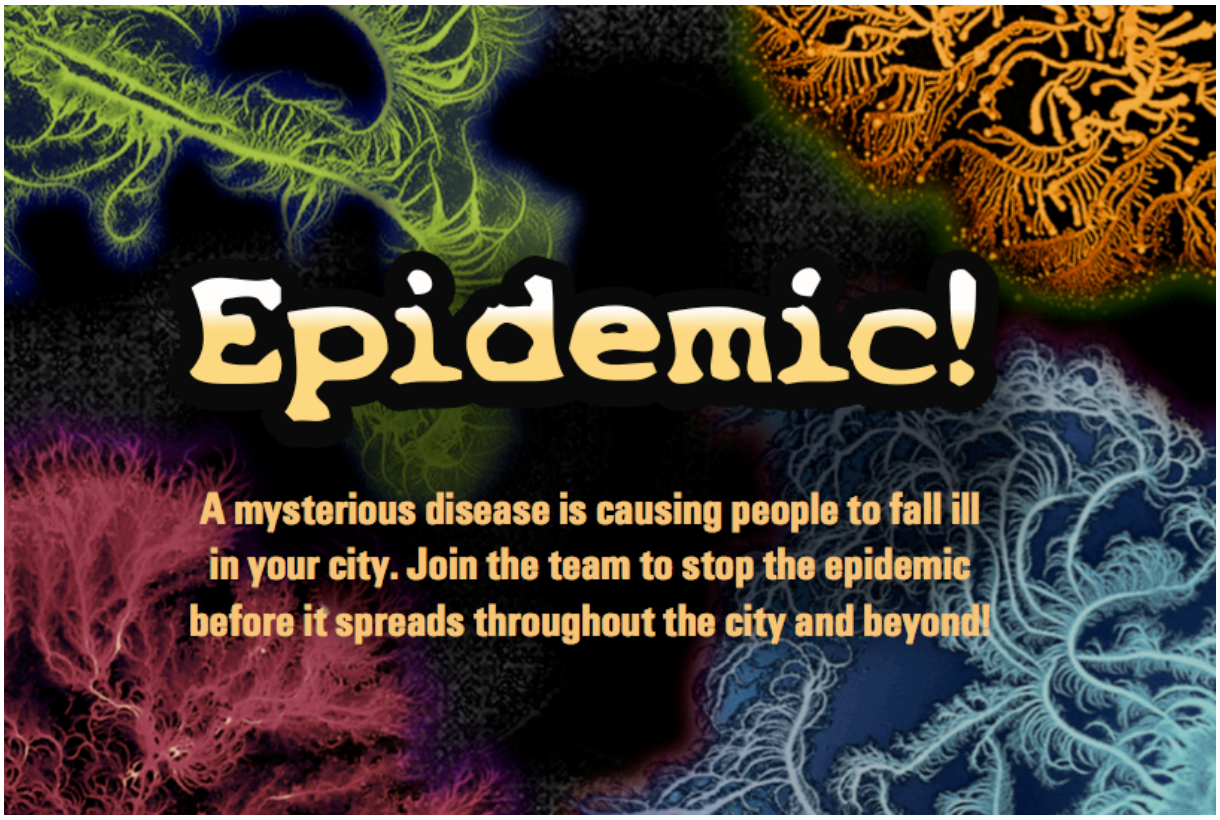

INSTRUCTOR'S GUIDE

Midwest Center for Lifelong Learning in Public Health

University of Minnesota School of Public Health

UNIVERSITY OF MINNESOTA
Driven to Discover℠

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The Epidemic! game and this Instructor's Guide were developed by the Midwest Center for Lifelong Learning in Public Health (MCLPH) and funded in part by grant #1UB6HP22822-01-00 from the Health Resources and Services Administration, DHHS, Public Health Training Center Program. Rhonda Jones-Webb and Jamie Stang, Co-Principal Investigators/Directors; Louise Stenberg, Grant Coordinator; Constance Pepin, Education Specialist. Game design and implementation by Eduweb.

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Introduction

The purpose of this Instructor's Guide is to suggest ways to use the online game *Epidemic!* in a classroom setting with groups of students working together to explore the world of public health. The Guide describes the game, explains how to play, and suggests learning activities to promote discussion among students that will build their interest in learning more about the field of public health as a possible career choice. Instructors can tailor these activities to meet their specific situation or needs.

Instructors are encouraged to play the game themselves before using this Guide. The game can be accessed online at www.epidemicgame.org.

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Game Description

Epidemic! is an online game designed to interest users in the field of public health. The game simulates actual tasks performed by a team of public health professionals during an epidemic. Each player chooses a role to play and then works with other players to stop the spread of the epidemic while facing realistic decisions and challenges.

The game is a compelling and effective way to:

- Educate people about the field of public health.
- Immerse players in a public health role during a realistic public health emergency.
- Illustrate tasks and functions performed by various public health professionals.
- Demonstrate the importance of collaboration among public health professionals.
- Engage people in exploring the field of public health.

Goal

The overall goal of Epidemic! is to educate people about the essential work performed by public health professionals as a way to motivate people to learn more about public health careers. During the game, the players' shared goal is to work together to stop the spread of a disease.

Audience

Epidemic! is suited for use by a range of ages and settings. The primary target audience for the game is young adults enrolled in community colleges and undergraduate degree programs. Secondary audiences include existing public health professionals who are interested in learning about emergency response roles and efforts during epidemics and other public health emergencies or who are interested in exploring other public health careers.

Learning Objectives

After playing the game, users will be able to:

- Describe the meaning and importance of public health.
- Identify several types of public health professionals involved in responding to public health issues.
- Cite examples of tasks or functions performed by various public health professionals.
- Recognize the importance of collaboration among public health workers.

Length of Play

Each game lasts from 30 – 60 minutes depending on the participation level of each player. During the game, players may need to wait for other players to complete a task before continuing, which illustrates the need for continuous collaboration among public health professionals during public health emergencies.

Delivery Platforms

Epidemic! requires Internet access and can be played on desktop and laptop computers, as well as tablet devices. The game is built with HTML and Javascript, and data for each game session is maintained on a server using PHP/MySQL.

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Disease Scenarios

The game focuses on an infectious epidemic spreading through a mid-sized metropolitan area. Each game is different due to the particular disease configuration as well as the element of chance in the gameplay. A disease scenario with several variables (such as source location, exposure symptoms, and control measures) is chosen randomly at the start of each game. The game progresses as the epidemic constantly tries to spread to more people and players work to understand and contain the disease while balancing individual health and safety with community health and safety. To stop the spread of the disease, players respond to the epidemic by collecting samples and information, analyzing data, making policy, educating the public, and addressing public concerns and needs.

Players/Roles

The game currently requires four people, with each player choosing one of four public health roles: community health educator (CHE), public health officer (PHO), epidemiologist (Epi) and environmental health scientist (EHS). NOTE: In early September, we will release a new version that allows fewer than four players, with a computer AI player taking on the remaining roles.

The game briefly describes the primary responsibility of each role as follows:

- PHO: Work with public health workers and government officials to stop the epidemic while minimizing public concern and social disruption
- Epi: Study the disease and analyze data to solve the mystery of the epidemic and recommend ways to stop it
- EHS: Help investigate the source and scope of the epidemic by collecting samples while keeping people safe
- CHE: Provide information and services to community members to minimize their concern and help prevent the spread of the disease

Gameplay

Starting the Game

To begin a game, one player starts a new game, chooses a role, and invites three other players to join the game. Then each player chooses from the remaining roles and selects an avatar image that will represent the player visually to other players during the game. The game configures the disease that players will encounter during the game.

Resource Chips

Each player is assigned an initial number of resource chips to complete tasks during the game. Individual player actions require resource chips to perform tasks; thus, individual actions during the game involve assessing the costs of using and sharing limited resources to achieve potential benefits and progress in the ongoing fight against the epidemic. Players are awarded more resource chips at the start of each round and can also request chips from other players if they run low. Players can also earn resource chips at the end of each round by answering optional demographic questions.

Rounds & Tasks

A game consists of several rounds shown by time passing during the outbreak and marked by each player's completion of one or more tasks during the round. Each round requires specific tasks for

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each player, and some tasks can be triggered by another player's actions. Players cannot advance to the next round of the game until all the tasks specified for each of the four roles are completed.

Public Health Officer tasks include:
- Setting team priorities and allocating resources
- Deciding goals for public service announcements
- Authorizing possible treatments for ill or exposed people

Epidemiologist tasks include:
- Studying the disease by analyzing samples and data
- Creating a symptom profile
- Identifying the source of the disease

Environmental Health Scientist tasks include:
- Collecting samples in the field
- Monitoring the triage shelter and other public places
- Keeping people safe from exposure to the disease

Community Health Educator tasks include:
- Educating people about the disease, risks and prevention
- Making public service announcements
- Connecting individuals with services and treatments

Metrics
As players use resource chips to complete their role-specific tasks, they observe the effects of their actions on various aspects of the epidemic, including:
- Cases: number of people showing symptoms of exposure to the disease
- Deaths: number of deaths caused by the disease
- Public concern: level of fear and concern shown by people during the epidemic
- Social disruption: extent to which the epidemic and control measures are disrupting routine activities and community life
- Epi-curve: visual depiction of disease cases and deaths over time during the epidemic
- Impact: measure of an individual player's overall effect on the epidemic

News Stories
As the game progresses, news stories are used to reveal the human and social impact of the epidemic on the community and region. These stories (using photos or videos) highlight the drama of the fight against the epidemic by showing the fear, disruption and danger caused by the disease.

Ending the Game
Epidemic! can end in two ways, as triggered by the slope of the epi-curve after 5 or 6 rounds:
- Success: the disease is under control. Education and control measures are working. (Trigger: epi-curve sloping downwards)
- Failure: the epidemic is expanding. Players fail to control the disease and another agency takes over control efforts. (Trigger: epi-curve sloping upwards.)

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How to Play

Users can access instructions by clicking "Help" in the right corner of each screen.

Follow these steps to play Epidemic!

Step 1: Register
Users are required to register to play the game, using an email address and setting a password.

Step 2: Access the game
After registering, users can access the game title page where they choose from one of three options: start, join a game or resume a game.

- Start a Game: invite people to play, by entering their email addresses, which triggers invitation emails sent to the people you invite.
- Join a Game: accept an invitation by supplying the game code sent in the invitation email.
- Resume a Game: rejoin a current game by entering the game code to resume play.

Step 3: Choose a role and avatar
Players first choose a role and avatar that will be used for the duration of the game.

Step 4: Review introductory screens
A series of introductory screens explains the game and the importance of Resource Chips, which players need to complete tasks.

Step 5: Complete tasks using resource chips
Users follow on-screen instructions to complete tasks based on their role and to learn what is done by the other players/roles. They can easily check for new tasks and move between their role's Home page to see their own tasks and the Team Home page to chat or monitor others' activities. There will be times when players are waiting for other players to complete their tasks. While they wait, they can follow news stories about the epidemic, or go to the Team Home page to chat with other players and read about other epidemics and pathogens.

Step 6: Celebrate success or try again!
Depending on the status of the team's progress in stopping the epidemic, players win or lose the game.

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Group Play/Classoom Activity Ideas

Epidemic! can be played by individuals or groups. In classroom settings, the game provides the opportunity to explore public health and the roles involved in emergency response in more detail. This section suggests some activities for use in classrooms to debrief and expand the learning experience provided by playing Epidemic!

Evaluating the Game Experience

Lead a class discussion about the students' experience of the game, with questions such as:

- Did your team control the epidemic?
- What do you think accounted for the result?
- Was the game realistic? Why or why not?
- What did you like best about playing the game?
- What would have made the game more realistic and compelling?

Exploring Public Health Roles

Divide the class into groups of four to play the games. After the game, students who played the same role form groups to discuss their role. Sample focusing questions include:

- What did you learn about this public health role by playing the game?
- What tasks did you complete?
- What was most interesting about playing this role?
- What other roles did you interact with?

Each group reports their answers to the whole class while the instructor leads a discussion.

Students can also be assigned to research the role they played, or to choose another public health role to research and report on during another class period.

Understanding Public Health

After the game, students discuss the meaning and importance of public health. Sample focusing questions include:

- What is public health? Why is it important?
- What did you learn about public health by playing the game?
- What interests you about public health?
- How did the various roles collaborate?
- Why is collaboration so important during public health emergencies?

Lead a discussion, suggesting other sources of information about public health.

Preparing for the Next Epidemic

Lead a class discussion about the students' knowledge about epidemics, with questions such as:

- What epidemics did you read about during the game?
- What epidemics have occurred in your lifetime? (when and where)
- What was the outcome? (control measures and consequences)
- What kinds of warnings are you aware of regarding possible future epidemics? (what kind)
- What do you know about our local public health emergency response system and how it is preparing to respond to an epidemic?

Students can also be assigned to research and report on emergency response efforts that occur during epidemics and other public health emergencies.

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Identifying Public Health Careers

After the game, brainstorm other roles in public health (beyond the four roles represented in the game) and the different settings in which they work. Emphasize the broad diversity of these jobs. Form small groups in which students identify their top three Public Health jobs that appeal to them, (e.g., using the worksheet in the Appendix to this Guide). Each group reports their answers to the whole class while the instructor leads a discussion about students' interests and the challenges and education requirements of various public health jobs.

Students can also be assigned to research and report on a specific career path and the educational requirements for the career.

Balancing Individual Rights with the Common Good

After the game, students discuss the balance between individual rights and the common good that arises during public health emergencies such as epidemics. Sample focusing questions include:

- How did the game show the tension/tradeoffs between controlling the spread of the disease while respecting individual rights (specific examples)?
- Why is a balance necessary during public health emergencies? (Why not control the epidemic regardless of disruptions or intrusions on the rights of individual members of society?)
- In what other situations is this balance necessary?
- How does society find the right balance?

Each group reports their answers to the whole class while the instructor leads a discussion.

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Additional Resources

http://www.whatispublichealth.org/careers/

Public health careers offer something for everyone. Epidemiology and biostatistics involve mathematics and modeling. Environmental health includes a wide range of science skills. Health administration incorporates business and management skills. Health education involves skills required to develop community-wide prevention programs. Health policy includes an understanding of law-making processes.

http://www.thisispublichealth.org

Public Health is Your Health. Most people don't understand what public health is or how it affects their daily lives. The "This Is Public Health" campaign was created by Association of Schools of Public Health (ASPH) to let people know that public health affects them on a daily basis and that we are only as healthy as the world we live in.

http://www.health.state.mn.us/pathways/index.html

Pathways to a Public Health Career is devoted to encouraging Minnesotans of all ages to consider pursuing a career in public health, by providing basic information about the field of public health, including information on education, job opportunities and stories from practicing public health professionals.

http://explorehealthcareers.org/en/field/11/public_health

Public health is the science and art of creating healthy communities through education, research, and promotion of healthy lifestyles. In public health, the focus is on health promotion and disease/ injury prevention; this is in contrast to the medical model of care, which focuses more heavily upon diagnosing and treating illnesses and conditions after they occur.

YouTube videos:

http://www.youtube.com/watch?v=Bpu42LmLo4U

http://www.youtube.com/watch?v=yKJ8ncu2k2g

http://www.youtube.com/watch?v=rIZ56OrLQ5k

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APPENDIX

Which public health jobs interest you?

Check the jobs you think you would most enjoy doing. Then number your top three jobs—as 1, 2, or 3.

☐ **Public Health Physician/Nurse:** Provide direct medical/clinical services; assess the health needs of individuals within the community; develop, implement and evaluate programs and interventions to prevent disease and illness and to protect the health of populations.

☐ **Local Health Official/Manager:** Plan, direct, and manage public health programs; supervise staff; enforce public health laws and regulations; oversee the use of resources; collaborate with community partners to improve population health.

☐ **Information System (IS) Specialist:** Collect and analyze data to evaluate the overall health of the community; identify knowledge management and data needs and apply information management science to improve health; provide vital records and statistics for the community.

☐ **Health Educator:** Plan, implement, and evaluate health education programs and interventions to encourage healthy behaviors and lifestyles; educate community members on health-related topics; conduct routine screenings and health assessments.

☐ **Administrative/Clerical Worker:** Provide support for health-related office, business, or financial operations; assist with internal and external communication, record keeping, and other essential administrative duties.

☐ **Community Health Worker:** Provide education, support and basic health care services by working directly with community members; assess health and identify members of specific populations at risk for disease or illness; serve as a link between people and healthcare services in the community.

☐ **Emergency Preparedness Coordinator/Worker:** Develop and implement emergency preparedness, response, and recovery plans for the community; communicate these plans so everyone is prepared to respond to emergencies, such as natural disasters (hurricanes, floods, earthquakes, tornadoes) and bioterrorism threats.

☐ **Environmental Health Scientist:** Control, prevent, and eliminate environmental hazards and evaluate threats through scientific investigation; collect and analyze samples (water, air, soil) to assess the environment.

☐ **Communications Specialist:** Communicate health information and alerts to the public and serve as a liaison to community groups, agencies, elected officials, and the media.

☐ **Environmental Health Specialist:** Monitor and enforce safety and health and safety standards and rules related to food, air, water, and waste management; inspect businesses and food establishments to eliminate hazards and ensure health and safety standards.

☐ **Epidemiologist:** Recognize and report outbreaks and illness in the community; track trends in population health status and disease; investigate the source or causes of health problems, such as foodborne illnesses.

☐ **Community Health Specialist:** Prevent illness and disease related to specific issues or concerns, such as diet and exercise, maternal and child health, diabetes, and asthma; develop and supervise programs that educate and empower people to make healthy decisions in the specialty area; conduct studies and surveys.

☐ **Social worker/Case manager:** Provide and monitor direct services in various settings to protect and improve the lives of individuals, families and groups; help people cope with everyday challenges and problems; identify people's health problems and other issues and refer people for treatment and services.

☐ **Global Health Specialist:** Identify, research, monitor, and address health threats and issues of global scope, such as reproductive health, HIV/AIDs and other infectious diseases, and health disparities; assess local health needs and resources; distribute vaccines and provide routine immunizations and basic services.

☐ **Other:**

☐ **Other:**

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