

Healthcare Statistics: The Reason We're Here Today

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Abstract

This paper is about healthcare statistics centered on their usefulness, and the issues that arise from ignoring them or misinterpreting them. The purpose is to give awareness to healthcare statistics and inform audiences on what they are, and what I've found in my healthcare research. I have looked through numerous broadcasts from doctors, and read through research papers and articles written by doctors and authoritative businesses involved. These resources have been structured alongside my research on statistics and diseases to prove my statements, and inform respectfully. We live in an age where medicine is the best it's ever been, growing rapidly each day. An age where scientists today are considerably smarter than they were yesterday. Throughout the years we've heard of scientists making advances in the medical field, things that supposedly change our understanding of illnesses. The reason healthcare scientists can advance this profoundly is thanks to healthcare statistics. They aren't just for scientists though, they're bits of information available to the public, things that shouldn't be thought of half-heartedly.

The Detailing: What Makes Healthcare Statistics, Healthcare

Healthcare statistics, the backbone of medical research and the insurance for insurance companies. They're the numerical values of various forms of healthcare topics, and as described by MedlinePlus,

Health statistics are numbers about some aspect of health...the number of people who were in the hospital last year, the percentage of kids who are overweight, the rate at which people are catching the flue, the average cost of a medical procedure (MedlinePlus, 2017).

There are different types of healthcare statistics too, for instance there are "vital statistics", Medline's descriptions of examples and their uses is that they're,

Statistics about births, deaths, marriages, and divorces are sometimes called "vital statistics"...Researchers use statistics to see pattern of diseases in groups of people. This can help in figuring out who is at risk for certain diseases, finding ways to control diseases and deciding which diseases should be studied (MedlinePlus, 2017).

These vital statistics can be used to find "risk factors", these are the possibilities, or factors, of risk that help out scientists with different things. Things like the aforementioned decision making on what disease could be important enough to study. For the individual, this means vital statistics, the information that can be found in your medical history, can determine how at risk you are for certain illnesses. These healthcare statistics are evaluated by medical statisticians, and while their career may seem to focus on disease severity, they can be found working on much more. The American Statistical Association on statistical significance, informs that,

Symptoms that require patient reporting, such as pain and fatigue, are hard to measure. Statisticians are helping develop new efficient and consistent clinical measures for self-reported conditions (ASA, 2017).

So these statistics can be broad, consisting of many different healthcare fields, and help healthcare scientists in many ways. Not only that, but some of these statistics can be found being used to inform the public of something important, to prevent disasters. That is, if the public is willing to pay attention.

Public Uncertainty: What Does That Mean For Those Who Aren't A Scientist?

Why should this matter to you though? If these numbers are intended for researchers in the prime of their field, leave it for the professionals to use, right? While that may seem true impromptu, this idea is a heavily misguided mistake. Why is that? To see the importance of when your average non-scientist Joe understands healthcare statistics, look no further than Ohio against COVID-19. Almost daily during the pandemic, the Ohio Government casts a news broadcast detailing the current situation of the COVID-19 pandemic. These broadcasts feature Dr. Amy Acton, the director of the Ohio Department of Health. She concisely details her listeners of the scientific methods that scientists are using, so that listeners can better understand the situation. This accomplishes many things, such as reducing panic for listeners. Not only is being helpless to understand a dire situation terrifying, but not knowing what the people who can help are doing, is worse. Being educated on the methods that scientists are using puts you at ease, and creates a well-informed populace. These methods that Dr. Acton educates, are ones of healthcare statistics. During a chosen broadcast, Dr. Acton tells citizens of the state,

I'm saying large numbers to you and I know it's scary, eight-thousand cases a day, ten-thousand cases a day...Those numbers are helpful to our planners, but for the rest of us, what it's saying is that we are flattening the curve in Ohio (Acton, 2020).

Dr. Acton adds onto this statement, eulogizing citizens that because of their social distancing and understanding the stay home order, COVID-19 is rapidly decreasing in the state.

Every action you're taking at home is changing how hard that storm will hit and changing when and where it will hit. So the actions you're taking at home are shrinking those numbers (Acton, 2020).

The Ohio government and public's attentiveness of these vital statistics and risk factors, has put the state of Ohio in a position of leverage in the pandemic. Later on and in reference to the eight-thousand to ten-thousand disease cases per day, Dr. Acton says,

Those numbers would have been fifty to seventy-five percent higher than they are right now. Our curve would've been much steeper had we not acted (Acton, 2020).

This means that a backhanded "someone else will understand and fix this" mindset on healthcare statistics, would have left Ohio in a devastating place. A place we've seen before.

Negligence and Misunderstanding: The Downfall of the Overconfident

Ignorance is what gives virulent diseases their power, and ignorance can come in many forms. Throughout disease history, nothing has impacted humanity more than the ignorance of healthcare statistics. In 1918 a pandemic had struck the U.S with the virus known as the Spanish

Flu. In an article written by Doctor Nancy Tomes, that focused on how the US handled the virus and it's relevancy in current years, she states,

In 1918, the virus was still a little-known branch of the germ family. Researchers could prove the existence of infective particles far smaller than bacteria but could not yet isolate them nor conclusively show their connection to specific diseases (Tomes, 2010).

Due to germ theory being relatively new at the time, scientists and the government were unequipped with the statistics necessary to understand the severity of an influenza virus, or how it worked to begin with. An estimated 670,000 lives in the US were taken by this virus due to our lack of knowledge. This number could've been much lower if scientists used the healthcare statistics from an earlier outbreak that the public had ignored. In the earlier year of 1889 an influenza pandemic occurred in Russia, and from an article detailing the events of the 1889 Russian Flu, the author Greg Daugherty writes,

From America's vantage in 1889, the Russian Influenza posed little cause for concern. So what if it had struck with a vengeance in the Russian capital of ST. Petersburg that Fall, infecting as much as half the population? Or that it had raged swiftly westward across Europe, into the British Isles (Daugherty, 2020).

The statistics detailing the virus' infection rate and spread were in clear view for the U.S during a time where research could've been done early. Instead though, Tomes tells us that,

Although well aware, thanks to an already extensive transoceanic telegraph cable system, that the Russian influenza was headed their way, public health departments did little preventive work in advance of it's arrival (Tomes, 2010).

The U.S had been overconfident, ignoring any risk factors as well. Eventually this virus did end up in the U.S. Despite taking thousands of lives, some officials were still ignorant to it's risks, saying that,

Overall, "the patients were about as sick as a person with a bad cold," according to one newspaper account (Daugherty, 2020).

What's important to note, is that scientists were still using the miasma theory during this time and ridiculed germ theory. However, after the 1889 influenza struck the U.S, scientists began looking at the statistics of it's spread. What they found was that the rates of the virus' spread, actually disproved miasma theory. Meanwhile germ theory had already considered these statistics. As Tomes mentioned before, the 1918 Spanish Flu struck when germ theory was a newly trusted concept. And from a history article written by Guest, they write,

Advocates of the miasma theory persisted until the first decades of the 20th century, although the clearly infection nature of the Russian flu had won the vast majority round to germ theory. But without steps taken to combat it or understand how it spread, this wasn't enough (Guest, 2020).

Due to scientists ignoring the risk factors associated with the Russian flu and the statistics that had proved germ theory, disease research was unable to advance far enough before the Spanish flu pandemic struck. The severity of this ignorance becomes more apparent by the lack of medicine that scientists had time to develop after the Russian influenza, where Guest had found that,

Many of these remedies, from the useless to the poisonous, remained in use when the Spanish flu arrived in 1918 (Guest, 2020).

Scientists were left without the statistics necessary to prevent, or take necessary precautions against the Spanish Flu pandemic. The public had no time to understand viruses, something that could've been done if healthcare statistics weren't continuously ignored for years.

Conclusion:

So, let's recap on everything that's been covered. After researching different branches of research papers, history recounts, and broadcasts from doctors such as Dr. Amy Acton and Dr. Tomes. Healthcare statistics are the mathematical and numerical values of things like mortality rates for diseases before an outbreak begins. When these numbers are not provided, either by government or scientific overconfidence, a deadly virus can and will infect millions of lives and cause tragedy like the Russian and Spanish influenza. However, when the public has access to these statistics and the education necessary, such as Ohio during COVID-19, disaster is avoided. What the history of the Russian and Spanish flu shows us, is that negligence of these statistics cause dire consequences. Germ theory was first conceived back in the 1850s, and held the statistical evidence to support how diseases can spread. However, scientists ridiculed germ theory and ignored those risk factors available to them for years. Then once again during the Russian Flu, scientists ignored the statistics of disease spread that germ theory had theorized 40 years ago, as it happened in front of them. With even just 20 years of germ theory research, almost every question we had about diseases were solved. And not long after the Spanish Flu, we would understand viruses. Imagine what scientists could've done with 40 years of virus research ahead of the Russian Flu, and 60 years ahead of the Spanish flu.

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