

New Mexico Supercomputing Challenge
Final Report

Team 34

Jackson Middle School and Sandia High
School

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Executive Summary

Small Cell Lung Cancer (SCLC) is a rare type of cancer that takes place on the bronchi of the lungs. SCLC is a cancer in which malignant(cancer) cells form in the tissues of the lung, It initially starts in one lung and spreads semi rapidly to the other lung and eventually other parts of the body. In most cases the cancer will have already spread by the time you notice the side effects. About 10% to 15% of lung cancers are Small Cell Lung Cancer. The most common causes of the cancer are tobacco and exposure to radiation. There are 2 stages of SCLC. One is limited, limited is the stage means that the cancer is only one side of the lung. It can be treated with a single radiation field. The extensive stage is when the cancer has spread to other parts outside of the initial lung it started in.

Statement of the Problem

We are trying to figure out how the cancer cells and healthy cells act around each other in a lung of an average male. We chose a male because men get this SCLC is more common in men. About two thirds of the patients have an extensive stage of the cancer before being diagnosed with the cancer. 32% patients have about a year to live once they have been diagnosed.

Method

Our problem was based on past events that took place in our lives. We both have had someone close to us have cancer and it

has affected our lives. We found things that we both have in common and made a list. The one that stuck out to us the most was the topic of cancer. We chose a lung because it's a smaller organ to examine. We used NetLogo to model our question. We are planning on finding out the reaction between healthy cells and sick, cancerous cells.

Verification and validation

We have emailed several scientists and experts on the topic asking about cancer cells and how fast it grows. We have also asked them about the differences between a normal cell and a cancer cell. We have gone onto to hospital websites that study SCLC. We have also emailed with Mrs. Sue Gibbs concerning our programming and figuring out how to try new bits of code so it will run smoothly.

Results of our Study

Our project is still in progress. We have been trying to find the growth rate so we can make as fast as cancer would usually spread.

Conclusions

We have no conclusions to make because our program and research isn't done yet.

Software

This is our programming

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Cites

This website shows the different ways the cancer is treated and found

<http://www.lung.org/lung-disease/lung-cancer/resources/facts-figures/lung-cancer-fact-sheet.html>

This site shows the statistics of men and woman

<http://www.cancerresearchuk.org/about-cancer/type/lung-cancer/treatment/statistics-and-outlook-for-lung-cancer>

Achivements

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Thank you to