The Threat Continues To Loom: Swine Influenza

Running Title: Swine Flu-A Public Health Concern or Not

Guneet Singh Assi[1], Jyoti Yadav[1*], Pawan Kumar[1], Madhu Gupta[1], Arun K Aggarwal[1], Bijaya K Padhi[1]
[1]Department of Community Medicine and School of Public Health, Postgraduate Institute of Medical Education and Research, Chandigarh, India.

Corresponding author- Dr. Jyoti Yadav*, Junior Demonstrator (Health Promotion), Department of Community Medicine and School of Public Health, Postgraduate Institute of Medical Education and Research, Chandigarh, India.

Email- djmishthi@gmail.com

Abstract

The emergence of influenza A (A/H1N1) virus (or swine flu) in the midst of COVID-19 pandemic was a global concern last year but still continues to loom threat and is a public health concern. Apart from the public health measures, the attitudinal factors of the masses do play a role. The components of risk perception among the public where perceived susceptibility to disease and perceived severity of the disease is considered less in comparison to the recent pandemic due to COVID-19 encountered by the masses matters. The possibility of having this again is real, and it should be considered for global and countries preparedness.

Keywords: Influenza, Respiratory illness, Resurgence, Outbreak, Swine Flu.
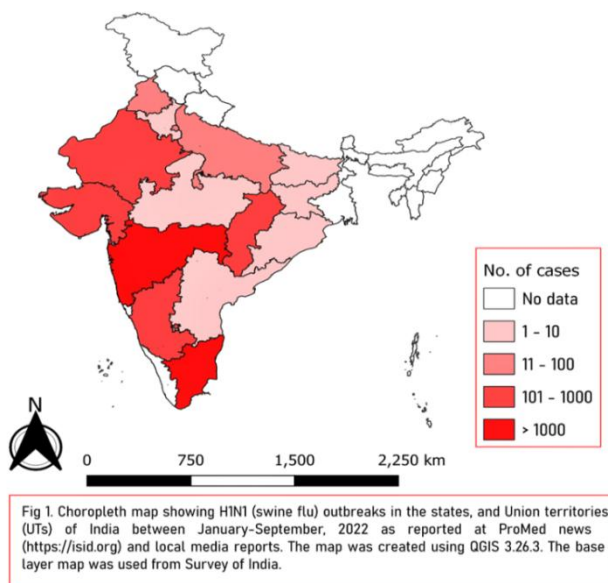
Introduction

National and Global concern

The virus that created havoc globally in 2009 with estimated 150,000 to 575,000 deaths in the first year of its outbreak [1]has shown resurgence time and again and still continues to do so. In India, in 2015, there was significant mortality and morbidity due to this influenza [2]. The emergence of influenza A (A/H1N1) virus (or swine flu) in the midst of COVID-19 pandemic last year again raised alarm.It still continues to loom threat and hence is a public health concern. Till

February 2023, as per official statistics a total of 955 H1N1 cases were reported in India with highest being from the State of Tamil Nadu. These news reports dated March 2023 has the data showing 397,814 cases of respiratory and influenza like illness, latest of this year known so far[3]. Tracing back to the huge number of cases in India and spike observed in 2022, there were

reportedly 410 deaths due to this influenza [4]. In September 2022, the Indian health authorities and media rang the alarm that the H1N1 was spreading throughout the population. The North Indian city, Ludhiana, Punjab, alone registered 234 suspected cases and the death of seven people [5].Data suggested that India's H1N1 cases and deaths reached a three-year high (Figure 1) while there was a nine fold increase in Swine flu cases in Maharashtra alone[6]. The National Capital Delhi recorded 43 cases of H1N1 flufrom January till August 31, 2022[7].Gujarat reported 116 cases till August 3, 2022(Figure 1)[8]. It may be noted that 1449 cases of swine flu were reported in Maharashtra alone in seven months, out of which 43 people died. Maximum cases were reported from Pune, Mumbai, and Nagpur. Earlier in the year 2022, 5278 cases of swine flu were reported in Maharashtra, where 268 people died in the state [9].Globally, sporadic cases of swine influenza outbreaks were also

reported [10], with Nepal facing a "twindemic" amongst rising cases of COVID-19 and swine flu last year [11]. More recently, there have been

variants of subtype influenza A, with cases of African swine flu growing in India and globally [12, 13]. Recently, Assam also banned entry of poultry, pigs due to the scare of avian flu and African swine flu[14]. Amidst the scare, 700 pigs were culled in Madhya Pradesh early this year[15].The United Kingdom was one of the countries that imposed restrictions on importing pigs and pork-related products to contain the epidemic [16]. Another variant was found by the National Influenza Center of the Chinese Center for Disease Control, which reported influenza- A virus with the H3N8 subtype [17]. The Chinese government took specific monitoring, prevention, and control measures as a public health response to mitigate the risk of mortality. This resurgence in type-A influenza mimicking the seasonal flu raises a concern.

Fig 1. Choropleth map showing H1N1 (swine flu) outbreaks in the states, and Union territories (UTs) of India between January–September, 2022 as reported at ProMed news (https://isid.org) and local media reports. The map was created using QGIS 3.26.3. The base layer map was used from Survey of India.

Etiology

The H1N1 Swine flu, a subtype of influenza- A virus, is considered as a highly contagious disease. It affects the respiratory system, causing infection in upper and lower respiratory tract in the organism it infects. This virus is a combination of viruses from pigs, birds and humans that causes human disease due to the spillover. The global pandemic in 1918 caused by the H1N1 influenza virus led to infection among almost 500 million people world over, with a mortality rate

of approximately fifty to a hundred million individuals. The variants of 1918 virus have affected humans over time, leading to seasonal epidemics of influenza. In 2009, a mutant strain of H1N1 caused a worldwide pandemic that led to around 10,000 reported cases and 774 deaths in India alone in 2015 [18].More recently, this last major pandemic before COVID-19 showed a resurgence globally, including in India.The signs and symptoms of H1N1 virus are pretty much alike to infections caused by other flu strains. They can include fever, cough, sore throat, runny or stuffy nose, watery-red eyes, body aches, headache, fatigue, diarrhea, nausea and vomiting. The flu symptoms develop about one to three days after exposure to the virus. The virus can enter a human being by inhalation of contaminated droplets or transfer the live virus from a contaminated surface through the eyes, nose or mouth. Therefore, one can be exposed to the virus if a person travels to or stays at a place where many people have been infected with the H1N1 virus. One should avail the medical attention if flu symptoms get severe. Pregnant or those living with chronic diseases, such as asthma, emphysema, diabetes or a heart condition, are at a higher risk of flu complications. As per the data of 2017, chronic respiratory diseases, contributed around 3·9 million deaths (18·0% higher than in 1990) with 1470 disability-adjusted life-years (DALYs) per 100 000 individuals (112·3 million total DALYs, 13·3% higher since 1990). South Asia was ranked as being at the top for highest mortality attributed to chronic respiratory disease [19].

H1N1 or COVID-19?

In the times of COVID-19, where similar symptoms recur, it is difficult to distinguish the reason behind the illness unless medically investigated. The rising number of cases observed last year, many of them going undetected, is that people confuse it with COVID-19 symptoms, and when the COVID-19 test comes negative, they are sent home. Lack of timely medical intervention was the reason behind the rising number of cases and increasing mortality rates. Although the COVID-19 infections that led to more than two million deaths worldwide gained

precedence and the attention to other infections, including swine influenza, have dwindled. However, its concern cannot be undermined given the fact that it is still prevalent, causes mortality in severe cases and hence is a public health concern. The need of the hour is to be more aware and seek vaccination as a preventive measure and timely medical help if retracted with the disease.

National and Regional Response Measures

The health authorities in Punjab, India as per the reports were closely monitoring the situation last year and asked people to immediately report to the nearest health centre if having swine flu like symptoms. Although wearing masks, maintaining hygiene and social distancing is a recommended protocol but compliance among the masses was pretty bleak. The measures from the side of the Government were not stringent and massive because as per the reports, the outbreak reportedly was not pan-India, but to avoid an outbreak, the states were asked by the Union Health Ministry to monitor the cases at their level, offer timely treatment and Centre sent teams for intervention if required [20]. For mitigation measures, country level Influenza vaccination administration policies especially for more vulnerable population including elderly more than 65 years, pregnant women and health care workers etc should be considered.

Way Ahead

Apart from the public health measures, the attitudinal factors of the masses do play a role. The components of risk perception among the public where perceived susceptibility to disease and perceived severity of the disease is considered less in comparison to the recent pandemic due to COVID-19 encountered by the masses matters. Together with the optimistic bias among the people wherein individuals showed a tendency to believe that they are less /vulnerable to risk of contracting this virus despite statistical evidence might be the reason of its spread last year.

Enhanced surveillance in India and abroad for swine influenza is needed. Remember that in 2009, H1N1 (or swine flu) was announced as a Public Health Emergency of International Concern and a pandemic. The possibility of having this again is real, and it should be considered for global and countries preparedness.

Ethical approval:
Not Required.

Conflict of Interest
None.

References

1. Centre for Disease Control and Prevention. 2009 H1N1 Pandemic. Available from https://www.cdc.gov/flu/pandemic-resources/2009-h1n1-pandemic.html
2. Kshatriya RM, Khara NV, Ganjiwale J, Lote SD, Patel SN, Paliwal RP. Lessons learnt from the Indian H1N1 (swine flu) epidemic: Predictors of outcome based on epidemiological and clinical profile. J Family Med Prim Care. 2018 Nov-Dec;7(6):1506-1509. doi: 10.4103/jfmpc.jfmpc_38_18. PMID: 30613550; PMCID: PMC6293944.
3. Thacker T. Swine flu cases on the rise: Health ministry Read more at: https://economictimes.indiatimes.com/news/india/swine-flu-cases-on-the-rise-health-ministry/articleshow/98614935.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst. The Economic Times. 2023 Mar 14;
4. Sharma P. India saw spike in swine flu in 2022, death toll at 410. Mint [Internet]. 2022 [cited June 6 2023]: Available from https://www.livemint.com/economy/india-saw-spike-in-swine-flu-in-2022-death-toll-at-410-11675101432845.html

5. Majeed S. Ludhiana: At 28 cases, swine flu at 3-year high. The Economic Times [Internet]. 2022 [cited September 20 2022];. Available from: https://health.economictimes.indiatimes.com/ news/diagnostics/ludhiana-at-28-cases-swine-flu-at-3-year-high/94283198

6. Chakraborty R. 9-fold rise in swine flu cases in 2022; mortality rate low owing to public vigilance: Health department. The Indian Express. 2022 Feb 6;

7. Varma, D. Holiday declared for all schools in Puducherry, Karaikal as fever cases spike. 2022 September 16. Retrieved from https://www.thehindu.com/news/cities/puduc herry/holiday-declared-for-all-schools-in-puducherry-karaikal-as-fever-cases-spike/article65899294.ece

8. TOI. 8 swine flu cases detected in Kolhan, health department on alert. [Internet]. 2022 [cited 21 September 2022];. Available from: https://timesofindia.indiatimes.com/city/jams hedpur/8-swine-flu-cases-detected-in-kolhan-health-department-on-alert/articleshow/94237516.cms

9. Kaushik, S. Delhi Records 43 Swine Flu Cases This Year, Doctors Advise Precaution. India.com. 2022 September 7. Retrieved from https://www.india.com/news/delhi/delhi-records-43-swine-flu-cases-this-year-doctors-advise-precaution-5616542/

10. TNN. Vadodara: H1N1 cases reach 116 in Vadodara, 17 hospitalized. The Times of India. 2022 August 3. Retrieved from https://timesofindia.indiatimes.com/city/v adodara/h1n1-cases-reach-116-in-vadodara-17-hospitalized/articleshow/93311616.cms

11. Nagpur Today. Swine flue havoc continues, Nagpur reports five more deaths. 2022 August 19. Retrieved from https://www. nagpurtoday.in/swine-flu-havoc-continues-nagpur-reports-five-more-deaths/08191342

12. Outbreak News Today. Swine flu case reported in Oregon, 4th case in the US in 2022. 2022, August19. Retrieved from http:// outbreaknewstoday.com/swine-flu-case-reported-in-oregon-4th-case-in-the-us-in-2022/

13. Mint. Swine flu along with rising COVID-19 cases, Nepal battles 'Twindemic'. 2022, August 11. Retrieved from https://www.livemint.com/news/world/swine-flu-along-with-rising-covid-cases-nepal-battles-twindemic-11660155269606.html

14. Mint. African swine flu cases reported from 2 Kerala districts; state govt sounds alert. 2022, August 1. Retrieved from https://www.livemint.com/news/india/african -swine-flu-cases-reported-from-2-kerala-districts-state-govt-sounds-alert-11659346823527.html

15. 700 Pigs Culled In Madhya Pradesh Amid African Swine Flu Scare [Internet]. NDTV ,India news. 2023 [cited 2023 Jun 6]. Available from: https://www.ndtv.com/india-news/700-pigs-culled-in-madhya-pradesh-amid-african-swine-flu-scare-3665708

16. United Kingdom Government. Strict new controls on pork and pork products to protect Britain's pig sector against African swine fever. 2022, August 31. Retrieved from https://www.gov.uk/government/news/strict-new-controls-on-pork-and-pork-products-to-protect-britains-pig-sector-against-african-swine-fever

17. World Health Organisation. Avian Influenza A(H3N8) – China. 2022, May 9. Retrieved from https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON378

18. Jilani TN, Jamil RT, Siddiqui AH. H1N1 Influenza. [Updated 2022 July 18]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov /books/ NBK513241/

19. Labaki WW, Han MK. Chronic respiratory diseases: a global view. The Lancet Respiratory Medicine. 2020 Jun 1;8(6):531-3.

20. Sharma, P. Swine flu and dengue cases rising in India, govt warns. 2022, September 22. Retrieved from https://www.livemint.com/ news/india/swine-flu-and-dengue-cases-rising-in-india-govt-warns-11663777634830.html