

DISEASE DETECTIVES DRAFT RULES 17

1. DESCRIPTION: Participants will use their investigative skills in the scientific study of disease, injury, health, and disability in populations or groups of people with a focus on Food Borne Illness.
A TEAM OF UP TO: 2 APPROXIMATE TIME: 50 minutes
2. EVENT PARAMETERS: Each team may bring one 8.5"x11" sheet of paper that may contain information on both sides in any form and from any source along with two dedicated calculators of any kind. The sheet may not be contained in a sheet protector or have any annotations affixed but may be laminated.
3. THE COMPETITION:
 - a. This event combines a basic understanding of biological and physical agents that cause disease with an ability to analyze, interpret, evaluate, and draw conclusions from simple data and communicate results to peers. Participants should be able to distinguish between infectious and non-infectious health burdens.
 - b. A broad definition of health will be used for this event. Potential topics include health and illness (mental, physical, infectious, chronic, environmental, societal, genetic, injuries and health behaviors).
 - c. The event format may be exam-based, station-based, or a combination of both.
 - d. The level of questioning for B/C competitions should reflect the age-appropriateness for the two groups.
 - e. This event will include questions based on:
 - i. Study design and data collection, creating graphic displays of data, interpreting trends and patterns of epidemiologic data and communicating results.
 - ii. C Division only (<10% of test): May include recognizing and accounting for potential sources of error, direct and indirect rate adjustment, stratified analysis (e.g., Mantel-Haenszel test) and use of statistical methods to describe data and test hypothesis involving qualitative and quantitative data.
 - f. Participants will be given one or more descriptions of public health problems and be expected to:
 - i. Generate hypotheses and recognize various fundamental study designs.
 - ii. Evaluate the data by calculating and comparing simple rates and proportions.
 - iii. Identify patterns, trends and possible modes of transmission, sources or risk factors.
 - iv. Recognize factors such as study design/biases that influence results (more for Div. C less for Div B).
 - v. Propose interventions based on promoting positive health behaviors, eliminating or reducing risks of environmental exposures, or disrupting clearly identifiable chains of transmission.
 - vi. Translate results/findings into a public health/prevention message for identified populations at risk
 - g. Participants will also be expected to:
 - i. Define basic epidemiological and public health terms (e.g., outbreak, epidemic, pandemic, surveillance, risk, vector, fomite, zoonosis, etc.).
 - ii. Recognize various categories of disease causing agents & give examples of illnesses caused by each.
 - iii. Recognize and understand the differences among the major groups of infectious agents (e.g., viruses, bacteria, protists, fungi and animals).
 - iv. Recognize examples of various epidemiological and public health phenomena such as types of outbreaks and modes of transmissions.
 - h. Calculations and mathematical manipulations will be part of the competition. Data may be contrived or modified to make it appropriate for the age group as long as it does not radically alter results or interpretation.

- i. Process skills may include hypothesis, observations, inferences, predictions, variable analysis, data analysis, calculations, and conclusions.
 - j. Sample problems and resources may be found at www.soinc.org.
4. SCORING:
- a. Highest number of points will determine the winner. Selected questions may be used as tiebreakers.
 - b. Points will be assigned to the various questions and problems. Both the nature of the questions and scoring will emphasize an understanding that is broad and basic rather than detailed and advanced.
 - c. Depending on the problem, scoring may be based on a combination of answers, including graphs/charts, explanations, analysis, calculations, and closed-ended responses to specific questions.
 - d. Points will be awarded for both quality and accuracy of answers, the quality of supporting reasoning, and the use of proper scientific methods.