DISEASE DETECTIVES

Description:

Epidemiology uses science to study disease, injury, health, and disability in communities. This study involves: reasoning skills, such as those used by "disease detectives;" comparison of risks (the chances of becoming sick or injured); and surveys to help describe different groups of people (for example, kids in school classes and people in neighborhoods). The goal of the Disease Detectives event is to have students understand connections between things they may encounter in daily life and various health problems that affect communities, risks for disease/injury, and opportunities for prevention. The event will also help students to understand general categories of causes of diseases and injuries.

Number of Participants: 1 or 2

Approximate Time: 50 minutes

The Competition:

1. The contestant or team (if 2) will move to different stations. Each station has an object, which may present a risk or prevention opportunity for disease or injury.
2. At each station, participants will perform various activities, such as:
    a. identifying and writing the disease or injury problem related to the object at the station.
    b. describing how the object might be used or modified to prevent the disease or injury problem in populations.
    c. identifying and describing routes of transmission of disease
    d. using simple calculations (e.g. addition and subtraction) to make comparisons or risk for different groups of people.
    e. interpreting a table or graph presenting data related to diseases or injuries.

Sample Problems:

Stations might include examples of an improper cooking techniques as a risk factor for food-borne infectious disease, a bicycle helmet as a preventive measure for injury, fatty foods as a risk for heart disease, a tobacco product as a risk factor for lung cancer, or a bar of hand soap representing effective prevention of person-to-person spread of infectious disease. The last station might include data for students who visit the zoo on a field trip: of 25 students who visited, 12 petted the lizard; of these, 8 became ill. Of the 13 students who did not pet the lizard, only one became ill. How would you present the risk of illness from petting the lizard? Students might compute risks (e.g. 8/12 vs. 1/13) or draw graphs to illustrate the comparison of risk.

Scoring:

Responses for each station with a commonly found item could include identification of the possible risk of use or exposure to the item and a possible means for prevention. Each identification station is worth 2 points (1 point for identification of the health problem, 1 point for description prevention). The final data station is worth 2 points (1 point for an appropriate risk comparison, 1 point for an appropriate written explanation).