

Team Number: GADMS113

School Name: Gadsden Middle School

Area of Science: Epidemiology

Tuberculosis outbreak

Problem definition

Tuberculosis (TB) is an infectious disease that affects your lungs. Bacteria is spread from one person to another through tiny droplets released into the air via coughs and sneezes. Tuberculosis infections began increasing in 1985, many strains of tuberculosis resist the drugs most used to treat the disease. The CDC recommends that people who have an increased risk of tuberculosis be screened for latent TB infection.

- People with HIV/AIDS
- IV drug users
- Those in contact with infected individuals
- Health care workers who treat people with a high risk of TB

People with TB never get cured, it may become Latent TB but they will have to be treated forever and hope that they don't become antibiotic resistance.

<https://www.mayoclinic.org/diseases-conditions/tuberculosis/symptoms-causes/syc-20351250>

Problem Solution

Problem

The slnova project will be designed to determine what number of a population (100 thousand, 200 thousand, 300 thousand, 400 thousand) that will be affected at an outbreak rate (high number of infected or dying) based on a number of people within that population infected. 8 million people, New York City has an annual tuberculosis case rate of 11.4 per 100,000

<https://www.clinicalcorrelations.org/?p=2450>

Solution

The research will show how many can be infected before CDC and the medical field need to make Courantyne rules or public awareness to prevent the disease from continuing to infect the

population. Also when to vaccinate children with bacillus Calmette-Guerin (BCG) vaccine because it can prevent severe tuberculosis in children.

<https://www.mayoclinic.org/diseases-conditions/tuberculosis/symptoms-causes/syc-20351250>

Progress to date

In the slnova program, there is a population slider is called healthy spawns the people that are healthy. There is a population slider called virus it spawns the people that have the virus. There is a transmission rate slider for people that get the disease and has a recovery rate slider for the agents that recover. We are currently getting the data from running different numbers infected increasing by increments of ten infected for different populations; one hundred thousand two hundred thousand three hundred thousand four hundred thousand. We will use the data in an excel data graph to determine when it would become an epidemic.

Team Members

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