

Infectious Disease Research Project

I. Introduction

Infectious diseases are important in all of our lives. In this project, you will focus attention on a specific infectious disease with the goal of determining the underlying cause of the disease, what the microbe does to our bodies, how we treat the disease, and how social, economic, and political factors affect our ability to deal with the disease.

II. Rationale

A. Upon completion of this project, the successful student will demonstrate:

1. a detailed understanding of the disease interaction between the human body and a pathogenic microbe;
2. an ability to effectively communicate complex scientific information;
3. effective personal time management, organization, and study skills;
4. the ability to work effectively as part of a small group.

B. The specific learning objectives involve mastery of concepts presented during the course. They include demonstration of comprehension of the: history of our knowledge of the disease; causative agent of a disease; cellular (or acellular) anatomy of the pathogenic microbe; immune response; drug treatments or other medical interventions; sociological, economical, and/or political factors that influence our ability to deal with the disease.

III. Project Format

A. Disease Assignment

1. You will decide the disease that you are to study. Clear with teacher.
2. You will work in a team of **2-3 students**.
3. As a team, you will perform a search of the literature (books, magazines, news media, scientific journals, internet) to learn about your assigned disease.

B. Group Work

1. Each member of your group is expected to make a significant contribution. However, each group member is also responsible for ALL of the information. Thus, the final project should have complete information, regardless of whether or not group members are absent
2. At the end of the project, each group member will complete a group evaluation form that will describe the contribution of each person to the overall team effort.
3. The overall contribution of each individual will be used to modify the overall project grade.

**Thus, different team members may end up with different grades for the project.

IV. Project Products

A. Written Report

1. Your team will submit one written report that details all of the info about your disease.
2. COVER SHEET must have a title with the name of the disease and must have the names of all group members.
3. TEXT (main body of info)—at least 3 double-spaced, single-sided pages, 12 point font.
 - a. Must describe all aspects of the disease that are itemized in the Project Content section.
 - b. As much as possible, the text should be written in the words of the team members. Use direct quotes only when absolutely necessary (be sure cite properly)
4. LITERATURE CITED
 - i. Any information that is not common knowledge (either directly quoted or paraphrased) must be credited to the proper source.

B. Infectious Disease Fact Sheet (due on same day as the written report)

1. Fact sheets may not exceed one single-sided page.
2. Fact sheets must be completed using the attached template

V. Project Content

A. What is the causative agent of the disease? Is it a bacterium, a virus, a poison, or a eukaryote? What is it and how does it occur?

B. History: How long have we known about this disease?

1. Describe the changes in our knowledge and attitudes toward this disease throughout history.

C. Epidemiology: Describe the prevalence and transmission of this disease.

1. Where (in the world) is the disease prevalent? How many people are currently infected? What is the rate of new infections? What are the rates of morbidity and mortality?
2. What is (are) the reservoir(s) of the pathogen? What is (are) the mode(s) of transmission?

D. Pathology: Describe the pathogenic effects on cells, tissues, and organ systems.

1. Where in the body (what tissues/organs/cells) does the pathogen affect?
2. What damage does the pathogen inflict? How is this damage inflicted (is there direct mechanical damage? is a toxin produced? does the immune response cause damage?)
3. What is the time sequence of the disease (length of incubation, illness, decline, and convalescence)? Do they repeat?
4. What are the major signs and symptoms?

E. Response and Treatment

1. Describe the activity of our immune system against the pathogen.
2. What types of medical treatments exist? Describe how these treatments affect the progression of the disease.
3. Describe prophylactic measures that can be taken to limit the risk of infection.

F. Socio-politico-economic

1. Describe any historic or present day social, economic, or political issues that either help or hinder us in limiting the spread of the disease.
2. Suggest policies and practices that can be employed to help with limiting the spread of the disease. For each policy and practice, describe what will be needed (what we have to sacrifice) in order to properly implement the proposal.

Infectious Disease Fact Sheet (what to include) on one page (catchy appearance)

- Team Members:
- Name of disease
- Name of causative agent
- Type of microbe (bacteria vs virus)
- Epidemiology
- Geographic prevalence
- Average rates of infection
- Main transmission mode(s)
- Pathology
- Major tissues/organs affected
- Major signs/symptoms
- Main treatment methods
- Typical length of treatment