

Psst, hey kid...here is a secret grown up truth, a proven fact, not an idea, or a theory with no proven data, a fact that we adults know all about but don't tell kids. Going out in the rain will not give you a cold. You will get wet, and you may get cold but you will not catch a cold. Colds and flu are caused by germs not by cold weather. Going out into the rain without a jacket may be a dumb idea but it will not make you sick.

The idea that bad weather makes you sick is even older than your parents. Back before we understood germs. 150 years ago, the thought that washing your hands could keep you from getting sick was nuts. Back then, most people figured washing exposed your skin to all the funky stuff, dirt was actually blocking it all out and protecting you. Germs were not a thing yet. Well, of course that is not quite right. They were a thing but no one understood them.

As a refresher, let's flash back to the middle of the 1800's (1850).

- That was before cars and before anyone had electricity but after everyone knew about it.
- Back in the mid nineteenth century almost no one had water in their homes or a bathroom¹
- That was about the time San Francisco goes crazy when someone finds gold.²
- We had trains all over the place but no way to travel across country without a horse³
- The civil war was something everyone worried about but it was still about 10 years away.⁴
- Over in Europe; The Eiffel Tower was being built in Paris⁵.
- By the end of the 1800's Sherlock Holmes was super famous because of the books by A. Conan Doyel.⁶

1854 was not a good time to be in England. It was an especially bad time to live in the west end of London called Soho, because people are dying all over the place of a cruel and painful disease called Cholera. More than 10,000 people died in that single year throughout London, but the Soho neighborhood was the worst of all the bad places.⁷

Cholera is a nasty, yucky, terrible disease. It's the kind of sickness that makes you leak in all the places that people should not leak, and you keep leaking until you are so dehydrated that your body stops working. Imagine the worst flu you ever heard of, then remember that this one kills you in the end.⁸

Doctor Johnathan Snow was working to stop Cholera. He had been the oldest of nine kids and had watched two of his siblings die from the disease. Having people in your family die from Cholera was not special back then. In the 1800's everyone in London knew or was related to someone that had been killed by Cholera. But John took those deaths personally, because he loved his family, but also because those deaths happened when he was training with some physicians to try and stop this plague. He felt responsible. He was young, super smart, and working with all the right people. The disease had won, and John was not a good loser. Doctor J. was also not a quitter; he continued to study and he kept careful notes on every outbreak of the Cholera anywhere in Europe. By the time he was in his late twenties he was a celebrity doctor, he had deliver two of Queen Victoria's nine babies⁹, and knew lots of important people. So he was pretty certain he was a cool guy. Not a lot of people liked him, but John kind of thought that was because he was so much cooler than all of them.

The good Doctor Snow's big ego did not keep him from caring about stopping Cholera. Doctor J. had been following Cholera around the globe for almost 10 years and he had a theory. Everyone thinks Cholera is in the air and the smell of all the funk and ick in the streets and alleys. There was a logic in that thinking. Back in the 1850's all that leaking and disease ends up running through the streets and into the gutters because people don't have indoor plumbing. So the streets filled with the same nasty stink people associated with Cholera. The worse the smell the more people were dying.

A hypothesis is an idea, an idea with no proof.

Everyone *thinking* something does not make it right or true. Evidence does.

The good Doctor J had his own hypothesis. He said, it's not an air borne diseases. He thought it was in the water. He just couldn't prove it. By Johns thinking, air moves around, even in Foggy London, so if you're breathing, and you are in England, then you will be getting sick, and that is not what they are seeing. The gloom of the sickness clusters in small groups. Like kids around a water foundation on a hot day. Doctor J tried to argue with his peers but without evidence, he just had an idea, no better than theirs. What Doctor J needed was data.

While the small group of well-educated doctors argue over hypotheses; people were still dying right and left in England and it was still both sad and scary. If the other scientist types were right and Cholera is in the air then it was just a matter of time before you breathed wrong. Their idea was not crazy or dumb; there are many illnesses that are airborne. Soho is lower than much of the land around it so it is often trapped in fog when the rest of the area is not. All of these facts seemed like evidence that proved the airborne Cholera kooty theory. (That was not what they called the hypothesis but I like it and their all dead so I can use it.)

Because of their fear and their belief in the airborne Cholera kooty theory, In the winter of 1854 no one wanted to go near Soho, or even the west end of England for that matter. However, the pompous Dr. John Snow went for three reasons, he believed he was right, he believed his idea was important and to get people to listen he needed data. So, what did he do? The good doctor went door to door, at night in the shivering, dripping stench on the west side of the Foggy Bottom (a nickname for London)¹⁰

Doctor J walked streets that literally had dead bodies piling up on the curb. Until he had knock on every single door, talked to every single resident, and marked two things on his map: how many people died in each house and where those people got their water.¹¹

I want to write that again, because its important you think about that.

A well-known and rich man went to one of the poorest and most dangerous parts of the city in the middle of winter and late at night. This was not part of his real job. He had to do it after he was done being a doctor at the hospital. Every one of his smart and articulate friends thought that was going to get him killed either by some 19th century thug or because he was walking through and around and over the stench and yuck and decay that was kill off everyone. If the good doctor Snow was not afraid, and by afraid I mean scared to death, every time he did that, he would have been an idiot, and as he would have told you himself he was no fool.

After about three weeks of walking and knocking Dr. Snow had gathered enough data that it was easy to see that everyone that drank from one well was dying and those that had not, were not. He took his data to the authorities. It was clear at that meeting that the people in charge did not like the good Dr. Snow, but his data was real and important. It proved that in the winter of 1854 the closer you lived to the Broadwick street water pump the more likely you were to get Cholera. That same day the authorities took the handle off the pump so no one could use it again. That handleless water pump is still on Broadwick Street in Soho England today.¹²

We cannot say that Snow cured Cholera with his data. There is no data to prove that, In fact about 110,000 people still die every year from the disease.¹³ Clean water does not come out of the faucets in some parts of the world the way it does here. What we can say is that back in 1856, Dr. John Snow believed in himself and his theory enough to ignore the fear, danger, and doubts of others so that he could getting real and specific data on a problem that was killing people. As a result of that the good Dr. Snow saved thousands of lives and what is maybe even more important he sent science looking into how find and kill virus before we swallow them.

1. When did most homes get running water?
2. When did the San Francisco gold Rush start?
3. When was the first cross-country (trans-continental) rail road build?
4. When did the US civil war start?
5. How old is the Eiffel Tower?
6. When was the first Sherlock Holmes book published?
7. Was there a Cholera epidemic in England in 1854?
8. What are the Symptoms of Cholera?
9. How many children did Queen Victoria have?
10. Where is the "foggy Bottom"?
11. Did Doctor John Snow have a map?
12. Where is the handle of the water pump on Broadwick Street in London?
13. How many people die of Cholera every year?