HOSA Mini Lesson: NERD ACADEMY

Objectives:
Upon completion of the NERD ACADEMY lessons, students will have sufficient knowledge of, and be able to:
Lesson 1:
- Describe the purpose of public health and provide examples of public health actions
- Compare and contrast the roles of a healthcare provider and epidemiologist in improving health
- Evaluate patterns of disease occurrence to differentiate among endemic, outbreak, epidemic, and pandemic levels of disease occurrence
- Describe the circumstances when a virus would be considered a novel virus and describe its role in emerging pandemics
- Track events over time and location to determine when NERD becomes a pandemic
Lesson 2:
- Define chain of infection Distinguish between direct and indirect transmission
- Discuss how prevention strategies can focus on different links along the chain of infection to reduce the spread of disease
- Use a model to illustrate a possible chain of infection for NERD Create evidence-based prevention strategies to reduce the spread of NERD
Lesson 3:
- Explain how biological, behavioral, and environmental factors can affect health outcomes
- Explain how a risk ratio quantifies the strength of an association between an exposure and a disease
- Describe the difference between biological, behavioral, and environmental risk factors
- Recognize the five key areas of the social determinants of health Identify risk factors for NERD
Lesson 4:
- Describe the purpose of public health surveillance
- Compare active, passive, and syndromic surveillance
- Explain a case definition and how it is used to determine what information is collected
- Identify key information to be collected in the surveillance of NERD
- Visually display surveillance data using a bar graph and an area map Identify patterns in data to draw conclusions about the distribution of NERD by age and geographic location over time
Lesson 5:
- Explain how data visualizations can be used to effective communicate public health data
- Create an epi curve using appropriate labels and scales f the x- and y-axes
- Describe the role of epi curves in identifying patterns in disease spread during an outbreak
• Identify four types of epi curve patterns: point source; continuous common source; intermittent common source and propagated
• Make inferences about outbreak scenarios by interpreting epi curve patterns
Lesson 6:
• Explain the different purposes of diagnostic and screening testing
• Describe the differences among polymerase chain reaction (PCR), antigen, and antibody tests
• Calculate incidence and explain how it can be used to identify public health problems
• Simulate antigen testing and interpret results to calculate NERD incidence
• Analyze results of simulated laboratory testing to make public health decisions
Lesson 7:
• Explain the role of case investigations and contact tracing in investigating outbreaks
• Distinguish among presymptomatic, symptomatic, and asymptomatic disease
• Explain the association among exposure, incubation period, and infectious period
• Use patterns in case and contact data to summarize the spread of NERD on a trace map
• Make evidence-based recommendations for self-isolation for a person with a case of NERD and self-quarantine for close contacts to help reduce the spread of NERD
Lesson 7:
• Explain the multistep process used to investigate an outbreak
• Describe how a case definition can be used during an outbreak investigation
• Discuss how different public health experts contribute to an outbreak investigation
• Explain how a line list can be used to organize outbreak investigation data
• Apply a NERD case definition to determine confirmed cases during a NERD outbreak
• Design a communication strategy and materials for different audiences during a NERD outbreak investigation

**Time:**
• The suggested time for each of the seven lessons is 75 minutes.

**Materials:**
• internet access to play video for each lesson
• Materials are provided for each lesson

**Instruction:**
1. Detailed instructions and videos for instructors are provided for each lesson

**Assessment:**
1. Knowledge checks are provided for each lesson.

**Standards:**
NCHSE
Infection Control
7.1.1 Explain principles of infection transmission.
   a. Identify classifications of pathogens
      • Bacteria

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• Fungi
• Parasites
• Protozoa
• Viruses

b. Describe characteristics of microorganisms
• Aerobic
• Anaerobic
• Non-pathogenic
• Pathogenic

c. Recognize chain of infection
d. Describe mode of transmission
• Common vehicle (air, food, water)
• Direct
• Healthcare-associated infections (nosocomial)
• Indirect
• Opportunistic
• Vectors
• Technology

In addition each lesson includes STEM connections & standards, Problem-based skills, Epidemiology & Public Health Core Competencies, National Health Education Standards, and Next Generation Science Standards

For additional Curriculum Crosswalks see CE Useful Tools