Welcome to Homework 1 Part A. This site contains the instructions and reference information you will need for the activity. Answers may not be submitted electronically. Answer the questions on paper and turn in the assignment in class on the due date.

In this activity you will be asked to create graphs. Use the graphing software of your choice (Microsoft Excel, for example).

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**Angola**

- Total health expenditure per capita: $52
- Health expenditure as percentage of GDP: 3.6%
- Out-of-pocket percentage of health expenditure: 44.1%

**CIA FACTBOOK (2003)**
- Population: 10,766,471 (July 2003 est.)
- GDP per capita: $1,600 (2002 est.)
- Life expectancy at birth: 36.96 years
- Infant mortality rate: 193.82 deaths/1000 live births
- Fertility rate: 6.38 children born/woman (2003 est.)
- People living with HIV/AIDS: 350,000 (2001 est.)

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**Australia**

**CIA FACTBOOK (2003)**
- Population: 19,731,934 (July 2003 est.)
- GDP per capita: $27,000 (2002 est.)
- Life expectancy at birth: 80.13 years
- Infant mortality rate: 4.83 deaths/1000 live births
- Fertility rate: 1.76 children born/woman (2003 est.)
- People living with HIV/AIDS: 12,000 (2001 est.)

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Instructions: The following pages list health information and statistics for twelve countries. Select “Go to countries” to view the data. Select “Go to assignment page” when you are ready to proceed. You will be able to return to the data pages while answering the assigned questions.

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**Click on a flag to view information on each country**

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Back to instructions | Go to assignment page
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View sources and links
Botswana

WHO STATISTICS (2000)
- Total health expenditure per capita: $358
- Health expenditure as percentage of GDP: 6.0%
- Out-of-pocket percentage of health expenditure: 11.0%

CIA FACTBOOK (2003)
- Population: 1,573,267 (July 2003 est.)
- GDP per capita: $9,500 (2002 est.)
- Life expectancy at birth: 32.26 years
- Infant mortality rate: 47.14 deaths / 1000 live births
- Fertility rate: 3.27 children born / woman (2003 est.)
- People living with HIV/AIDS: 330,000 (2001 est.)


Brazil

WHO STATISTICS (2000)
- Total health expenditure per capita: $631
- Health expenditure as percentage of GDP: 8.3%
- Out-of-pocket percentage of health expenditure: 38.5%

CIA FACTBOOK (2003)
- Population: 182,032,604 (July 2003 est.)
- GDP per capita: $7,600 (2002 est.)
- Life expectancy at birth: 71.13 years
- Infant mortality rate: 31.98 deaths / 1000 live births
- Fertility rate: 1.46 children born / woman (2003 est.)
- People living with HIV/AIDS: 610,000 (2001 est.)

"Under the Canadian constitution, health care is a provincial responsibility; the federal role is limited to health care financing, health protection, and environmental health. Universal health insurance, administered by provincial governments on a shared-cost basis with the federal government, covers inpatient and outpatient hospital care, and medical services and drugs in some provinces. Prescription medication is available to patients at a flat fee.


Cameroon

WHO STATISTICS (2000)
- Total health expenditure per capita: $55
- Health expenditure as percentage of GDP: 4.3%
- Out-of-pocket percentage of health expenditure: 66.3%

CIA FACTBOOK (2003)
- Population: 15,746,179 (July 2003 est.)
- GDP per capita: $1,700 (2002 est.)
- Life expectancy at birth: 48.05 years
- Infant mortality rate: 70.12 deaths / 1000 live births
- Fertility rate: 4.63 children born / woman (2003 est.)
- People living with HIV/AIDS: 920,000 (2001 est.)

"The most important institutions in the German health care system are the approximately 1,100 statutory sickness funds. About 90 percent of the population are members of either public or voluntary sickness funds or publicized family members of mandatory sickness funds, which operate as nonprofit statutory corporations. In addition, all private insurance companies offer health insurance. The services to be reimbursed by statutory sickness funds are defined by law.


Germany

WHO STATISTICS (2000)
- Total health expenditure per capita: $2,754
- Health expenditure as percentage of GDP: 10.6%
- Out-of-pocket percentage of health expenditure: 10.6%

"The most important institutions in the German health care system are the approximately 1,100 statutory sickness funds. About 90 percent of the population are members of either public or voluntary sickness funds, which operate as nonprofit statutory corporations. In addition, all private insurance companies offer health insurance. The services to be reimbursed by statutory sickness funds are defined by law.


China

WHO STATISTICS (2000)
- Total health expenditure per capita: $205
- Health expenditure as percentage of GDP: 5.3%
- Out-of-pocket percentage of health expenditure: 60.4%

CIA FACTBOOK (2003)
- Population: 1,286,975,468 (July 2003 est.)
- GDP per capita: $4,400 (2002 est.)
- Life expectancy at birth: 72.20 years
- Infant mortality rate: 25.26 deaths / 1000 live births
- Fertility rate: 1.7 children born / woman (2003 est.)
- People living with HIV/AIDS: 850,000 (2001 est.)


Canada

WHO STATISTICS (2000)
- Total health expenditure per capita: $2,534
- Health expenditure as percentage of GDP: 9.1%
- Out-of-pocket percentage of health expenditure: 15.5%

CIA FACTBOOK (2003)
- Population: 32,207,113 (July 2003 est.)
- GDP per capita: $29,400 (2002 est.)
- Life expectancy at birth: 79.83 years
- Infant mortality rate: 4.88 deaths / 1000 live births
- Fertility rate: 1.61 children born / woman (2003 est.)
- People living with HIV/AIDS: 55,000 (2001 est.)

"The most important institutions in the German health care system are the approximately 1,100 statutory sickness funds. About 90 percent of the population are members of either public or voluntary sickness funds, which operate as nonprofit statutory corporations. In addition, all private insurance companies offer health insurance. The services to be reimbursed by statutory sickness funds are defined by law.


Answer the following questions. You will turn in your answers on paper at the beginning of class on the day the assignment is due.

1. Calculate the point prevalence of HIV/AIDS in the following countries: United States, Canada, India, Angola, Botswana.

2. Using data from all twelve countries, make a graph of life expectancy vs. health expenditure per capita. Include a title and labels.

3. Using data from all twelve countries, make a graph of infant mortality rate vs. health expenditure per capita. Include a title and labels.

4. Discuss any relationships or trends you observe in your graphs for #2 and #3. Do you observe any other trends in the data listed for the twelve countries?

5. What are some differences in the way the health care system is structured in the United States, Canada, and Sweden? What might be some advantages and disadvantages of each system from the perspective of a patient? A doctor? A college student?

Sources
Homework 1: Part 2

Health Problems in Developed and Developing World: Ages 0-4

Question 1

Regardless of geographic location or economic situation, diarrheal diseases occur far less frequently in neonates than in toddlers and older children. In one or two sentences describe some factors that may cause neonates to be less susceptible to diarrheal diseases.

Question 2

• There are 8 UN Millennium Development Goals (MDGs)
  • [Link: http://www.un.org/millenniumgoals/]
  • Lecture Two focused on goal 4: Reduce Child Mortality. However, many of the MDGs are closely linked. Please select three other MDGs and provide a sentence or two for each explaining how achievement of those goals will also help reduce child mortality.

Question 3

Read the provided excerpts from the CDC news bulletins regarding the recent E. coli outbreaks.

Question 3

Update on Multi-State Outbreak of E. coli O157:H7 Infections From Fresh Spinach, October 6, 2006

NOTE: This document is provided for historical purposes. The content of this document has not been revised since its original release and therefore may no longer be up to date.

As of 1 PM (ET) October 6, 2006, Friday, 199 persons infected with the outbreak strain of E. coli O157:H7 have been reported to CDC from 26 states. Among the ill persons, 102 were hospitalized and 31 developed a type of kidney failure called hemolytic-uremic syndrome (HUS). One hundred forty-one were female and 22 were children under 5 years old. Among those who provided the date when their illnesses began, 80% became ill between August 19 and September 5. The peak time when illnesses began was August 30 to September 1 -- 31% of persons with the outbreak strain became ill on one of those 3 days. Three deaths in confirmed cases have been associated with the outbreak. One was in an elderly woman from Wisconsin. Yesterday, Idaho confirmed that stool samples from a 2-year-old child with HUS who died on September 20 contained E. coli O157 with a “DNA fingerprint” pattern that matches the outbreak strain. Today, Nebraska reported the death of an elderly woman with an illness compatible with E. coli O157 infection who consumed raw spinach; E. coli O157 with the outbreak strain DNA fingerprint was detected in the remaining spinach. Maryland is investigating a suspect case in an elderly woman who died on September 13 and had recently consumed fresh spinach. E. coli O157 was cultured from her stool, but DNA fingerprinting has not been possible. E. coli O157 was isolated from 13 packages of spinach supplied by patients living in 10 states. Eleven of the packages had lot codes consistent with a single manufacturing facility on a particular day. Two packages did not have lot codes available but had the same brand name as the other packages. The “DNA fingerprints” of all 13 of these E. coli match that of the outbreak strain. Read the provided excerpts from the CDC news bulletins regarding the recent E. coli outbreaks.

Question 3

Multistate Outbreak of E. coli O157 infections, November-December 2006

NOTE: This is the last planned daily web update on this outbreak. This outbreak was clearly linked to Taco Bell restaurants in the northeastern United States. As of 12 PM (ET) December 14, 2006, Thursday, 71 persons with illness associated with the Taco Bell restaurant outbreak have been reported to CDC from 5 states: New Jersey (33), New York (22), Pennsylvania (13), Delaware (2), and South Carolina (1). States with Taco Bell restaurants where persons confirmed to have the outbreak strain have eaten are New Jersey, New York, Pennsylvania, and Delaware. (The patient from South Carolina ate at a Taco Bell restaurant in Pennsylvania.) Other cases of illness are under investigation by state public health officials. Among these 71 ill persons, 53 were hospitalized and 8 developed a type of kidney failure called hemolytic-uremic syndrome (HUS). Illness onset dates have ranged from November 20 to December 6. The peak time when persons became ill was in the last week of November. There have been no illnesses with onset within the past 5 days among identified cases, including suspects; therefore, the outbreak has ended.
Question 3

a. Using the what you have learned about quantitative health measures and the data provided please calculate:
   i. The incidence rate of hospitalization, hemolytic-uremic syndrome (HUS), and the fatality rate based on the population of persons who were infected in each of the two outbreaks (Spinach and Taco Bell).
   ii. Compare the rates between the two outbreaks. Identify any differences between the two outbreaks and provide an explanation.

b. Using the state specific data provided for the fresh spinach outbreak:
   i. Calculate and plot the incidence rate for each of the eleven states in the table (those with five or more reported cases) based on the total population in each state. Please remember to title your plot and use appropriate scales and axis labels.
   ii. Does your plot suggest any trends or disparities when compared to the color coded US map, which highlights states based solely on the number of reported cases?
   iii. If contaminated spinach was being sold in a developing country (perhaps in Sub-Saharan Africa) as opposed to a developed country, do you think the regional pattern and number of cases in an E. coli outbreak would be different? How and Why?