

# Strategies to Handle Pandemics - Options

<sup>1</sup>Sangeeta Kaul, <sup>2</sup>Neelu Dheer

<sup>1</sup>Associate Professor, <sup>2</sup>Associate Professor

<sup>1</sup>Department of Chemistry, Sri Aurobindo College, University of Delhi, Delhi

<sup>2</sup>Department of Chemistry, Acharya Narendra Dev College, University of Delhi, Delhi

**Abstract: Pandemic or an Epidemic is a grave threat to the survival of the mankind... the disease goes beyond any social or economic or geographical barriers and ruthlessly effects all across the board devastating both life and livelihood. The world has to unite against such diseases, pool in joint resources to develop vaccines or medicines**

**Keywords: pandemic, quarantine, novel corona virus, covid-19**

## 1. Introduction

History is still in the making with the Novel Corona Virus ( COVID-19) spreading its wings from Wuhan in China to a pandemic crisis killing about 200,000 persons so far and the number is not showing any signs of abating. There is no credible evidence about the origin of COVID-19. According to Prof. Stephen Turner, Head of Department of Microbiology at Monash University, Melbourne, COVID-19 originated from bats and this is what the public at large also believes in. Scientists are still working and giving different hypothesis to unravel the puzzle about which animal species passed the virus to humans. Scientists claim that just like a different Corona Virus- SARS 2002, which transferred from horse shoe bats to cat like civets before infecting humans, similarly for Corona Virus - COVID-19 there must be a intermediary host between the bats and the humans: that intermediate could be pangolin. The International Union for Conservation of Nature has found that pangolin is prized for medicinal properties of its scales and its meat. This knowledge of intermediate host is the key input to stop the next pandemic.

Some of the strategical models which proved fruitful and were adapted by different countries to deal with epidemics and pandemics are discussed:

## 2. Brazil Model: To fight Zika Virus

Brazil was hit with Zika Virus in May,2015 and in just few months, it had spread to numerous countries frightening people across the globe. it was a challenge to look for its treatment as Rio de Janeiro was preparing for Olympic games 2016 and approximately 500,000 tourists and athletes were expected to participate and witness this mega sports event. There was no treatment or vaccine for this particular virus at that time. This virus was emerging as a major hazard especially for the pregnant women, as it was known to cause 'microcephaly', which is a congenital malfunction resulting in retardation of the brain development of the new born[1].

Brazil immediately responded to the Zika Virus outbreak and the Brazilian Government announced the plano National de Enfrentamentos ao Aedes e a Microcephaly ( National plan to combat Aedes and Microcephaly)[2].The plan had three main strategies:

- a) Calling upon the general public to assume responsibility to stop the spread of Zika,
- b) Providing required resources and support to the scientific community to prepare vaccine,
- c) Deployment of the army to combat the virus spread

The most effective state action was started on Feb 13, 2016 as the Zika Zero Date when the government deployed 220,000 military and state functionaries in one day action plan[3]. They visited houses in more than 250 cities looking for sources of stagnant water which could be the breeding ground for the mosquitoes.

Deployment of the soldiers was hailed and the general public appreciated the Governments' resolve to arrest the spread of the virus. Though, there was some criticism where a section of society felt that this plan was not applied to the slums aggressively. Brazil, by adopting this strategy was successful in fighting the disease, thereby, emerging as a humanitarian super power wherein the armed forces played a major role.

## 3. Lebanese Model: To fight Bird Flu

In 2016 infection with A(H5N1) avian influenza virus in Lebanon caused deaths of 20,000 poultry and culling of 60,000 poultry. No human cases were reported although 185 humans were exposed to this avian virus[4]. The use of early preparedness plan and intervention of the Ministry of Agriculture and Public Health was the primary reason of success in containment of the disease.

Disinfection of farms and safe disposal of organic remains was the prime concern of the government. Higher Relief Council provided support to the effected farmers by indemnifying their losses. Medicine Oscllamivir was administered as prophylaxis and

exposed persons were monitored on a daily basis telephonically [5]. Persons showing symptoms were tested at National Influenza Centre. Methodology of real time reverse transcription PCR was used for this. Government also conducted health education sessions for local community to create awareness about the issue. Early intervention and the ways in which it was implemented arrested the disease successfully.

#### 4. Vietnam Model: fight against COVID-19

Vietnam is a country having limited resources and used a low cost model to contain the disease. Its determined leadership did not embark on mass testing, however focused on identifying and isolating infected people. Their second and third contacts were also identified and isolated. Measures like forced quarantine and recruitment of retired medical staff was also undertaken. The outcome of this model was, no deaths and 123 positive cases reported[6] ( till this article given for publication) .

#### 5. South Korean Model: fight against COVID-19

A model to emulate and sign of hope to the world was given by South Korea. The country of 50 million without any authoritarian measures and with no lockdown was successful in controlling the disease. Well organized and extensive testing programs were conducted by the authorities. Tests were done on a population of 270,000 i.e. 5200 tests per million people were done, which is in sharp contrast to United States of America where 74 tests per million people were done according to US Center For Disease Control and Prevention[7]. South Korea showed the world that diagnosis of the disease at the very onset is the key to control the epidemic.

#### 6. Bhilwara Model: fight against COVID-19

Bhilwara is a small city 530 kms from New Delhi in India. Here the disease spread from a single patient who happened to be a practicing doctor to around 27 people in a very short span of few days. Administrative officers of the Bhilwara District were quick in realizing the gravity of the problem and were also successful in controlling the disease. Bhilwara Model was based on six main strategies[8]:

- a) The district was isolated and placed under strict lockdown. Help was sought from Administration of the neighboring districts as well to enforce that nobody could leave or enter the district.
- b) Hot spots were mapped
- c) Door to door screening was done. Since testing of the entire population was not feasible, survey teams checked for influenza symptoms and those with symptoms were checked twice for any deterioration and appropriate action taken, if the symptoms persisted.
- d) Aggressive contact tracing was done upto second and third contacts of those showing symptoms or those who came in contact with Corona positive patients.
- e) Ramping up quarantine and isolation was undertaken. Some private hospitals as well as hotels helped in providing additional space for quarantining purposes.
- f) Rural areas were diligently monitored.

Following the above six strategies Bhilwara district emerged as a success story for others to emulate.

#### 7. Conclusion

A pandemic is lot like a forest fire, if managed early and efficiently the damage is minimal. If allowed to continue, it will be challenging to control the same, and by the time it is controlled, unimaginable loss would have already been caused. This is a situation the current epidemic the world is witnessing. We are still at infant stage of the current pandemic trajectory. Thus implying that cases and deaths will continue to mount nationally and globally in coming weeks or may be months.

President George W Bush in 2005 had said " .... if we wait for the pandemic to appear, it will be too late to prepare". This statement was given by him after reading a book about 1918 Flu Pandemic and had asked for a national strategy to be made on pandemic. This was not taken seriously by the US Government and the current situation of US stands testimony to the fact the idea floated by President Bush was not acted upon.

To respond to a pandemic we need medical personnel and adequate supply of medicines and equipments. The world cannot wait for unfolding of the crisis but an early preparedness plan is the essence and key to the survival of mankind.

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