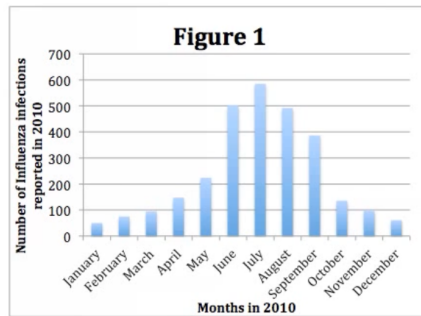


### Passage 1

The influenza virus was first clearly described by Hippocrates nearly 2,400 years ago. It did not receive the name, "influenza," until 1703, when it was referred to as such by J. Huger of the University of Edinburgh. The virus is typically spread through the air by coughs or sneezes that create aerosols of the virus and can survive longer on cool surfaces. Today the influenza virus is known more commonly as, "the flu." Several of the more common strains of influenza are H1N1, H2N2 and H3N2. Vaccinations against the various strains of influenza are usually made available to people in developed countries. However, it is still prevalent in non-developed countries and is responsible for the deaths of between 250,000 and 500,000 people each year.

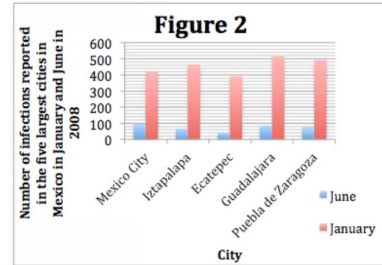
#### Study 1

In 2010, a temporary ban on influenza vaccines was instituted in Australia in response to extremely negative reactions in children under five years old. Scientists reviewed records to determine the number of influenza infections that were reported in Australia in 2010 and then marked their findings by month (see Figure 1). It is often noted that official records underestimate the number of people infected each year, because numerous people do not report their infections to hospitals or clinics. In a developed country such as Australia, for every person who has reported an infection, as many as five times as many people may actually be infected in the local population.



#### Study 2

The influenza virus is most prevalent during the winter months of the climate in which it is located. In 2008 scientists analyzed the number of people who reported infections of the H1N1 strain in the five largest cities in Mexico. These cities include Mexico City, Iztapalapa, Ecatepec, Guadalajara and Puebla de Zaragoza. The analysis was taken in the months of January and June. January is considered to be representative of the winter months while June is considered to be representative of the summer months. The results of the findings are shown in Figure 2.



1. Researchers at the World Health Organization (WHO) estimate that for every person infected with the Influenza virus in a developed country, there are 350 more people at risk for contracting the virus. Given the results of Study 1, how many people would have been at risk for becoming infected with the influenza virus in Australia in June 2010?

- A. 35,000
- B. 140,000
- C. 175,000
- D. 210,000

2. The comparison of reported influenza infections in Mexico in 2008, as indicated in Figure 2, shows that relative to the number of people in Mexico City infected with the flu in January, the number of people infected with the flu in Guadalajara in June was approximately:

- A. half as much
- B. one-fifth as much
- C. twice as much
- D. five times as much

- 
3. According to the data in Figure 1, the greatest increase in reported influenza infections in Australia occurred between which two months?
- A. March and April
  - B. May and June
  - C. June and July
  - D. August and September
4. One factor that may play a role in the transmission of the influenza virus is that cold temperatures lead to drier air, which may dehydrate mucus, preventing the body from expelling the virus effectively. Would the presence of dry air directly affect the transmission of the virus?
- A. Yes, because the influenza virus is typically transmitted as an aerosol.
  - B. Yes, because the influenza virus is typically transmitted through touch.
  - C. No, because the influenza virus is typically transmitted as an aerosol.
  - D. No, because the influenza virus is typically transmitted through touch.
5. Which of the following hypothesis was most likely tested in Study 2?
- A. The number of reported cases of influenza infections in Mexico is greatest during the winter and least during the summer.
  - B. The number of reported cases of influenza infections varies significantly between Mexico and Australia.
  - C. Influenza infections affect significantly more people in certain cities in Mexico than in other cities.
  - D. Most cases of influenza infections are not reported to medical authorities in Mexico.
6. Given the information in Figure 2, which of the following might explain the difference in reported cases of influenza infections in major Mexican cities between January and June of 2008?
- A. The influenza virus can survive longer on cooler surfaces and the air temperature in June is often warmer than in January.
  - B. Those diagnosed with the influenza virus in January are able to recover by June.
  - C. The influenza virus can survive longer on cooler surfaces and the air temperature in June is often cooler than in January.
  - D. The influenza virus often infects more people in Mexico during the summer season than during the winter season.