

PENNSYLVANIA HOT ZONES! VIRUSES, DISEASES, AND EPIDEMICS IN OUR STATES HISTORY pdf

1: The Hot Zone - Wikipedia

Viruses, Diseases, and Epidemics in Our State's History by Marsh, Carole at www.enganchecubano.com ISBN/UPC: Save an average of 50% on the marketplace. Product Details for Pennsylvania Hot Zones!

Advanced Search Abstract The world of infectious diseases has been rarely presented in the cinema with accuracy. Apart from random biographies of scientists and retellings of stories about great epidemics from the past, most films focus on the dangers presented by outbreaks of unknown agents that originate from acts of bioterrorism, from laboratory accidents, or even from space. Although the science of medicine and infectious diseases and clinical microbiology, in particular, has evolved roughly in parallel with the art of cinema, the relationship between art and science remains inconsistent. Cinema is an art of the 20th century, and there has been much progress in infectious diseases and microbiology in the 20th century. Medicine has been always overlooked by cinema. Thus, cinema did not appear to have an affinity for medicine, until at least the past decade. Mainly because of the success of the television show *E. Of all medical specialties, infectious diseases seems to be the only specialty that can offer cinema the required suspense. Memories of great epidemics and continuously available information on new epidemics and dangerous viruses have embedded in the public a sense of awe about infection, a prerequisite for cinematic success. In this article, we review the history of films related to infectious diseases and discuss the various trends that have been present. One should never forget that some of these trends have subsequently been adopted by the public as facts, and, therefore, they act as determinants of public reactions to possible future infectious outbreaks and, perhaps, government policies.*

Historical References The early days of cinema were characterized by admiration for infectious diseases pioneers and by awe for the devastating outcome of epidemics. In the same vein, a biography called *Robert Koch* ; director, Hans Steinhoff was produced by Nazi Germany, and, despite the presence of the authoritative figure of Emil Jannings in the title role, it managed to serve as Nazi propaganda. The hard-to-obtain *Docteur Laennec* ; director, Maurice Cloche focuses on the fight against tuberculosis and the evolution of modern auscultation techniques. The great influenza epidemic of and memoirs about the plague epidemics from medieval times have often been presented on film. *Influenza* is a Public Broadcasting Service PBS -produced documentary focusing on the month-by-month spread of the great influenza epidemic of It is of adequate scientific and cinematic interest, is respectful of scientific information, and contains important educational and historical material. A typhoid epidemic and the delay in the diagnosis of typhoid by the titular character was the main theme of *Dr. Bull* ; director, John Ford. The importance of controlled trials is underlined, and the idea of using viruses to deliver antibacterial treatment is still intriguing. Two made-for-television documentaries are of significant scientific and educational importance. *Plague Fighters* ; director, Ric Bienstock is a documentary about the efforts to contain an epidemic of Ebola virus infection in Kikwit, Zaire, that killed patients. *The Silent Weapon* is an excellent semidocumentary that mixes a story about a smallpox outbreak with interviews with experts.

Bioterrorism in Films Cinema is always in need of villains, and the premise of a terrorist attack involving biological weapons has always been of interest. In *The Omega Man* ; director, Richard Fleischer , Charlton Heston plays the only survivor from a biological world war, because he had received an experimental vaccine. A deadly virus is in the possession of terrorists in *Operation Delta Force* ; director, Sam Firstenberg , and terrorists seize control of an Israeli biomedical laboratory in *Deadly Outbreak* ; director, Rick Avery. The latter 2 films ignore scientific accuracy and focus instead on poorly executed action. Worse, though, is *D. Team* ; director, Dean Hamilton , in which anthrax-wielding terrorists oppose a number of sensual female agents! In *Code Name Trixie* ; director, George Romero , the agent in a biological weapon is accidentally released in the water supply of a small town. Either they act violently, or they are catatonic. Soldiers in white protective suits arrive, and the military doctors offer vaccines to the troops and a few civilians. Of historical importance is *Hei Tai Yang* ; director, Tun Fei , which focuses on Japanese biological warfare experiments performed in a Chinese prisoner of war camp during the

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Second World War. Most significant, however, is WW3 also called Winds of Terror; ; director, Robert Mandel , in which bioterrorists use a deadly virus to eradicate humanity. There is no world war, despite the title. There is a brief message at the end of the film underlining that events like those depicted are simply impossible. The film was aired on television a few months before the anthrax outbreak of Accidents Can Happen The release of biological agents can be not only a result of bioterrorism; it can also be the result of a laboratory accident. A military-engineered virus eradicates all human life except for some scientists residing in Antarctica in Virus ; director, Kingi Fukasaku , which is an excellent depiction of the possible aftermath of a bioterrorist attack. In The Satan Bug ; director, John Sturges , a leak of the titular agent from a laboratory leads to eradication of all life on the planet. In The Missing Are Deadly ; director, Don McDougall , rats carry a deadly agent outside of the laboratory, ensuing in million deaths in the subsequent 3 weeks. A more recent film, Resident Evil ; director, Paul Anderson , unfolds entirely in a biological laboratory in which an accident has to be contained. Killer Viruses A virus that can eradicate humanity is a film subject waiting for a cinematic and scientific masterpiece. In the misleadingly titled Plague ; director, Ed Hunt , the deadly virus is called M Burning Zone is a television series reminiscent of the more successful The X Files; it focuses on the efforts of a government scientific team to control spread of a man-made virus, an epidemic of cholera in Detroit imported via South Pacific pearls , and outbreaks of hemorrhagic fever, among other things. In the recent 28 Days Later ; director, Danny Boyle , another killer virus eradicates the population of the United Kingdom, and some of the survivors became zombielike monsters. The most significant, scientifically accurate, and prototypic of all films of this genre is The Andromeda Strain ; director, Robert Wise. Based on a novel by Michael Crichton, who was trained as a doctor, it accurately details the appearance of a deadly agent, its impact, and the efforts at containing it, and, finally, the work-up on its identification and clarification on why certain persons are immune to it. The virus is of alien origin, having come to earth with the fall of a satellite, and it kills humans by clotting their blood. In one interesting scene, gas bombs are fired at birds that feed on the bodies of victims, to avoid spread of the virus. The Hot Zone In , two rival films focusing on outbreaks of infectious diseases were to be produced by Hollywood. The first, Crisis in a Hot Zone, which was set to star Jodie Foster and was based on a memoir about a real-life near-outbreak of Ebola, never made it to the screen. The second, Outbreak ; director, Wolfgang Petersen , remains the most important film about an outbreak of infectious disease. The film focuses on an outbreak of an imported Motaba virus in the United States. The virus is named after the river in The Congo across whose banks the first epidemic had evolved 20 years earlier and is considered deadlier than Ebola, killing within 24 h after exposure and liquefying internal organs in the process. Obviously, the screenwriters were influenced by the history of Ebola and Mokola viruses. Of interest, when we are shown an electronic microscopic picture of the virus, what we really see is a strain of Ebola virus. The bombing of an entire village! Years later, a monkey imports the disease to the United States, and the virus is let loose. The first carrier kisses his girlfriend, and so on. In the most accurate depiction of the science of infectious diseases on cinema, the camera follows particles released by sneezing by one of the carriers in the air of a crowded movie theater. Moreover, a scientist is infected in a laboratory when a test tube breaks during centrifugation the depiction of level 4 biosafety precautions is also accurate. After this point, scientific accuracy is sacrificed, and cinematic laws prevail. The CDC scientist manages to get infected but remain beautiful , and Hoffman manages to trace the imported monkey and construct an antibody preparation in a matter of hours! In spite of all these distortions, Outbreak remains the most sincere attempt to accurately portray the science of clinical microbiology in cinema. Other Outbreaks Numerous other outbreaks and epidemics are depicted in film. One of the earlier and most interesting examples is Panic in the Streets ; director, Elia Kazan , which follows the race of scientists against time to trace what killed a man, who subsequently proved to suffer from pneumonic plague, to avoid spread. La Peste ; director, Louis Puenzo , based on the novel of that name by Albert Camus, focuses on the impact that an outbreak of plague has on various inhabitants of a South American town. In Last Man on Earth ; director, Sidney Salkow , Vincent Price is the only survivor from a deadly outbreak of plague, because he had developed immunity while working

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with the bacterium years earlier. Ebola virus is imported to Hong Kong from South Africa and causes an outbreak in the awful horror film *Yibola bing du* director, Herman Yau. Quarantine measures were accurately depicted in an episode of the medically themed television series *Chicago Hope*, to contain spread of a possible deadly infection. A similar attempt at controlling a hospital epidemic of legionnaires disease was depicted in 2 episodes from of another television series that influenced public perception of medical practice, *St. Elsewhere* which, in another episode, was also the first to tackle HIV infection. Sexually Transmitted Diseases, Hiv Infection, and Tuberculosis The dangers of sexually transmitted diseases have been rarely depicted in the cinema. *Intimate Agony* ; director, Paul Wendkos focuses on the burden of genital herpes. AIDS has been depicted in cinema adequately in all its aspects. In fact, it would take another article to focus on the ways in which its various aspects are presented in film. Tuberculosis, on the other hand, has been ignored by cinema. Of note, it is the cause of death of 2 tragic heroines: *Conclusions* Most depictions of aspects of infectious diseases in cinema are inaccurate. Even the most sincere efforts tend to be marred by extreme scientific inaccuracies, and the premise of epidemics involving unknown viruses of dubious origin that cause apocalyptic events serves to instill the public with fear, which may turn to panic when similar situations arise. Control of the content of film is neither feasible nor ethical. Therefore, specialists should be alert about the effect that cinema has on morphing public opinion and the concepts involving medicine that are presented, and efforts toward informing the general public should be intensified.

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2: Cities Of The Hot Zone | Download eBook PDF/EPUB

Pennsylvania Hot Zones! Viruses, Diseases, and Epidemics in Our State's History Unbound - Sep

Richard Preston Random House Just when you thought it was safe to ease out of your movie-theater seat and head home from a close encounter of the viral kind in *Outbreak* — wait. Army, in a morning rush-hour maneuver, moved from Fort Detrick, Maryland, to a small suburban mall in Reston, Virginia, to wipe out a colony of sick African monkeys housed there, people in the greater Washington, D. The monkeys, imported for research, arrived infected with a mysterious rain-forest virus thought to be the deadliest ever known — a virus, Richard Preston writes, that "does in ten days what it takes AIDS ten years to accomplish. There are paragraphs here that could of themselves produce cold sweats and shortness of breath. Once you are infected with these viruses, Preston reports, vital organs such as your liver "begin to liquify," your skin "bubbles up" into a rash "likened to tapioca pudding," and "you may weep blood. Noting its ability to jump from one primate species to another, he writes, "It did not know boundaries. It did not know what humans are; or perhaps you could say that it knew only too well what humans are: Seven people died, a quarter of those infected. The first known Ebola outbreak was in Sudan in The virus spread rapidly from village to village, killing half of its victims. Two months later, an even deadlier strain of Ebola hit Zaire, erupting simultaneously in some 50 villages, killing nine out of ten people it infected. To work with anything like Ebola, researchers must wear bulky biological space suits and go through elaborate safety and security precautions. Yet the story Preston tells is full of accidents and misjudgments, and enough scientists and monkeyhandlers were exposed so that, had the virus really been the deadly strain of Ebola, a major plague might very well have been unleashed. In the end, the Reston Ebola proved fatal to monkeys but seemed to infect humans without any harm, although it is so nearly identical to the deadly Zaire virus that scientists still cannot see the difference. By the slenderest thread of some unknown molecular detail, this book reads like a prophecy instead of a postmortem. Preston casts this story as a scientific thriller, which it is. And he writes in the manner of such popular novelists as Michael Crichton, Robin Cook and Stephen King, who have made the "strange virus outbreak" into a literary convention of high-tech, neo-Gothic horror. As a result, this book is hard to put down, very scary, crammed with the detail that can make fiction seem real — or reality read like fiction: She pulled it up to her armpits and slid her arms into the sleeves until her fingers entered the gloves. The suit had brown rubber gloves that were attached by gaskets at the cuffs. But in a science thriller about the realities of AIDS and the threat of future epidemics, one might hope to find the insights of science as well as the ingredients of a thriller. Describing a tense moment when three Army officers arrive at a Virginia gas station to wait for a clandestine hand-off of some dead Reston monkeys for analysis, Preston pauses to tell us, "Nancy went into the gas station and bought Diet Cokes for everyone and a pack of cheddar-cheese crackers for herself, and she bought C. More important, perhaps, are the questions of science that are never explored. There are clues scattered throughout this story that our relation to viruses is more complex and less understood than our image of them as "individuals," as deadly predators, might suggest. Of Sudan, Preston simply says, "For reasons that are not clear, the outbreak subsided and the virus vanished. Yet these curious facts are left strangely unexamined. Compact, hard, logical, totally selfish. Current research suggests that viruses may be more like wandering messengers than alien predators, their visitations serving to exchange genetic information among individuals and species in an ecology more intricate and a biochemical balance more delicate than we have yet realized. One promising experimental drug for AIDS is based on this idea: Preston concludes that "AIDS is the revenge of the rain forest" for human incursions and overpopulation of the Earth. Marburg and Ebola pose the new threat of a virus "trying, so to speak, to crash into the human species. Peering into the edges of the rain forest, Preston shows us a landscape of infectious terror, but he misses a path into the frontiers of science. Paul Trachtman is a freelance writer based in rural New Mexico.

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3: List of Ebola outbreaks - Wikipedia

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Since then, the virus has emerged periodically and infected people in several African countries. Each of the known cases and outbreaks of Ebola Virus Disease are described below by year or country where the case was discovered or imported. Zaire ebolavirus Reported number of deaths and percentage of fatal cases: Confirmed and probable cases have been reported in eleven health zones of North Kivu and Ituri provinces. CDC is assisting the DRC government, neighboring countries, and local and international partners to coordinate activities and provide technical guidance related to laboratory testing, contact tracing, infection control, border health screening, data management, risk communication and health education, vaccination, and logistics. CDC assisted the DRC government and local and international partners, including the World Health Organization WHO , as they pursued priority areas of support, including establishing an outbreak response platform; implementing surge support for deployment of personnel, supplies, laboratory materials, operational support, logistics, and transportation; and identifying communication needs to support the partners and the response. Zaire ebolavirus Reported number of cases: The first report mentioned eight suspected cases, including two deaths, with a third death reported on May The response faced challenging logistical obstacles, including the remoteness of the area and limited services. Mobile diagnostic laboratories provided testing of samples in the affected areas. Following a period of 42 days since the second negative laboratory diagnostic test of the last confirmed patient, WHO declared an end to the outbreak on July 2, The Ebola virus variant that caused this outbreak was closely related to the one that caused the outbreak in Kikwit, indicating that this outbreak was not related to the large outbreak happening at the same time in West Africa. New England Journal of Medicine. Soon, cases were discovered in Liberia and Sierra Leone, which border Guinea. Identification of cases was difficult because of weak surveillance and a fragile public health infrastructure. Poor infection control measures and strained health care systems also contributed to the devastation of this outbreak. CDC collaborated with other U. The outbreak was declared over in June Morbidity and Mortality Weekly Report. The patient had no symptoms while in flight, so other airline passengers were not at risk. The healthcare workers treating the patient were adequately protected and carefully monitored. There were no additional cases in Italy.

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4: Filovirus definition/meaning

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Please click button to get hot zone log book now. This site is like a library, you could find million book here by using search box in the widget. This pocket-sized personal log enables individuals to maintain a historical record of personal performance following the completion of training events to actual HazMat incidents. This book provides a detailed description of the evidence-collection protocols that will be required in criminal cases that involve the release of a chemical agent, biological agent, or radiological material. A chapter on the crime scene profiles procedures for what to do first upon arriving at the scene, procedures for entering the "hot zone," and procedures upon leaving the "hot zone. Information is provided on general detection instruments, chemical agent detectors, biological agent detection equipment, and equipment for detecting radiological material. A chapter on chemical evidence collection contains descriptions and discussions of equipment preparation, chemical liquids, chemical vapors and aerosols, chemical agent solid sampling, chemical surface sampling, and chemical dermal sampling. This chapter advises that the purpose in collecting evidence in a hazardous chemical incident is to collect a representative sample of the material in question and determine the physical and chemical characteristics of the evidence. This can only be achieved through a well-planned and well-executed collection protocol. The chapter on biological evidence collection considers equipment preparation; biological liquids and aerosols; and biological agent solid, surface, and dermal sampling. The chapter on radiological evidence collection identifies the sources of radiological material; the characteristics of radiological evidence; and procedures for radiological liquid, airborne, solids, surface, and dermal evidence collection. Extensive photographic illustrations, tables, 32 notes, a glossary, subject index, and appended supplementary information on hazardous materials Author by: This book is designed to provide law enforcement personnel with response guidelines and evidence gathering techniques that may be utilized when responding to an incident involving the use or threatened use of a weapon of mass destruction WMD. The first part of the book addresses the actions to be taken by the first law enforcement personnel arriving at the scene of a WMD incident. The text examines the planning process in great detail, and the incident management process is also extensively reviewed. Tactical operations that may be necessary to arrest individuals or prevent a WMD incident are also discussed. The second part of the book is designed for the hazardous material trained investigator. The required training, equipment, and investigative procedures are clearly defined in this section, and detailed step-by-step instructions are provided for the collection of chemical, biological, and radiological evidence. In addition, investigative techniques are provided that will assist the criminal investigator in identifying and entering a facility suspected of manufacturing a weapon of mass destruction. Remote sampling techniques are provided to assist in gathering the probable cause for a search warrant. Also helpful to readers are the many illustrations and a glossary. It will be clear to the reader that this unique book represents the epitome of authoritativeness and comprehensiveness in the field of WMD response and investigation.

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The diseases include malaria in Greece, dengue in Portugal, West Nile virus and chikungunya in places such as Italy, Spain, and France, and even schistosomiasis, a neglected tropical disease of Africa, in Corsica.

Synopsis[edit] The book is in four sections: This part also introduces a young promising physician who became infected with Marburg virus while treating Monet. Viruses, biosafety levels and procedures were described. The Ebola virus disease outbreaks caused by Ebola virus and its cousin, Sudan virus , are mentioned. Preston talks to the man who named the Ebola virus. Army and Centers for Disease Control. It starts with the monkey house receiving a shipment of wild monkeys. After four weeks, 29 of these monkeys have died. This is followed by the veterinarian for the facility, Dan Dalgard, examining the dead monkeys and sending the samples to Peter Jahrling , a virologist at United States Army Medical Research Institute of Infectious Diseases. After seeing a rope-like virus under the microscope, it is suspected that the monkeys were infected with a hot agent similar to the Marburg virus. Jahrling then conducts a blood test to find out that the hot agent is the Ebola Zaire virus. This conclusion leads to the Army Medical Research Institute deciding to euthanize all the monkeys in the same room as the infected monkeys. Not long after, he begins to suffer from a number of symptoms, including vomiting, diarrhea and red eye. He is soon taken to Nairobi Hospital for treatment, but his condition deteriorates further and he goes into a coma while in the waiting room. This particular filovirus is called Marburg virus. While preparing food for her family at home, she cuts her right hand. Later, while working on a dead monkey infected with Ebola virus, one of the gloves on the hand with the open wound tears, and she is almost exposed to contaminated blood, but does not get infected. Nurse Mayinga is also infected by a nun and elects to visit Nairobi Hospital for treatment, where she succumbs to the disease. Early during the testing process in biosafety level 3 , when one of the flasks appeared to be contaminated with harmless pseudomonas bacterium , two USAMRIID scientists exposed themselves to the virus by wafting the flask. They later determine that, while the virus is terrifyingly lethal to monkeys, humans can be infected with it without any health effects at all. This virus is now known as Reston virus. Finally, the author himself goes into Africa to explore Kitum Cave. Equipped with a hazmat suit , he enters the cave and finds a large number of animals, one of which might be the virus carrier. At the conclusion of the book, he travels to the quarantine facility in Reston. He finds the building abandoned and deteriorating. He concludes the book by claiming that Ebola will be back. Jahrling isolated the filovirus further. The Center for Disease Control and Prevention conducted blood tests of the animal handlers. While 6 tested positive, they did not exhibit any symptoms. The Reston virus was found to have low pathogenicity in humans. This was further supported later when a handler infected himself during a necropsy of an infected monkey. However, the handler did not show symptoms of the virus after the incubation period. A review in the British Medical Journal captures the paranoia and public panic described in this book. In addition to the funding of public health infrastructure during the early s, there were many public discussions of biodefense. This book continued to fuel the emerging diseases campaign. By connecting international health to national security , this campaign used The Hot Zone as a method of justifying increased intervention the global phenomena of disease. The release of teams of experts was immediate and massive. Many countries tightened their borders, issued warnings to custom officials, quarantined travelers, and issued travel advisories. I just read it a few weeks ago. In their memoir Level 4: McCormick and Susan Fisher-Hoch lambasted Preston for claiming that Ebola dissolves organs, stating that although it causes great blood loss in tissues the organs remain structurally intact. Scott eventually signed on to direct the film in February Hart was also signed to adapt the book. Foster dropped out of the film just before filming was to begin and production was delayed with Meryl Streep , Sharon Stone , and Robin Wright touted as possible replacements. In August , Redford also dropped out of the film. Julianna Margulies is starring as Nancy Jaax. Filming begins in September

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*New Jersey Hot Zones!: Viruses, Diseases, & Epidemics in Our State's History [Carole Marsh] on www.enganchecubano.com *FREE* shipping on qualifying offers.*

Definition of the noun filovirus What does filovirus mean as a name of something? Animals - nouns denoting animals more generic term: The three types of this virus are: Rhode Island Hot Zones! The Official Guide to Germs by Carole Marsh Filovirus is a family of viruses that cause some of the most deadly diseases on earth. Filoviruses are also called "thread viruses" because of the way that they look when magnified by a powerful microscope. The 3 types of this virus are: New Hampshire Hot Zones! New Mexico Hot Zones! North Carolina Hot Zones! How to Start an Oklahoma Library by Carole Marsh Filovirus is a family of viruses that cause some of the most deadly diseases on Earth. North Dakota Hot Zones! How to Start a Tennessee Library by Carole Marsh Filovirus is a family of viruses that cause some of the most deadly diseases on Earth. How to Start an Ohio Library by Carole Marsh Filovirus is a family of viruses that cause some of the most deadly diseases on Earth. Its genome, or basic form, is a single strand of RNA. RNA stands for ribonucleic acid. In order to reproduce, A filovirus is an infectious disease that causes severe hemorrhagic fever. Two filoviruses have been identified. They are the Ebola viruses and the Marburg virus. The source of the viruses is still being researched, but the common Online dictionaries and encyclopedias with entries for Filovirus Click on a label to prioritize search results according to that topic: Photos about Filovirus If you need images about Filovirus for an article or a report, you can download stock photos at a very small price: Video about Filovirus Filovirus Meaning Video shows what filovirus means. Any virus of the Filoviridae family.. How to pronounce, definition audio dictionary. How to say filovirus. See also the pronunciation examples of Filovirus! Share this page Go to the usage examples of Filovirus to see it in context! This page was last modified on 4 July See Copyright for details.

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7: The Ebola Virus: Virology, Fiction and Threat to Mankind, F.A. Murphy

Viruses, Diseases, & Epidemics in Our State's History, books, textbooks, text book Compare book prices at online bookstores worldwide for the lowest price for new & used textbooks and discount books! 1 click to get great deals on cheap books, cheap textbooks & discount college textbooks on sale.

Virology, Fiction and Threat to Mankind, F. Murphy The Ebola Virus: In this interview we talk with Frederick A. Murphy is considered one of the world authorities on viruses. Murphy appears in "The Hot Zone" and his now famous photo of the Ebola virus appears in the film "Outbreak". Murphy has also provided an extensive [1]bibliography and[2] three excellent electron micrographs to accompany this interview. The book "The Hot Zone" and more recently the film "Outbreak" have brought public attention to the reality of emerging viruses and potentially disastrous epidemics. It can be difficult to tell fact from fiction with these kind of sources. The public response to the book and the film has been phenomenal. Half of the posts for a [3]virology conference on the Internet I look at are about the Ebola virus. I myself have had innumerable calls from the press and other media people. By the way, I want to say hello to the Access Excellence people and say I had a great time down at Genentech last summer when I spoke on the subject of new and emerging diseases. Please explain how Ebola and the other filoviruses are classified and how they are related to other known viruses? There are four known viruses. We have Marburg virus and three Ebola viruses: Zaire, Sudan and Reston. Marburg and Ebola are distinguished by their length when purified. In the unpurified state you get all different lengths of these worm-like virions. When they are purified, the infectivity is associated with a particular particle length, which is slightly different between the Marburg and Ebola, but all of the Ebola viruses are the same length. Considering how similar the Ebola viruses are, how are they differentiated? They are very close. First of all, there is a very small serologic difference among the Ebola viruses which can help distinguish them. Second, there are sequence differences which can be determined using the tools of molecular biology. What have we learned about the Ebola genome, and what remains to be learned? Ebola Zaire has been completely sequenced and Ebola Reston is nearly completed. The gene order of these viruses reaffirms their independence as a family. Also, some ancient conserved sequences along with the gene order, i. There is no connection with HIV. How does Ebola virus infect humans? In Zaire and Sudan, Ebola virus was spread by close contact and dirty needles. The center of the epidemic in Zaire involved a missionary hospital where needles and syringes were re-used without sterilization. Most of the staff of that hospital got sick and died. There were secondary cases involving people taking care of sick people or preparing bodies for burial, but the virus essentially shut down after that epidemic peaked. There is something of a misconception that Ebola virus can infect just about any cell. In fact, the virus has a very specific tropism for liver cells and cells of the reticuloendothelial system, e. Massive destruction of the liver is a hallmark feature of Ebola Zaire, Ebola Sudan, and Ebola Reston the latter in monkeys only. Ebola Zaire is said to kill nine of ten people infected. What about the surviving one person? Is anything known about natural resistance to this virus? Starting with Marburg in , there was one fellow who tested positive for the virus 30 days post-infection. In fact the virus was detected in his semen, and there was a case of sexual transmission in that circumstance. Another patient had virus in the vitreous of his eye for more than 30 days. But eventually the virus died out within these people without killing them. Ebola too is not persistently carried in the blood and appears to be self limiting in the surviving patient. Given that there are some signs of natural immunity to Marburg and Ebola Zaire, and that the monkey workers were not killed after exposure to Ebola Reston, does this give us any possible approaches to vaccine development? Both the measles and rubella vaccines were based on attenuated viruses. The kind of research needed to develop a modified live virus vaccine simply could not be done given the scope of the problem. That is, you only have a few people working in labs who would need to be vaccinated, and you might want a vaccine stockpile in the event of an epidemic, but these are not the scale of circumstances where we could afford to develop a vaccine. A killed vaccine is much simpler to develop, but so far this has not worked with Ebola virus. On Oct 13, you

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prepared a specimen from an African patient with hemorrhagic fever and suddenly realized it might be deadly serious. Can you tell us what you were thinking at that time? When I put the specimen in the electron microscope, I was sure it was Marburg. I had worked on Marburg in and had done a project on experimental Marburg infection in monkeys. The specimen had come back from Zaire to the CDC in Atlanta in less than optimal condition, with the tubes in the box broken. Anyone else would have taken a look and put the whole box in the autoclave, but Dr. Patricia Webb, wearing gloves, gown and mask, squeezed a few drops of fluid out of the cotton surrounding the broken tubes. That was the material the virus was isolated from. It was placed in tissue culture monkey kidney cells for a couple of days then I got a drop of the tissue culture fluid and prepared a specimen for the electron microscope. When I saw what I was sure was Marburg, I shut the electron microscope down and went back to the room in which I had prepared the specimen. This was in the days when hoods were a lot more primitive. I "cloroxed the hell" out of the place where I had done the preparation and carried my discard pan with gown and gloves etc. I shot a cassette of pictures and with wet negatives, not good for the enlarger and I made prints which were available within minutes. I carried these dripping prints to the office of the Director of the CDC. It was very dramatic. Then later when Fort Detrick called and said they thought they had found Ebola in Virginia, what was your reaction? In fact, I took it very seriously. General Russell himself had enough experience to recognize Ebola when he saw it. With Marburg 67, it was monkeys that brought the virus to Europe. In we had no idea where the virus came from, so when he said he had Ebola in monkeys I sure believed him. We went to Fort Detrick the next day. There are a number of issues concerning the response to an epidemic raised by both "The Hot Zone" and "Outbreak". How well did these describe the interaction of the various agencies? The movie Outbreak created some false impressions. The law in our country gives the responsibility for epidemic management to state health departments, with these agencies calling the CDC when they need help. CDC has no authority to go into a state except by invitation. The Army could be called in by a state health department, but to my knowledge this never has happened. In the Reston incident, the Virginia Health department and the CDC took over the human health side of the episode and the Army, at the request of the monkey import company, took over the animal side. It turned out after lots of surveillance of animal caretakers and their families that there was no human disease, but there was plenty of monkey disease. So the movie Outbreak, where the Army takes over, is rather fictional. Has the Reston incident changed the way monkeys are imported and housed? There were a series of CDC investigations after the Reston episode. There was also a complete embargo on the importation of monkeys for about a year. The CDC then relicensed importers, denying licenses to those that did not have proper facilities and staff training. So I would say there has been significant improvement in this area. Countries that used to export monkeys are also getting out of that business. The use of captive bred monkeys is absolutely the trend. The goal is for complete reliance on domestic breeding. We have to stretch the definition a bit, since there is a huge captive breeding colony on a small Caribbean island. Did anyone every figure out how an African Ebola virus ended up in a monkey from the Philippines? We still have no idea where Ebola lives in nature. It was not possible to do field studies in the Philippines because of a civil war going on in the area the monkeys came from. Some studies in Africa tried to trace Marburg and Ebola, but nothing has ever been found. Are budget cuts affecting the ability of the CDC and other agencies to respond to epidemic outbreaks? Yes, hantavirus is a good example. It is a small, wonderful group of dedicated people. They really have had their budgets whacked. And then with the emergence of one disease problem after another, this has really stretched them beyond the breaking point. Can you give us an update on the Hantavirus situation? It is amazing how quickly the virus was characterized after the first outbreak in the Four Corners area.

8: Review of 'The Hot Zone' | Arts & Culture | Smithsonian

Her dissertation, 'American Miasmas: Epidemics, Environment and the Rhetoric of Contagion in US Literature And

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Culture', is a literary and cultural study of texts from four distinct periods in United States history, exploring the connection between literary and popular writing about epidemic disease in the United States and ongoing national.

9: Ebola (Ebola Virus Disease) | CDC

The Hot Zone: A Terrifying True Story is a best-selling nonfiction thriller by Richard Preston about the origins and incidents involving viral hemorrhagic fevers, particularly ebolaviruses and marburgviruses.

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