HIV BATTLE GAME

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Glossary

**HIV cell** - A virus cell that infects and destroys T-cells. This virus eventually leads to the AIDS epidemic.

**T-cell** - A healthy cell that attacks and defends the body against viruses

**AZT** – an anti-HIV drug that gives T-cells strength to fight the HIV virus cells

**Clone** – A T-cell can be selected to divide into two complete T-cells

**Introduction**

This game has no commercial potential. Its purpose is to provide a tool for health professionals to communicate information about HIV by the using a game that illustrates the results of an HIV infection. The game follows the course of an infection by HIV cells attacking T-cells, and it allows some room for a player to delay the final outcome.

The game takes place inside a blood vessel (see figure 1) where HIV cells do battle with T-cells. HIV always wins. It is the time required for this outcome that a player can change. This time is used for scoring the game. By using a mouse to click on cells, the time can be prolonged. A click can either provide AZT protection to a cell or clone the cell. The game has several levels. Advancement to the next level is accomplished by keeping at least one T-cell alive for a period of 365 player days. With each new level the cells move faster and, consequently, they are harder to click on with the mouse.

Since this game takes place inside of a blood vessel, there are HIV virus cells that attempt to kill off the healthy T-cells. The game is intended to be an educational game for pre-teenagers. It will show the effects of HIV on the body. Any discussion of how HIV infection occurs is left to
parents. The game play is fairly simple. The object is to keep as many T-cells alive for as long as possible. The player’s task is to care for the T-cells, HIV viruses are out to destroy them at all times. The game has an unlimited number of levels and each level is progressively more difficult. On the left side of the screen, there are buttons that represent various options that can be chosen to aid the T-cells. One option will be an AZT medication. When that option is clicked, a T-cell can be protected from attack with the AZT. Left click the mouse with the pointer on a T-Cell this causes the cell to become stronger and resistant against the HIV cells. A shield around the cell represents the strength of a cell. Gradually, as a cell becomes older it does not respond as well to the AZT and the cell will eventually be destroyed or die after its lifespan has expired. The player also has the ability to clone existing T-Cells to increase the number of viable active T-cells. But the ability to clone and the supply of AZT are limited. Both will regenerate with time. The game's difficulty comes from using the various options in a strategic ways to ensure that the player makes it to the end of each level with at least one live T-cell.

This main objective of this game is to keep active T-cells alive. Each level starts with a fixed number of T-cells. These are not under the direct control of the player, the player acts as more of a caretaker for the T-cells. There are also an equal number of HIV virus cells. Each HIV virus cell has as its target a T-cell. The player has these two (probably more will be added later) options:

1. Dose an individual T-cell with AZT, a drug that protects them from viral attack. AZT will provide defense for the T-cell in the form of a force field. AZT becomes increasingly ineffective with dose so the level of shield regeneration from a dose of AZT decreases with each use.

2. Clone a T-cell. By clicking a T-cell in the game area a single T-cell can be selected to undergo cloning. This process takes 7 days and the result is two cells in the original location of the one cloned. One is the original cell and a brand new T-cell.

Both T-cells and HIV viruses will move independently of the player’s actions. HIV viruses actively seek to run into T-cells. If a HIV virus has a collision with its target T-cell the collision will decrease the shield power of that T-cell. If there are no shields remaining the T-cell will be destroyed. There will be a visible timer for each level that indicates the number of days that have passed since the level started. Each level lasts for a year, and a day is one second in real time. If at the end of a year the player still has live T-cells remaining the player graduates to the next
level. Each successive level the T-cells and the HIV viruses will seek out their respective T-cell with 10% more aggressiveness.

The TimeLine has levels that each last 365 days. A T-cell’s lifespan is 3 months. Every 14 days gives a new dose of AZT. Every seven days gives the ability to clone a T-cell. The cloning process takes seven days to complete. The shields drop by one level every 30 days.

A new level begins with the following: The force at which a HIV virus seeks its target T-Cell is increased by 10% of the original value, eight T-Cells and eight HIV viruses cells, T-Cells have a shield level of zero, user starts level with zero clone points, and the user starts the level with eight AZT doses.

Each HIV virus seeks out there respective T-cell and T-cells bounce off walls and HIV Viruses cells. T-cells randomly, wander very slowly if not bouncing off objects or walls. HIV viruses always look the same, but T-cells vary by shield strength and age:

- 0-30 days green
- 31-60 days yellow
- 61-90 days red
- 91 days they die

T-cells cannot clone before they are 30 days old. A dose of AZT increases a shields strength:

- 1 month old T-cell +3
- 2 months old T-cell +2
- 3 months old T-cell +1

The two buttons on the left of the screen are used to toggle between the AZT and the clone states. LED style digits next to these buttons show the number of clone points.
User’s Guide

Installation

1.1 System Requirements

   Windows 9x or later
   a. 512 MB RAM.
   b. 2 GHz or faster Pentium 4 processor.
   c. 1024 X 768 Monitors.
   d. 10 MB Free disk space.
   e. Sound Card.

1.2 Installation

   a. Place CD ROM in Computer.
   b. If CD does not open, go to My Computer and double click or CD.
   c. To run from CD click on HIV Battle folder.
   d. Find the folder “Doc 1” double click to run.
   e. To copy to hard drive copy entire CD to drive

Play

2.1 Double click on screen ICON.

2.2 Go to file menu and toggle mute for sound.

2.3 Click on Start button (See figure 1).

2.4 The mouse is used to interact with the game on screen.

2.5 The game starts with some HIV and some T-cells.

2.6 Once a T-cell is created, it cannot be cloned until it changes color.

2.7 A click on a T-cell (green) can produce a clone.

2.8 The buttons on the left of the screen determines the effect a click will have on a cell. 2.9 A click on a T-cell can provide protection from HIV cells (pink).

2.10 The HIV cells can be moved away from the T-cells with the mouse.
2.11 After a mouse click on the medication button on the left of the screen, a click on T-cell gives the cell a shield of protection.
2.12 The cloning process just increases the number of T-cells by one for each mouse click on the cell.
2.13 Clicking in an empty space may produce a new T-cell.
2.14 Cloning cannot occur right after a cell has been created, so keep clicking.

Scoring

3.1 The score is the time, measured in days, required for the HIV cells to destroy all the T-cells.
3.2 The score is displayed at the end of the game as well as continuously on the timeline at bottom of the screen.
3.3 The object of the game is to keep T-cells alive as long as possible.
3.4 The time increases by adding, cloning, or protecting T-cells.
3.5 A T-cell must get a mouse click before anything happens.
3.6 Speeding up the movement of the cells will create different levels of the game.

Strategies

4.1 Try to find whether it is better to first make clones of the T-cells or administer AZT to them.
4.2 Try to find the best combination of clone clicks and medication clicks on T-cells.
4.3 Best is defined as prolonging the game by keeping T-cells alive and thereby increasing the time of play.
4.4 When new T-cells form during play, the game has moved to a new level and the cells should move faster.
4.5 At higher levels, it should be harder to catch T-cells with the mouse to click on them.