



A history of zombie epidemics: implications for epidemics today

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Kent State University



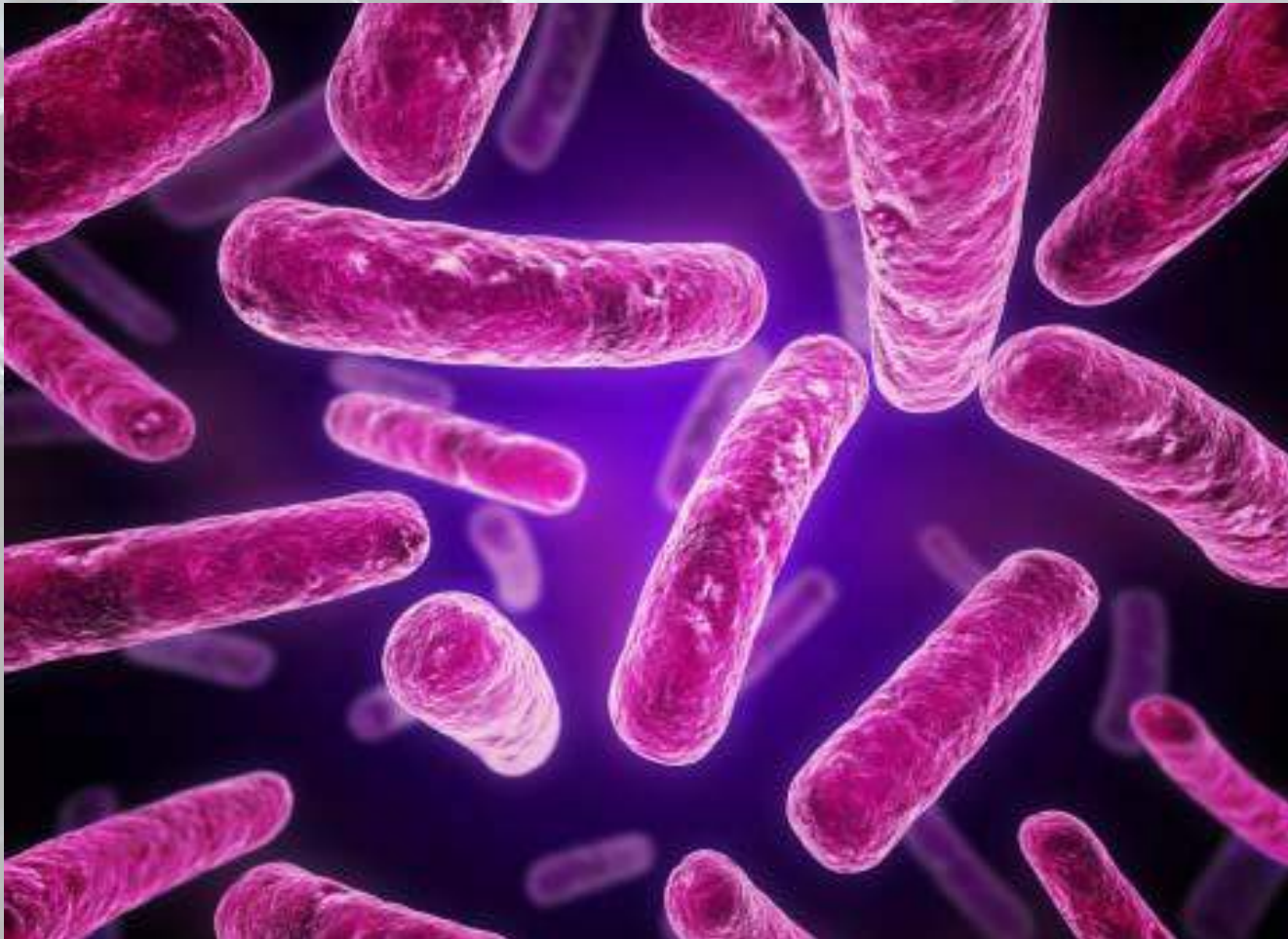
Spoilers...and things

Deep history of zombies



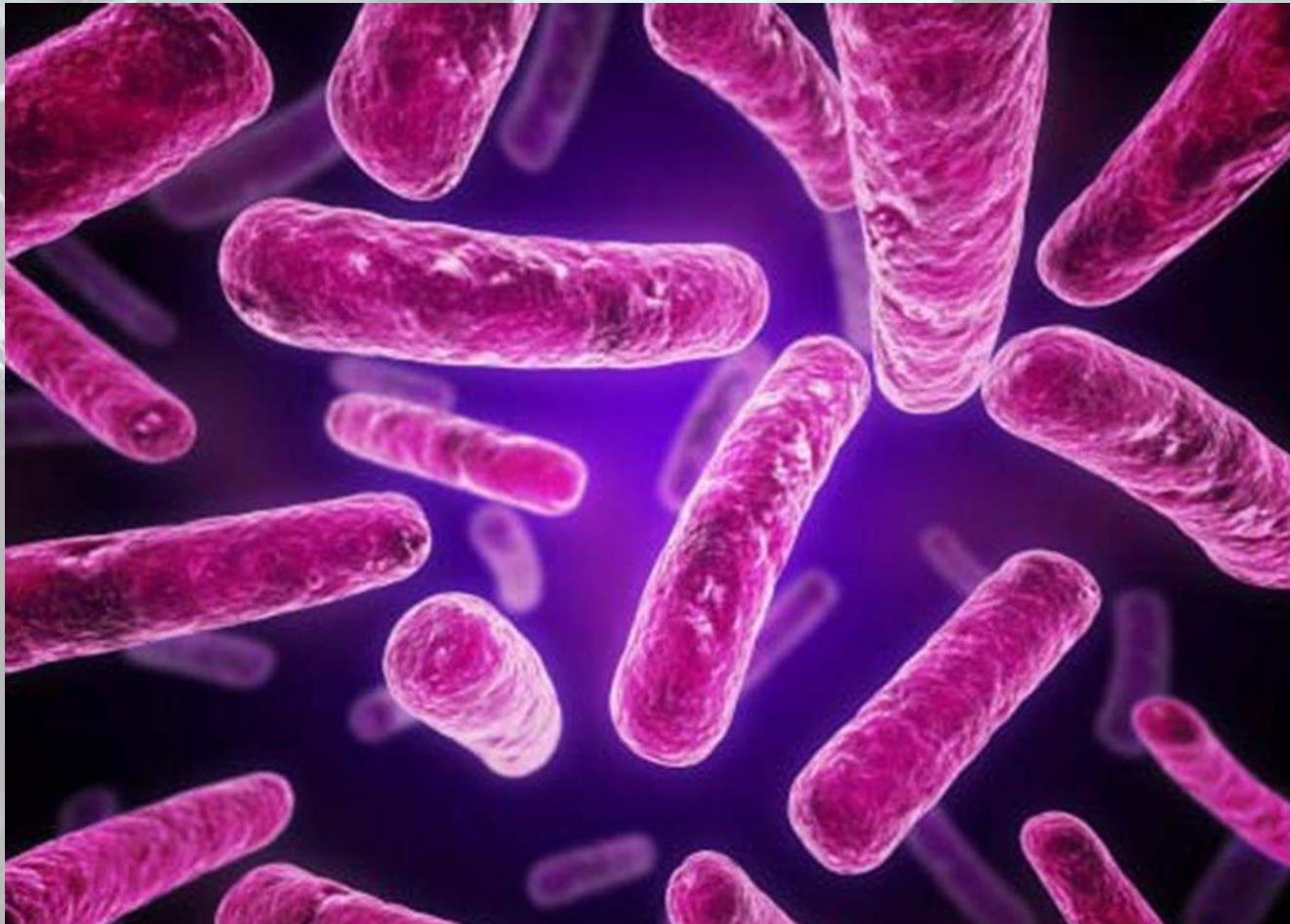
In the Beginning

- 1954: Outbreak, *Bacillus vampiris*



In the Beginning

- Reappearance, 1964, 1971, 2007



In the Beginning

- → first confirmed zombie epidemic, 1968
- “Romeroism”



“Slow zombie” outbreaks



Spread of infection

- 1978, 2004



Spread of infection

- 2004 outbreak: case study of zombie infection during pregnancy



Spread of infection

- Southern US, 2011-present

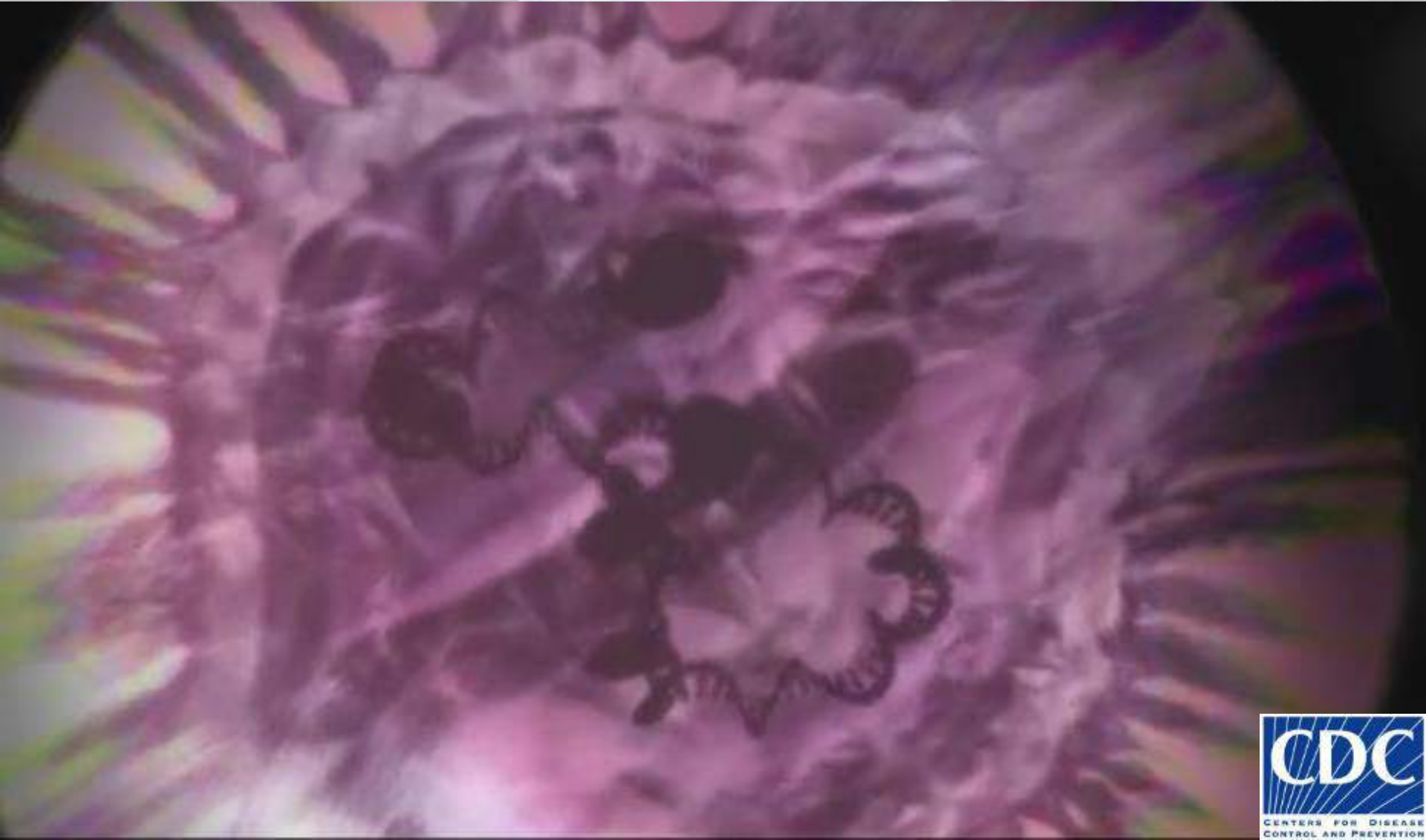


Spread of infection





Causative agent?



Related outbreaks

- 1973 & 2010 outbreaks, mid-Atlantic & Midwest



Related outbreaks

- 2002, England. Release of Rage virus from animal laboratory.



Related outbreaks

- Solanum virus outbreak, 2006-present, worldwide



Related outbreaks

- T-virus, 2002-present, Raccoon City

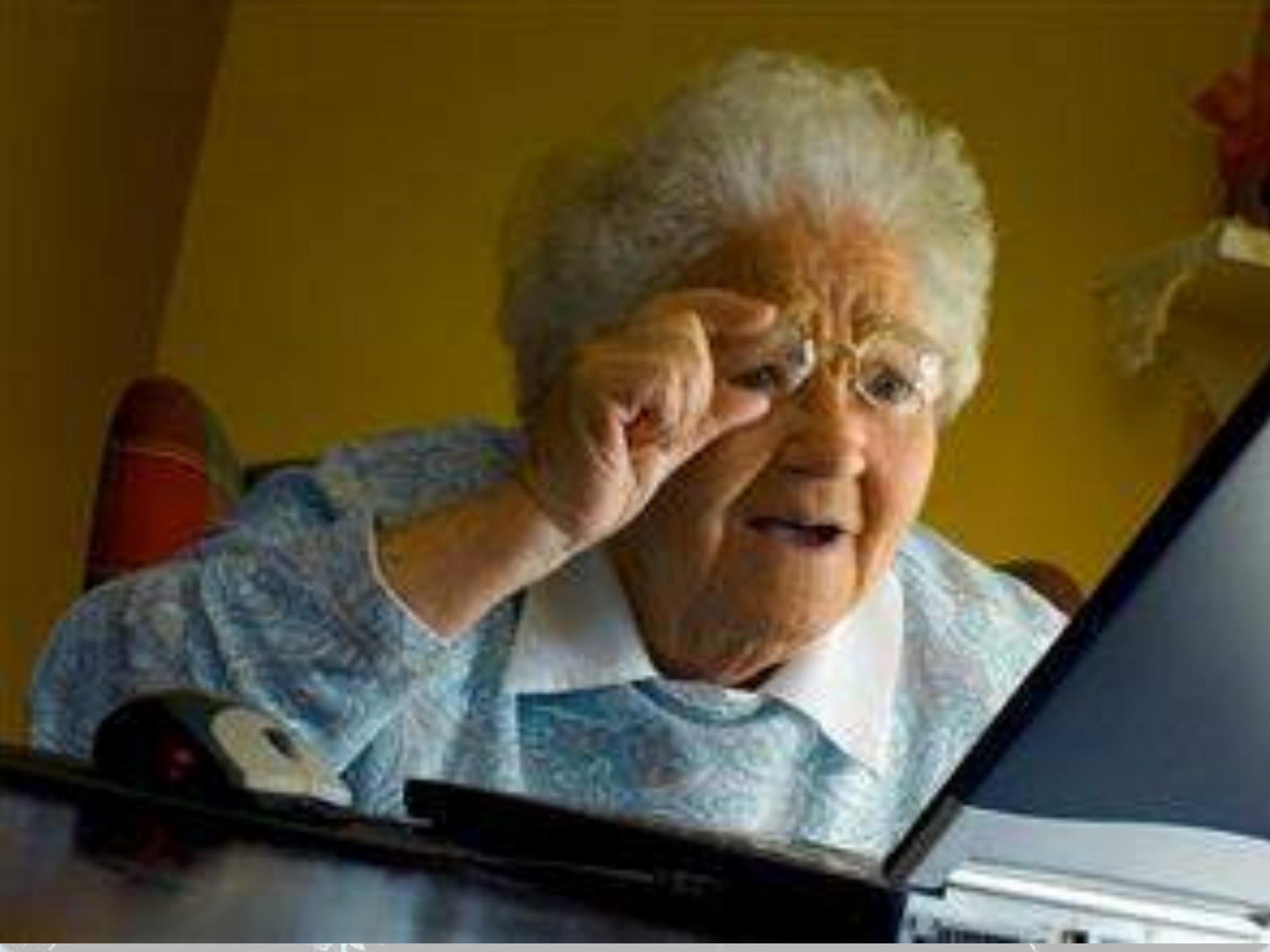


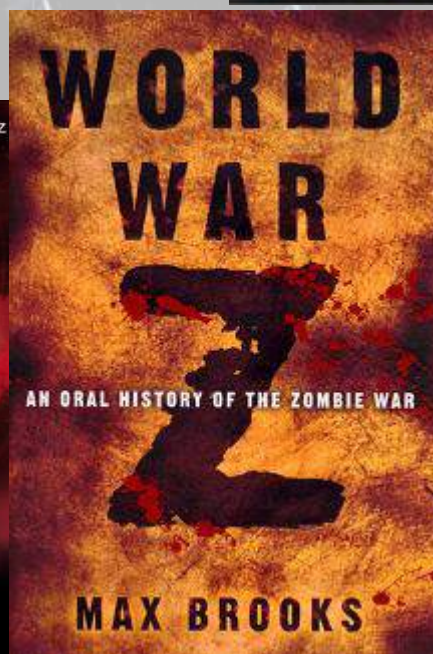
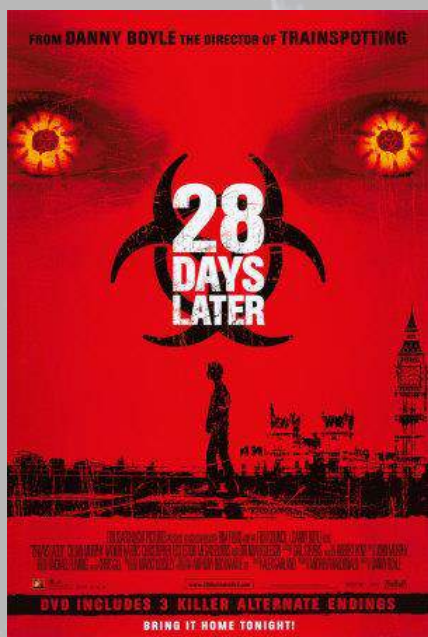
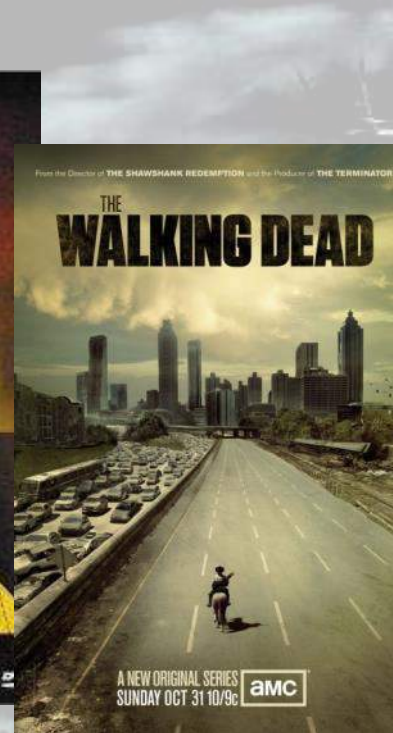
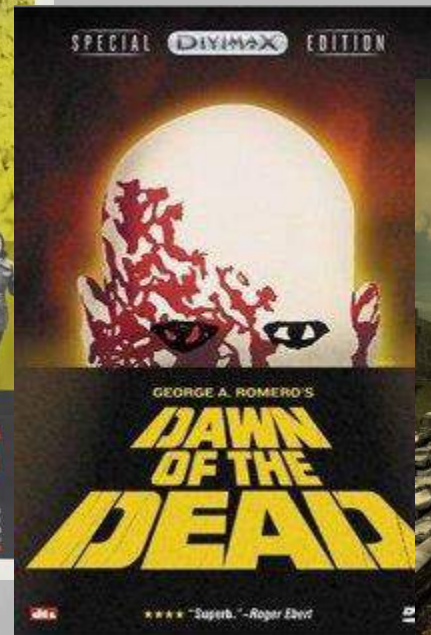
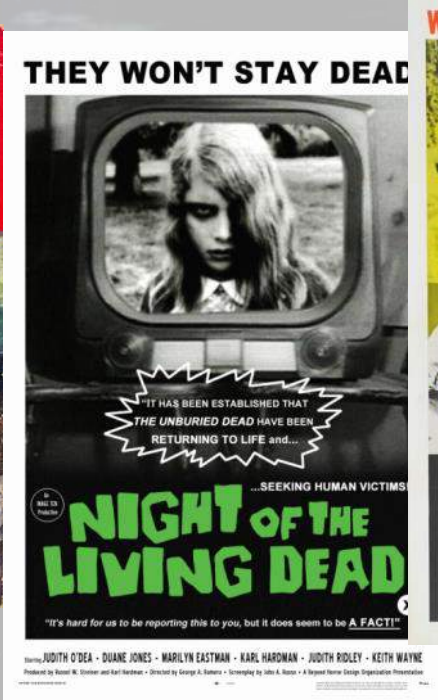
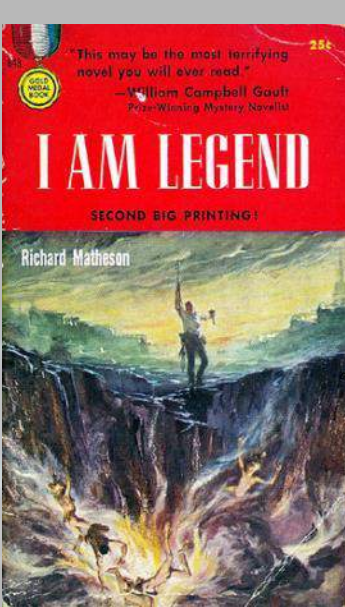
Related outbreaks



• ... and...







NEW U.S. REPORT NAMES VIRUS THAT MAY CAUSE AIDS

By LAWRENCE K. ALTMAN, M.D.
Published: April 24, 1984

WASHINGTON, April 23— Federal researchers announced today that they had found a virus that they believe is the cause of acquired immune deficiency syndrome, or AIDS.

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THE DOCTOR'S WORLD; Step by Step, Scientists Track Mystery Ailment

Rare brain defect in babies in Brazil rises after sudden outbreak of Zika virus

Exotic Virus Is Identified In 3 Deaths

PERSONAL HEALTH

A Threat in a Grassy Stroll: Lyme Disease

Mosquito-borne disease in N.Y. may be rare virus

W.H.O. Estimate of Swine Flu Deaths in 2009 Rises Sharply



<http://www.youtube.com/watch?v=D7r1S6-op8E>

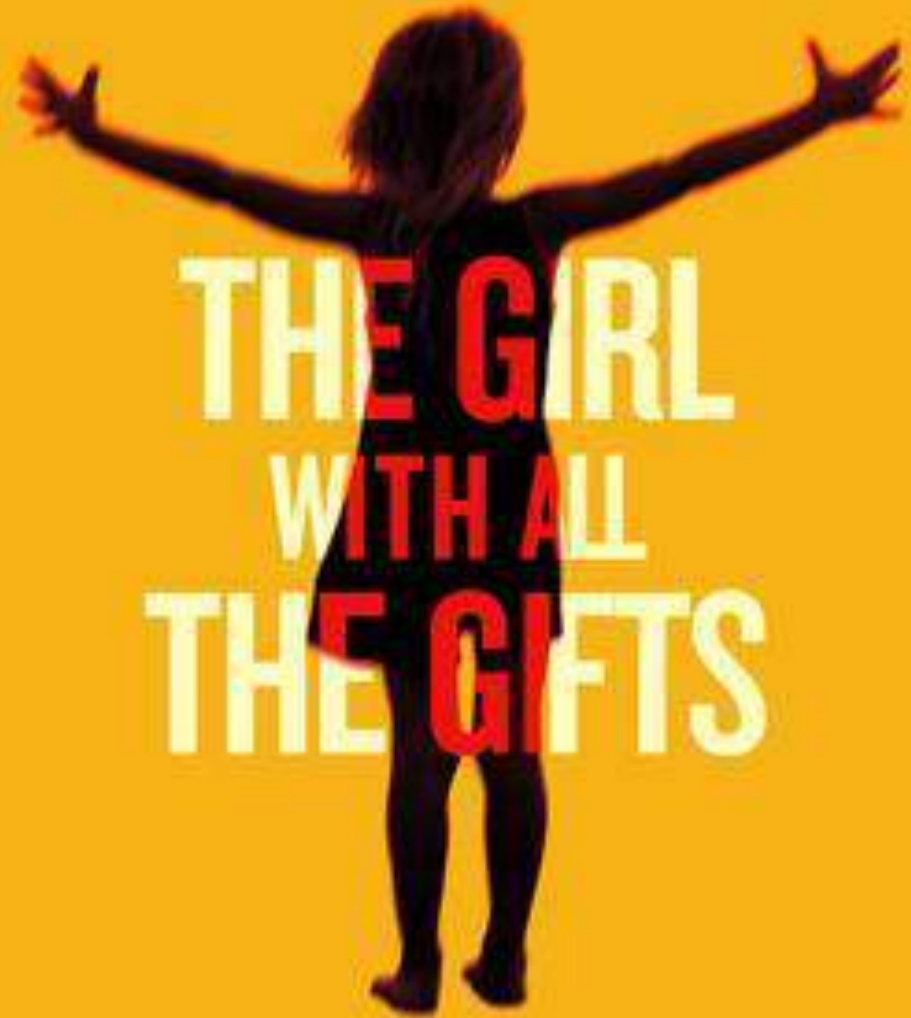


<http://www.youtube.com/watch?v=XuKjBIBBAL8#t=22>

A promotional image for the video game The Last of Us. It shows two characters, a man and a woman, walking through a desolate, overgrown city street. The man is in the foreground, looking back over his shoulder, while the woman follows him. The background features tall, dilapidated buildings and a bright, hazy sky. The title 'THE LAST OF US' is written in large, white, distressed letters on the left side.

THE LAST OF US

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WORLD OF THE DEAD.

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MAGGIE

A dark, atmospheric scene of zombies in a graveyard under a full moon. The image is in a dark, monochromatic color scheme, likely black and white or a very dark blue/grey. In the foreground, several zombies are visible, some with glowing eyes. In the background, there are tombstones and a large, bright full moon in a cloudy sky. The overall mood is horror and suspense.

Zombie movies vs reality

EVERYTHING THE FRIENDLY LOCAL EVIL GENIUS NEEDS . . .
TO BE INVINCIBLE!

THE MAD SCIENTIST'S GUIDE TO WORLD DOMINATION

EDITED BY JOHN JOSEPH ADAMS





Reality

CLINICAL MICROBIOLOGY REVIEWS, July 1995, p. 389–405

0893-8512/95/\$04.00+0

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Vol. 8, No. 3

Laboratory-Associated Infections and Biosafety

DAVID L. SEWELL*

*Pathology and Laboratory Medicine Service, Veterans Affairs Medical Center, and Department of Pathology,
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Reality

Health & Science

Smallpox vials, decades old, found in storage room at NIH campus in Bethesda

Latest CDC lab incident involves worker infected with salmonella



Alison Young, USA TODAY

7:12 p.m. EDT March 31, 2016



The Centers for Disease Control and Prevention is investigating how one of its own lab workers became infected with a strain of salmonella that was being used as part of their job, the agency announced Thursday.

MORE STORIES



Zombie movies



All I'm Saying is ... **All** Zombie Movies Begin With Some Dude in a Lab Coat Telling Us "Everything is Under Control."

Zombie movies





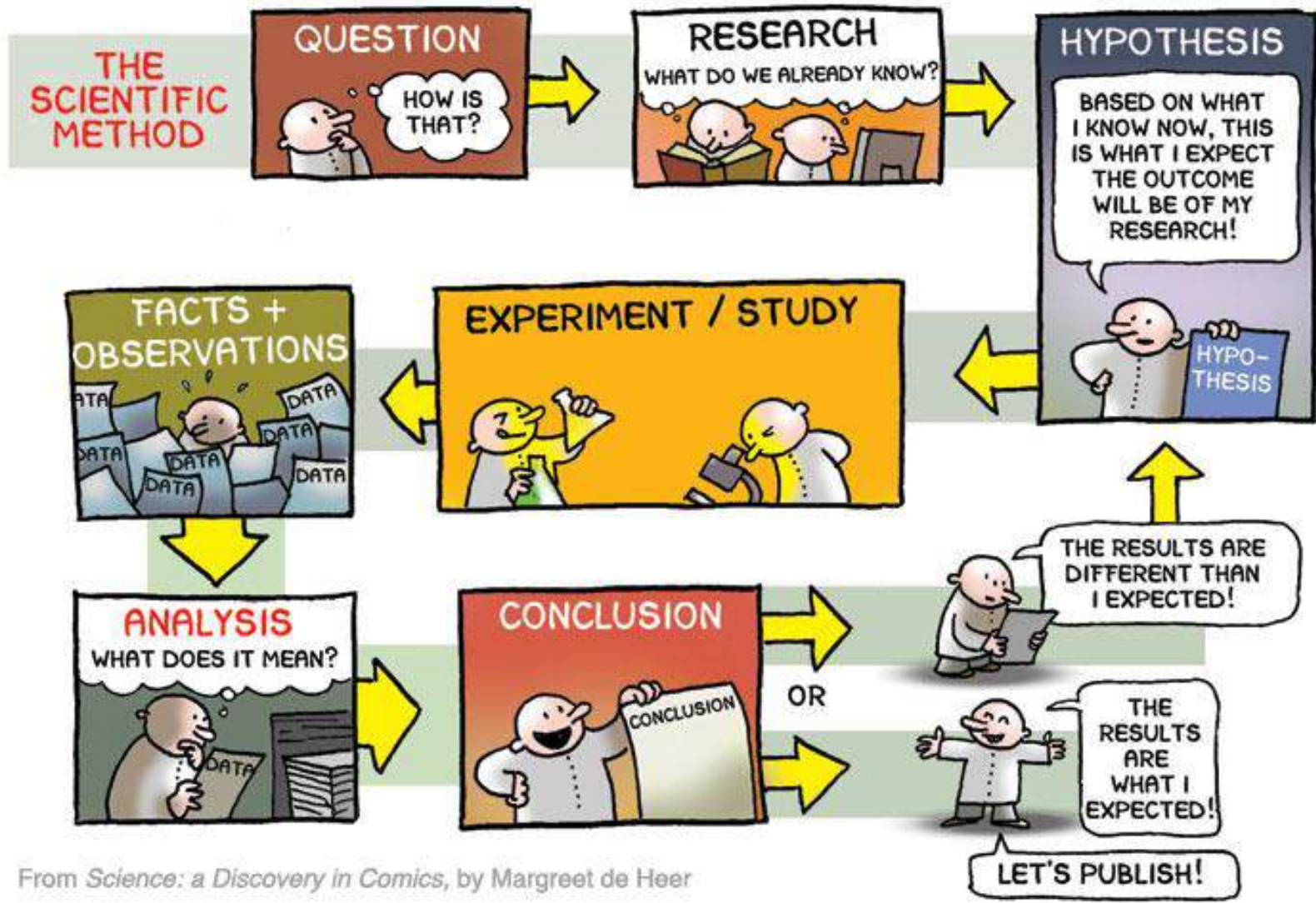
http://www.youtube.com/watch?v=_aTP1Fq8wVY



Zombie movies



Reality



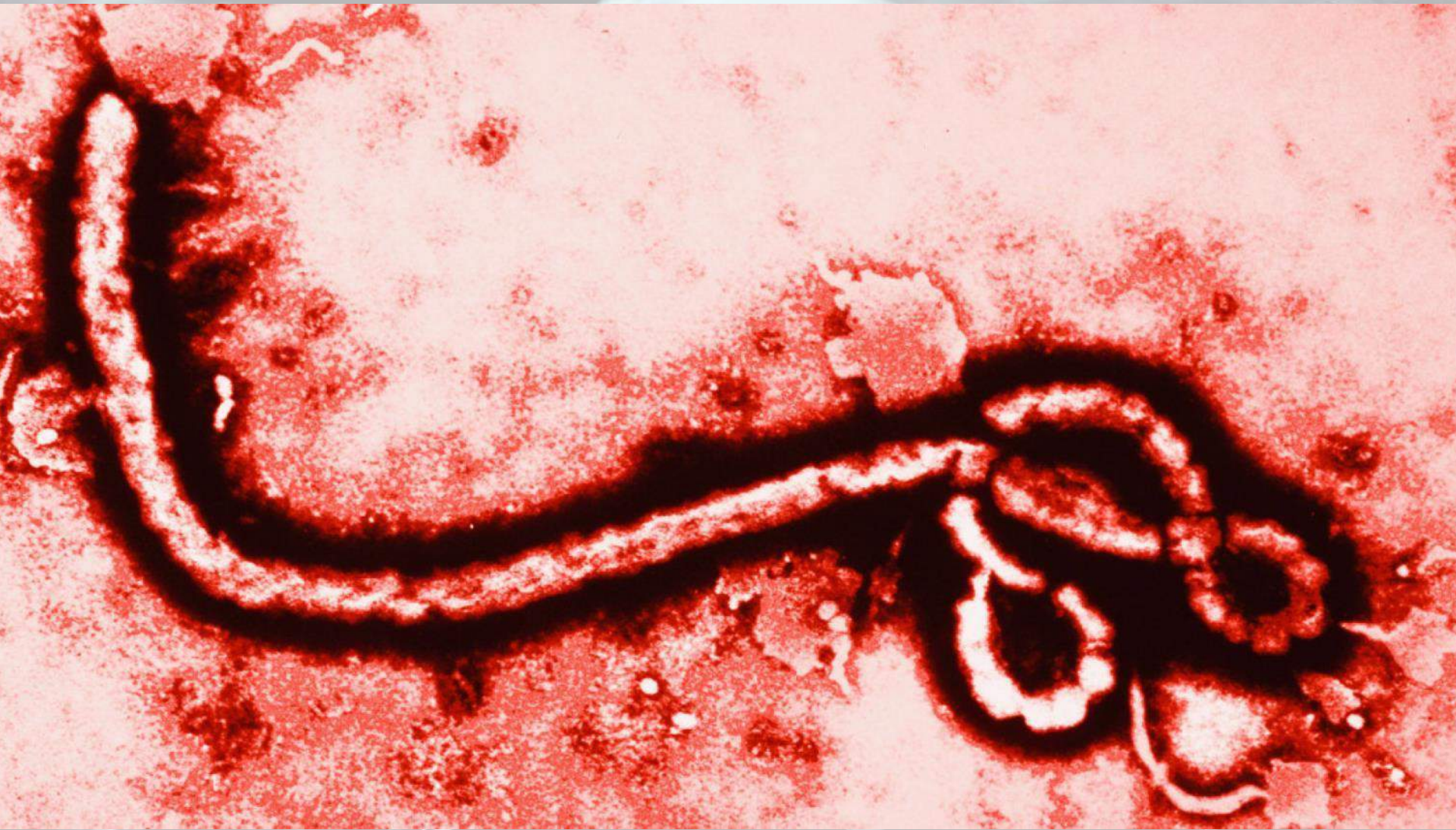


Six Principles of CERC

- **Be First:** If the information is yours to provide by organizational authority—do so as soon as possible. If you can't—then explain how you are working to get it.
- **Be Right:** Give facts in increments. Tell people what you know when you know it, tell them what you don't know, and tell them *if* you will know relevant information later.
- **Be Credible:** Tell the truth. Do not withhold to avoid embarrassment or the possible “panic” that seldom happens. Uncertainty is worse than not knowing—rumors are more damaging than hard truths.



**Instinct to “movie-ize”
everything has real-
life applications**





**GET A KIT
MAKE A PLAN
BE PREPARED**



U.S. Department of
Health and Human Services
Centers for Disease
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EMERGENCY.CDC.GOV

www.netfreestuff.co.uk





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www.netfreesstuff.co.uk



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DISCUSSING CAUSES, ORIGINS,
EVOLUTION, AND IMPLICATIONS
OF DISEASE AND OTHER PHENOMENA



with TARA C. SMITH



The Microbiology of Zombies series

Posted by [Tara C. Smith](#) on December 19, 2013



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More »

Part I: the microbiology of zombies

Part II: ineffective treatments and how not to survive the apocalypse

Part III: "We're all infected"

Part IV: hidden infections

Part V: beware the bite?

Disaster Breeds Disaster

Why things can always get worse, even when you're battling zombies.



503

By Tara C. Smith



BRAAAAINS

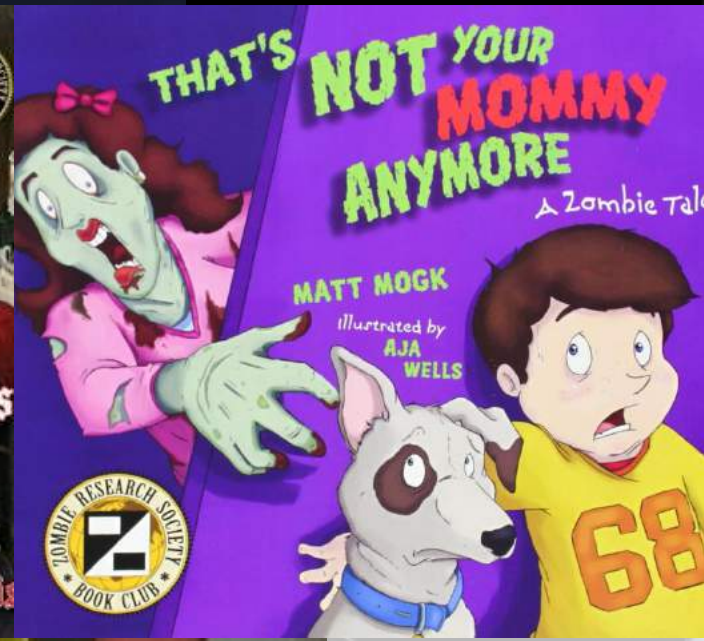
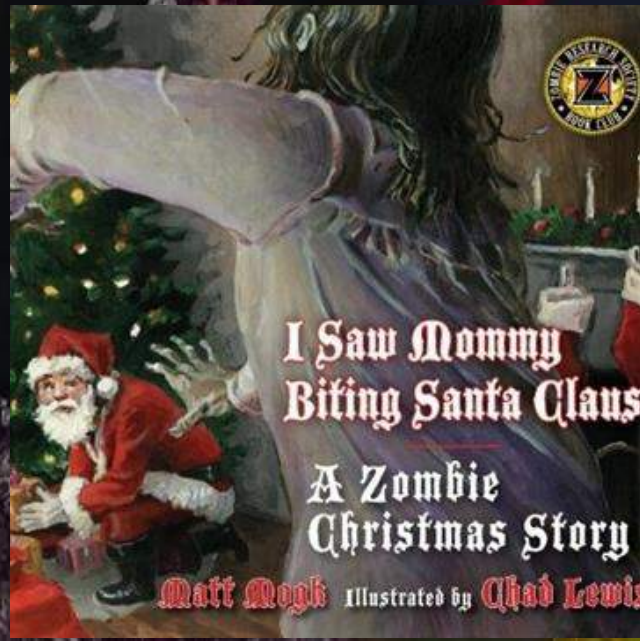
How realistic is "The Walking Dead"? Ranking pop culture's worst zombie outbreaks





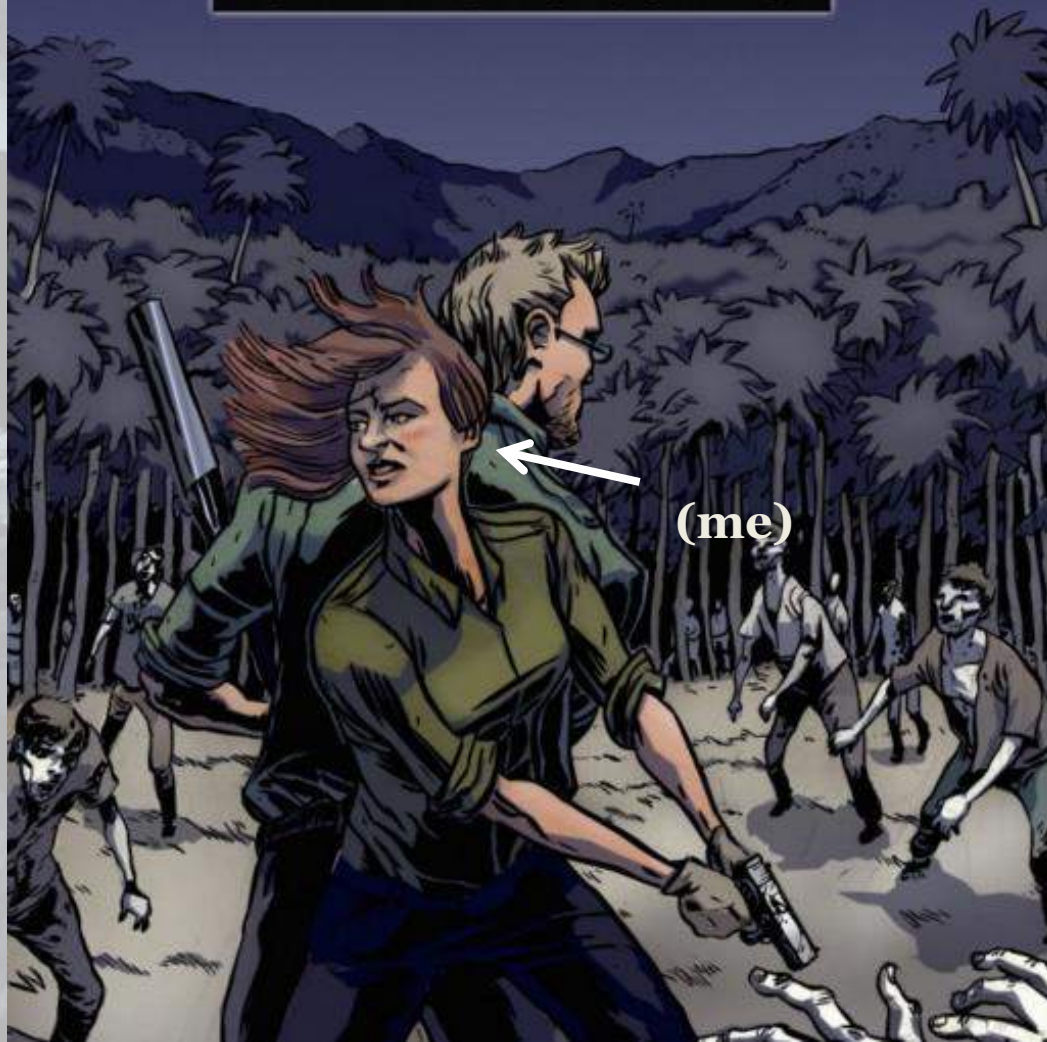
EVERYTHING
YOU EVER
WANTED TO
KNOW ABOUT
ZOMBIES
MATT MOGK

WITH A FOREWORD BY MAX BROOKS,
New York Times bestselling author of *World War Z* and *The Zombie Survival Guide*



ZDC

ZOMBIE DISEASE CONTROL





Get Ready to OWN THE NIGHT

Marion Public Library Teens
July 2012

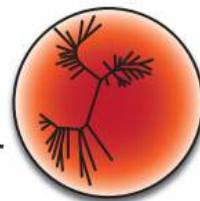


The Zombie Apocalypse: Will You Survive?

Wednesday, July 11, 3 - 5 p.m.

The Zombie Apocalypse is coming. Will you be ready? University of Iowa epidemiologist Dr. Tara Smith will talk about how a zombie virus might spread and how you can prepare. Get a list of emergency supplies to go home and build your own zombie kit, just in case. Find out what to do when the zombies come from neuroscientist Dr. Greg Tinkler. As a last resort, if you can't beat them, join them. Disguise yourself as a zombie and chow down on brrraaaaiins, then go home and freak out your parents.





Equations of the End: Teaching Mathematical Modeling Using the Zombie Apocalypse [†]

Eric T. Lofgren^{1*}, Kristy M. Collins², Tara C. Smith³, and Reed A. Cartwright⁴

¹*Network Dynamics and Simulation Science Laboratory, Biocomplexity Institute of Virginia Tech, Virginia Tech, Blacksburg, VA 24061*, ²*Biocomplexity Institute of Virginia Tech, Virginia Tech, Blacksburg, VA 24061*,

³*College of Public Health, Kent State University, Kent, OH 44242*,

⁴*School of Life Sciences and the Biodesign Institute, Arizona State University, Tempe, AZ 85287*

Mathematical models of infectious diseases are a valuable tool in understanding the mechanisms and patterns of disease transmission. It is, however, a difficult subject to teach, requiring both mathematical expertise and extensive subject-matter knowledge of a variety of disease systems. In this article, we explore several uses of zombie epidemics to make mathematical modeling and infectious disease epidemiology more accessible to public health professionals, students, and the general public. We further introduce a web-based simulation, White Zed (<http://cartwrig.ht/apps/whitezed/>), that can be deployed in classrooms to allow students to explore models before implementing them. In our experience, zombie epidemics are familiar, approachable, flexible, and an ideal way to introduce basic concepts of infectious disease epidemiology.



KENT STATE CLASS HELPS PREPARE FOR ZOMBIE OUTBREAK

By Kyle McDonald | Staff Writer Published: February 19, 2013 4:00AM

Zombies are running rampant.

The once-cult horror genre has broken into the mainstream, thanks to the help of the AMC cable network's "The Walking Dead," which has become the highest-viewed television show to date. The show also has inspired a comic book series and several video games.

Although the probability of a virus that causes rage and a hunger for flesh is slim, two Kent State University professors are taking advantage of the craze to teach students how public health and emergency systems could react to a zombie outbreak using the tools applied to pandemics.

The half-semester undergraduate special topic course, taught by KSU College of Public Health professors John Staley and Chris Woolverton, is aimed to prep students for such worst-case scenarios, but also applies to a variety of situations, Staley said.

"We're presenting the topic of zombies and how the public health system would respond," Staley said. "It starts to give real world applicability and understanding using popular culture."



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BMJ 2015;351:h

Page 1 of



CHRISTMAS 2015: INFECTION CONTROL

Zombie infections: epidemiology, treatment, and prevention

Tara C Smith summarises the epidemiology and pathology of zombie infections and calls for research and funding to prevent a zombie apocalypse

Tara C Smith *associate professor*

Department of Biostatistics, Environmental Health Sciences and Epidemiology, College of Public Health, Kent State University, Kent, OH 44242 USA

TECH & SCIENCE

MORE FUNDING, RESEARCH NEEDED TO PREVENT 'ZOMBIE APOCALYPSE,' MEDICAL JOURNAL SAYS

BY JESSICA FIRGER ON 12/17/15 AT 4:59 PM



In Sum

- Zombies are popular
- Most are infectious
- Know them!
- Use them!
- **Love them!***
- ***Or whatever your preferred method is to connect to the pop culture zeitgeist**

Image sources

- <https://d2nh4f9cbhlobh.cloudfront.net/uploads/galleries/24481/night of the living dead 3.jpg>
- <http://nevsedni-svet.cz/wp-content/uploads/2014/09/i-walked-with-a-zombie2.jpg>
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