1 Introduction

Pandemic will be a turn-based game in which the user will be fighting a disease in order to try and save the world. It draws from both the board game and online game by the same names, but has several characteristics which make it distinct from both. Unlike the online game, in this version of Pandemic the player will be fighting against the disease rather than as the disease. And unlike the board game, there is only one disease; but it can mutate and become immune to treatments. There is also a financial aspect to the game; research and treatment requires money, but countries produce less as their population decreases.

The game will pit player against disease and time. With a good strategy, and a bit of luck, the player just may be able to stop the disease and save the world from succumbing to the pandemic.

2 Setup

When a game of Pandemic starts, the disease is in 3 countries. The countries will be based off of a Risk board, with some minor modifications (the United States will be one country, etc). The player, who works for the WHO in Pandemic, will start off in one of the countries with the disease, and will be informed of such. The player is investigating the disease (unaware that it is already present in other countries).

The world will begin at full economic output. Each country will contribute an amount of money to the WHO every turn. This amount will be equal to the percentage of population not infected times the base output for
that country. For example, a country with no infection will produce 100% of its potential output, but a country with 25% of the population infected will produce 75% of its potential output. If a country closes its borders, its economic output drops to $0.

3 Gameplay

Pandemic is a turn-based game. At every turn the player will make decisions such as allocating money to research or treatment, traveling to new countries, treating diseases, etc. A few key components to the game is how the disease will act, how the countries will act, money management, and the turn structure.

3.1 Disease

The mysterious disease will start in 3 countries. The player will be aware of one of the infected countries from the beginning. The other countries (and any that the disease spreads to) will remain undetected until the percentage of the population that is infected raises above a certain threshold. This level is referred to as the "detection level". Research will help to decrease the detection level, making it easier to detect the disease. The disease will also have a "spread rate". This is the speed at which the disease spreads within countries (raising the country’s infection level). Countries with higher infection levels will spread the disease to surrounding countries quicker. The spread rate will start off as the same for every country, but as time goes by the disease may spread faster in some countries than in others.

The disease also becomes resistant to treatment over time. The more times a treatment is used in a country, the more resistant to treatment the disease becomes in that country. This is why research into new treatments is necessary. Once a new treatment has been researched, the effectiveness of treatment is reset in all countries.

A percentage of those infected by the disease die each turn, but a percentage of them also recover. Those who recover are almost always outweighed by those who get sick again, so it isn’t really noticeable until the vaccine has been discovered.
3.2 Countries

The countries in Pandemic will each keep track of their own impact on the economy, infection level, "bleeding level" (how quickly the infection spreads to surrounding countries, based on infection level), and treatment effectiveness. The countries will increase their infection level based on the spread rate, and will be responsible for transmitting the disease to the surrounding countries. Once a country or its neighbors has reached a certain level of infection (unique to each country), it will close its borders. Closing borders will stop the transmission of the disease to and from other countries, but it will still continue to spread within the country that closed its borders (if the disease is already present). Closing borders will make the economic output of a country go to zero.

3.3 Money Management

A key part to winning the game will be managing the money effectively. The player will get income every turn from all of the countries of the world. The player can use this money to fund research towards a vaccine, administering the vaccine (once it has been unlocked), research towards new treatments, treatment of the disease in a certain country, or founding a research lab. Each research project will cost a certain amount of money, and the player can decide how much money to put towards each (or save for the future) each turn.

3.3.1 Vaccination

The vaccine is the best way to prevent the spread of the disease, but it comes at a high cost. Once the vaccine has been researched, it can be administered to countries. This will immediately make the spread rate and transfer rates go to zero in these countries, and people will begin to recover naturally. The administration of the vaccine also costs money and will not be easy, as one of the WHO officers must be in the country to administer it. Once the vaccination has been discovered, the WHO now understands enough to detect the disease at the earliest signs; so for the rest of the game the detection level will not be a factor.
3.3.2 Treatment

Treatment is a key way to contain the spread of the disease, but each time it is used in a country it costs money and the effectiveness of the treatment in that country decreases. Once a new treatment has been researched, the effectiveness of treatment will reset. But be careful, each new treatment is harder to find and costs more; so it is unwise to research a new one before it is needed!

3.3.3 Research Labs

Founding a Research Lab is a pricey endeavor, but can pay off in the end. For each Research Lab that is founded, the player gets one more WHO officer to help in the fight against the disease (how they help will be outlined in the next section), and a bonus to research for each turn after the founding. In addition to these benefits, the spread rate for the country in which the Research Lab was founded decreases, and players can move between Research Labs at a reduced cost.

3.4 Turn Structure

The turn in Pandemic will have 2 main sections: game events and player actions. Game events will be random events that the player cannot control, but will contribute to the current state of the game. Player actions is when the player will be able to move, administer treatment, and initiate research.

3.4.1 Game Events

Game events are random events at the beginning of the turn. They will often have a side effect on the game, which can be positive or negative for the player. For instance, the strains of the disease could mutate, making it harder to detect, spread faster, and set back research. Or perhaps there is a research breakthrough, making the disease easier to detect. These events will range in the severity of their consequences, but will all have some effect on the game.
3.4.2 Player Actions

The player actions section is where the player decides what to do for this turn. In this section, the player will decide how much money to allocate to either branch of research. The player will also be able to move any WHO officers and allow them to administer vaccines and treatments in any country they currently reside in. Each WHO officer will get 5 total actions per turn. Both moving from one country to an adjacent country (as described by the Risk board) and administering a vaccine/treatment count as an action. So moving to a new country and administering a treatment will count as 2 actions. This is where multiple WHO officers come in handy, as they each get 5 moves to go around and help stop the disease. Moving between two Research Labs counts as one move, no matter how far apart they are. Also worth noting is that Research Lab founding counts as a move, and can only be founded in countries where one of the WHO officers currently reside.

4 End Game Conditions

In the end, the only two outcomes are either the player was able to stop the disease and save humanity, or the player failed and humanity will become extinct. The player wins when there are either no infected countries or all countries with the infection have been vaccinated. If the latter is the case, the game will simulate the rest of the turns until the infection is eradicated so that the numbers on the score screen are more accurate.

The player loses if the total infected population reaches 80% at any given time, or if the population of the world falls below 30%. At that point, the world can no longer be saved from the disease, or can no longer recover from the loss.