches most when you cannot scratch it, as everyone told to sit still in the hair-cutting salon knows). So if hands are washed, one need not feel guilty about not being able to do it. . Rubbing your eyes and picking your nose are not good habits at any time- and if you are in that habit or are living with a near and dear one whom you've never been able to tell this to- this is the time to kick the habit.

c. Avoid handshakes and the friendly hug. A ‘namaste’ or an ‘adaab’ would be just as good. If feasible, keeping a distance of a meter between you and the persons you interact with during the day, could also help.

d. Do not spit in public places is another directive that should be followed. Spitting can spread not only coronavirus but other communicable diseases like TB also. That would be something useful to come out of the Coronavirus.

e. Avoid close contact with people who are sick; if someone is sick in the home- follow a one meter rule if that is possible. And segregate that person’s clothes and towels. If the person needing reassurance is a child, these suggestions are not easy to implement. But washing hands would help.

f. Stay home when you are sick; people are advised to isolate themselves if they have mild symptoms, which about 80% of those infected with Corona virus will have. Those with seasonal flu will also need to do it- because we would not know whether it COVID-19 or the seasonal flu. If one is a middle class salaried employee with salary paid sick leave that could work. Sick pay matters, because many people cannot afford to miss work. In a country like the USA, according to the Economist, “a quarter of employees have no access to paid sick leave and only scattered states and cities offer sickness benefits. Often the self-employed, a fifth of Italy’s workforce, do not qualify. One study found that, in epidemics, guaranteed sick pay cuts the spread of flu in America by 40%. Sick pay also helps soften the blow to demand which, along with a supply shock and a general panic, is hitting economies. These three factors, as China shows, can have a dramatic effect on output. (The Economist, 2020)

g. But what does the working population, the section which does not have sick leave, and which needs to work daily to earn an income, what can they do, if they have symptoms of a common cold or are just a bit unwell? Masks are not a good idea, unless one is a healthcare provider or a

patient. The masks and sterilizers are running out of stock and are most needed for health workers whose level of exposure is much more. Moreover, when wearing masks, one tends to touch the nose area oftener to adjust the mask. And most masks do not filter the virus out. The simple process of keeping a hand-kerchief, and always sneezing and coughing into it, is a simple measure that works for most of us. At the end of the day it could be washed in hot water. Both the hand-kerchief and the mask if worn becomes quite a concentrated collection of germs. In fact, in these days of disposable tissues, the handkerchief is frowned on. But for most persons who do not use and cannot afford tissue-paper, the advice should be to use the kerchief with care. Currently coughing or sneezing into the flexed elbow is being promoted as a preferred modality even as compared to using a handkerchief. And remember to avoid touching surfaces like door handles, chair arm-rests and generally surfaces that others are equally likely to touch- as far as possible. While all of this is essential to prevent the spread of infection from a worker with flu- like symptoms, who is unwell but has to go to work, it is just as relevant to all those who are feeling well also, so that their likelihood of catching the virus decreases.

h. If persons who are not sick, are in the economic class, where the costs of the mask and hand sterilizers and tissue paper is not a consideration- please do NOT buy these- AND please do not stay at home. Your going about your normal work and expenditure is essential to support the poor. Take that auto or bus to work. Buy flowers from the local vendor, go to your local grocery store, order in a snack, go to the beach hotel for the week-end, call in the carpenter for the repairs that were so much needed. Do it now! There are people out there who need your custom- and who are seriously economically distressed by the epidemic. Such social or mass

quarantine has a very harmful effect on the poor and the unorganized labor force and artisans and self employed who are in the majority.

i. Clean and disinfect frequently touched objects and surfaces- both in the home and in public places. Soap and water is good enough. Isopropyl alcohol, which is the basis of alcohol wipes, is also good. So is bleach solution. For clothes the usual laundry and sunlight is also effective.

j. Drink warm water, and any warm liquid from time to time. This is particularly good advice for those who are exhausted, under stress or are feeling a bit unwell or experiencing an early sore throat. A muffler around the neck when you go out in windy weather or when you go to sleep with a sore throat also works. In everyone's throat there are tonsils which is a collection of a special (lymphoid tissue) whose function is to trap and kill germs from going into the bronchi and lungs and gut below. In the process it gets inflamed. Since warm liquids also weaken or destroy germs in the throat, it helps the body's immune mechanisms in the throat to be more successful in doing their job

k. Anything that helps your immune mechanism fight these germs, helps you to not develop symptoms or at least limits severity of all respiratory viruses. So good nutritious food is essential.

One important observation is that all of the above advice for personal prophylaxis is valid whenever there are viral fever epidemics (largely flu epidemics) because they help prevent the spread of all respiratory viruses. If public education had encouraged these healthy practices, preventing the spread of Corona virus would have been easier.

Preparedness for Managing the COVID 19 induced hospitalization surge:

In addition to social distancing, arrangements for much better healthcare are also required. This requires better primary level care especially with respect

to management of all seasonal flu and viral fevers with appropriate testing and also attention to intensified public education. But as there is no cure or vaccine, and since essentially the disease runs its course in the individual patient, it also requires prompt hospitalization of those with severe or critical illness. Such hospitalization must be in hospitals which have the ability to treat pneumonia and respiratory failure. The ability to manage critically ill patients requires a much higher levels of availability of ventilators and oxygen. By rough estimates 4 to 5 % of the infected may eventually need such hospitalization- which would lead to a huge peak in hospitalization. It could more than double the number of those currently requiring hospitalization. This increase would not be spread out over the year- but peak all at once.

Further all such hospitals should have the means to keep their hospital staff safe. Attack rates of the disease on healthcare providers are much higher than on the general population. Putting in place the necessary masks, gloves, protective clothing, sterilizing fluids, cleaning equipment, having trained cleaning staff – are all challenges in our public hospital setting. And most of the private sector hospitals, even those empanelled in government funded insurance programs are likely to be too unaffordable or unavailable for such care. It would have to be the public hospital that is relied on.

If we go by an estimate that about 50 % of a population above 30 years of age could get infected and that of this section 4% would need critical care we are talking of at least 20,000 persons in a district of 2 million population who would require hospitalization. Currently most district hospitals may not have a single ventilator and most do not have an ICU and nor do we have isolation wards. The most urgent measure should be to establish one hospital with ICU capacity and ventilators and oxygen for at least every 5 to 10 lakh population. The slowing of the epidemic can give the government time to do this. It would further need to recruit doctors and nurses through a central special corps.

If fortunately the epidemic does not turn up, or the virulence and susceptibility are significantly lower, even then all this preparation would still be very useful. India has one of the largest death rates due to chronic respiratory disease (COPD) in the world. In part due to high levels of air pollution, the death rates from chronic respiratory disease is almost ten times that of what is seen in a developed nation. Many with COPD would require ventilators when there are acute exacerbations. And this virus would lead to exacerbations in elderly patients with COPD. India has a large amount of insecticide poisoning and cobra-snake bites which also requires ventilators. And there are many patients every year who require ventilation due to severe forms of seasonal flu and other respiratory virus outbreaks.

Why is public hospital preparedness low?

The main problem is that over 30 years of structural adjustment, the government has failed to increase public hospital beds and services. The services that exist are also skewed and concentrated in few urban centers. Over the years, the government has also failed to add necessary human resources for health. "Keeping the regular salaried workforce small" has been projected in economic and social policy as a virtue. Further public health systems are designed by ideological choice to provide a very selective set of services. The principle of design of public health services at the primary level is that it should provide only the minimum required, leaving the rest to the private sector. Therefore government medical college hospitals and district hospitals, which have a wider range of services are already seriously over-crowded with floor beds. But such minimalist design cannot handle a pandemic like this, which is a maximum event.

Ideally public hospital networks should be built with excess capacity i.e a considerable degree of unused beds and equipment. A certain planned "slack" or "redundancy" is essential so that at times of crisis such as this (or during

disasters) the surge in cases can be addressed. The failure to do this is a serious failure of past governments. There was some attempt to address this under the National Health Mission, but far too little, and far too focused on just maternal and child survival. The present government has accelerated the weakening of public health services by cutting back expenditure for strengthening public hospitals and signaling that they would like to outsource district hospitals as profit generating venues.

If fortunately the crisis passes us by we may be saved a catastrophe. But if it hits India, the way it is playing out in Italy, and there is a surge of patients seeking care in public hospitals, it could be an unprecedented disaster.

Beware Authoritarian Government Actions

Faced with such a disaster, governments often resort to blaming the victims and use authoritarian exercise of power that would distract from its failures. This has happened in the past, and it could happen again. It could well begin with a call for a responsible behavior of the population. It would then go on to unreasonable restrictions on people's movements and even repressive forms of mass quarantines that would have far more adverse consequences on the poor than the epidemic itself. Such measures may have some role in containment in the first few weeks, when most cases can be traced back to contacts. But once we are into community transmission phase, and the aim is to delay, not prevent the epidemic, and the weeks have become months, such moves to blame the spread on irresponsible behavior would be unfair and unhelpful.

There would a great need to expose such calls and expose the class bias underlying the dynamics of labeling the people who are at sick or at increased risk as irresponsible. Given the nature of authoritarianism that has characterized many so-called democratic governments world-wide, and given the huge economic crisis that was already in place before the epidemic began, there is a

great danger that the epidemic becomes another reason to ban protest gatherings, collective actions of different sections of minorities and those marginalized- by religion, caste and class, and impose more restrictions on them.

There are already instances of violence against immigrants and such "others". Such "others" tend to be those marginalized by reason of their occupation or geography or ethnicity. It could also include tourists. Such trends could grow if not curbed at the very onset.

Fake news is another problem. One example, of such damaging fake news is that eating poultry or non-vegetarian food is dangerous. This is just not true. But the poultry industry has been hit badly by this fake news. While fake news about the epidemic must be actively curbed, this should not become a reason for blanket curbs on reporting on the epidemic and public discussion on the same.

Similarly people under quarantine have rights that must be protected. Historically, conditions under quarantine have always required independent monitoring by civil society and human rights organizations to protect rights against a state that empowers itself with huge, often unnecessary powers under the epidemic acts. In most situations taking community into trust, with measures like self quarantine backed by local community and social support works the best (Cowling & Lim, 2020; Neale, 2020).

Furthermore, migrants (documented or undocumented) and stateless citizens have health rights that must be acted on- and they should not be pushed out of necessary healthcare.

Additionally governments have a responsibility to address the economic crisis that this epidemic has brought about. The large number of deaths during the 1918 flu epidemic was an immediate consequence of the vulnerability of populations due to the consequences of the First World War. There are many nations which are in such a war-torn environment which are particularly

vulnerable. Moreover, even when there are no wars, austerity measures due to economic crisis, and inequity in economic policies have led to large swathes of population living on the brink- and therefore very vulnerable to an epidemic.

Further concessions to corporate industry and the financial sector are not going to make much of a difference at a time when all productive activity is under siege. What would be needed is a sweeping demand side support. Measures are required to support the large unorganized work force whose livelihoods are being hit. If visionary measures like universal basic income, or a more substantial form of employment guarantee could be introduced, we can still turn this pandemic-disaster into a civilizational opportunity. The rapid expansion in public health infrastructure and healthcare that is required will itself generate a large amount of employment support.

Demands from Peoples Movements:

Based on the understanding that is discussed above, the Peoples Science Movements and the Peoples Health Movement adopt the following charter of demands that articulates its understanding and its demands:

Health Care Related:

1. Government must expand testing facilities and criteria for COVID-19. Testing should not be limited to only those with symptoms who have travelled to certain countries and those who have come in contact with them. Any clinically suspected person should be able to get tested. While containment by isolating patients with the disease, tracing contacts, and quarantining individuals returning from nations with an established outbreak may continue to be relevant for a longer period, the system needs to gear up for addressing community transmission.

2. Government must rapidly prepare public health services for a surge in patients requiring healthcare and hospitalization by strengthening the public hospitals. This would require, at the very least, one hospital with an ICU; and potential isolation wards and ventilators and oxygen supply in every five to ten lakh population. It would also require corresponding improvement in supply of relevant drugs and other hospital supplies and deployment of human resource. We reiterate that such an expansion was anyway long overdue, and this epidemic is an opportunity to rush such preparation through.

3. In the event that the pandemic becomes a full blown emergency in any part of the country, it would be necessary that all existing medical facilities be brought under a centralised district authority, including all private hospitals. Allocation of medical facilities will have to be done by this authority and not by the market mechanisms. The protocols and administrative and financial measures required for doing so must be put in place as part of epidemic readiness.

4. Immediate strengthening of the Integrated Disease Surveillance Programme, by a major increase in capacity to test for this disease, and to report on all seasonal flu and other fever related deaths from across all facilities public and private. In the absence of such expansion we caution that the country could even go through an epidemic without knowing it, or could be surprised by large cluster-outbreaks where they are least expected.

5. As a long term measure we call for establishing a Government Centre for Disease Control in every district which is staffed and facilitated to test, identify and provide alerts and advice precautionary measures for pathogenic attacks like the current COVID-19 pandemic.

6. Ensure safe working conditions and adequate protective equipment for healthcare and support staff. These are to be provided not only in hospitals but also for frontline workers supporting home quarantine and isolation. This would

require that medical tools such as effective facemasks and sterilizing fluids are prioritized for front-line healthcare workers and patients.

7. Ensure that the distribution of scarce resources in the event of a widespread outbreak should be governed by a clear evaluation of the public health needs, rather than on sales to the highest bidder (This problem emerged with Oseltamivir (Tamiflu) during the 2009 H1N1 influenza pandemic). International collaboration vis-a-vis development of medications and vaccines is a must and care must be taken to prevent patent monopolies from limiting production of potential treatments.

Social Distancing and Human Rights:

8. Social distancing must necessarily be done by public education and persuasion. The use of coercive measures would be unfair and unhelpful. Mass gatherings, public events, whether social, religious, sports related, cultural or political, could be dissuaded for some time more- but should not be banned.

9. Build up active community support and outreach services for those in home quarantine or whose social security benefits are curtailed due to closure or difficulties in access to essential services. Many of those in home quarantine will have co-morbidities that would require access to follow up care and medication.

10. Many children will need access to supplementary nutrition programs, more so, when their parents' livelihood is compromised. Shutting down such services without providing for alternatives would be unfair. Moreover the disease least affects children and they are relatively more protected in the school than in the community. In many settings, especially in tribal areas, hunger would be a greater concern that the virus. Where take home rations cannot be provided, especially in tribal areas, schools and anganwadis could be allowed to function.

11. When populations are placed under lockdown or quarantine, special measures would need to be in place to ensure that this is done in a human manner and without abuse to core human rights. Even the most well-intentioned of governments would require active engagement of human rights institutions and civil society organizations and trade unions to inspect and report back on standards of care and the problems that most vulnerable sections are facing, so that these problems are also part of litigation.

12. The freedom of the media to report on the epidemic and its consequences must be safeguarded at all times. However when carrying a message that is on the nature of spread, the source of infection or on treatment, news media must be encouraged to keep to the parameters set by government channels, international health institution channels, or of universities and research institutions. Where information is from outside these sources- the news must be accompanied by a disclaimer that this is unverified and could be fake. Any blanket ban on media freedoms is unwarranted and should be resisted.

Redressing Economic Inequity- as cause and consequence:

13. Maintenance of routine economic activity, which primarily means the safeguarding of the livelihoods of the majority, should also be acknowledged and acted upon as a public health priority. Public education should also address the need to build solidarity in such times. The working people and poor take a much larger economic hit due to disruption of livelihoods than the salaried section and the affluent- and this should be acknowledged. There has to be active community support and support from employers to those in home quarantine and those whose livelihoods are compromised by these lockdowns.

14. There must be quick expansion of social security and food security measures that provide some social protection to families to tide over the

economic shock and hardships that the economic and social lockdown is causing. This must include in the least an increase by 50% in food-grain and other entitlements under the Public Distribution System (PDS) for the period of the crisis, a similar increase in the monthly social-security pension amount of old persons, and a cash transfer to urban unorganized-sector workers for the period of the crisis. Supplementary nutrition programs must be continued.

15. There must be an immediate increase in public expenditure that leads to widespread demand side support in the form of both increased social and food security as outlined above. This is urgently required to address the attack on livelihoods of the majority, that has already been compromised by a decade of economic policies that intensified capital accumulation, but destroyed livelihoods. Further concessions to corporate industry to counter the crisis they are also facing, and further austerity for the working people would be most counter-productive and iniquitous.

Authorship, Acknowledgement, Disclaimers: This note has been drafted by Dr. T. Sundararaman, formerly Executive Director, NHSRC and currently global coordinator, Peoples Health Movement. This note has been enriched with inputs, suggestions, peer review and edits of close to 35 leading activists associated with the Jan Swasthya Abhiyan and peoples science movements. This is a background note that expresses the broad position of the All India Peoples Science Movement and Jan Swasthya Abhiyan, though on specific details, and possible errors, the responsibility rests with its first author.

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