

MANAGING PUBLIC PERCEPTIONS

(With specific reference to the global pandemic, COVID-19)

V. S. Ramamurthy (vsramamurthy @gmail.com)
and

D. K. Srivastava (srivastava.dinesh.kumar@gmail.com)
National Institute of Advanced Studies
Bengaluru 560012

We are in the midst of a global pandemic, COVID-19. It is believed that it first surfaced in Wuhan, China and patients started appearing at the hospitals in the first week of December 2019. Apparently, bats from a remote cave in a remote corner of China passed on this virus to pangolins in a wet market, which in turn passed it to humans. It is thus a zoonotic disease. By the time it was recognized that the virus was highly contagious and a drastic lockdown was imposed in Wuhan and the entire Hubei province, a large number of people were already infected and the disease was being noticed across the world, carried by persons travelling to and from China. More than five million people from across the globe have been infected by the virus with about 6.5% succumbing to the infection. India is no exception with confirmed infections crossing 100 K with more than 3300 deaths. Experts across the globe are working closely to cure the infection and to prevent further infections. Meanwhile, the global march of the pandemic continues with no end in sight.

A little bit of history

Pandemic diseases have always been an integral part of the evolution of human civilization since times immemorial. The first plague in recorded history, the Plague of Justinian, as it came to be known after Emperor Justinian I who held the throne of Byzantium in the year 540 CE resulted in the loss of at least 25 million human lives. Though the plague is said to have originated in northern Egypt and transmitted to Constantinople through black rats that travelled on the grain consignments from North Africa (Wikimedia commons), it is believed that the roots of the bacterium were first found in Qinghai in China. The plague also resulted in the fall of the Byzantine Empire.

The same bacterium is reported to have reappeared several times afterwards, most notably, the disastrous Black Death in Europe in the 14th century and the third plague pandemic of the 19th century.

In today's context, one should also mention the 1918 Spanish flu pandemic. Influenza, commonly referred to as flu, is a virus that is highly contagious and attacks the respiratory system. When an infected person coughs, sneezes or talks, respiratory droplets are generated and transmitted into the air and can then be inhaled by anyone nearby. Additionally, a person who touches something with the virus on it and then touches his or her mouth, eyes or nose can also become infected. Young children, people over age 65, pregnant women and people with certain medical conditions such as asthma, diabetes or heart disease face a higher risk of flu related complications. Considered as one of the deadliest infections in history, the Spanish flu infected an estimated 500 million people worldwide and killed an estimated 20-50 million victims. At that time, there were no effective drugs or vaccines to treat this killer flu strain. Citizens were ordered to wear masks; schools, theatres, and businesses were shuttered; the New York city health commissioner tried to slow down the transmission of the flu by ordering businesses to open and close on staggered shifts to avoid overcrowding on the subways; in spite of all these, bodies piled up in makeshift morgues before the virus ended its deadly global march.

Flu viruses can rapidly mutate. Flu outbreaks happen almost every year and vary in severity depending on what type of virus is spreading. A pandemic such as the one in 1918 occurs when an especially virulent new influenza strain for which there is little or no immunity appears and spreads quickly. In fact, the first wave of the 1918 pandemic occurred in the spring and was generally mild. It was the second, highly contagious wave that appeared in the second fall of that same year and turned out to be the killer.

Prior to the twentieth century, every one of the pandemics in history took its own course in the absence of any mechanism to combat the infection. Only when a majority of the population acquires infection induced immunity against the disease, commonly referred to as herd immunity, the pandemics weakens and gradually disappears. It is not surprising that pandemics were invariably taken as catastrophic Acts of God.

Nineteenth and twentieth centuries were watershed years in the field of human health care. New discoveries in drugs and pharmaceuticals, vaccines and diagnostic tools to combat human, animal and plant diseases have considerably strengthened our ability to counter pandemics of any kind. For example, **Smallpox** is one of the oldest and most feared diseases of the world, the global spread of which can be traced to the growth and spread of civilizations across several centuries. The discovery of vaccine inoculation in early nineteenth century (1801) by Edward Jenner was a major mile stone in our efforts to combat small pox. In 1959, the World Health Organization initiated a plan to rid the world of small pox. Smallpox now stands as fully eradicated across the globe as a result of a global collaborative vaccination programme of World Health Organization. Similarly, as a part of the global polio eradication initiative, the

world is inching towards a polio-free status. India has not only eliminated completely the wild polio virus transmission but also has maintained that status for five years. Considering India's diversity, population, poor civic infrastructure, poor public health system, rampant malnutrition, and high population mobility, these are indeed remarkable achievements.

India's experience in combating vector borne diseases like malaria and dengue needs a special mention. Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes. Anopheles mosquitoes lay their eggs in water, which hatch into larvae, eventually emerging as adult mosquitoes. The female mosquitoes seek a high-protein blood meal to nurture their eggs. Bites by infected female mosquitoes transmit the parasites to the humans. In the absence of an effective malaria vaccine, the focus of the malaria eradication programme has been to kill the larvae by using pesticides like DDT (Dichlorodiphenyltrichloroethane) and eliminate stagnant water bodies. Malaria treatment using antimalarial drugs is marked by a constant struggle between evolving drug resistant parasites and search for new drug formulations. The malaria eradication drive therefore depended heavily on DDT. Originally synthesized in 1874, DDT was rediscovered in 1939 as a new insecticide. The 1948 Nobel Prize in Physiology and Medicine was in fact awarded to Paul Hermann Muller "for his discovery of the high efficiency of DDT as a contact poison against several arthropods". In the next 30 years, DDT was extensively used across the globe as a "wonder" pesticide in our war against vector diseases. The World Health Organisation's anti-malaria campaign of the fifties and sixties relied heavily on DDT.

The great reduction in vector diseases using DDT did not come without its environmental and human costs. Not only did DDT contaminate the water bodies and had a negative impact on the ecosystem, it even entered the human food chain and is considered a possible carcinogen. Ultimately, the US government imposed a ban on the use of DDT in 1973 and piloted a worldwide ban on its use. Incidentally, even today there is a section of people who believe that the governments have over-reacted to the ill effects of DDT and compromised malaria eradication. India is one country that is still manufacturing DDT and is opposing a worldwide ban on DDT.

Tuberculosis (TB) is yet another bacterial disease that mainly affects the lungs and has been around for millennia. Due to its infectious nature, chronic progression and long treatment, TB is considered a great social burden. Though often referred to as a poor man's disease, TB does not always spare the rich. The classic case is the story of a rich man contacting the infection from his poor car driver with whom he used to spend hours together in a closed air conditioned car. The introduction of Bacille Calmette-Guerin (BCG) as a vaccine against TB in the last century was a major advance in combating tuberculosis. Even today, BCG remains as the only vaccine available against TB. For various reasons including but not limited to fund

constraints, the Indian TB eradication programme didn't go in the way it was supposed to. India accounts presently for about a quarter of the global TB burden. WHO estimates that 2.74 million people in India are infected with TB annually and more than 410000 people die from the disease. (USAID.gov). The more recent emergence of multidrug resistant TB and the HIV-TB jugalbandhi have raised even greater concerns across the globe. The BCG vaccine, in addition to its specific effects against tuberculosis, is reported to have beneficial nonspecific effects on the immune system that protect against a wide range of other infections. This has led to the suggestion that vaccination with BCG might have a role in protecting health care workers and other vulnerable individuals against COVID-19.

In all the above cases, the domineering role of the government can't be missed. A few weaknesses of the government system have also come to the fore in the past. The government machinery is in general slow and over-cautious. Governments across the world are perennially short of funds. Pre-disaster preparedness rarely gets priority in the budgets of the governments. It is also well known that Governments across the globe are highly vulnerable to vested interests of various kinds. With more and more countries opting for democratic forms of governance, the elected governments are even more vulnerable to public perceptions. Increasing role of the judiciary even in matters of new and emerging technologies is another matter of concern on our decision-making process. There have also been some resistance to immunization drives owing to negative rumours about the safety of immunization. The Indian experience proved that building partnerships with the private sector along with involvement of celebrities and socio-religious leaders were key interventions needed to tackle social resistance against any mass public health campaign.

The COVID-19 saga

Let us come back to the present COVID-19 epidemic. In spite of global efforts, neither a drug nor a vaccine to combat the infection is in sight. Globally and in India, the number of infections is still rising, so is the number of deaths. Experts and epidemiologists recommend a lockdown till herd immunity takes over and the countries move past the peak infection point. On the other hand, livelihoods are lost and the economy is in doldrums. Lockdowns are no longer seen as an inevitable saviour.

Several things are quite clear by now:

1. Lockdown dilates the time between the onset of the pandemic to its end. With minimum person to person contact during the lockdown, the spread of infection slows down considerably. However, the spread of infection does not die because there is a minimum person to person contact even in a total lockdown for essential services. Total lockdown therefore does not guarantee the end of the epidemic. The epidemic will stop

when most of the population develops herd immunity after getting infected and surviving the infection. There is only a time dilation from onset to end of the infection cycle because of the lockdown letting you strengthen the health care infrastructure.

2. Only a vaccine against the infection reducing the number of people getting infected and a medicine to get rid of the infection can hasten the end of the pandemic and reduce the number of deaths.
3. A total lockdown comes with a cost since it brings economic activities to a standstill. Economists and economic planners will recommend easing the lockdown as early as possible to reduce the economic burden on the whole nation, more importantly, on the economically weaker sections of the population who cannot feed the family without daily and seasonal wages.
4. Balancing loss of life due to the pandemic and loss of livelihood due to lockdown is a challenge that the governments have to face while combating the pandemic
5. Zero risk options do not exist unless a new vaccine or a new drug is discovered early.

Risk communication to the public and their perception of the risk play very important roles in mobilizing public support and public participation in all government initiatives to contain the epidemic. We note that the number of affected persons in the country is continuing to rise though perhaps not as steeply as in many other countries. By and large, the lockdown has proceeded well and people - either because of fear of law or because of concern for infection - have mostly obeyed the government directives.

Severe problems of migrant workers wishing to return to their homes have also surfaced. A large population of unorganized migrant workers in several megacities became victims of sudden loss of jobs, eviction from shelter, inadequate distribution of relief and the associated uncertainties. It may be worth noting that when the lockdown was first imposed, the Prime Minister had requested all the employers to pay salaries to the employees and take care of them. This request has largely been ignored by the employers of the migrant workers, who were left to fend for themselves. Driven out from their temporary dwelling places, with confusions about the support for food and shelter, and no transport available, many decided to walk back to their villages, several hundred or thousand kilometres away - several have died on the way, due to accidents and exhaustion. Many have been harassed by authorities during their long walks. A large part of self-respecting and hard-working population, who had travelled large distances to find a means of livelihood all by themselves, and who contributed expertly to

almost all industries, were suddenly left in the lurch and left to fend for themselves. This remains, one of the most painful and shameful episodes of the present lockdown. One may also add that at some places they were also instigated to agitate to return home for narrow political gains, even though attempts were being made to provide them food and shelter. Many charities and NGOs have also pitched in. In spite of all these, the fact of the matter is that it is not reaching all. By hindsight, it would have been better if that the government had intervened directly in taking care of the migrant labour during the lock down.

Maintaining social distancing is also not easy in the homes of the weaker sections and in thickly populated slums in metropolitan cities. Thus, COVID-19 is hitting those who are already disadvantaged, the most.

Early days of the pandemic were also marked by lack of special hospitals, testing facilities, personal protection equipment for the medical personnel and even ventilators for patients. This is by now addressed, though the facilities at small hospitals and quarantine facilities are still very far from adequate.

There have also been instances of violation of the lockdown and social distancing norms especially in major markets. Either people are ignorant or they have a mistaken sense of bravado or they are just desperate because of being locked in for such a long period or they are misled. This reveals our failure in educating our people adequately about the risks involved in violating the lockdown.

There have been instances when public servants involved in law and order, health care and public services have come under attack, which is a cause of concern and again indicates our failure to address the public perception of the risks associated with the pandemic.

There is a fear that the number of infections may rise further, due to the breach of lockdown procedures and as people start arriving from foreign countries and other states, where they have been stranded for a long time, and have been enduring severe hardships. A strict quarantine procedure and check-up can however keep this under check but at the cost of further inconvenience to the public. Again, there is a need to educate the people about the inherent risks.

The most important lesson we have learnt the hard way is that public health has been neglected in the country for a very long time in the mistaken notion that it concerns only the economically weaker sections of the society.

What is the way forward?

India is the largest democracy of the world. With increasing participation of the public in policy making including Government policies on regulatory matters, there is no alternative to taking public into confidence and empowering them with reliable information. But communicating matters of high and emerging technologies to the public at large is complex and challenging. This is made even more complex in our country with multiple languages and poor literacy. Often, genuine differences of opinion among experts erode the confidence of the public on the experts. Risk Communication is even more of a challenge.

As we enter a new phase of our fight against COVID-19, let us not be under the illusion that life will return back to “normal” as it was before the lockdown once the lockdown is withdrawn. On one hand, with no drug or vaccine in sight, our fight against the CORONA virus is far from over. We are only entering a new phase, the “new normal”, where we learn to live with the virus in our midst. After several weeks of lockdown, we are relaxing the lockdowns with an explicit understanding that our vigilance against the virus will not be diluted.

Physical distancing has substantially slowed down the spread of the virus. Even in the coming days, we can't afford to dilute physical distancing. Unfortunately, as was mentioned earlier, even during lockdown, there have been many instances of violation of physical distancing. This can grow in the post-lockdown days even more. There is no way other than public perception change to address this problem.

Everyone must realize that the country and the government face an unprecedented crisis. The only safe course is strict implementation of physical distancing, wearing of masks and frequent disinfection of workplaces. We may also see several life style changes. The hospitality industry, travel and tourism industry and public entertainment spaces have to rediscover themselves. Web based education, Work from Home, Web based Meeting and Conferences are all becoming the “new normal”. There is also an increasing realisation that safety nets to the economically weaker segments of the society to tide over crisis of this kind is a must for a stable society.

It is interesting to note that many of the “new normal” practices in personal hygiene that are being adopted across the globe in the post COVID-19 era have always been considered as essential requirements of cleanliness in traditional Indian households like “Namaste” in place of handshakes or hugs. It is interesting to recall some more of these:

a. लवणं व्यञ्जनं चैव घृतं तैलं तथैव च ।

लेह्यं पेयं च विविधं हस्तदत्तं न भक्षयेत् ॥

-धर्मसिन्धु ३पू. आह्निक

(Salt, ghee, oil, and other foods and drinks should not be served with bare hands. Use spoons.)

b. अनातुरः स्वानि खानि न स्पृशेदनिमित्ततः ॥

- मनुस्मृति ४/१४४

(Don't touch your own eyes, nose, ears, etc., without a reason.)

c. अपमृज्यान्न च स्नातो गात्राप्यम्बरपाणिभिः ॥

-मार्कण्डेय पुराण ३४/५२

(Don't use clothes already worn by you and dry yourself after a bath.)

d. हस्तपादे मुखे चैव पञ्चाद्रे भोजनं चरेत् ॥

- पद्मसृष्टि. ५१/८८

नाप्रक्षालितपाणिपादो भुञ्जीत ॥

-सुश्रुतसंहिता चिकित्सा २४/९८

(Wash your hands, feet, mouth before you eat.)

e. न धारयेत् परस्यैवं स्नानवस्त्रं कदाचन ॥

-पद्मसृष्टि. ५१/८६

(Don't use the cloth (like towel) used by another person for drying yourself after a bath.)

f. अन्यदेव भवद्वासः शयनीये नरोत्तम ।

अन्यद् रथ्यासु देवानाम् अर्चयाम् अन्यदेव हि ॥

- महाभारत अनु १०४/८६

(Use different clothes while sleeping, while going out, while doing pooja.)

g. तथा न अन्यधृतं (वस्त्रं) धार्यम् ॥

-महाभारत अनु १०४/८६

(Don't wear clothes worn by others.)

h. न अप्रक्षालितं पूर्वधृतं वसनं बिभृयाद् ॥

-विष्णुस्मृति ६४

(Clothes once worn should not be worn again before washing.)

i. न आद्रं परिदधीत ॥

-गोभिसगृह्यसूत्र ३/५/२४

(Don't wear wet clothes.)

j. चिताधूमसेवने सर्वे वर्णाः स्नानम् आचरेयुः ।

वमने श्मश्रुकर्मणि कृते च ॥

-विष्णुस्मृति २२

(Take a bath on return from cremation ground. Take a bath after every haircut or an attack of vomiting.)

Lock down had brought economic activities to a standstill. The impact of this on the country's economy can't be underestimated. It has been estimated that a complete lockdown costs India about Rs. 35,000 Crores per day. The bouquet of economic activities is going to be very different in the coming years, so is the bouquet of job opportunities. The skill sets required to fill these jobs are going to be very different. An aggressive program of retraining may have to be put in place. Education at all levels is reshaping itself to satisfy the emerging requirements. India has a large working population in the unorganized sector both in rural and urban settings including a large migrant population. This segment of the workforce has no safety net to take care of them in times of difficulties. Large exodus of migrant workers to their hometowns in times of difficulties is not only a human tragedy that could be avoided but can also lead to an artificial shortage of labour in the coming days.

The government of India has announced a slew of measures to immediately mitigate the trauma of the poorer segments of the population and to put the economy of the country back on track. A relief package of Rupees 1.71 Lakh Crore has been announced under a newly framed Prime Minister Garib Kalyan Yojana to alleviate the financial pain faced by migrant workers, farmers, urban and rural poor and women so that up to 800 million people can be covered. Besides the federal government, many states have also announced steps to provide free or highly subsidized food rations to people. These are a welcome first step though many believe that it may not be enough.

A more comprehensive economic stimulus package of Rupees 20 lakh crores has also been announced recently. Most importantly, the announced policies are for the first time, "humanity centric and not economy centric". Without an active participation of the citizens, these measures will remain only on paper.

The coming years, the “new normal” years are going to be very different from the past. Science and Technology is going to play an increasingly important role in letting us, the 1.3 billion population of India, adapt to the “new normal” days. Are we equipped to do this? Only timely and effective communication can prepare us for this.

A folk-tale of two villagers in a desolate road connecting two remote villages illustrates the problem of communication to the common people. Let us call them Kishan and Ramu. It was fairly late in the evening and the visibility was poor. Kishan was ahead and Ramu was following him a few steps behind. Suddenly Ramu saw a snake-like object just behind Kishan. In an effort to warn Kishan of the possible danger, he shouted “Kishan bhai, watch out. There is a snake behind you”. Kishan turned back, saw the snake-like object, had a heart attack due to extreme fear and fell dead. The object was indeed a rope. The villagers who assembled there soon felt that Ramu should have been more careful and not frightened Kishan. Ramu understandably got a good beating.

Two weeks down the line, it was fairly late in the evening and the visibility was poor. Ramu was on the same road and there was a man ahead of him. Let us call him Rahim. Suddenly Ramu saw a snake-like object just behind Rahim. He wanted to warn Rahim of the possible danger but remembered the thrashing he received two weeks back. So he slowly moved closer to Rahim to see whether it was indeed a snake. It was indeed a snake and provoked by Ramu, it pounced on Rahim and bit him. Rahim fell dead. Soon the villagers assembled there. They all felt that Ramu should have warned Rahim by shouting instead of going closer to him and provoking the snake in the process. Ramu understandably got a good beating for his stupidity.

Two more weeks passed. It was fairly late in the evening and the visibility was poor. Ramu was again on the same road and there was a man ahead of him. Let us call him Peter. Suddenly Ramu saw a snake-like object just behind Peter. He wanted to warn Peter of the possible danger but remembered the thrashing he received on the two earlier occasions. So, he closed his eyes and started chanting “Ram, Ram, Ram” and prayed to God to save Peter. It was indeed a snake and it pounced on Peter and bit him. Peter fell dead. Soon the villagers assembled there. They all felt that Ramu should have either warned Peter either by shouting or going closer to him. Ramu understandably got a good beating for his stupidity.

Now a days, Ramu does take that road at all. The governments have no option but to take the road but keep learning all the time how to communicate. Under- and over-playing risks are counterproductive and do not elicit a calibrated response. In general, grown-ups tend to hang on to known concepts. It is the young who are open to new ideas and new demands. We need to target the young. Science and Technology professionals have a responsibility to make available reliable information on these matters to the public. We need to make an effective use

of a very bright silver lining: Scientists across the world are still treated with trust. This increases their responsibility. We are aware that public outreach has not been a priority in our educational and scientific institutions. The role of professional bodies like our Science and Engineering Academies, media, celebrities, political and socio-religious leaders cannot be underestimated.