

Importance of Zero Patient in Pandemics

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Abstract

The patient zero is the first reported patient in a pandemic within a population, or the first documented patient incorporated in a pandemic study. Some scientists claimed that it's important to examine primary cases. The term patient zero refers to the person identified as the first carrier of a communicable disease in an outbreak of related cases. They act as a symbol for initial actions that have major downstream consequences. The primary recorded victim of the Ebola infection was a 44 year old teacher named Mabola Lokela, who passed away on 8th September 1970, 614 days after the clinical manifestation started. An infant in the Lewis House at 40 broad Road is viewed as the patient zero in the 1854 cholera outbreak in the Soho neighborhood of London. Pandemic is a disease outbreak that spreads across countries or continents and it affects more people and takes more lives than epidemic. It is an epidemic which takes place on a scale that crosses universal limits, generally influencing individuals on an overall scale. Detection of patient zero gives new insight to epidemiologists about the nature of first transmissions into a population. It's important to find the first person infected with the pathogen. By knowing person's history of patient zero we can determine the outbreak of the disease and the route of transmission. Discovering them might be significant in certain occasions, to know whether they are still alive and transmitting the infection. Identifying a "patient zero" is a rife with potential to provoke blame and scapegoating. Patient zero triggers a "desperate hunt" and is continuously giving expression to communal fears about dangerously reckless behaviour. Researchers have found people harbour negative attitudes towards Patient zero. The patient zero issue comprises of finding the source of a pandemic outbreak given, perceptions at a later time. Contemplating the patient zero issue we additionally tackle the issue of finishing and rectifying the observation to people and false test results

Keyword :patient 0, pandemic ,first carrier ,epidemic ,index case

Introduction

The patient zero is first reported patient in a pandemic within a population are the first documented patient incorporated in a pandemic study. It refers to the primary case of a condition, syndrome or a contagious disease ^{1,2}. The patient zero is significant as we can

characterise the extent of the disease, estimate the hazard and comprehend what it will take to control the outbreak ³. The primary recorded victim of the Ebola infection was a 44 year old teacher named Mabola Lokela, who passed away on 8th September 1970 614 days after the clinical manifestation started⁴ One year old Emilie Ouamouno was found to be the patient zero of the Ebola in 2014 ⁵. Mallon travelled from Ireland to the US as a young person after which she looked for some kind of employment as a cook. Unfortunately she got infected with typhoid fever, a potentially harmful disease. In 1907 Mallon was investigated and identified as a patient zero. Specialist isolated and imprisoned her on an island ⁶. Gaeton Dugas a Quebecois Canadian Airlines steward and was the first HIV patient who is known as "Patient zero". Dugas passed away on Quebec city on March 1984

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because of renal failure cost by AIDS ^{7,8}.HIV-infected patients oppose an elevating risk of cardiovascular disease .N6-adenosine methylation is a promising recent molecular target in hypertension and cardiovascular diseases ⁹.Some scientists claimed that it's mandatory to examine the individual or animal first brings a bacterium or virus into a populace ^{10,11}.The patient zero issue comprises of finding the source of a pandemic outbreak given,perceptions at a later time.Contemplating the patient zero issue we additionally tackle the issue of finishing and rectifying the observation to people and false test results ¹² .

Discussion

Pandemic:

Pandemic is a disease outbreak that spreads across countries or continents and It affects more people and takes more lives than an epidemic ^{13,14}.It is an epidemic which takes place on a scale that crosses universal limits, generally influencing individuals on an overall scale ¹⁵.A disease or condition is not always a pandemic merely because it is widespread or kills many people ¹⁶.Seven cholera pandemics have taken place in the last 200 years, with the first pandemic beginning in India in 1817 ¹⁷.Insufficient treatment of human waste and insufficient treatment of drinking water extraordinarily encourage its spread ¹⁸

Patient zero:

Patient zero also known as index case is the first reported patient in a disease epidemic within up They may or may not specify the source of infection ,the possible transmission but may bring awareness of an emerging outbreak ¹.Patient zero is a popular medical term which refers to the first person infected in an epidemic/pandemic ^{11,19}.It refers to the person identified as the first carrier of a communicable disease in and out related cases.They act as a symbol for initial action that have major downstream consequences ²⁰.Combination of ancient and hereditary research discloses the mistake and hype that led to the term patient zero and accusing of one man for the spread of HIV across North America ^{21,22}.Patient zero was affected by a hepatitis A virus with a dissimilar genetic fingerprint not directly linked with the outbreak cases.This disease has repeatedly found to be in low levels in the community ²³ .

Significance of Patient Zero:

Detection of patient zero gives new insight to epidemiologists about the nature of first transmissions into a population ²⁴.It's important to find the first person infected with the pathogen ²⁵.By knowing person's history of patient zero we can determine the outbreak of the disease and the route of transmission ^{25,26}.In silico examination, the harmful genes can be utilized as a possibility to build new medicinal target antagonists to pathogens ²⁷.In silico examination, the harmful genes can be utilized as a possibility to build new medicinal target antagonists to pathogens ²⁸.Information obtained from Patient zero are useful to scientists .Once a patient zero identified we can understand more about disease and can find the cure. Discovering patient zero might be significant in certain occasions, however just in the case where they are still alive and transmitting the infection ²⁹. Finding the patient zero will permit doctors to figure out where it originated from. This in turn gives the doctors an approach to stop, control and to study more about the disease ³⁰.The phrase patient zero is currently utilised in the media to cite the primary cause for infectious outbreaks as the source of action has more far-reaching consequences ^{9,31}

Patient zero -toxic term:

Identifying a “patient zero” is a rife with potential to provoke blame and scapegoating. Patient zero trigger a “desperate hunt” and are continuously giving expression to communal fears about dangerously reckless behaviour. Researchers have found people harbour negative attitudes towards Patient zero ³².Patient zero identification is done for a good cause but the term reaches the public in a negative way.People believe them hostile,immoral against humanity.Thus this creates depression in patient zero and makes them an outcast ^{33,34} .

Patient zero of various diseases:

Mary Mallon also called Typhoid Mary worked as a cook in New york city for seven families. Within two weeks of her employment the employers developed typhoid fever. Mary Mallon was not suspected as she was in good health. She was quarantined twice and died after 3 decades of isolation. She is said to have infected 51 people, 3 of them died ^{8,35}.Gaetan Dugas, a flight attendant, was suspected to be the patient zero for HIV

AIDS in America. Dugas was charming, handsome and had many sex partners per year. Dugas had a sociopathic behaviour i.e., intentionally infecting others with the virus. Articles in newspapers published him as “MAN WHO GAVE US AIDS”^{36,37}. 64-year-old Liu Jianlun, a Guangdong specialist, transmitted SARS universally by contaminating other super-spreaders during a stay in the Hong Kong Metropole Inn in 2003³⁸. A infant in the Lewis House at 40 broad Road is viewed as the patient zero in the 1854 cholera flare-up in the Soho neighborhood of London³⁹. Edgar Enrique is a patient zero for flu pandemics, he recovered and a bronze sculpture was raised in this respect⁴⁰.

COVID -19 Patient zero:

Coronavirus disease 2019 (COVID-19) is a contagious disease originated from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was first reported in December 2019 in Wuhan, China, and has brought about a progressing pandemic⁴¹. Normal manifestations include fever, hack, exhaustion, dyspnea, anosmia ageusia. While most cases bring about mild symptoms, some advance to wet lung (ARDS), multi-organ failure, septic shock, thrombus and embolus⁴². Wei Guixian, was selling shrimps at the Huanan Seafood Market. She developed symptoms on December 10. Wei went to a local clinic for treatment. There was no improvement and she went to Eleventh hospital and finally landed in Wuhan Union hospital. She was finally quarantined and her strange illness was finally diagnosed as having Coronavirus⁴³. Early examinations have indicated that about 25% of individuals who went to the medical clinic with extreme COVID-19 contaminations had diabetes. Diabetes mellitus is a set of metabolic disorders where there are high glucose levels over a extended period. It is a significant medical issue in India^{44 45}

Case study of kerala :

Three students returning from wuhan were asked to report to their nearby hospitals for screenings and the students were immediately quarantined out of worry that someone could bring the virus. They were then given treatment for 28 days^{46,47}. With no vaccine in sight the state has relied on the information obtained from patient zero and aggressive tried and tested system of early testing contact tracing and isolation, social distancing

promotions plus longer quarantine period, Kerala has stem the spread of the virus⁴⁸.

Conclusion

Identifying Patient zero helps us to understand pathogenesis of the disease. It is useful to think historically about the divergent interests of two different groups keenly following spread of infection during an epidemic members in public, public health workers. If patient zero are not found we won't have a clear idea about disease transmission and etiology. patient zero is determined for diseases like HIV, ebola and corona

Acknowledgement: We thank Saveetha dental college for the support to carry out this study.

Conflict of Interests: The authors declare no conflict of interest

Source of Funding: Self

Ethical Clearance: Not Required

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