

Guide to the Corrupted Blood Plague Documentation Collection

Collection created and described by

Jessica Smith
San Francisco, CA
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Stanford University Library

Descriptive Summary

Title:

Corrupted Blood Plague Collection, 2005-2011

Dates:

2005-2011 inclusive

Repository:

Stanford Digital Repository

<http://lib.stanford.edu/sdr>

Extent:

308 MB

Abstract:

On September 13, 2005 a plague was unleashed in the massively multiplayer online role-playing game (MMORPG) World of Warcraft (WoW). On that day, developer and operator Blizzard Entertainment released an update to the game which allowed players access to a new area within the virtual world called Zul'Gurub. Groups of 20 players would go into this "dungeon" and defeat a series of monsters, culminating in a battle against Hakkar the Soulflayer. During the fight, players would become infected with a disease known as "Corrupted Blood," which quickly spread to the other players fighting Hakkar. Blizzard intended Corrupted Blood to infect only upper-level players within the dungeon. However, through a loophole in the game, players, while still infected with the disease, were able to teleport out of the dungeon to more populated urban areas. Dangerous to the intended level 60 players, the disease was fatal to lower level characters. As players learned how to bring the plague to additional game servers, impacting millions of players, it caught the attention of the international news media and the scientific community. The Corrupted Blood Plague Collection documents the outbreak of the plague and the response to its spread by Blizzard, as well as the players, press, and scientific community.

The collection consists of digital objects, including images, videos, forum threads, blog posts, database entries, press articles, podcasts, and scholarly articles. Objects within the collection stem from three discrete time periods: prior to the outbreak (pre-September 13), during the outbreak (September 13-17), and post-outbreak (September 18-onward), with a majority of the objects falling into the latter category.

Administrative Information

Access:

Collection is open for research with no restrictions.

Accruals:

Additional materials may be added to this collection as discovered.

Publication Rights:

Use of the materials is governed by applicable copyright law.

Processing Information:

Files available via Internet Archive, unless otherwise noted.

Methodology:

– by Jessica Smith, 08/10/2012

Preservation of video games and virtual worlds focuses primarily on preserving the ability to play the game, using methods such as hardware and software preservation, migration, emulation, visualization or re-enactment. There is a growing emphasis on gathering materials from the developers and artists responsible for building the worlds. These methods, however, do not capture the interactive aspects of these worlds. Historian Timothy Burke (*Terra Nova*, “The History of Virtual Worlds,” December 2, 2006) argues that “the one thing that isn't in the proprietary data is the history of unusual or defining episodes or events in the life of particular virtual worlds.” These are the events that the people who play these games and inhabit these worlds will remember – but once they occur, there is often nothing in the code or within the virtual world that shows what has happened. Researchers are dependent on outside materials, created by players and the media, to document these events.

At the beginning of the collecting process, I wanted to determine as much as I could about how and when the event took place. I began searching by going to Blizzard's official World of Warcraft player forums, since I knew that any in-game help requests were probably not easily retrieved. I discovered no messages prior to 2010. When Blizzard transferred the official World of Warcraft website from www.worldofwarcraft.com to www.battle.net, they did not maintain the old forums or old patch notes. Therefore, all of the original postings by players regarding the initial outbreak of the Corrupted Blood plague were not publicly accessible. I searched through the forums using the Internet Archive's "Wayback Machine," but not every page was crawled and there is not a functioning search component, making it a time-consuming process that often ends in failure.

I contacted Blizzard via their publicly available email addresses to see determine if they maintained the original forums or any other related materials in their archives. These emails received no responses. I located a Blizzard librarian/asset archivist on LinkedIn and sent a private message requesting help. He responded, saying that he spoke with the “IT guys, and unfortunately it looks like when we replaced the old hardware that hosted the forums, the data from that time period was not preserved” (Personal Communication, July 18, 2012). Blizzard has nothing available to researchers in its records preserving the event, particularly not from a player point of view. Whatever they may have from the back end, they are not sharing. This highlights one of the problems of depending on gaming companies to preserve not only the games themselves, but also records of player interactions. As game companies have a history of being non-responsive to researcher requests, materials maintained by the companies are at high risk.

Without detailed information from Blizzard, I began to search internet forums used by gamers, as well as the forums of high-level guilds from servers mentioned in blog posts and news articles. Without being able to pinpoint particular servers and guilds, finding appropriate guilds on appropriate servers was a bit like searching for a needle in a haystack -- or rather, a thousand haystacks. Of the forums searched, many do not date back to 2005, can not be searched by non-guild members, or did not have forum posts beyond "there's a plague, check out this video/article." The collection includes some interesting forum threads that provide information about how players and the public reacted to the on-going plague.

Beyond forums, I searched for information/materials still available online. Even though the plague occurred less than ten years ago, significant documentation about it has already been lost. Rothenburg (1999) once quipped, "Digital documents last forever—or five years, whichever comes first" (as cited in Rothenburg, Section 2, "The Digital Longevity Problem"). Because these materials were not gathered immediately after the event (or even within five years), much relating to this event has already "disappeared" from the internet. Broken links and 404 error messages abound. Another big hurdle was trying to find items that were posted/screen capped during the very short period from Sept. 13 to 17, 2005. Unlike other events in digital games, there was no lead up to this event. It was a mistake or a "bug" and, as such, did not occur on every server. To give another example from WoW that occurred at a similar time -- when the first AQ gates were opened, there was a huge competition leading up to the opening. There were posting about which servers were ahead, updates about status, etc. When the AQ gates opened, thousands of players were on-hand to watch it happen -- there are 1,350 videos on YouTube alone documenting this event on each server and, without digging too deeply, five documenting it on the first server.

For the Corrupted Blood Plague, I have been able to locate six videos total. That is just people standing in the large cities and watching the carnage; so far, no videos have been located of someone actually bringing the infection from the instance into the cities. While gathering materials, I contacted several players who posted vidoes and images by email and private messages on various websites (YouTube, warcraftmovies.com, etc). I received one response, who did provide the original .avi files of his collection. However, the original vent recording of the event had been corrupted and the uncompressed video file no longer available. The difficulty in finding and gather materials shows the necessity of being proactive, as well as involving the player community directly in the collecting/preservation process. Many of the players who saw the plague in 2005 no longer play WoW or post on websites they once frequented. Had players been contacted immediately after, more material might have been uncovered.

One of the reasons the Corrupted Blood plague was chosen to build a collection was the interest by the non-gaming media and scientific communities. Several related news articles, as well as the scientific articles have been included in the collection.

For preservation purposes, the website URLs point to the files located on the web archive maintained by the Internet Archive. Many of the websites had been previously crawled; as many possible of those that had not were crawled using the Archive-It service provided by the Internet Archive and uploaded into the Virtual World and MOOs collection maintained by Stanford University's How They Got Game Project. Several websites, particularly those with videos, were difficult to crawl because of the robot.txt files. Most of these were blocked, allowing the page to be archived, but several could not be crawled. In these instances, as well as for YouTube videos, I have provided the original URL. In the future, these URLs will need to be updated to reflect permanent archival locations.

Corrupted Blood Plague Timeline

September 13, 2005:

Blizzard releases Patch 1.7 to World of Warcraft, opening Zul'Gurub, a new 20 man instance.

Between September 13-16*:

Plague begins spreading on the Archimonde server.

Between September 13-16*:

Blizzard establishes quarantines to stop the spread of the disease.

September 16, 2005, 4:26 AM PDT:

Player posts on WoW forum asking for information about a plague spreading through Orgrimmar on the Gorganash server.

September 16, 2005, 7:54 AM (unknown):

Faxmonkey records video of deaths due to plague in Orgrimmar on the Blackrock server.

September 16, 2005, 10:13 AM PDT:

Blizzard staffer Caydiem reports that Blizzard staffers are "aware of the issue and are working on it."

September 16, 2005, 8:40 PM PDT:

Blizzard staffer Tseric announces rolling restarts on all servers to combat the plague.

September 17, 2005, 4:00 AM PDT:

Blizzard begins rolling restarts for all realms to apply a hotfix, which alters the game so that "Hakkar's spell Corrupted Blood can no longer exist outside of Zul'Gurub."

September 17, 2005, 12:50 PM PDT:

Blizzard staffer Tseric posts to the official forums about the failure of the hotfix -- "It appears that the hotfix remedy concocted to combat the recent Azerothian outbreak has not yielded desired results. At this time, our medical staff is continuing to develop an effective cure. We look forward to ensuring the health and vitality of the citizens of Azeroth in the near future."

September 18-23, 2005:

In non-official forums, players report an end to the plague, despite the 09/17/05 post of 12:50PM.

September 19, 2005:

Game-related blogs begin reporting on the plague.

September 20, 2005:

G4TV's *Attack of the Show* posts satirical public service announcement asking "the gaming community to support those afflicted by the WoW plague."

September 22, 2005:

The BBC News Website reports on the plague.

October 5, 2005:

NPR's *All These Considered* reports on how the plague "has scientists considering how the virtual world may provide clues to what people would do in real-world pandemics."

October 10, 2005:

Blizzard released patch 1.8 which "Fixed a bug that would allow Hakkar's Corrupted Blood ability to target pets."

March 2007:

Ran Balicer publishes "Modeling Infectious Diseases Dissemination Through Online Role-Playing Games" in *Epidemiology*, Volume 18, Issue 2.

September 2007:

Nina Fefferman and Eric Lofgren publish "The untapped potential of virtual game worlds to shed light on real world epidemics" in *The Lancet*, volume 7, Issue 9.

February 28, 2011:

Nina Fefferman speaks at the Serious Games Summit of the Game Developers Convention on how "Hakkar's Corrupted Blood Plague: How an Outbreak in WoW is Helping Epidemiologists Create Better Disease Models."

*Not verified by primary sources.

Organization Information:

September 13, 2005 and prior:

Patch Notes and Zone Preview:

<http://web.archive.org/web/20051103054421/http://worldofwarcraft.com/patchnotes/patch-05-09-13.html>

Original patch notes for Patch 1.7 released on 9/13/2005

<http://web.archive.org/web/20051013060729/http://www.worldofwarcraft.com/info/underdev/zulgurub.html>

Official Blizzard Zul'Gurub Preview

<http://wayback.archive-it.org/969/20120810180640/http://www.youtube.com/watch?v=6ssO5NWj-7E>

Unofficial YouTube Account - official trailer for Patch 1.7 and Opening of ZG

Length: 2 min, 05 secs

Alternate URL: <http://www.youtube.com/watch?v=6ssO5NWj-7E>

September 13 – 17, 2005

Spell Details:

<http://web.archive.org/web/20051220020002/http://www.thottbot.com/index.cgi?sp=24328>
Corrupted Blood in Thottbot database, with player comments

Official Blizzard Responses:

<http://wayback.archive-it.org/969/20120810074157/http://blue.cardplace.com/cache/wow-general/4911738.htm>

“Corrupted Blood (Plague Spreading),” 9/16/2005 by Caydiem

<http://wayback.archive-it.org/969/20120810074158/http://blue.cardplace.com/cache/wow-general/4923205.htm>

“Rolling Restarts – All Realms,” 9/16/2005 by Tseric

<http://web.archive.org/web/20070530175718/http://blue.cardplace.com/cache/wow-general/4929988.htm>

“News of the Plague,” 9/17/2005 by Tseric

Videos:

Killing Hakkar

NA vs Hakkar.wmv

Nightmares Asylum (NA) video of killing Hakkar. Other videos available on their website:

Length: 9 min, 36 secs.

Size: 208 MB

Location: Videos Folder

Corrupted Blood Plague

<http://wayback.archive-it.org/969/20120810074157/http://www.youtube.com/watch?v=UA9gOcgllsw>

Alliance – Suramar server, creator: Slight, takes place in Ironforge

Length: 3 min, 16 secs.

Alternate URL: <http://www.youtube.com/watch?v=UA9gOcgllsw>

<http://wayback.archive-it.org/969/20120810074159/http://www.youtube.com/watch?v=uMbvzcLivug> -

Horde – BlackRock Server, creator: Xeta [Cry More Noobs], takes place in Orgimmar

Length: 2 min, 41 secs

Alternate URL: <http://www.youtube.com/watch?v=uMbvzcLivug>

<http://wayback.archive-it.org/969/20120810074201/http://www.youtube.com/watch?v=2S9H4wtlyxY>

Alliance – Crushridge server, creator: Contingency Guild, takes place in Ironforge (improperly

<http://www.nightmares-asylum-videos.com/files/classic/index.html> labeled as Volatile Infection;

screen battle text shows that it is Corrupted Blood debuff).

Length: 4 min, 07 secs

Alternate URL: <http://www.youtube.com/watch?v=2S9H4wtlyxY>

<http://wayback.archive-it.org/969/20120810074204/http://www.youtube.com/watch?v=sAEhyHiNdrA>

Alliance – Eldre-Thalas(US) server, creator: Shadvrinn, takes place in Ironforge

Length: 1 min, 22 secs

Alternate URL: <http://www.youtube.com/watch?v=sAEhyHiNdrA>

DoD - Corrupted Blood.avi

Horde – Spirestone server, created by Wyvers [Dawn of Death] (without guild vent audio, but with WoW interface and chat), takes place in Orgimmar

Length: 2 min, 24 secs

Size: 33.4 MB

Location: Videos Folder

Alternate URL: http://www.youtube.com/user/wyvers?feature=results_main

DoD - Corrupted Blood 2.avi

Horde – Spirestone server, created by Wyvers [Dawn of Death] (with guild vent audio), takes place in Orgimmar

Length: 1 min, 22 secs

Size: 19.7 MB

Location: Videos Folder

Alternate URL: http://www.youtube.com/user/wyvers?feature=results_main

502452a1_archive3_137_Hakkar Wins.wmv

Horde – BlackRock server, creator: FaxMonkey, takes place in Orgimmar

Length: 4 min, 09 secs

Size: 42.8 MB

Location: Videos Folder

URL: <http://warcraftmovies.com/movieview.php?id=7014>

Still Images:

WoW_Corrupted_Blood_Plague.jpg

Alliance – Ironforge

Size: 333KB

Location: Images folder

beforethefight0du.jpg

Alliance – Stature of the Gods guild, before Hakkar fight, 9/16/2005

Size: 193 KB

URL: <http://wayback.archive-it.org/969/20120810074157/http://sotg.sauft.org/viewnews.php?s=da92da94b7cdf9afa083cd82a377e644&start=69> 9/16/05

Location: Images folder

hakkardead8nk.jpg

Alliance – Stature of the Gods guild, after the Hakkar fight, 9/16/2005

Size: 212 KB

URL: <http://wayback.archive-it.org/969/20120810074157/http://sotg.sauft.org/viewnews.php?s=da92da94b7cdf9afa083cd82a377e644&start=69>

Location: Images folder

1f1d4862bd9ae920f15105b2192fd7fb_1M.png

Horde – Corrupted Blood

Size: 45 KB

Location: Images folder

zul-gurub-corrupted-blood-incident-world-of-warcraft-screenshot-5502.jpg

Horde – Corrupted Blood

Size: 112 KB

URL: <http://wow-screenshots.net/screenshots/view/zul-gurub-corrupted-blood-incident.html>

Location: Images folder

Forum Posts:

<http://wayback.archive-it.org/969/20120810074157/http://forums.nurfed.com/showthread.php?4553-Tell-a-friend-hakkar-plague>

Thread began 9/16/2005

<http://web.archive.org/web/20081026074617/http://www.gamerswithjobs.com/node/18825>

Thread began 9/16/2005

September 17, 2005 –

Videos:

<http://web.archive.org/web/20090321043635/http://wowaids.ytmnd.com/>
Player Response .gif

<http://wayback.archive-it.org/969/20120810074213/http://www.g4tv.com/videos/9495/world-of-warcrafts-victims/>
G4 TV's Attack of the Show, "World of Warcraft's Victims,"
Date: 09/20/2005
Alternate URL: <http://www.g4tv.com/videos/9495/World-of-Warcrafts-Victims/>

http://wayback.archive-it.org/969/20120810074157/http://cnettv.cnet.com/video-game-helps-track-disease/9742-1_53-50047614.html
CNET TV, CBS "Video Game Helps Track Disease,"
Date: 08/23/2007
Length: 3 min, 40 secs
Alternate URL: http://cnettv.cnet.com/video-game-helps-track-disease/9742-1_53-50047614.html

http://wayback.archive-it.org/969/20120810074206/http://www.youtube.com/watch?feature=player_embedded&v=u3eLSkUfw-M
24C3: Modeling Infectious Diseases in Virtual Realities, Florian
Creator: Florian Burckhardt,
Date: 2007
Length: 52 min, 12 secs
Related: 24C3 Burckhardt.pdf, located in PDF folder

http://www.gamefront.com/files/20053292/GDC_2011__Hakkar_s_Corrupted_Blood_Plague_Panel_Introduction
GDC 2011: Hakkar's Corrupted Blood Plague Panel Introduction
Creator: Nina Fefferman
Date: 2011
Length: 5 min, 01 secs
Size: 130 MB

Forum Posts:

<http://web.archive.org/web/20090210124514/http://www.metafilter.com/45220/WoW-Plague>
9/19/2005 on MetaFilter

<http://web.archive.org/web/20090331213813/http://forums.bit-tech.net/showthread.php?p=1068310>
9/19/2005 on Bit-Tech

<http://wayback.archive-it.org/969/20120810180642/http://forum.rpg.net/archive/index.php/t-218550.html>
9/19/2005 on RPG.net

<http://wayback.archive-it.org/969/20120810074157/http://www.gamehourz.com/Plague-ftopict85525.html>

09/20/2005 on Gamehourz

<http://wayback.archive-it.org/969/20120810074158/http://games.slashdot.org/story/05/09/20/1826236/world-of-warcraft-is-infectious/>

9/20/2005 on Slashdot

Websites:

Wikis:

http://wayback.archive-it.org/969/20120810074157/http://www.wowpedia.org/Corrupted_Blood_%28debuff%29

http://web.archive.org/web/20100209202510/http://en.wikipedia.org/wiki/Corrupted_Blood_incident

Blogs and News Articles:

2005-2006

<http://web.archive.org/web/20080517052645/http://ylogs.com/archives/virtual-disease-in-a-virtual-world>

Website: The Y Logs

Post: Virtual Disease in a Virtual World

Author: Yzabel

Date: 09/18/2005

<http://web.archive.org/web/20081026081106/http://www.joystiq.com/2005/09/19/plague-epidemic-terrorizes-wow-servers/>

Website: Joystiq

Post: Plague epidemic terrorizes WoW servers

Author: James Ransom-Wiley

Date: 09/19/2005

<http://web.archive.org/web/20100707103713/http://crystaltips.typepad.com/wonderland/2005/09/plaguelands.html>

Website: Wonderland: We <3 Games

Post: Plaguelands...

Author: Alice

Date: 09/19/2005

http://web.archive.org/web/20110722072044/http://terranova.blogs.com/terra_nova/2005/09/run_for_your_li.html

Website: Terra Nova,

Post: Run for your Lives!
Author: Dmitri Williams
Date: 09/19/2005

http://web.archive.org/web/20090415112042/http://www.theregister.co.uk/2005/09/21/wow_virtual_plague/

Website: The Register
Post: World of Warcraft plague 'swamps servers,'
Author: Tony Smith,
Date: 09/21/2005

<http://wayback.archive-it.org/969/20120810180644/http://www.mmorpg.com/newsroom.cfm/read/3648/World-of-Warcraft-Unplanned-Plague-Hits-WoW.html>

Website: MMORPG
Post: World of Warcraft : Unplanned Plague Hits WoW
Author: Jon Wood
Date: 09/21/2005
Alternate URL: <http://www.mmorpg.com/discussion2.cfm/thread/52453> (with comments)

<http://web.archive.org/web/20110613154339/http://pc.ign.com/articles/652/652849p1.html>

Website: IGN,
Post: World of Warcraft gets Plagued
Author: Tom McNamara
Date: 09/22/2005

<http://web.archive.org/web/20110508234403/http://news.bbc.co.uk/2/hi/technology/4272418.stm>

Website: BBC
Post: Deadly plague hits Warcraft world
Author: Mark Ward
Date: 09/22/2005

<http://web.archive.org/web/20101010084112/http://www.computerandvideogames.com/article.php?id=131791>

Website: CVG: Computer and Video Games
Post: Looking Back: World of Warcraft
Scope: interview with Blizzard producer Shane Dabiri and game designer Jeffrey Kaplan
Author: PC Zone Staff
Date: undated, first crawled in 2006.

<http://web.archive.org/web/20110708035222/http://www.securityfocus.com/news/11330>

Website: SecurityFocus
Post: Digital plague hits online game World of Warcraft
Author: Robert Lemos
Date: 09/27/2005

<http://wayback.archive-it.org/969/20090507204641/http://www.npr.org/templates/story/story.php?storyId=4946772>

Website: NPR

Post: 'Virtual' Virus Sheds Light on Real-World Behavior

Author: Laura Sydell

Date: 10/05/2005

Alternate URL: <http://www.npr.org/templates/story/story.php?storyId=4946772>

2007 –

<http://wow.joystiq.com/2007/06/24/wow-moviewatch-the-ironforge-plague>

Website: Joystiq

Post: WoW Moviewatch: The Ironforge Plague

Author: Elizabeth Harper

Date: 06/24/2007

<http://wayback.archive-it.org/969/20120810180643/http://news.bbc.co.uk/2/hi/health/6951918.stm>

Website: BBC

Post: Virtual game is a 'disease model,'

Date: 08/21/2007

<http://wayback.archive-it.org/969/20110809025623/http://wow.joystiq.com/2007/08/21/bbc-wow-behavior-can-predict-epidemic-patterns/>

Website: Joystiq

Post: BBC: WoW Behavior can predict epidemic patterns

Author: Elizabeth Wachowski

Date: 08/21/2007

<http://web.archive.org/web/20080420123743/http://www.time.com/time/health/article/0,8599,1655109,00.html>

Website: Time

Post: World of Warcraft: A Pandemic Lab?

Author: Laura Blue

Date: 08/22/2007

http://web.archive.org/web/20110722072020/http://terranova.blogs.com/terra_nova/2007/09/computational-s.html

Website: Terra Nova

Post: Computational Social Science and the Problem with Hakkar's Blood

Author: Dan Hunter

Date: 09/30/2007

<http://wayback.archive-it.org/969/20120810180644/http://wow.joystiq.com/2007/10/02/a-second-look-at-hakkars-corrupted-blood/>

Website: Joystiq

Post: A second look at Hakkar's Corrupted Blood,

Author: Amanda Rivera

Date: 10/02/2007

http://web.archive.org/web/20090528234201/http://www.escapistmagazine.com/articles/view/issues/issue_120/2549-World-of-Germcraft

Website: Escapist Magazine
Post: World-of-Germcraft
Author: Brian Easton
Date: 10/23/2007

<http://wayback.archive-it.org/969/20120810074157/http://lorehound.com/news/top-5-most-memorable-events-in-mmorpg-history/>

Website: Lorehound
Post: Top 5 Most Memorable Events in MMORPG History,
Author: LHStaff
Date: 12/04/2007

http://wayback.archive-it.org/969/20110508203733/http://www.wired.com/gaming/virtualworlds/news/2008/03/wow_terror

Website: Wired
Post: World of Warcraft Shines Light on Terror Tactics
Author: David Their
Date: 3/20/2008

http://web.archive.org/web/20110606064729/http://www.gamasutra.com/php-bin/news_index.php?story=18571

Website: Gamasutra
Post: GFH: The Real Life Lessons of Wow's Corrupted Blood
Author: Kyle Orland
Date: 05/20/2008

<http://www.webcitation.org/5tbD2NeVO>

Website: Times Online
Post: World of Warcraft plague halted by Blizzard
Author: Murad Ahmed
Date: 10/28/2008
Scope: about the "Undead Plague"

<http://wayback.archive-it.org/969/20120810074157/http://killscreendaily.com/articles/outbreak/> -

Website: Kill Screen Daily
Post: Outbreak
Author: Jamin Warren
Date: 04/18/2011

<http://wayback.archive-it.org/969/20120810074157/http://wow.joystiq.com/2011/07/26/wow-archivist-the-corrupted-blood-plague/>

Website: Joystiq
Post: WoW Archivist: The Corrupted Blood plague
Author: Alex Ziebart
Date: 07/26/2011

Scientific Articles:

24C3 Burckhardt.pdf

Title: 24C3: Modeling Infectious Diseases in Virtual Realities, Florian

Author: Florian Burckhardt,

Date: 2007

Size: 1.39MB

Related: http://wayback.archive-it.org/969/20120810074206/http://www.youtube.com/watch?feature=player_embedded&v=u3eLSkUfw-M

s14733099077021283.pdf

Journal: Lancet Infectious Diseases, 7(9): 625-9

Title: The untapped potential of virtual game worlds to shed light on real world epidemics

Author: Eric T Lofgren, Nina H Fefferman

Date: 09/2007

Size: 811KB

<http://wayback.archive-it.org/969/20120809183943/http://www.slideshare.net/nfefferman/games-for-health-08-nhf/>

Website: Slideshare

Title: World of Warcraft Corrupted Blood Disease: Epidemiological Observations and Findings

Author: Nina Fefferman

Conference: Games for Health '08

Date: 2008

VirtualEpidemiology(1).pdf

Journal: Epidemiology 18(2): 260-1

Title: Modeling Infectious Diseases Dissemination Through Online Role-Playing Games

Author: Ran D. Balicer

Date: 03/2007

Size: 216 KB