

Key Figures and their Contributions to Epidemiology

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Epidemiology can be defined as the study of how diseases spread and the phenomenon it takes in different groups of people and the reasons. It is important because it helps in most procedures of management, prevention and collection of data for future use. The following is an account of three key figures in the field of epidemiology.

John Graunt

John Graunt was born on April 20th, 1662 (Morabia, 2013). He is a figure noted for his contribution to the quantitative treatment of epidemiology. In fact, he is the father of epidemiology owing his credit on the first publication of lengthy public health statistics. Consequently, it was his work that led to the approximation of the number of people who lived in London at the time. Graunt was is not connected to any disease as he is credited with most of the methods utilized in the quantitative part of epidemiology.

Considering his pioneering work on medical statistics and demography, Graunt is also considered as the pioneer of general statistics (Morabia, 2013). His primary work drew from the London Bill of Mortality which was a parish publication citing the number of deaths from the plague or christenings. The data that Graunt possessed had no population information; for this reason, he used the data with a significant amount of logic and scientific explanation. He was able to follow strict accuracy and completeness in his expressions.

Notable in his works was his investigation on infant mortality where the figures that he collected showed that London had the highest number of deaths than any other place in the country. On the same investigations, he was able to approximate the number of men and women

living in London. The numbers he discovered later showed that the figures were increasing, which made his note a significant migration into London.

In his study of epidemics, Graunt was able to show that London has vastly underestimated the deaths in the plague. His investigation of deaths by other plagues revealed to him how the numbers in London reduced significantly during the plague and how much time it took for the city to repopulate. Like other similar methods of investigation used after terror attacks and modern epidemics like Ebola, Graunt's method was able to show the time repopulation took after the plagues. The World Health Organization currently uses methods established by Graunt to cover key research areas on diseases like Ebola and new influenza (WHO, 2019). The importance of the methods pioneered by Graunt in the exploration of epidemics cannot be stressed enough.

James Lind

James Lind was born on October 4th, 1794 (Tröhler, 2003). He was a Scottish doctor whose contributions mostly incline on nutrition and preventative medicine. Lind's most notable works was on scurvy and naval hygiene. He was the first to note that the use of citrus fruits was important in preventing scurvy in sailors. Consequently, Lind is noted for conducting the first known clinical trials to discover the epidemiology of scurvy (Tröhler, 2003).

Lind's pioneering work in the first known clinical studies was one of the phenomena that led to the advancement of clinical studies, particularly with the use of control groups in the studies. In this way, Lind had a special influence on the way disease was studied in controlled environment. The studies conducted by Lind were the basic influence for the curiosity that arose on the nutritional benefits of vitamins and their discovery in the human diet as well. Although he

was not the first to suggest the benefits derived from citrus fruits, he was the first to prove their benefits scientifically.

Qualitative use of epidemiological data was pioneered by James Lind. Lind's 'Treatise on the Scurvy' is one of the works that treats the epidemic in two ways; first, it shows its occurrence in naval environment and its causes; secondly, it gives an account of the recommendations made in the cases of the disease. The nature of using numbers studied from other naval expeditions gives Lind the closest definition to epidemiological study.

The comparative and controlled conditions used by Lind set the stage for medical qualitative use of clinical data. His support of the observation method as a primary way to evaluate data and remove any rubbish led Lind to his discovery of a way to distill the salty water from the sea. One of his observations brought to his attention the fact that the steam of salty water was fresh. However, the method was not used conclusively until the year, 1810 when stoves to heat water were developed (Milne, 2012). The studies conducted by Lind have led to modern key studies that follow deficiency diseases. The use of controlled environments for the exploration of deficiency diseases in the field of nutrition can be owed to James Lind.

John Snow

John Snow was born on March 15th, 1813 (Cameron & Jones, 1983). He was an English physician especially known for his contribution to anesthesia in medicine. Snow is most noted for his quantitative calculations on the use of chloroform and ether for use in surgical procedures. Particularly, Snow is considered for his pioneering work in epidemiology for his study of Cholera outbreak in Soho, London (Cameron & Jones, 1983). It is the study that contributed to the development of public water treatment and medical hygiene in general.

Consequently, Snow's major influence and cause of advancement in epidemiology was his discoveries on the spread of cholera. Snow was one of the people that looked to disprove that epidemics such as cholera and the bubonic plague were spread by the phenomenon of 'bad air'. In this way, Snow went into the study of the Soho outbreak by use of data collection methods such as interviews, with the help of the Reverend in the area, Snow was able to pinpoint the cause of the cholera outbreak as a public water pump on Broad Street. The studies at the time were not definitive enough to decide the pump as the cause but its discontinued use saw the outbreak reduce. However, Snow's use of the collected data to make a dotted map showed the outbreak's relation to the water pump. Further, the use of data was used to show the relation between the quality of water and how the outbreaks were occurring in the city (OSU, 2004). It was the statistical data that pinpointed a water company delivering sewer water.

The studies by Snow show key modern studies used to investigate water borne diseases and their occurrences. In a significant way, the key studies are also ones on sanitation and hygiene related diseases like dermatological fungi and its relations with water and sanitation. The risk factors associated with water, sanitation and general hygiene are the key studies established by Snow in the field of epidemiology.

References

Cameron, D & Jones, C. (1983). John Snow, the Broad Street Pump and Modern Epidemiology.

International Journal of Epidemiology: Vol 12(4). Oxford University Press.

OSU. (2004). *John Snow and the Cholera Epidemic*. Oregon State University Press.

Tröhler U (2003). James Lind and scurvy: 1747 to 1795. JLL Bulletin: Commentaries on the history of treatment evaluation. Available at:

<https://www.jameslindlibrary.org/articles/james-lind-and-scurvy-1747-to-1795/>

Milne I. (2012). Who was James Lind, and what exactly did he achieve. *Journal of the Royal Society of Medicine*, 105(12), 503–508. Available at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3536506/>

Morabia A. (2013). Epidemiology's 350th Anniversary: 1662-2012. *Epidemiology (Cambridge, Mass.)*, 24(2), 179–183. Available at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3640843/>

Graunt, J. <http://www.medicine.mcgill.ca/epidemiology/hanley/c609/Material/GrauntEoB.pdf>

WHO. (2017). Managing Epidemics. World Health Organization. Available at:

<https://www.who.int/emergencies/diseases/managing-epidemics-interactive.pdf>