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## Historical Overview of the Past Documented Pandemics: From Antiquity to Present

### Abstract

*The key to understand a pandemic start with an understanding of the disease itself and the progression of the natural course of the disease. They are part of human race and even documented in all major civilization and Abrahamic religions like Judaism, Christianity and Islam. Every pandemic has its own ratio of sternness, frequency and characteristics on different regions and various techniques to cater for. The paper is a historical overview of the past documented pandemics from Athens plague to Covid-19 (1<sup>st</sup> really global and extensively documented pandemic) of the recorded history.*

Key words: Past Pandemics, COVID-19, Documentation

To determine a better future, it is necessary to have a better connectivity between past and present. The previously documented pandemics are a source of understanding to the natural course of disease and their spread. The following are the parameters for a disease to be pandemic:<sup>1,2</sup>

- i. Cover a wide geographical area;
- ii. Traced back to its origin;
- iii. New, or novel variants of existing organisms;
- iv. Huge mortality rate;
- v. Highly transmissible (direct/ indirect);
- vi. Least mass immunity;
- vii. Ability to mutate.

Practices of documentation are without any doubt global features of modern life. Documents appear at every turn in the constitution of modern bodies, institutions, states and cultures.<sup>3</sup>

Other than great wars, pandemics have changed the course of life drastically. Following brief account of past pandemics will help to understand the present COVID-19 unprecedented situation and the need to document it properly. Many researchers have put a lot of effort to describe past pandemics keeping in mind different parameters and their impact on the civilization though the documented history as discussed below:<sup>4</sup>

Athens Plague (430 B.C. - 420 B.C.):

It is considered the first recorded pandemic during Peloponnesian war fought between Sparta and Athens.<sup>5</sup> According to Thucydides (famous historian, general and plague survivor) war became the major source of its wide spread and 2/3 of human population was vanished. Spartans won because Athens was densely populated and effected the most at that time.<sup>6</sup> Thucydides described the human misery caused by pandemic in the following words:

For having no houses but dwelling at that time of the year in stifling booths, the mortality was now without all form; and dying men lay tumbling one upon another in the streets, and men half-dead about every conduit through desire of water. The temples also where they dwelt in tents were all full of the dead that died within them. For oppressed with the violence of the calamity and not knowing what to do, men grew careless both of holy and profane things alike. And the laws which they formerly used touching funerals were all

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now broken, everyone burying where he could find room. And many for want of things necessary, after so many deaths before, were forced to become impudent in the funerals of their friends. For when one had made a funeral pile, another getting before him would throw on his dead and give it fire. And when one was in burning, another would come and, having cast thereon him whom he carried, go his way again.<sup>7</sup>

Antonine Plague (165 A.D. - 180 A.D.):

Several centuries later started from Asia Minor, Egypt, Germany and then spread through the entire Roman Empire.<sup>8</sup> It covered far more geographical area than Plague of Athens. In some areas it decimated 1/3 of the population resulting in weakening the ties of the empire and opened doors for new religions and traditions. It is also known as Plague of Galen who along with other contemporary physicians had recorded and documented the events.

Justinian Plague (541 A.D.- 750 A.D.):

It is also known as “Real Plague” spread through rats and fleas on the trade routes which became exchanging infections with goods.<sup>9</sup> Spread though Egypt, Central Asian, Roman Empire, and Byzantine Empire to Mediterranean specially damaging coastal areas. People died of starvation and no more place was left in graveyards therefore people left dead bodies on the seashores. Reoccurrences of plague spread over two centuries and took life of 26% of human population and ravaged the economy of the empires. Christianity and Islam was widely spread during that period of time. Procopius, John of Ephesus, and Evagrius documented this great event of history. According to Procopius, who was to the Plague of Justinian what Thucydides was to the Plague of Athens:

It reached Byzantium in the midst of spring, where I happened to be staying at the time. And it came thusly ... at first those who met these creatures tried to turn them aside by uttering the holiest of names and exorcising them in other ways as best one could, but they accomplished absolutely nothing, for even in sanctuaries, where the most of them fled for refuge, they were dying constantly. But later on they were unwilling to even listen to their friends when they called them, and they shut themselves up in their rooms and pretended not to hear, although the doors were being beaten down, fearing that he who was calling was one of the spirits.<sup>10</sup>

The Black Death (1350 A.D.– 1400 A.D.):

It took the path of silk route started from China in 1334 through central Asia, India and Europe in 1347 reducing the human population almost 150 million in just a span of fifty years.<sup>11</sup> Contemporary writer Boccaccio wrote:

It was by no means rare for more than one of these [funeral boards] to be seen with two or three bodies upon it at a time. Many were seen to contain a husband and wife, two or three brothers and sisters, a father and son, and times without number it happened that two priests would be on their way to bury some-one, only to find bearers carrying three or four additional biers would fall in behind them.<sup>12</sup>

The Plague Doctor:

During plague many communities lost all doctors or majority of medical doctors were effected badly. To fill this shortage young doctors were hired as plague doctor. Their primary task was to take care of the patients and maintain the record of ill and dead people due that pandemic. To keep the distance between doctor and patient a uniform was designed in 1619 by Charles De l’Orm who described it as:

The nose [is] half a foot long, shaped like a beak, filled with per-fume with only two holes, one on each side near the nostrils, but that can suffice to breathe and carry along with the air one breathes the impression of the [herbs] enclosed further along in the beak. Under the coat we wear boots made in [goat] leather from the front of the breeches in smooth skin that are attached to said boots, and a short sleeved blouse in smooth skin, the bot-tom of which is tucked into the breeches. The hat and gloves are also made of the same skin ... with spectacles over the eyes.<sup>13</sup>

Quarantine:

To avoid the spread in cities, keeping in mind the old practices to deal with infectious diseases patients or people came from infected places were kept in mandatory isolation for 30 later for 40 days. It shown great results and even practiced later on as a technique to reduce pandemic outbreak.<sup>14</sup>

The Black Death Digital Archive Project:

Global Middle Ages Project (G-MAP) is an organization conducting research on c. 500 to 1500 CE time period by tracing the stories, objects, actions, events and their impact on the history. It started a project “The Black Death Digital Archive Project” to trace its spread on vast geographical area. It has opened a new horizon for the researchers of all fields for finding best methodologies to link traces of biological, archaeological, and documentary evidences.<sup>15</sup>

Spanish Flu (1918 A.D.–1920 A.D.):

It stated when the WW-I was just ending and troops were returning to their homes. It spread mostly on tropical islands and killed around 100 million people.<sup>16</sup> It spread throughout the world with unclear origin. Many researchers are of the view that it changed the outcome of the war because armies of Germany, Austria and Hungary were more effected than Allied forces.<sup>17</sup>

HIV/AIDS (1981- Present):

It is slowly progressing disease mostly sexually transmissible and originated from West Africa in the 1920s.<sup>18</sup> The first case was identified in American gay community in 1981. Since 1981 around 40 million people got infected with and same has been dead. It has globally spread and if HIV not treated properly can lead to AIDS.<sup>19</sup>

Severe Acute Respiratory Syndrome (SARS 2003):

Originated from China and considered first 21<sup>st</sup> century virus which infected 10000 people. The disease controlled due to better medical facilities, disease management and effective quarantine efforts.<sup>20</sup>

Swine Flu or H1N1 Pandemic (2009-2010):

It was originated from Mexico in 2009 and variably spread throughout world. It’s a combination of bird, pig and human flu. 700 million to 1.4 billion people got infected globally and according to WHO death toll was 284,000 which was far less than people die from flu 250,000 to 500,000 every year. It gave a valuable data for analysis like mental health aspects, mistrust, response to pandemics and mitigation techniques.

Ebola (2014-2016):

The Ebola epidemic that ravaged West Africa, infected over 28,000 people and killed over 11,000, reinforced the warnings that the world was ill prepared to face a large-scale epidemic.<sup>21</sup> Although COVID-19 (the disease caused by the novel coronavirus) varies greatly from Ebola,<sup>22</sup> both outbreaks shared striking similarities in the toxic environment created across health systems<sup>23</sup> Ebola virus infection in humans was first reported in the mid-1970s. The outbreaks were relatively small (often fewer than 100 people) but very deadly, with fatality rates of over 80 percent.<sup>24</sup> It led to a significant public health system and military effort to contain the spread of pandemic.

ZIKA (2015-2016): First social media pandemic

The first human case of Zika virus was described in 1952, but the virus was first discovered in a Rhesus monkey and in mosquitoes during routine surveillance in the Zika forest of Uganda in 1947 and 1948.<sup>25</sup> In 2007 there was an outbreak of Zika virus in Micronesia, bringing the virus to the world’s attention. Another outbreak occurred in 2013 in French Polynesia. The virus arrived on New Caledonia, the Cook Islands, and the Easter Islands in 2014, and it reached Brazil by 2015.<sup>26</sup> Women exposed to virus had given birth to babies with underdeveloped heads, brain damages etc. according to WHO it spread through 86 countries with low mortality and no vaccine is available as yet.<sup>27</sup>

### **The Real Global Pandemic: Covid-19 (2019- Present):**

Novel Corona virus was declared as a pandemic in 2020 by World Health Organization. Supposedly originated from Wuhan- China but still, the source of the infection is controversial. According to WHO spread throughout the globe with 433,781,486 confirmed cases with the death toll of five million and number is still increasing drastically.<sup>28</sup> There are many vaccines and treatments in circulation with their own side effects. Infodemics on social media gave hype to conspiracy theories and self-medication which has worsen the situation.

After observing the severity of the situation, governments took protective measures like, use of mask, social distancing, quarantine and vaccination, complete or smart lockdown as well as 50% attendance in offices and educational institutions.<sup>29</sup>

### **Impacts and lessons:**

In a “big picture” pandemics are mysterious and subject of interest for the researchers. They become a major part of current developments and historical change in demography, religion, art, medicine, over all public health and intellect.<sup>30</sup>

Pandemics have not only caused sudden upsurge in causalities but also social, political, and economic disruption regionally and globally. Pandemic outbreaks make people more fearful of social gatherings that deeply effect mental health and result in social unrest, suicidal thoughts, domestic violence, racism, unemployment and risk essential services like education, sports, transport, and tourism etc. Continuous lock downs and preventive measures have overburdened health sector and damaged economical backbone.<sup>31</sup> They effect religious thoughts like some become more religious and others complain unjust by losing all hopes. Looking at the historical background of catastrophic pandemics several lesson can be learnt:<sup>32</sup>

- i. Huge spread of infodemic;
- ii. New cultural norms in societies;
- iii. Passive military activates;
- iv. Comparable disease handling measures;
- v. Increase in racism;
- vi. Emerging economic powers;
- vii. Variable impact on masses.

#### **Need of Collection and Preservation:**

The current pandemic is already a historical event, and one of the worst health crises of present times. The outbreak was an unprecedented situation that no one saw it coming. Zika and Ebola exposed the vulnerable health systems and human immunity to some extend before COVID-19. Risks further increase due to over population, rising temperature, tourism, transportation, inadequate urbanization, lack of resources, and broadening social disparities.

There is the need to document COVID-19 pandemic by collecting and preserving related artefacts/objects at local and national level. The major reasons are as follows:<sup>33</sup>

- i. Epidemic leave a legacy because every society produces its own specific strengths and vulnerabilities;
- ii. Better insight of society’s structure, standard of living, and political priorities;
- iii. Challenges of medical history and practices;
- iv. Epidemic are interesting and worth noticing because their history is far from over.

The collection and preservation will give reliable systematic data that can be helpful in various fields:

- i. Public Health Strategies;
- ii. History of medicine;
- iii. Spontaneous public responses;
- iv. Future research;
- v. Policy studies;
- vi. Comparison with other areas of the country/world.

The efforts to document COVID-19 by modern world are leading examples to follow. We should not lag behind preserving our national response to this unprecedented time.

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