
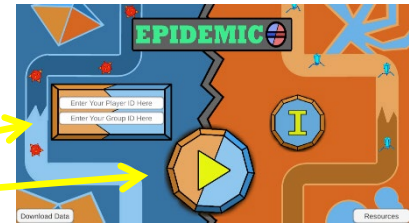


Epidemic Game Instructions:

Go to the website <https://stat2games.sites.grinnell.edu> and select the **Epidemic Tab**. Watch the video tutorial and then click the **Play Epidemic** button.

This site may take a few minutes to load.

- Enter a **Player ID** and a **Group ID**. Any combination of alpha-numeric characters will work. *Note that this ID will be public on the web*
- Click the yellow play button: 



This will bring you to the **Menu** page. There is a tutorial and five levels that can be completed within this game.

- Click on the blue land to complete the **Tutorial**.
- Then Click on the orange land to play **Level 1**.



Goal: Build medicine turrets that will stop the enemies from escaping each area.

Medicine effectiveness probabilities are constant within levels, but may change between different levels.



Build Turrets: Click on one of the locations and select the desired turret. In Level 1 you have three options, Red/Red, Blue/Blue, or Red/Blue. The turret color is related to the desired medicine (Med R or Med B) on the selection ring. While every shot will hit a virus, the likelihood of the virus being destroyed depends upon which medicine is used. *In some levels, you can select a turret and make additional modifications.*






Starting the Wave: On the bottom left corner, click on the **Start Wave** button to begin the wave. Watch to see if your choice of turrets can stop the enemies. The number and type of enemies for each wave are displayed when you hover over this button.



Enemies/Viruses: These need to be destroyed as they travel through each level. Different medicines will have different effectiveness against each virus. The effectiveness of each medicine may also vary by level.

Fast-Forward: Above the Start Wave button, the double-arrrowed symbol will play the game in fast-forward.

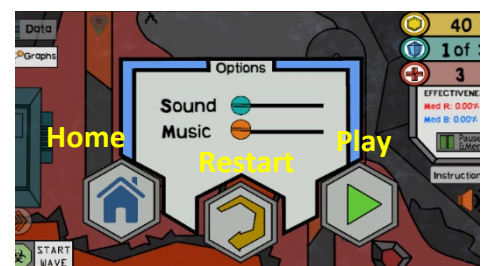
Funds/Waves/Health: The upper right corner panel indicates:

-  the amount of funds the player has left,
-  the current wave, and
-  the player's health points. Health is lost each time a virus is able to get past all the turrets.

Medicine Effectiveness: You can see the overall effectiveness of each medicine on the right panel. More detail can be seen in the data visualizations.

Data/Data Visualization: On the upper left corner of the screen, click on the desired button for a table-view or graph-view of the recorded data.

Pause/Menu: On the right side of the screen, click on the **pause/menu button** to pause the game and other select other menu options. After pausing, you can click on the **home button** to return to the map, the **restart button** to restart the level, or the **play button** to unpause the game.



Epidemic Variable Descriptions:

| Variable Name | Type | Description |
|---------------------------------|--------------|---|
| Game: | Integer | Each game is assigned a unique game number |
| Date | Date | The date and time the game was played |
| PlayerID | Categorical | Any alpha-numeric term used for each player |
| GroupID | Categorical | Any alpha-numeric term used for each player or group. Often instructors ask all students in the class to use the same GroupID |
| Potential response variables | | |
| Destroyed | Quantitative | The number of viruses destroyed |
| Funds | Quantitative | The fund available |
| Health | Quantitative | The health of the player after a certain wave |
| Potential explanatory variables | | |
| Level | Categorical | The level of the game (there is a tutorial and levels numbered 1 – 5) |
| Wave | Categorical | The waves in a level (most levels have 3 waves) |
| Location | Categorical | The location of the turret (some levels have up to 7 locations) |
| TurretType | Categorical | The type of turret on each location. Can be square or round |
| Upgrade | Categorical | Whether the turret is upgraded (0 indicates no and 1 indicates yes) |
| Medicine | Categorical | Type of medicine used in a turret |
| Count | Quantitative | The number of viruses in certain wave |
| Shot | Quantitative | The number of shots the turret takes in a wave |

Sample student handouts, instructor notes, and research activities are available here:

<https://drive.google.com/drive/folders/1UyMtxFthjD57UyssqUL1poXbmlRxl1ZM>

Potential Research Questions:

Which Medicine is most effective against each virus?

Which TurretType is most effective against each virus?

Which Turret Location is most effective against each virus?

Which Combination of Medicine, TurretType, and Location are most likely to win the game?