

A Century after *Yehedar Besheta* (The Spanish Flu in Ethiopia): Are We Prepared for the Next Pandemic?

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Introduction

One hundred years after the most devastating pandemic in human history (1, 2, 3), and in view of the growing concerns from emerging and re-emerging communicable diseases such as SARS, Avian Flu, Ebola and other fevers) it is appropriate to reflect on the *Yehedar Besheta* [the Spanish Flu 1918-1919. Even though it might have started in USA (1, 2), the pandemic was “an ominous warning to public health” (4, 5). Worldwide, it is estimated to have killed one third of the then estimated 1.8 billion population (2) just in two years which is much more than what HIV/AIDS has killed in 40 years). Sub-Saharan Africa suffered the most where 2% of Africa’s population was wiped out by the pandemic (3). In Ethiopia, the pandemic has not only killed scores of people but has also threatened the fabrics of the society (6).

Yehedar Besheta

Related to war, famine and other complex disasters and the subsequent population movements, epidemics have repeatedly ravaged Ethiopia (6,7,8). Public health legislations, by Emperors Yohannes and Menelik were inspired by such epidemics particularly smallpox in particular (9). Fates of war and conquest, recurring themes in Ethiopian history, have been triggered by epidemics and/or drought/famine, some of which were characteristically international outbreaks (6).

The 1918 pandemic, *Yehedar Besheta*¹, presumably the murderous 2nd wave of pandemic (3), is believed to have reached the Ethiopian interior through the Gulf of Eden by train. It is estimated to have killed about 50,000 people throughout the country and 10,000 from Addis Ababa alone. No particular group of society was spared since priests and educated ‘national leaders’ of the population were all killed by the disease. A number of high political dignitaries died, threatening the stability of the country. The havoc was unprecedented since among the small medical profession in the capital 4 out of 8 have died. One of the missionaries documented that, “God first took the doctors... and then swept away the people” (7). Most public leaders run away from the town for fear of death or isolated themselves in their houses that routine government functions were disrupted.

The epidemic was so devastating that its memory still lingers. Every year, on the 12th of *Hedar* (21 *Novemehr*), all household rubbishes are collected at one point in the neighborhood and ritually burned –

¹ *Besheta*/Disease of the month of *Hedar*, name of the month in Amharic, most of November and early December, of the heaviest mortality

Hedar Sitaten (smoked *Hidar*) – in commemoration and presumably to ward off future pandemics. It has left, as in many other countries (1), its marks on the folklore and literature of the country. It has inspired a recent film by Yemane Dessie; “and Then Rains Return...”.

Currently, parallels are being drawn with the Avian Flu, “the global threat that most occupies world business leaders’, but H5N1 could be even more devastating with growing urbanization and expanding slums, facilitated global travel, cross border migration, poor preparedness (11, 12).

The Next Pandemic

It is now time to reflect and draw lessons since “Pandemic influenza is not a theoretical threat; rather, it is a recurring threat” (10). However, it is difficult to predict when the next pandemic will occur, or how severe it will be (10). Some in fact, believe the next pandemic, the antimicrobial resistant one is already on us (13). Major influenza epidemics show no predictable periodicity or pattern, and all differ from one another as exemplified by the three influenza pandemics of the 20th century, the Spanish (1918), Asian (1957), and Hong Kong (1968) influenza. So, as the World Bank (13) clarified that, “It is not a question of if, but when we will face the next major pandemic -- yet we are still stuck in an unsustainable cycle of panic and neglect” (13). Current geopolitical circumstances are very different from those of 1918 (2). However, prevailing instability in the different corners of the world particularly in the Middle East and Africa; crowded way of living and mobility offers fertile grounds for a new wave of pandemic (14). What prevails in the world of during the last few years is nothing but a warning bell.

The virus is now endemic in bird populations and could mutate and pass to humans at any time. With advanced globalization (14,15) and urbanization (16), more rapid spread of any pandemic with potentially greater impact is imminent. The challenge is huge for Africa. An estimate shows that of the 62 million deaths from new influenza, 96% were from developing countries (5). While influenza is the major threat, there are a number of other possible candidates including Crimean-Congo haemorrhagic fever (CCHF), Nipah virus, Middle East Respiratory Syndrome (MERS)” (17) and many other emerging or reemerging infections (18). There could as well be a lot more lurking out there as contacts between humans and wild animals has also intensified (19). The need for preparedness is patent and endeavors are underway worldwide for the next “big one”, a disease that could kill tens of millions (17).

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Preparedness

As illustrated above, influenza pandemics have historically taken the world by surprise and overwhelmed health services challenging all other coping mechanisms (19). Vaccines, available for the 1957 and 1968 pandemics were not distributed in time to ward off the high level of mortality from the pandemic and contain consequent social and economic challenges. Preparedness implies spotting outbreaks early and identifying warning sites so as to take action before it spirals out of control (17). It is unreasonable to believe that we can count on prophylaxis with antiviral agents to protect a large, vulnerable population for more than a few days at a time, and that is not long enough” (20).

In the developed world, major efforts are being made to prepare for the next pandemics. WHO and Member States “have committed, within the framework of the International Health Regulations (2005) (IHR), to detect, verify, assess and report events that may pose a risk to international public health” (21,22). Preparedness may have different components. According to a recent document from the US, preparedness such domains as: Surveillance, Epidemiology, and Laboratory Activities; Community Mitigation Measures; Medical Countermeasures: Diagnostic Devices, Vaccines, Therapeutics, and Respiratory Devices; Health Care System Preparedness and Response Activities; Communications and Public Outreach; Scientific Infrastructure and Preparedness; and Domestic and International Response Policy, Incident Management, and Global Partnerships and Capacity Building (10). However, questions on countries’ readiness to respond and global capacity to coordinate remains questionable (10, 18). Some promising initiatives such as the United States Global Health Security Agenda (GHSA) toward “a world safe and secure from infectious disease threats” launched in 2014 (23) seem to have faltered (24).

In Ethiopia, a high-risk country for avian human influenza, there was no surveillance system until October 2005 when an emergency national task force on AI was established. . A 3-year (2006-2008) Preparedness and Response Plan was developed and the Ministry of Agriculture and Rural Development started AI surveillance targeting wild and domestic birds. Formal Influenza Sentinel Surveillance (ISS) Activities were launched in September 2008 with the establishment of a National Influenza Laboratory under umbrella of Virology & Rickettsiology Research Group of the Infectious & Non Infectious Diseases Research Directorate of EHNRI (25-27).

This was strengthened during the Health Sector Development Program IV (HSDP IV 2010-2015) which aimed to improve health risk identification, early warning, response and recovery from disasters using an effective early warning, preparedness, response, recovery and rehabilitation system (28). The strategic

objective was to improve health system’s coping with existing and emerging disease epidemics, acute malnutrition, and natural disasters of national and international concern.

During HSDP IV, the Ethiopian Public Health Institute (EPHI, the former EHNRI), a lead institution for epidemic control, undertook several activities in terms of establishing Public Health emergency management surveillance system (21). This system is responsible to identify major public health risks and assessment of vulnerability; verification and timely response to outbreak rumors; strengthening of public health surveillance and database management system; resource mobilization, coordination and collaboration with partners; and preparation, revision, and distribution of guidelines including Global Health Security Agenda (GHSA) Roadmap, 2015-2019 for Ethiopia. In the early years of HSDP IV (2011/12), 18,543 government health facilities including 15,327 health posts, 3,096 health centers and 120 hospitals were reporting on epidemic outbreak and vulnerabilities (29).

The Public Health Emergency Management surveillance system under EPHI collects weekly and daily reportable diseases. The weekly reportable diseases include measles, acute watery diarrhoea (AWD), poliomyelitis, rabies, dysentery, meningococcal meningitis, relapsing fever, typhoid fever, anthrax and pandemic influenza. EPHI received several rumors every day. For example, it received 2,217 public health emergency rumors in 2013/14 and assessed them within 3 hours, with only 31 (1.4%) of the rumors found to be real public health emergencies. In 2014/15, about 35 cases of 65 rumors received were confirmed. EPHI also prepared weekly epidemiological bulletin and distributed them to concerned stakeholders for possible action. However, the bulletins were prepared for all weeks only in 2011/12.

The reporting completeness has satisfied the WHO 80% minimum requirement. The system has been able to detect, among others, a yellow fever outbreak (30) and the first cases of dengue fever in Ethiopia (31). Cases of swine flu have also been reported since 2010 with increasing trend since 2015 (32). During HSDP IV, Ethiopia had also to prepare for the threat of Ebola virus which originated in West African countries. The EPHI undertook the necessary preparedness training of about 1000 health workers from all regions and two medical centers were established and equipped with the necessary equipment in order to prevent and control potential epidemics. However, there is no place for complacency as even the most endowed systems consider themselves unprepared for future pandemics (33,34) and Ethiopia is known to harbor several deadly virus with a lot more yet to be identified and yet to be developed surveillance system..

Conclusions

Ethiopia is not new to devastating pandemics as illustrated by *Yehedar Besheta*. Growing urbanization, growing interaction with countries in the globe, poor preparedness etc poses challenges to responses. In view of this, the impacts of the next pandemic could spell havoc of unprecedented magnitude. The need to build resilient health system with capable health actors, institutions, and populations to effectively respond to emerging pandemic is critical. Perspectives on preparedness greatly vary. However, attempts to forestall epidemics and bring speed and justice to global responses in case of outbreaks ultimately depend on a combination factors related to political will, human and financial resources, and public health". Preparedness even in the best system is tenuous; therefore the need to strengthen IPC including renewed political commitment, review of policy and implementation modalities, increased availability of resources (both human and infrastructure) etc are key considerations now than latter.

References

- 1 Barry JM. How the Horrific 1918 Flu Spread Across America. *The Smithsonian Magazine*, 2017.
- 2 Sowards W. How the 1918 Spanish Flu Pandemic Links to World War I. November 11, 2015.
- 3 Phillips H. Influenza Pandemic (Africa). Version 1.0 Last updated 08 January 2017, 1918 Encyclopedia of the First World War.
- 4 Taubenberger JK and DM Morens. 1918 Influenza: the Mother of All Pandemics. *Emerging Infectious Diseases* 2006;12(1):15-22.
- 5 Horton R. From 1918 to 2018 the lessons of influenza. *The Lancet* 2018;391:14.
- 6 Pankhurst R., 1977. A historical note on influenza in Ethiopia. *Medical History*, 1977;21:195-200.
- 7 Pankhurst R., 1973. The Hedar Basheta of 1918. *Journal of Ethiopian Studies*, 1973;XIII(2):103-131.
- 8 Kloos H. and Zein A. Z. eds., *The ecology of health and disease in Ethiopia*. Boulder: Westview Press, 1993:540.
- 9 Kitaw Y et al. *Evolution of Public Health in Ethiopia: 1941-2010*. 2nd Edition, EPHA 2012, Addis Ababa.
- 10 USDHHS. *Pandemic Influenza Plan: 2017 Update*. U.S. Department of Health and Human Services, 2017, Washington DC.
- 11 ACRP (Airport Cooperative Research Program). *Infectious Disease Mitigation in Airports and on Aircraft: ACRP Report 91*. 2013 National Academy of Sciences.
- 12 Awadalla HI. Health effect of slums: A consequence of urbanization. *Scholarly Journal of Medicine* 2013;3:7-14
- 13 WB. *Pandemic Preparedness and Health Systems Strengthening*. 2017.
- 14 Devex. *From Healthy to Secure: Insights from Global Health and Security Leaders. A DEVEX SPECIAL REPORT IN PARTNERSHIP WITH PATH*. 2017, Washington DC.
- 15 Kitaw Y and D HaileMariam. Moving Towards Global Health Equity: Opportunities and Threats: An African Perspective. *Ethiop. J. Health Dev.* 2012;26(Special Issue 1):157-168.
- 16 Tadesse F and D Headey. *Urbanization and Fertility Rates in Ethiopia*. Ethiopia Strategy Support Program II (ESSP II), ESSP II Working Paper 35, January 2012.
- 17 Slemrod A. Three deadly viruses that could spawn the next pandemic. *IRIN News*, 20 February 2017.
- 18 NASEM (National Academies of Sciences, Engineering, and Medicine). 2016. *Global health risk framework: Resilient and sustainable health systems to respond to global infectious disease outbreaks: Workshop summary*. Washington, DC: The National Academies Press. doi: 10.17226/21856.
- 19 Gruber K. As emerging diseases spread from wildlife to humans, can we predict the next big pandemic? @sciencegruber, 2017.
- 20 Reel R. How to find data on infectious disease outbreaks. globalhealthgovernance.org/blog/2017/12/1/how-to-find-data-on-infectious-diseaseoutbreaks. 2017.
- 21 AHINCC. A three year national strategic preparedness and response plan for the avian human influenza pandemic threat in Ethiopia. Avian and Human Influenza National Coordination Committee (AHINCC), August 2006, Addis Ababa.
- 22 Kilbourne ED. Influenza Pandemics of the 20th Century. *Emerging Infectious Diseases* 2006;12(1): 9-14.
- 23 US (United States White House Office of the Press Secretary). *Global Health Security Agenda: Getting Ahead of the Curve on Epidemic Threats*. September 26, 2014. <https://obamawhitehouse.archives.gov/the-press-office/2014/09/26/fact-sheet-global-healthsecurity-agenda-getting-ahead-curve-epidemic-th>.
- 24 WHO. *Acute public health events assessed by WHO Regional Offices for Africa, the Americas and Europe under the International Health Regulations (2005): 2016 Report*. 2017, Geneva.
- 25 Kebede, Amaha. *Influenza Surveillance in Ethiopia*. 4th Annual Meeting of IANPHI, Nov 1-4, 2009, Johannesburg, South Africa.
- 26 Ayele W et al. Challenges of Establishing Routine Influenza Sentinel Surveillance in Ethiopia, 2008–2010. *The Journal of Infectious Diseases* 2012;206(S1):S41–5.
- 27 EHNRI. *Public Health Emergency Management: Guidelines for Ethiopia*. 2012, Addis Ababa.
- 28 MOH, 2010. *Health Sector Development Program IV 2010/11 – 2014/15 (2003-2007EC)*. Final draft. Addis Ababa.
- 29 MOH. *Second Edition of National Neglected Tropical Diseases Master Plan: 2015/16 – 2019/20 (2008-2012 EFY)*. 2016, Addis Ababa.
- 30 Kelly JC. *Yellow Fever Concerns Grow, WHO Urged to Set Up Emergency Panel*. *Medscape*. May 11, 2016.

- 31 Dzau VJ. Commentary: The World Is Not Prepared for Pandemics. November 15, 2016 www.medscape.com.
- 32 Ragasa S and E Hirpa. Review on Swine Flu and Status of Swine Flu in Ethiopia. *Int J Vaccines Vaccin* 2017;4(2):00077. DOI: 10.15406/ijvv.2017.04.00077.
- 33 Allegranzi B et al. Global infection prevention and control priorities 2018–22: a call for action. *The Lancet* 2017; 5: e1178-e1180.
- 34 Garrett L. Human arrogance and epidemics *The Lancet* 2018;391:827-828.