

COVERING AN EPIDEMIC:
THE EBOLA VIRUS AND AIDS IN THE NEWS

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Abstract

This paper aims to investigate media coverage of disease outbreaks and epidemics by focusing on the 2014 Ebola outbreak and the AIDS epidemic as specific examples. Using news articles and scientific reports, this paper investigates the biology and history of both diseases to provide context and analyze how news coverage changes. A study of articles published by news organizations such as *The New York Times*, *The Economist*, *TIME*, *Associated Press*, and *The Los Angeles Times* reveals that media coverage of disease outbreaks and epidemics follows three different “waves”: early scientific reporting, analysis of the political and social ramifications of an outbreak, and finally in-depth and investigative reporting of an epidemic.

Introduction

It is not unusual for diseases to capture the attention of the public. Measles became a popular topic in the news after the 2015 outbreak in Disneyland. SARS made the headlines after a major outbreak in 2002 and 2003. Swine flu was a common topic of discussion after the 2009 pandemic. Comparing the news coverage of any of these diseases illustrates the changing and evolving nature of news, where reporters must continually alter and expand their coverage to provide better information to the public. However, a comparison of two specific diseases—one a newer threat and the other responsible for millions of deaths around the globe—may illustrate deeper, more permanent trends in news coverage.

Ebola and AIDS are very different diseases. Although they originated in the same part of Africa, they don't come from the same family of viruses, and the way they infiltrate and attack the body varies significantly. Ebola burns hot and fast, while AIDS slowly works its way through its host, only becoming a major issue after years have passed.

Although these diseases may not be comparable biologically, the news coverage of their respective epidemics was strikingly similar. It progressed from scientific and health articles to political analysis and finally to in-depth, investigative pieces often exploring the more complicated aspects of the outbreaks. News articles from *The New York Times*, *TIME*, and *The Washington Post*, scientific articles from major science journals, and media updates from the Centers for Disease Control and Prevention and the World Health Organization helped to illustrate the complexity of media coverage of these epidemics. AIDS and Ebola provide a unique opportunity to compare the coverage and history of both diseases. Despite more than 30 years between the start of the AIDS epidemic and the current Ebola outbreak, the evolution of coverage for both diseases was almost exactly the same.

Part I: The Ebola Virus

The history of Ebola

When Ebola emerged onto the world stage during the 2014 epidemic, it was a relatively rare disease. Since the start of the outbreak, news outlets and health organizations around the world have provided basic information about the virus in order to answer questions and help to quell any panic that was beginning to occur. While the initial coverage provided the basics, more often than not it only skimmed the surface on what is a complicated, unique, and lethal virus.

What is Ebola?

Ebola is a zoonosis, which means it can jump from animals to humans in an event known as a spillover. Ebola isn't the first virus to spill over from animals to humans. The West Nile virus, SARS, and even AIDS have all originated in animals and jumped into humans, resulting in epidemics that have captured the attention of the public.

Belgian microbiologist Peter Piot and his research team discovered the Ebola virus, previously known as Ebola hemorrhagic fever, in 1976.¹ This then-unknown virus looked like a long, tangled worm under a microscope—an unusual shape for a virus. Piot and his team had seen the shape once before in the Marburg virus, another zoonotic disease that causes hemorrhagic fever and originated in Africa. The Ebola virus was different than Marburg, however. Piot and his team realized they'd discovered a brand new—and very deadly—virus, which they eventually named Ebola after the Ebola River in Zaire, now the Democratic Republic of the Congo, where the first sample was found.²

¹ Rob Brown, "The Virus Detective Who Discovered Ebola in 1976," *BBC*, July 17, 2014, accessed March 17, 2015, <http://www.bbc.com/news/magazine-28262541>.

² Centers for Disease Control and Prevention, "About Ebola Virus Disease," last modified December 8, 2014, <http://www.cdc.gov/vhf/ebola/about.html>.

Ebola is a member of the viral family *Filoviridae*, named after the twisted, wormy structure of the virus.³ Four of the five different strains that have been identified have spilled over into humans. The fifth form of the virus, known as the Reston ebolavirus, only infects nonhuman primates.⁴

Part of what makes the Ebola virus so deadly is the way it infiltrates the host and evades the immune system. The virus deposits its genetic material within cells and then spreads throughout the body, infecting nearly every major organ in its host. The virus damages the liver, spleen, and lymph nodes in particular.⁵ As the virus spreads throughout the body, it begins to break down the immune cells. They malfunction and die off, severely limiting the immune response. Once the virus has gained a strong foothold, it causes clots and tissue death, sometime leading to hemorrhaging (explaining the original name of Ebola hemorrhagic fever).⁶ Although the hemorrhaging occurs in only a third of the patients suffering from Ebola, most patients experience multiple-organ failure, often resulting in death from seven to ten days after first showing symptoms of the disease.⁷

The Ebola virus isn't an airborne pathogen, but it spreads quickly once a patient begins showing symptoms. These include a severe headache, fever, muscle pain and weakness, diarrhea and vomiting, stomach pain, and sometimes unexplained bleeding from the eyes, nose, and mouth, or hemorrhaging under the skin, resulting in bruises across the body. Although the patient might not exhibit all these issues, symptoms of Ebola usually present themselves between two and twenty-one days after the patient is first exposed to the virus. The symptoms usually show

³ Ibid.

⁴ Matthew Barakat, "25 years ago, a different Ebola outbreak—in USA," *Associated Press*, August 10, 2014, accessed February 24, 2015, <http://www.usatoday.com/story/news/nation/2014/08/10/ebola-1989-outbreak/13860929/>.

⁵ Brown University, "Ebola virus biology and research," last modified August 20, 2014, <https://news.brown.edu/articles/2014/08/ebola>.

⁶ Ibid.

⁷ Ibid.

up between eight and ten days after exposure.⁸ During this “waiting period,” those infected with the virus aren’t typically contagious unless there is a direct exchange of body fluids. It’s only after patients begin to show symptoms that they become extremely contagious, as large amounts of the virus can be found in body fluids such as sweat, feces, vomit, saliva, semen, and urine.⁹ During this time, those who are working in close contact with the infected person are at the greatest risk for contracting and spreading Ebola.

The Ebola reservoir

Beyond the terrifying expression of symptoms and the towering mortality rates, part of the fear associated with Ebola is the fact that after almost 40 years of research, scientists still don’t know a great deal about this disease. One of the largest gaps in the study of Ebola involves the animal that carries Ebola without the virus affecting it, known as the viral reservoir. In his book *Spillover: Animal Infections and the Next Human Pandemic*, David Quammen titled his chapter on Ebola “13 Gorillas,” referring to a pile of 13 dead gorillas that some villagers had seen in the jungles outside Mayibout 2, a small village in Gabon. The pile of gorillas was discovered after an Ebola outbreak in 1996. The title doesn’t give much away about the gorillas’ connection to Ebola, but in actuality it hints about the devastating nature of the virus in non-human and non-reservoir species, especially primates. It turns out that the mortality rate of Ebola in gorillas is significantly higher than in humans—95 percent compared to 60 percent.¹⁰

⁸ Centers for Disease Control and Prevention, “Signs and Symptoms,” last modified November 2, 2014, <http://www.cdc.gov/vhf/ebola/symptoms/>.

⁹ Centers for Disease Control and Prevention, “Transmission,” last modified February 12, 2015, <http://www.cdc.gov/vhf/ebola/transmission/index.html>.

¹⁰ David Quammen, *Ebola: The Natural and Human History of a Deadly Virus* (New York: W.W. Norton & Company, 2014).

The virus can live inside a reservoir animal without affecting the host. For HIV-1, this reservoir is a chimpanzee. For SARS, it's a bat. For dengue, it's a mosquito.

For Ebola, scientists are drawing a blank.

Researchers have had almost 40 years to find the viral reservoir, and in that time they've only found hypotheticals. For an animal to serve as a reservoir, scientists need to find live virus inside the animals to prove that they can be long-term hosts of the disease without succumbing to it themselves. Once scientists can find the reservoirs in nature, they have a better chance of developing a way to fight back against the virus. The animal reservoir provides a way to study the virus in a species that is immune to its effects.

Bats as the Ebola reservoir

So why haven't scientists found the reservoir for Ebola? As with everything else involving this virus, it's complicated.

When Ebola was discovered in 1976, doctors were more concerned with stopping the spread of disease and learning about its role in humans than finding the reservoir host.¹¹ The second issue that makes Ebola both unique and frustrating to researchers is the fact that the virus can suddenly break out in a village, then quietly recede back into the jungle like a poisonous fog, often disappearing for years at a time before the next outbreak in a new location. The evasive nature of Ebola makes studying the disease difficult because scientists can't learn about the disease if they can't find anyone who has it. For past outbreaks this was a significant issue, as most of the outbreaks were self-contained in small, isolated villages.

It wasn't until a major outbreak in Kikwit, Zaire, in 1997 that scientists found better footing in their search for the reservoir, as they could attempt to trace this larger infection back to

¹¹ Ibid.

the possible spillover event. After finding the first victim of this outbreak, a team of scientists from multinational research institutions captured hundreds of different types of animals in the area in order to test their blood, saliva, and feces for evidence of Ebola. Scientists tested cows, birds, dogs, reptiles, and monkeys, but no samples tested positive for the virus.¹²

Although the researchers couldn't make any conclusions about what type of animal spread Ebola, they did come to three main conclusions. First, based on previous studies of similar viruses and reservoirs, researchers hypothesized that the Ebola reservoir was likely a mammal. Second, outbreaks occurred in forested areas, so the reservoir was probably an animal that lived in the forest. Third, the spillover events and subsequent outbreaks were rare, so it was likely that the animal was a rare species or did not come in contact with people often.¹³ The research was published in 1999, and for six years, no major advancements were made in identifying the reservoir. Fast forward to 2005, and scientists might have a suspect: the Angolan fruit-tailed bat, a species of small, insect-eating bats.¹⁴

This wasn't the first time that bats were the suspected reservoirs. In fact, bats are a common reservoir for viruses. Bats transmit the Hendra virus, SARS and rabies, in addition to more than 60 other types of viruses.¹⁵ Although more testing needs to be done, these bats would be logical reservoirs for the virus. The number of different outbreaks and the distances between them could be explained by their flying and migration patterns. In the most recent outbreak a tree full of these bats was said to have existed near the home of the first patient, creating the perfect

¹² Herwig Eirs et al., "Search for the Ebola Virus Reservoir in Kikwit, Democratic Republic of the Congo: Reflections on a Vertebrate Collection," *The Journal of Infectious Diseases* (1999) : 155-163.

¹³ Ibid.

¹⁴ Eric Leroy et al., "Fruit Bats as Reservoirs of Ebola Virus," *Nature* (2005).

¹⁵ Charles Calisher et al., "Bats: Important Reservoir Hosts of Emerging Viruses," *Clinical Microbiology Reviews* 19 (2006): 531-545.

opportunity for spillover from the bats to humans.¹⁶ These bats may have been responsible for the spillover event that triggered the 2014 Ebola outbreak, the largest since the discovery of the disease. The virus made its way into the body of a two-year-old boy who would go on to become the “patient-zero” of this global pandemic.¹⁷

The 2014 Ebola outbreak

In early December 2013 a two-year-old boy in Guinea got sick. He had a fever and experienced vomiting and diarrhea. On December 6 the boy died. Less than a week later, the boy’s mother, sister, and grandmother fell ill with the same symptoms and died a few days later.¹⁸ Visitors to the grandmother’s funeral participated in typical burial practices, which involved touching the body. They later returned to their own villages and fell ill as well, spreading the virus that killed the family.¹⁹ The infection of the young boy is likely the spillover for the 2014 Ebola epidemic, the largest outbreak of the disease on record.²⁰

It wasn’t until March 22 that Guinea confirmed the hemorrhagic fever sweeping through the country was Ebola. At that point, 50 people had died of the disease. Health officials, however, are certain it is a conservative number, as many cases go unreported, especially deaths in smaller villages.²¹ Less than two weeks later, Liberia, a neighboring country to Guinea,

¹⁶ Melissa Hogenboom, “Ebola: Is bushmeat behind the outbreak?” *BBC*, October 19, 2014, accessed January 25, 2015, <http://www.bbc.com/news/health-29604204>.

¹⁷ Sylvain Baize et al., “Emergence of Zaire Ebola Virus Disease in Guinea,” *The New England Journal of Medicine* 371 (2014):1418-1425.

¹⁸ Denise Grady and Sheri Fink, “Tracing Ebola’s Outbreak to an American 2-Year-Old,” *The New York Times*, August 9, 2014, accessed December 15, 2014, http://www.nytimes.com/2014/08/10/world/africa/tracing-ebolabreakout-to-an-african-2-year-old.html?_r=0.

¹⁹ Baize, “Emergence of Zaire Ebola Virus Disease in Guinea.”

²⁰ Grady and Fink, “Tracing Ebola’s Outbreak.”

²¹ Pascal Fletcher and Jonathan Oatis, “Worst Ebola Outbreak on Record Tests Global Response,” *Reuters*, September 30, 2014, accessed December 17, 2014, <http://www.reuters.com/article/2014/09/30/us-health-ebola-chronology-idUSKCN0HP2MQ20140930>.

reported two cases of the virus, and Sierra Leone had suspected cases.²² Around this time, Doctors Without Borders, also known as Médecins Sans Frontières, was one of the first organizations to arrive in West Africa to provide help. It issued a statement saying that the spread of Ebola was “unprecedented” and that immediate aid to the area was necessary.²³ The World Health Organization issued a statement at the same time, saying the outbreak was “relatively small still.”²⁴

Ebola in population centers

By June, Ebola had reached Monrovia, the capital of Liberia. For doctors, this was incredibly troubling, as Monrovia’s population is close to one million, allowing for quick transfer and spread of the disease. Better access to airports in the city could also increase the reach of the disease, turning the threat of Ebola into a global issue. Ebola had killed more than 350 people, making it the deadliest outbreak of the disease on record.²⁵ The mortality rate in all the countries affected was about 50 percent, a high rate for any disease.²⁶

Because of the way Ebola is easily transmitted through body fluids, the outbreaks tend to explode exponentially when they reach places with high population densities. The number of cases skyrocketed after the disease reached the capital of Liberia and trickled toward larger cities in Sierra Leone and Guinea. By October the World Health Organization had confirmed 8,997

²² Ibid.

²³ Ibid.

²⁴ Lena Sun et al., “Out of Control: How the world’s health organizations failed to stop the Ebola disaster,” October 4, 2014, accessed October 20, 2014, <http://www.washingtonpost.com/sf/national/2014/10/04/how-ebola-sped-out-of-control/>.

²⁵ Fletcher and Oatis, “Worst Ebola Outbreak on Record Tests Global Response.”

²⁶ World Health Organization, “Ebola Virus Disease,” last modified April 2015, <http://www.who.int/mediacentre/factsheets/fs103/en/>.

cases, with 47 percent of them in Liberia.²⁷ By this time, the outbreak had killed more people than all the previous outbreaks combined.²⁸

With the number of cases growing exponentially as it wormed its way through population centers, virologists feared that the disease would jump from Africa to a new continent and continue to spread. In a way the virus did make that jump in early August, although the situation surrounding the virus' movement was highly controlled. Two American missionaries working in Africa had contracted Ebola and were flown back to the United States for treatment. Initially, their return caused an uproar. For the first time since the outbreak, Ebola became a trending topic on Twitter and other social media sites. The two missionaries, Dr. Kent Brantly and Nancy Writebol, were treated at Emory University Hospital. They were placed in an isolation ward and given an experimental drug known as ZMapp to target and inactivate the Ebola virus.²⁹ Both of the patients survived and left the hospital with no trace of Ebola in their system.

So in a way, Ebola had reached the United States. However, this wasn't the first time the U.S. had seen Ebola on its shores. The Reston ebolavirus, one of the five strains of Ebola, had made an appearance in Virginia in 1989, when a shipment of macaque monkeys started showing flu-like symptoms before succumbing. Autopsies revealed that they had experienced internal hemorrhaging, a trademark of Ebola and Marburg. When the U.S. Army Medical Research Institute of Infectious Disease arrived on the scene and tested the monkeys, they found Reston ebolavirus, although the strain didn't infect humans.³⁰

²⁷ Centers for Disease Control and Prevention, "2014 Ebola Outbreak in West Africa- Case Counts," last modified April 29, 2015, <http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html>.

²⁸ "The Ebola crisis: Much worse to come," *The Economist*, October 18, 2014, accessed November 12, 2014, <http://www.economist.com/news/international/21625813-ebola-epidemic-west-africa-poses-catastrophic-threat-region-and-could-yet>.

²⁹ "Experimental Ebola Drug: Questions and Answers about ZMapp," *Associated Press*, August 12, 2014.

³⁰ Kelly Beaucair Vlahos, "How a Virginia suburb became an Ebola epicenter," *Fox News*, September 19, 2014, accessed February 14, 2014, <http://www.foxnews.com/science/2014/09/19/how-virginia-suburb-became-ebola-epicenter/>.

Fighting Ebola

While the prognosis was good for people receiving treatment in countries with established health care systems, such as the United States, England, and Switzerland, the established health care systems in Liberia, Sierra Leone, and Guinea were not equipped to deal with the epidemic. Military coups and civil rights issues plagued Guinea's government, and Sierra Leone and Liberia were both recovering from long, damaging civil wars.³¹ Because of these issues, people in these West African countries were slow to trust their government about the dangers of Ebola, triggering more public health issues. Early on in the outbreak, a mob attacked an Ebola clinic in Guinea, and security agents in Liberia fired bullets and tear gas into a crowd attempting to escape quarantine, resulting in the death of a teenager.³²

In addition to these issues, health care workers often faced discrimination and poor treatment by other citizens, who were fearful they would transmit the disease. This fear wasn't unfounded, as many of the people who became infected with the disease were health care workers who had direct contact with infected body fluids. Dr. Sheik Umar Khan, the doctor who led the fight against Ebola in Sierra Leone, died after being exposed to the disease.³³ Many other health care workers ended up as patients in the facilities where they worked and shared this fate.

By August, the World Health Organization had declared the Ebola epidemic an "international public health emergency," finally recognizing the severity of the situation and drawing the world's attention to the disease.³⁴ Leaders like President Obama addressed the need

³¹ "The Ebola crisis: Much worse to come."

³² Fletcher and Oatis, "Worst Ebola Outbreak on Record Tests Global Response."

³³ "Profile: Leading Ebola doctor Sheik Umar Khan," BBC, July 30, 2014, accessed August 5, 2014, <http://www.bbc.com/news/world-africa-28560507>.

³⁴ Maeve Kennedy, "WHO declares Ebola outbreak an international public health emergency," *The Guardian*, August 8, 2014, accessed August 20, 2014, <http://www.theguardian.com/society/2014/aug/08/who-ebola-outbreak-international-public-health-emergency>.

to provide more aid in order to prevent a global health crisis.³⁵ A few days later, Liberian president Ellen Johnson Sirleaf appealed to Obama for increased aid in combatting the disease. While her request for aid was warranted, doctors and politicians around the world felt that the U.S. effort to combat the Ebola epidemic had been lacking up to that point, especially given the relationship the U.S. had with Liberia, which was founded by freed American slaves.³⁶

In response to the Liberian president's request, the Obama administration said it would send members of the military to set up a 25-bed Ebola clinic to treat health care workers.³⁷ While dealing with the lack of beds for patients, the Centers for Disease Control and Prevention also released a statement estimating that 1.4 million people could contract Ebola by January if more help wasn't provided.³⁸ By the end of October, the U.S. had pledged to build 17 100-bed hospitals in Liberia over the next few months.³⁹

While countries needed money to combat Ebola, what they needed more was trained medical professionals willing to treat patients. Because of the growth of the virus and the shrinking number of available beds, doctors and medical personnel without proper training were being thrown into the fray, dealing with patients when they were most contagious. China and Cuba sent medical workers to the affected countries, while other nations pledged large donations.⁴⁰ According to *The Economist*, Doctors Without Borders "rejected a pledge of \$2.5

³⁵ Fletcher and Oatis, "Worst Ebola Outbreak on Record Tests Global Response."

³⁶ Helen Cooper, "Liberian President Pleads With Obama for Assistance in Combating Ebola," *The New York Times*, September 12, 2014, accessed September 25, 2014, <http://www.nytimes.com/2014/09/13/world/africa/liberian-president-pleads-with-obama-for-assistance-in-combating-ebola.html>.

³⁷ Ibid.

³⁸ Fletcher and Oatis, "Worst Ebola Outbreak on Record Tests Global Response."

³⁹ "The Ebola crisis: Much worse to come."

⁴⁰ Adam Taylor, "What the world is doing to stop Ebola," *The Washington Post*, September 16, 2014, accessed September 25, 2014, <http://www.washingtonpost.com/blogs/worldviews/wp/2014/09/16/what-the-world-is-doing-to-stop-ebola/>.

million from the Australian government, demanding Australian doctors instead. Australia demurred.”⁴¹

Ebola in the United States

While health officials were still concerned about Ebola spreading beyond Africa, the only time the virus left the continent was when patients were evacuated for treatment in other countries. This changed in September 2014, when Thomas Duncan, a Liberian man, flew from Liberia to Dallas after attempting to help a woman with Ebola. On September 25, Duncan walked into a Dallas emergency room with a fever and abdominal pain, which are typical symptoms of Ebola. Despite telling the nurse that he had recently been in West Africa, Duncan was sent back to his home with only pain medication. Three days later, Duncan returned to the hospital in an ambulance. Testing confirmed that he had Ebola, making his the first case to be diagnosed in the United States.⁴² Less than two weeks later, Duncan died from the disease.

The very next day, the World Health Organization released a statement saying there was no evidence the epidemic was being brought under control in West Africa, despite a growing death toll. The mortality rate remained at 50 percent.⁴³ Americans were still reeling from the news that an infected man was sent back to his home to potentially infect more people with Ebola. Four days after Duncan’s death, one of his nurses, Nina Pham, tested positive for the virus, making her the first person to contract the virus in the United States.⁴⁴ Like the medical workers in West Africa, Pham contracted the virus while caring for Duncan. Two days later,

⁴¹ “The Ebola crisis: Much worse to come,” *The Economist*.

⁴² Mark Berman and DeNeen L. Brown, “Thomas Duncan, the Texas Ebola patient, has died,” *The Washington Post*, October 8, 2014, accessed January 15, 2015, <http://www.washingtonpost.com/news/post-nation/wp/2014/10/08/texas-ebola-patient-has-died-from-ebola/>.

⁴³ Fletcher and Oatis, “Worst Ebola Outbreak on Record Tests Global Response.”

⁴⁴ Manny Fernandez and Jack Healy, “With New Ebola Cases Confirmed, U.S. Vows Vigilance,” *The New York Times*, October 15, 2014, accessed October 25, 2014, <http://www.nytimes.com/2014/10/16/us/ebola-outbreak-texas.html>.

another of Duncan's nurses, Amber Venison, tested positive for the virus. Because of these issues, the Centers for Disease Control and Prevention later released stricter protocols for health care workers treating the virus.⁴⁵

Success and setbacks

With panic growing in the United States, good news was looming on the horizon for Nigeria. Its stringent health measures and prompt medical care resulted in the country's being declared free of Ebola on October 19, 2014.⁴⁶ In a statement released at the end of the month, the World Health Organization said Ebola also appeared to be slowing in Liberia, although the country still had a long way to go before ridding itself of the disease.⁴⁷ Sierra Leone was having a more difficult time grappling with the disease, especially heading into 2015. Ebola made a comeback after a sick fisherman docked in the country and spread Ebola throughout the villages and countryside, bringing a new wave of infection to residents and exhausted medical workers. According to Emmanuel Conteh, a response coordinator who spoke with *The New York Times*, the resurgence was frustrating: "We worked so hard. It's a shame to all of us," he said.⁴⁸

Methods for containing Ebola varied in each of the countries affected, and they were met with varying degrees of success across West Africa. In Nigeria and Senegal, which are richer than Sierra Leone, Liberia, and Guinea, it was much easier to impose quarantines and immediately slow the progress of the disease. Nigeria even declared the epidemic a national

⁴⁵ Bill Chappell, "CDC Chief Announces New Shift in Ebola Protocols," *NPR*, October 27, 2014, accessed December 15, 2014, <http://www.npr.org/blogs/thetwo-way/2014/10/27/359362108/cdc-chief-announces-new-shift-in-ebola-protocols>.

⁴⁶ World Health Organization, "Nigeria is now free of Ebola virus transmission," last modified October 20, 2014, <http://www.who.int/mediacentre/news/ebola/20-october-2014/en/>.

⁴⁷ Fletcher and Oatis, "Worst Ebola Outbreak on Record Tests Global Response."

⁴⁸ Sherri Fink, "Nearly Halted in Sierra Leone, Ebola Makes a Comeback by Sea," *The New York Times*, February 28, 2015.

emergency and closed schools to stop its spread.⁴⁹ Nigeria also showed better central coordination than its neighbors, as it was able to funnel its resources into a single body for dealing with the disease—the Emergency Operation Centre for Ebola. Although Nigeria was experiencing success in combating Ebola, it was still screening for the virus at all borders.⁵⁰

Now, with a new wave of infections in Sierra Leone, officials were preparing for the next battle against a disease they had started to defeat. In an interview with *The New York Times*, Conteh was aware of the work that still needed to be done to eradicate the virus from Sierra Leone. “The war is still on,” he said. “We’re at a critical stage. We can either make or break.”⁵¹

⁴⁹ “Not necessarily a death sentence,” *The Economist*, October 20, 2014, accessed October 25, 2014, <http://www.economist.com/news/middle-east-and-africa/21626788-lessons-nigeria-not-necessarily-death-sentence>.

⁵⁰ Ibid.

⁵¹ Fink, “Nearly Halted in Sierra Leone, Ebola Makes a Comeback by Sea.”

Part 2: AIDS

The history of AIDS

When the AIDS epidemic appeared in the United States in the 1980s, the disease baffled doctors. The symptoms could not be explained by any known pathogen, and the outbreak seemed to be concentrated in homosexual men. They would eventually die from pneumocystis pneumonia, candidiasis, or Kaposi's sarcoma, which expressed itself as dark marks on the patient's skin.⁵²

These issues typically affected those with severe immunological issues, so doctors couldn't understand why previously healthy young men were dying from these diseases. Cases appeared more and more throughout the United States, especially in cities like New York, Miami, Los Angeles, and San Francisco. These observations coalesced in June 1981 in the *Morbidity and Mortality Weekly Report* from the Centers for Disease Control and Protection. This report marked the first time a publication drew attention to what would later become the AIDS epidemic.⁵³

The cases that emerged in the 1980s are commonly used to show the beginning of the epidemic. However, they were not the first AIDS cases to appear in the U.S., although these conclusions were not reached until later in the decade. After more research and tissue testing, biologists at the University of Tulane discovered that a 15-year-old boy had died in 1969 from the AIDS virus. At the time, doctors could not diagnose what was killing the teenager.⁵⁴ This case, along with a few others, would eventually help to show that the disease, whatever it was,

⁵² David Quammen, *Spillover: Animal Infections and the Next Human Pandemic* (New York: W.W. Norton & Company, 2012), 368.

⁵³ Centers for Disease Control and Prevention, "Pneumocystic Pneumonia—Los Angeles," *MMWR*, June 5, 1981.

⁵⁴ Gina Kolata, "Boy's 1969 death suggests AIDS invaded U.S. several times," *The New York Times*, <http://www.nytimes.com/1987/10/28/us/boy-s-1969-death-suggests-aids-invaded-us-several-times.html>.

had spilled over into the U.S. population multiple times, culminating in the explosion of cases and deaths in the 1980s and 1990s.

AIDS inside the human body

When the AIDS virus invades a human host, it attacks two cells in the immune system—the CD4 cells and the T helper cells, or T cells. These cells normally fight off infections, but when HIV enters them, the virus instead uses them to make copies of itself before killing the cells and moving throughout the body. Over time, the virus destroys so many CD4 cells that the body can't fight off infections. At this point, a person is said to have developed AIDS, or acquired immune-deficiency syndrome, and needs medical help to stay alive.⁵⁵

In the early years of the AIDS epidemic, doctors were not sure how AIDS spread from human to human. While the disease seemed to be concentrated in the homosexual community, researchers couldn't find any direct proof that the virus was sexually transmitted. However, later research identified that HIV is transmissible through numerous body fluids, especially blood, semen, pre-seminal fluids, vaginal fluids, rectal fluids, and breast milk. In terms of sexual behavior, anal sex is the riskiest behavior because of the fluids involved, explaining why the virus was concentrated in the homosexual community during the initial U.S. outbreak.⁵⁶ Although uncertainty and prejudice made people fear other forms of HIV transmission, it is impossible for the virus to spread through air or water, mosquito bites, shared drinking glasses or utensils, toilet seats, saliva, tears, or sweat.⁵⁷

⁵⁵ Aids.gov, "What is HIV/AIDS," last modified April 29, 2014, <https://www.aids.gov/hiv-aids-basics/hiv-aids-101/what-is-hiv-aids/>.

⁵⁶ Ibid.

⁵⁷ Centers for Disease Control and Prevention, "HIV/AIDS," last modified April 20, 2015, <http://www.cdc.gov/hiv/>.

Within two to four weeks after exposure to HIV, the victim develops a fever along with flu-like symptoms that are sometimes described as “the worst flu ever.” This stage is called the acute retroviral syndrome, which is the period of primary HIV infection. This stage is usually characterized by swollen glands and lymph nodes, which indicate the body is fighting off infection, along with a sore throat, rash, fatigue, headache, muscle and joint pain, and fever.⁵⁸

A person then moves into the clinical latency stage, where the virus reproduces very slowly and a person usually doesn't show symptoms. The final stage of infection, called AIDS, is characterized by more significant symptoms, namely significant weight loss, a recurring fever with night sweats, Kaposi's sarcoma, pneumonia, memory loss, depression, swelling of the lymph nodes in the neck, groin, or armpits, and/or sores in the mouth, anus, or genitals.⁵⁹

The CDC estimates that 35 million people are living with HIV; 3.2 of them are children. Although AIDS affects people all over the world, more than 24.7 million are living with the disease in sub-Saharan Africa.⁶⁰

What is the AIDS virus?

HIV, or the human immunodeficiency virus, causes AIDS, or acquired immune deficiency syndrome. While newer methods have made HIV a chronic disease instead of a death sentence, a person who contracts HIV has the disease for life. There is no known cure.

Like Ebola, HIV is a zoonosis that jumped from animals to humans. Since the first hypothesized spillover event in 1908, scientists estimate that more than 78 million people have become infected with the virus. Half of them have died.⁶¹

⁵⁸ Ibid.

⁵⁹ Aids.gov, “What is HIV/AIDS?”

⁶⁰ Centers for Disease Control and Prevention, “Statistics Center,” last modified April 21, 2015, <http://www.cdc.gov/hiv/statistics/index.html>.

While researchers were becoming aware of the outcomes of this disease by the early 1980s, they were still not sure what was causing AIDS. Ideas ranged from parasites to bacteria.

Luc Montagnier, a molecular biologist at the Institut Pasteur in Paris, felt that a retrovirus was behind the epidemic. Retroviruses can cause tumors in mammals and are very difficult to treat, as they can “move backwards” in terms of how they translate their genes after they’ve infiltrated a cell. When a retrovirus invades a cell, it converts its RNA into DNA. The virus’ DNA then enters the cell nucleus and moves into the genome of the cell, effectively ensuring that the virus will replicate when the host cell does, allowing it to grow inside the body.⁶²

Robert Gallo, a researcher at the Laboratory of Tumor Cell Biology at the National Cancer Institute, supported Montagnier’s idea about the retrovirus. Gallo had identified a different retrovirus in early 1981 called human T-cell leukemia virus (HTLV), which attacks human T cells and makes them cancerous. Since T cells are one of the three main cells involved in the immune system, weakening these cells has a drastic impact on immune response.⁶³

In 1983 three independent research teams, led by Gallo, Montagnier, and Jay Levy at the University of California, San Francisco, identified a retrovirus that they believed was the cause of AIDS. While issues arose about who truly “discovered” the virus, the United States and France eventually agreed to a joint discovery, ending the contention about “who got there first.” In 1986 this new retrovirus was named HIV.⁶⁴

One of the primary goals in identifying the virus was to provide a specific target for blood tests. In addition, isolating the virus was instrumental in determining the original source of

⁶¹ Carl Zimmer, “Two strains of H.I.V. cut vastly different paths,” *The New York Times*, March 2, 2015, accessed March 17, 2015, http://www.nytimes.com/2015/03/02/science/two-strains-of-hiv-cut-vastly-different-paths.html?_r=0

⁶² Quammen, *Spillover*.

⁶³ *Ibid*.

⁶⁴ U.S. Department of Health and Human Services, “A Timeline of AIDS,” AIDS.gov, last modified n.a., <https://www.aids.gov/hiv-aids-basics/hiv-aids-101/aids-timeline/>.

the disease. In 1985 a virus discovered in macaque monkeys was closely related to HIV.⁶⁵ Since that discovery, scientists have found 40 other primate species in Africa that carry their own version of HIV, known as simian immunodeficiency viruses (SIV). Because of the many similarities between these two viruses, scientists realized that HIV had come from the same ancestral virus that causes SIV and had jumped from primates to humans.⁶⁶

Where did AIDS come from?

Like Ebola, AIDS is a zoonosis. It originates in an animal and makes the jump to humans after a spillover event. The Ebola virus has had relatively few known spillover events, making it easier to track its history. The AIDS virus, on the other hand, is much more complicated. It is unlikely that a Patient Zero will be found.

But that didn't stop people from pointing fingers.

During the emergence of AIDS in the U.S. in the early 1980s, many people believed that one man was responsible for the epidemic that would eventually take millions of lives. Gaetan Dugas was a French Canadian flight attendant who flew from city to city and had unprotected sex with men in bathhouses. In his book *And the Band Played On*, Randy Shilts claimed that once Dugas discovered he had AIDS, originally called "gay cancer," he became more malicious in his conquests. He continued to have unprotected sex with unsuspecting men. Shilts reported that Dugas would have sex with a random man in a bathhouse, then turn the lights on, show his partner his Kaposi's sarcoma, and exclaim, "I've got gay cancer. I'm going to die and so are

⁶⁵ Zimmer, "Two strains of H.I.V. cut vastly different paths."

⁶⁶ Ibid.

you.”⁶⁷ Researchers postulate that while Dugas was responsible for thousands of AIDS cases, he was not Patient Zero.⁶⁸

When the AIDS virus infiltrates a human cell, the DNA from the virus attaches to the genome for replication. The virus isn't copied perfectly, so the virus doesn't stay exactly the same in every person who has it.⁶⁹ These errors in replication happen at a predictable rate, so scientists are able to look at a population with AIDS and trace the diversity of the virus back to a common ancestor. Using the replication error rate as a kind of clock, researchers traced the virus back to 1966.⁷⁰ Scientists determined that was the year AIDS first entered the United States, effectively eliminating the flight attendant as Patient Zero. From there, they traced it back to Haiti, and then further back to Africa to two of the earliest HIV positive cases: ZR59 and DRC60.⁷¹

ZR59 was a blood sample that came from a Bantu man in Kinshasa who tested positive for HIV. Michael Worobey, an ecology and evolutionary biologist at the University of Arizona, discovered the second sample, DRC60, as a preserved piece of human tissue in Kinshasa dating back to 1960. This sample also tested positive for HIV. Worobey measured the differences between the two viral samples to see how much they varied, then worked backward to determine when the earliest common ancestor between the two viruses could have appeared. He traced the virus all the way back to 1908, potentially identifying the original spillover date when HIV entered the human population.⁷²

⁶⁷ Randy Shilts, *Politics, People, and the AIDS Epidemic* (New York: St. Martin's Griffin, 1987), 165.

⁶⁸ Jad Abumrad and Robert Krulwich “Patient Zero,” *Radiolab*, November 13, 2014.

⁶⁹ *Ibid.*

⁷⁰ Quammen, *Spillover*.

⁷¹ *Ibid.*

⁷² Elahe Izadi, “Tracing the long, convoluted history of the AIDS epidemic,” February 24, 2015, accessed March 15, 2015, <http://www.washingtonpost.com/news/to-your-health/wp/2015/02/24/tracing-the-long-convoluted-history-of-the-aids-epidemic/>.

How did humans get AIDS?

After the discovery of SIV in 1985, it became increasingly clear to scientists that HIV had evolved from an SIV ancestor, as the viruses were fairly similar despite being found in different mammals. Tracing the ancestry of HIV is made more difficult because of the different types of the virus, both of which emerged from different forms of SIV. HIV-1, which is the most common form, is responsible for the global epidemic. HIV-2 is centered in West Africa, where it originates in sooty mangabeys, a type of monkey commonly found in the area.⁷³ Research suggests that HIV-2 has spilled over into humans at least nine different times, with a slightly different form of the virus emerging during each spillover event.⁷⁴

Scientists hypothesize that HIV-1 spilled over from chimpanzees in areas like Gabon, where scientists tracked monkeys and chimps and collected biological materials in order to see how forms of HIV-1 differentiated in the area. The viruses they found in the chimps were incredibly diverse. The scientists theorized that the chimps had been reservoirs of SIV for thousands of years, allowing it to mutate. In 1989 Martine Peeters, a virologist at the Institute of Research for Development and the University of Montpellier in France, discovered that some chimps in Cameroon had a strain of SIV that was one of the closest genetic matches to HIV-1.⁷⁵ Beatrice Hanh, a microbiologist and co-director of the Center for AIDS Research at the University of Pennsylvania, corroborated this discovery. She determined that chimps in southeastern Cameroon, surrounded by three rivers in an area of less than 100 square miles, had

⁷³ Zimmer, "Two strains of H.I.V. cut vastly different paths."

⁷⁴ Ibid.

⁷⁵ David Quammen, *The Chimp and the River* (New York: W.W. Norton & Company, 2014).

the closest SIV to HIV-1 ever found.⁷⁶ Her discovery indicated that spillover events from chimps with this type of SIV were likely responsible for the AIDS epidemic.

So how did these chimps give the virus to humans? According to David Quammen, author of *Spillover*, the most likely theory is called the Cut Hunter Hypothesis. A hunter, most likely a Bantu man living in southeastern Cameroon, was hunting and killed a chimpanzee. While cutting up the meat, the hunter may have cut himself. This blood-to blood contact introduced the virus into the body of a human, which was similar enough to that of the chimp so it could still function. While there is no definitive proof that this is how AIDS spilled over into humans, many researchers speculate that it is a likely scenario.⁷⁷

The cut hunter or a different Patient Zero may have traveled out of southeastern Cameroon, likely down the Sangha River, along the Congo River, and into the city of Brazzaville. There, the virus mutated, eventually spreading across the globe.⁷⁸

The beginning of an epidemic

On June 5, 1981, the Centers for Disease Control and Prevention published their *Morbidity and Mortality Weekly Report (MMWR)*. In it, doctors diagnosed five cases of *Pneumocystis carinii* pneumonia in homosexual men in Los Angeles. This disease commonly occurs in patients whose immune system is severely compromised.⁷⁹ The patients did not know each other and had no common knowledge about shared sexual partners or other sexual partners with similar issues. Two of the patients later died from the disease, leaving doctors baffled about how the young, previously healthy men had contracted such a rare disease.

⁷⁶ Paul Sharp and Beatrice Hahn, "Origins of HIV and the AIDS Pandemic," *Cold Spring Harbor Perspectives in Medicine* (2011), <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3234451/>.

⁷⁷ Quammen, *Spillover*.

⁷⁸ Ibid.

⁷⁹ "Pneumocystis pneumonia—Los Angeles," June 5, 1981.

After journalists at the Associated Press picked up the report, the CDC was flooded with calls from doctors around the country describing additional confirmed cases of the rare pneumonia and other strange disease in homosexual men.⁸⁰ On June 8 the CDC created a task force to investigate Kaposi's sarcoma and other opportunistic infections in order to trace possible risk factors and determine the cause of the mysterious outbreak.⁸¹

Less than a month later, doctors in California and New York reported 41 confirmed cases of Kaposi's sarcoma to the CDC. Eight of these patients died less than 24 hours after the initial diagnosis.⁸² Doctors had believed that Kaposi's sarcoma took up to 10 years to progress and usually only started expressing itself through spots on the legs. Now, the doctors noted, Kaposi's sarcoma took a considerably shorter time to spread throughout the body, and the bruise-like marks could appear anywhere on the patient's body. While the disease accounted for a relatively small percentage of cancer-related deaths in the United States, it accounted for up to 9 percent of all cancers in Africa, where it mainly affected children and young adults.⁸³ Doctors ended the report by noting that no heterosexuals were known to have any of the opportunistic infections.

By the end of 1981, doctors across the nation reported more than 270 cases of immune deficiency in homosexual men, noting that 121 men had already died from many of the opportunistic diseases they were finding.⁸⁴ Despite the growing mortality rate, doctors still didn't know what was causing the immune failure or how this mysterious disease was spreading from person to person. This disease was referred to as GRID, or Gay-Related Immune Deficiency Disorder.

⁸⁰ U.S. Department of Health and Human Services, "A Timeline of AIDS."

⁸¹ Ibid.

⁸² Lawrence Altman, "Rare Cancer Seen in 41 Homosexuals," *The New York Times*, June 3 1981, accessed March 15, 2015, <http://www.nytimes.com/1981/07/03/us/rare-cancer-seen-in-41-homosexuals.html>.

⁸³ Ibid.

⁸⁴ U.S. Department of Health and Human Services, "A Timeline of AIDS."

The “gay disease”

While the homosexual community was grappling with this growing issue, they were also fighting for equal rights in the midst of a highly conservative administration. When the CDC published their first report on the initial outbreak, Ronald Reagan had been president for six months. His administration did not endorse a homosexual rights platform, as their Democratic counterparts had done by 1980. Despite widespread lobbying, only one state had outlawed discrimination based sexual orientation by 1982.⁸⁵

With the emergence of this new disease, the gay community began to face new forms of prejudice and discrimination. Many people referred to GRID as the “gay cancer” or “gay plague.” Because of this stigma, much of the initial help for the disease came from community-based actions and organizations. San Francisco and New York City were two of the first places to rally support against the unknown pathogen. In 1981 New York launched the Gay Men’s Health Crisis, the first community-based AIDS service provider in the United States.⁸⁶ The next year San Francisco established what would later become known as the American AIDS Clinic.

Despite the conservative administration in the White House, a few lawmakers in Congress attempted to draw attention to the disease early on. Public health agencies faced significant cuts from Reagan’s budget director, David Stockman.⁸⁷ Representatives Henry Waxman and Philip Burton introduced legislation allocating \$5 million for disease surveillance

⁸⁵ “Milestones in American Gay Rights Movement,” *PBS*, last modified n.a., accessed April 15, 2015, <http://www.pbs.org/wgbh/americanexperience/features/timeline/stonewall/>.

⁸⁶ “Gay Men’s Health Crisis: About Us,” last modified n.a., accessed April 15, 2015, <http://www.gmhc.org/about-us/about-us>.

⁸⁷ Joshua Green, “The Heroic Story of How Congress First Confronted AIDS,” *The Atlantic*, June 8, 2011, accessed March 15, 2015, <http://www.theatlantic.com/politics/archive/2011/06/the-heroic-story-of-how-congress-first-confronted-aids/240131/>.

and \$10 million for AIDS research to the National Institutes of Health.⁸⁸ The CDC helped eradicate part of the stigma associated with the disease by officially naming it AIDS, or acquired immune deficiency syndrome, thereby removing the homosexual aspect from its name.⁸⁹

The growing threat

In a way, this step to rename AIDS foreshadowed the emergence of the disease in different population groups throughout the U.S., causing doctors to further question exactly how AIDS is passed from person to person. Until July 1982, only homosexual men and intravenous drug users were known to have the disease. This changed when doctors confirmed that 34 Haitians had AIDS. These patients didn't follow the normal pattern, as they were not homosexual or IV drug users, and four of the patients were female.⁹⁰ At that point, 452 patients had been diagnosed with AIDS, including the 34 Haitians. Of that group, 113 patients stated that they were not homosexual, 23 cases were women, and 180 said they were not drug users.⁹¹

The patient pool grew even larger and more diverse in December after an infant who had received blood transfusions died from immune deficiency.⁹² In addition to this child, five new hemophilia patients were diagnosed with AIDS, bringing the total number of diagnosed hemophilia patients to seven. These hemophilia patients and the infant had been given a series of blood transfusions that mixed blood from a multitude of donors. By the end of 1982, the CDC

⁸⁸ U.S. Department of Health and Human Services, "A Timeline of AIDS."

⁸⁹ Ibid.

⁹⁰ Lawrence Altman, "Five States Report Disorder in Haitians' Immune System," *The New York Times*, July 9, 1982, accessed April 16, 2015, <http://www.nytimes.com/1982/07/09/us/five-states-report-disorders-in-haitians-immune-systems.html>.

⁹¹ Ibid.

⁹² Harold Schmenk, "Infant Who Received Transfusion Dies of Immune Deficiency Illness," *The New York Times*, December 10, 1982, accessed December 15, 2014, <http://www.nytimes.com/1982/12/10/us/infant-who-received-transfusion-dies-of-immune-deficiency-illness.html>.

had confirmed 788 cases of AIDS in different groups across the United States but still hadn't pinpointed a cause for the disease.⁹³

Recognizing the growing threat to hemophilia patients, the CDC hosted a conference with the nation's blood banks on January 4, 1983, to discuss new policy to help curb the threat of AIDS to hemophiliacs. Although the CDC presented information indicating that AIDS was transmissible through the blood supply, the issue was only approached as a possibility rather than a definitive conclusion. To screen the blood, the CDC suggested questioning donors about risk factors and behaviors and testing the blood for hepatitis B, as the antibodies for the disease were also commonly found in people who had AIDS. A multitude of screening methods were discussed, but the blood banks couldn't reach a consensus about these precautions because the CDC hadn't confirmed that the disease was transferred through blood.⁹⁴

New evidence appeared in January indicating that AIDS was a sexually transmissible disease. Six women, all of who had male partners with AIDS but no other risk factors, started exhibiting symptoms of the disease.⁹⁵ These findings were compiled in the March 4 MMWR, which stated that documented cases of AIDS had been found in homosexuals, injection drug users, Haitians, and hemophiliacs and that the disease may be transmissible both sexually and from blood-to-blood contact.⁹⁶ Dr. James Curran, who led AIDS research at the CDC, used these findings as further evidence of the similarities between hepatitis B and AIDS, as hepatitis B is also spread by sex and blood-to-blood contact.⁹⁷

⁹³ Ibid.

⁹⁴ "HIV and the Blood Supply: An Analysis of Crisis Decision Making," *The National Center for Biotechnology Information*, The National Academy of Sciences, 1995.

⁹⁵ Lawrence Altman, "Research Traces AIDS in 6 of 7 Female Partners," *The New York Times*, May 19, 1983.

⁹⁶ Centers for Disease Control and Prevention, "Current Trends Prevention of Acquired Immune Deficiency Syndrome (AIDS): Report of Inter-Agency Recommendations," *MMWR*, March 4, 1983.

⁹⁷ Ibid.

As researchers learned more about the disease, they attempted to develop new ways to combat its spread without the use of additional medicine. Realizing that AIDS was likely spread by blood-to-blood contact, the CDC issued a statement warning people to avoid injection drug use and to stop sharing needles.⁹⁸ As a further, more radical precautionary measure, doctors at the CDC also spoke with officials about the closure of the bathhouses in cities like New York, San Francisco, and Los Angeles. Bathhouses had been considered a form of sexual liberation for homosexuals in these cities, but researchers and doctors urged public health officials to close the businesses after evidence suggested that unsafe sex practices increased the risk for the transmission of AIDS.⁹⁹ By October, all the bathhouses were closed in San Francisco. New York and Los Angeles followed suit within a year.¹⁰⁰

Testing for AIDS

While the antibody test for hepatitis B identified most of the AIDS cases, doctors didn't know what caused AIDS. In February 1983, Dr. Robert Gallo, a biomedical researcher at the National Institutes of Health, said that a retrovirus was the most likely cause of the disease. This claim was supported by research from Gallo's lab in the U.S. and research emerging from France.¹⁰¹ Some researchers even claimed that the retrovirus Gallo had discovered, known as HTLV, could be the culprit behind AIDS. This hypothesis was contested in May 1983, when Dr. Luc Montagnier of the Pasteur Institute in France discovered a retrovirus called

⁹⁸ Ibid.

⁹⁹ "14 San Francisco sex clubs told to close to curb AIDS," *AP*, October 10 1984, accessed December 20, 2014, <http://www.nytimes.com/1984/10/10/us/14-san-francisco-sex-clubs-told-to-close-to-curb-aids.html>.

¹⁰⁰ "A Timeline of AIDS," AIDS.gov.

¹⁰¹ Lawrence Altman, "The Doctor's World: In Pursuit of the Cause of AIDS," *The New York Times*, October 11, 1983, accessed December 20, 2014, <http://www.nytimes.com/1983/10/11/science/the-doctor-s-world-in-pursuit-of-the-cause-of-aids.html>.

lymphadenopathy associated virus, or LAV.¹⁰² In April 1984, Gallo claimed he had discovered yet a different retrovirus, HTLV-III, which he said caused AIDS.¹⁰³ Testing later confirmed that the viruses found at the two labs were the same virus and the most likely cause of AIDS.¹⁰⁴

By March 1986, the Food and Drug Administration had created a blood test to screen for antibodies for this new retrovirus in addition to the hepatitis B test. The new test, later called the ELISA test, cost only six dollars and was intended for use by blood banks as an additional screening procedure rather than as a diagnostic tool for AIDS. The FDA told the public that the test was still not perfect, as it sometimes produced false positive results.¹⁰⁵

Growing awareness

It wasn't until September 1985 that President Reagan addressed the issue of AIDS, stating in a letter to Congress that he would make AIDS research a priority.¹⁰⁶ His attention to the disease may have been exacerbated by the health of his friend and actor Rock Hudson, who would die of AIDS less than a month after Reagan's letter. Hudson, who was suspected of being a homosexual but never discussed the issue publicly, had initially stated that he was suffering from liver cancer. His spokesperson later informed the press that Hudson had AIDS, making him the first public figure to acknowledge having the disease.¹⁰⁷ His death also showed the public that AIDS was only going to grow in notoriety.

¹⁰² U.S. Department of Health and Human Services, "A Timeline of AIDS."

¹⁰³ Lawrence Altman, "New U.S. Report Names Virus that may Cause AIDS," *The New York Times*, April 23, 1984, accessed December 20, 2014, <http://www.nytimes.com/1984/04/24/science/new-us-report-names-virus-that-may-cause-aids.html>.

¹⁰⁴ U.S. Department of Health and Human Services, "A Timeline of AIDS."

¹⁰⁵ Robert Pear, "AIDS Blood Test Available in 2 to 6 Weeks," *The New York Times*, March 3, 1985, accessed March 15, 2015, <http://www.nytimes.com/1985/03/03/us/aids-blood-test-to-be-available-in-2-to-6-weeks.html>.

¹⁰⁶ U.S. Department of Health and Human Services, "A Timeline of AIDS."

¹⁰⁷ Joseph Berger, "Rock Hudson, Screen Idol, Dies at 59," *The New York Times*, October 3, 1989, accessed March 15, 2015, <http://partners.nytimes.com/library/national/science/aids/100385sci-aids.html>.

As AIDS became a constant in news headlines, the virus that causes it began to attract more press as well. The retrovirus co-discovered by Gallo and Montagnier was officially named HIV, or human immunodeficiency virus, in May 1986. A few months later, on October 22, the U.S. surgeon general, C. Everett Koop, issued his first report on AIDS. Koop urged parents to have open and clear discussions with their children about AIDS as a way to promote safety and understanding.¹⁰⁸ This report, which was the first major statement issued by the U.S. government about what the nation could do to slow the spread of AIDS, clarified the way the disease is spread and urged those who engaged in high-risk behaviors to take a blood test to determine their status.¹⁰⁹ In addition to medical advice, Koop made statements about the treatment of those infected with AIDS. He rejected ideas such as required blood testing and the forced quarantine or marking of people living with AIDS.¹¹⁰

Despite the government's stronger stance, many doctors still criticized the administration's response to AIDS. The National Academy of Sciences called it "dangerously inadequate" and claimed that the AIDS epidemic was becoming so dangerous it would need "the most wide-ranging and intensive efforts ever made against an infectious disease."¹¹¹

This criticism continued in 1987, when Reagan made his first public speech about AIDS—six years and almost 100,000 cases after the start of the epidemic. In his speech, Reagan appointed 12 members to a national commission on AIDS that would assist in research to find a

¹⁰⁸ C. Everett Koop, "The Surgeon General's Report on Acquired Immune Deficiency Syndrome," U.S. Department of Public Health, October 22, 1986.

¹⁰⁹ Philip Boffey "Surgeon General Urges Frank Talk to Young on AIDS," *The New York Times*, October 23, 1986, accessed March 15, 2015, <http://www.nytimes.com/1986/10/23/us/surgeon-general-urges-frank-talk-to-young-on-aids.html>.

¹¹⁰ Koop, "The Surgeon General's Report."

¹¹¹ Philip Boffey, "Federal Efforts Criticized as Gravely Weak," *The New York Times*, October 30, 1986, accessed March 15, 2015, <http://www.nytimes.com/1986/10/30/us/federal-efforts-on-aids-criticized-as-gravely-weak.html>.

cure for the disease and determine what measures could be taken at the federal, state, and local levels to combat its spread.¹¹²

As the federal effort to fight the disease grew, so did national and global attention. In October 1987, AIDS became the first disease ever debated by the United Nations. The World Health Organization was appointed to lead global efforts to fight the disease.¹¹³ As a way to increase global awareness, it declared December 1 World AIDS Day, dedicated to increasing awareness about the disease while also mourning those who had lost their lives to AIDS.¹¹⁴

By the end of the decade, more than 100,000 cases of AIDS were confirmed in the United States. One of the most surprising disclosures came in 1991, when the Los Angeles Lakers basketball player Magic Johnson announced that he was HIV positive, effectively ending his career. During his press conference, Johnson said, “I think sometimes we think, well, only gay people can get it—‘It’s not going to happen to me.’ And here I am saying it can happen to anybody, even me, Magic Johnson.”¹¹⁵ That same year Freddie Mercury, lead singer of the band Queen, died from AIDS-related complications of bronchial pneumonia.

¹¹² Philip Boffey, “Reagan Names 12 to Panel on AIDS,” *The New York Times*, July 24, 1987, accessed March 15, 2015, <http://www.nytimes.com/1987/07/24/us/reagan-names-12-to-panel-on-aids.html>.

¹¹³ U.S. Department of Health and Human Services, “A Timeline of AIDS.”

¹¹⁴ World Health Organization, “World AIDS Day,” accessed December 20, 2014, <http://www.worldaidsday.org/>.

¹¹⁵ Richard Stevenson, “Basketball; Magic Johnson Ends His Career, Saying He Has AIDS Infection,” *The New York Times*, November 8, 1991, accessed November 20, 2014, <http://www.nytimes.com/1991/11/08/sports/basketball-magic-johnson-ends-his-career-saying-he-has-aids-infection.html>.

Discrimination and AIDS

When AIDS emerged in the United States in the early 1980s, many people used it as a way to further stigmatize the homosexual community, calling it “gay cancer” or the “gay plague.” When the virus jumped into the blood supply and began infecting people outside the gay community, the stigma quickly turned to fear. Early on in the epidemic, many doctors had patients visiting their offices, worried that bruises, freckles, or bug bites were an early sign of Kaposi’s sarcoma.¹¹⁶ Once the news broke about hemophiliacs developing AIDS and the presence of the disease in the blood supply, doctors, hospitals, and the Red Cross noted a significant decrease in blood donations throughout the nation, as people were concerned about contracting the disease by donating.¹¹⁷

Those who had the disease faced increasing stigmatization. In 1985 Ryan White, a hemophiliac who had contracted AIDS after a blood transfusion, was banned from a public school in Kokomo, Indiana. After a court battle, the 14-year-old attended school, but people refused to touch him, boys taunted him, and a group of vandals attacked his home and slashed the tires on the family car.¹¹⁸ This discrimination against individuals continued until 1990, when Congress passed the Americans with Disabilities Act. It prohibited discrimination against Americans with disabilities, including those with HIV and AIDS.¹¹⁹ This discrimination eventually made its way into movie theaters with the 1993 release of *Philadelphia*, the first

¹¹⁶ Robin Herman, “A Disease’s Spread Provokes Anxiety,” *The New York Times*, August 8, 1982, accessed November 20, 2015, <http://www.nytimes.com/1982/08/08/nyregion/a-disease-s-spread-provokes-anxiety.html>.

¹¹⁷ Robert Pear, “AIDS Blood Test Available in 2 to 6 Weeks,” *The New York Times*, March 3, 1985, accessed March 15, 2015, <http://www.nytimes.com/1985/03/03/us/aids-blood-test-to-be-available-in-2-to-6-weeks.html>.

¹¹⁸ Dirk Johnson, “Ryan White Dies of AIDS at 18; His Struggle Helped Pierce Myths,” *The New York Times*, April 9, 1990, accessed March 15, 2015, <http://www.nytimes.com/1990/04/09/obituaries/ryan-white-dies-of-aids-at-18-his-struggle-helped-pierce-myths.html>.

¹¹⁹ U.S. Department of Health and Human Services, “A Timeline of AIDS.”

major film about the AIDS epidemic. In the film, Tom Hanks plays a lawyer who sues his law firm after his bosses fire him when they discover he is a homosexual man with AIDS.

Treatment for AIDS

The first major advance in the treatment of AIDS came in 1987, when the FDA approved the drug AZT, or azidothymidine. AZT inhibits the way that HIV replicates within the host cell, effectively slowing down the progression of AIDS.¹²⁰ AZT initially showed strong progress against the disease. As HIV mutated, however, the effectiveness of AZT decreased and doctors realized a second method needed to be implemented to outpace the mutation.

This method appeared in 1995 as a protease inhibitor called HAART, or highly active antiretroviral therapy.¹²¹ Like AZT, the HAART treatment prevents viral replication by binding to parts of the virus. With both the HAART treatment and AZT, the virus cannot mutate quickly enough to overcome both. The number of deaths from AIDS fell from 50,000 to 18,000 a year, ending AIDS' reign as the leading cause of death for all Americans by 1996.¹²²

AIDS today

Although there is still no vaccine for HIV, researchers have made significant strides in understanding how the disease functions and the best methods to stop and even reverse its progress. So far, a vaccine has been impossible to create because of the rapid mutation of the virus. Scientists have, however, observed rare antibodies in certain people that create strong immune responses to HIV. These responses are due to mutations in the human body that create

¹²⁰ Gina Kolata, "Strong Evidence Discovered that AZT Holds Off AIDS," *The New York Times*, August 4, 1989, accessed March 15, 2015, <http://partners.nytimes.com/library/national/science/aids/080489sci-aids.html>.

¹²¹ U.S. Department of Health and Human Services, "A Timeline of AIDS."

¹²² "HIV Surveillance," Centers for Disease Control and Prevention, June 3, 2011.

broadly neutralizing antibodies capable of fighting of multiple strains of HIV.¹²³ Scientists feel this is promising research, but they are not sure how the mutations and antibodies could be used as a vaccine.

A second focus for current HIV and AIDS research involves altering the genes involved with HIV replication. This method, called “gene editing,” disables a gene to get rid of a protein on immune cells that HIV uses to infiltrate the cell, allowing it to repel the virus.¹²⁴ Recently, scientists reported the development of a compound that was highly effective at blocking HIV in monkeys for more than a year. The process, which combines both gene editing and antibody resistance, involves stimulating muscle cells to produce proteins that resemble normal antibodies. These proteins then attach themselves to the two places on immune cells where the virus attaches itself, effectively blocking it from entering the cell and forcing it to drift into the body, where it is eventually destroyed by the immune system.¹²⁵

Today, more than 35 million people are living with HIV around the world. For some, it still inspires fear and confusion. But in the decades since its discovery, AIDS has been transformed from a death sentence into a chronic, controllable disease where medicine and management can lead to a normal, healthy lifespan for those living with HIV.

¹²³ Donald McNeil, “Possible Path to vaccine for AIDS is Suggested,” *The New York Times*, April 3, 2013, accessed March 13, 2015, <http://www.nytimes.com/2013/04/04/health/aids-vaccine-path-suggested-by-study.html>.

¹²⁴ Dennis Grady, “Study Gives Hope of Altering Genes to Repel H.I.V.” *The New York Times*, March 5, 2014, accessed March 15, 2015, <http://www.nytimes.com/2014/03/06/health/study-gives-hope-of-altering-genes-to-repel-hiv.html>.

¹²⁵ Donald McNeil, “New Approach to Blocking HIV Raises Hopes for an AIDS Vaccine,” *The New York Times*, February 18, 2015, accessed March 15, 2015, <http://www.nytimes.com/2015/02/19/health/new-approach-to-blocking-hiv-raises-talk-of-an-aids-vaccine.html>.

Part 3: Covering an Epidemic

Journalism is based on ethical principles, the first and perhaps most important of which is *to seek the truth and report it*. For journalists, this means that their work should be an accurate and fair reflection of the subject they are covering. Their work should provide context, and sources should be clearly identified. Journalists should serve as “watchdogs” of the powerful, including government, industry, and military. These principles remain constant, regardless of the type of reporting, be it political journalism, sports reporting, or science journalism. An epidemic does not change or negate the use of these principles, so journalists must provide clear and accurate coverage throughout the course of the epidemic.

During an epidemic there are three general types or “waves” of coverage. The first wave is mainly coverage presented by science journalists and health reporters at the beginning of the epidemic. The information is taken from scientists and doctors working with the disease or health institutions researching and handling the epidemic. This wave typically answers the basic questions that arise at the start of an epidemic, such as what is known about the disease, what is understood about the immediate situation, and what immediate steps are being taken to better understand the disease and the outbreak.

The second wave of coverage is slightly more complicated. In addition to expanding the original coverage with new information from scientists and doctors, this coverage explores the social and political reach of the disease. This type of coverage comes from a wide variety of journalists rather than solely science reporters, and it usually answers questions pertaining to how a disease affects the world, both socially and politically.

The final wave of coverage is the most complicated and in-depth, both from a medical standpoint and an investigative perspective. This coverage typically answers big questions.

Reporters seek to analyze the broad scope of the epidemic to see what went wrong, what went right, and what steps need to be taken to prevent similar epidemics and problems.

The first wave of coverage

For the Ebola epidemic, the first wave of coverage included articles about the disease's appearance in March 2014 in Guinea. *The New York Times* coverage appeared in the health section, where one of the first articles discussed where the disease was found, how many people had died, the symptoms of Ebola, and what was being done in Guinea to take care of the situation.¹²⁶ In April the coverage stayed the same. Articles appeared with updated death counts and information about the disease reaching Monrovia, the capital of Guinea.¹²⁷ Although these articles analyzed the dangers of Ebola in a large population center, they didn't explore the issue beyond the spread of the disease and how Ebola can be transmitted from person to person.¹²⁸

News organizations continued to release this type of information throughout the course of the coverage. The BBC was one of the many organizations to follow this trend. It released information about the transmission, mortality rates, and common symptoms of the Ebola virus in December 2014, almost a year after the epidemic began.¹²⁹ The continued coverage about the disease remains constant, while the scope and spread of the disease changes. This need for context relates back to the ethical principles of journalism.

¹²⁶ Donald McNeil, "Ebola, Killing Scores in Guinea, Threatens Nearby Nation," *The New York Times*, March 24, 2014, accessed March 15, 2015, <http://www.nytimes.com/2014/03/25/health/ebola-killing-scores-in-guinea-threatens-nearby-nations.html>.

¹²⁷ Fletcher and Oatis, "Worst Ebola Outbreak on Record Tests Global Response."

¹²⁸ Adam Nossiter, "Ebola Reaches Capital in Guinea, Stirring Fears," *The New York Times*, April 1, 2014, accessed March 15, 2015, <http://www.nytimes.com/2014/04/02/world/africa/ebola-reaches-guinean-capital-stirring-fears.html>.

¹²⁹ "Ebola Basics: What you need to know," *The BBC*, December 10, 2014, accessed April 12, 2015, <http://www.bbc.com/news/health-29556006>.

In addition to articles from news organizations, institutions such as the World Health Organization and the Centers for Disease Control and Prevention released information about the epidemic in a variety of way—press releases, Twitter updates, and official statements on news programs and during press conferences. After the start of the outbreak, the CDC updated its Ebola website to include information about the 2014 epidemic, linking to material about the symptoms, spread, and history of the disease.¹³⁰ The World Health Organization website was also updated with reports and infographics detailing the situation in the three countries affected by the outbreak as well as basic info about the disease.¹³¹

This trend was not as evident at the beginning of the AIDS epidemic. Doctors knew about Ebola before the 2014 epidemic because of previous smaller outbreaks, but when AIDS cases first started appearing, doctors had no idea what the disease was beyond recognizing Kaposi's sarcoma and the opportunistic diseases affecting their patients. Because of this, the first articles that appeared about the AIDS epidemic weren't about an "unidentified disease" but instead discussed the symptoms of Kaposi's sarcoma and the abnormalities doctors were seeing in their patients. Articles made very few references to underlying immunological issues.¹³² The articles mentioned that these issues were observed only in homosexual men, but no statement was issued about the disease being strictly related to this population. This cautious behavior is common when dealing with an unknown pathogen, as doctors and scientists are typically unwilling to make conclusions without sufficient evidence to back up their claims.

In addition to these early articles, the *Morbidity and Mortality Weekly Reports* compiled by the CDC disseminated information about these rare cancers to the public. Despite doctors' growing awareness of the surge in these rare cancers and illnesses, news outlets issued very few

¹³⁰ "Ebola," Centers for Disease Control and Prevention, <http://www.cdc.gov/vhf/ebola/>.

¹³¹ Ibid.

¹³² Altman, "Rare Cancer Seen in 41 Homosexuals."

major reports during the first two years of the epidemic. When more cases outside of the homosexual community began appearing, newspapers increased their coverage. By the end of 1982, papers began reporting about infants who had developed many of the opportunistic diseases after receiving blood transfusions, leading doctors to believe that the disease could be spread through blood. It would take years and additional research to confirm this hypothesis and publish the findings.¹³³

The second wave of coverage

Although the first wave of coverage was different for Ebola and AIDS, the coverage progressed in the same way during the second wave. By October 2014, Ebola had become a regular topic in the news. News reports about additional cases in Sierra Leone, Guinea, and Liberia were released each week. Updates about progress and aid efforts in West Africa were also a common part of news coverage.

In October 2014, however, a significant event in the United States spurred an immediate expansion in coverage. When Thomas Duncan, a Liberian man living in Dallas, tested positive for Ebola, there was widespread panic about whom he may have infected after he developed symptoms and was turned away from a hospital. This panic was not groundless, as two nurses who helped Duncan also tested positive for the disease. While Ebola had been a faraway fear for many Americans during the 2014 outbreak, cases in the U.S. suddenly brought the disease much closer. The ensuing panic was noted by news outlets. Journalists analyzed how people were responding to the threat of Ebola and how doctors and health departments were attempting to quell their fear. Some articles reported on other health issues to give Ebola more context by

¹³³ Schmenk, "Infant Who Received Transfusion Dies of Immune Deficiency Illness."

comparing the two U.S. Ebola cases to the 36,000 flu-related deaths in 2013.¹³⁴ Additionally, journalists analyzed why the fear of Ebola persisted, despite the extraordinarily low risk of contracting the disease. Journalists noted that a lack of faith in health officials and the somewhat graphic nature of Ebola were both factors fanning the fear.¹³⁵ One article reacted against the anxiety, claiming that the fear of the epidemic stemmed from a lack of knowledge about Ebola: “[T]he possible has overtaken the probable, gobbling it up in a high-anxiety, low-information frenzy of frayed nerves and Purell-ed hands.”¹³⁶

This anxiety also led to discrimination and prejudice against both West Africans and health care workers in the U.S. who worked with Ebola patients. After Dr. Craig Spencer tested positive for Ebola in New York’s Bellevue Hospital, hospital employees noted discrimination and paranoia by people who believed they unknowingly carried the disease.¹³⁷ In Mississippi a school was closed after parents learned that the principal had traveled to Zambia. Even though no Ebola cases had been reported there, parents still pulled their children out of the school.¹³⁸

This fear took an official form as well. Some politicians debated closing off air travel between the United States and the affected West African countries in order to limit risk. This action was never taken after health officials warned it would likely make the situation worse.¹³⁹

¹³⁴ Chico Harlan, “An Epidemic of Fear and Anxiety hits Americans amid Ebola outbreak,” *The Washington Post*, October 15, 2014, accessed December 5, 2014, http://www.washingtonpost.com/business/economy/an-epidemic-of-fear-and-anxiety-hits-americans-amid-ebola-outbreak/2014/10/15/0760fb96-54a8-11e4-ba4b-f6333e2c0453_story.html.

¹³⁵ *Ibid.*

¹³⁶ Charles Blow, “The Ebola Hysteria,” *The New York Times*, October 29, 2014, accessed January 16, 2015, <http://www.nytimes.com/2014/10/30/opinion/charles-blow-the-ebola-hysteria.html>.

¹³⁷ Nate Schweiber and Anemona Harticollis, “Bellevue Employees Face Ebola at Work, and Stigma of it Everywhere,” *The New York Times*, October 29, 2014, accessed March 15, 2015, <http://www.nytimes.com/2014/10/30/nyregion/bellevue-workers-worn-out-from-treating-ebola-patient-face-stigma-outside-hospital.html>.

¹³⁸ Jennifer Steinhaur, “In U.S., Fear of Ebola Closes Schools and Shapes Politics,” *The New York Times*, October 19, 2014, accessed January 15, 2015, <http://www.nytimes.com/2014/10/20/us/fear-of-ebola-closes-schools-and-shapes-politics.html>.

¹³⁹ *Ibid.*

This suggested course of action even became a joke on *The Daily Show* when the South African comedian Trevor Noah commented on America's Ebola:

[I'm from] South Africa. We haven't had a single case in 18 years, and my friends warned me, saying "Trevor, don't go to the U.S., you'll catch Ebola," and I was like, "You know what guys, just because they've had a few cases of Ebola doesn't mean we should cut off travel there. That would be ignorant, right?"¹⁴⁰

More than 30 years earlier, reporters were writing about the same type of public anxiety with the AIDS epidemic. This fear, which was concentrated in the homosexual community, arose from a lack of understanding about the immune deficiency syndrome. Health officials didn't know how the disease spread until 1983. Even then, their conclusions weren't definitive, causing patients to panic and go to their doctors with bug bites and other skin lesions, believing them to be the bruise-like markings of Kaposi's sarcoma. Many health officials, including Dr. James Curran, head of the AIDS project at the CDC, felt that the fear surrounding AIDS was "not-ill founded" because of the uncertainty about many factors of the disease.¹⁴¹

As with Ebola, this anxiety quickly found its way into hospitals. Some doctors refused to treat AIDS patients because of the risk of coming in contact with contaminated blood, despite evidence showing that there was little chance of doctors and health officials contracting the disease if they followed safety protocols.¹⁴² For many doctors, this fear was unfounded. Of the 886 healthcare workers who had been exposed to the virus by 1987, only three had tested

¹⁴⁰ Trevor Noah, "Spot the Africa," *The Daily Show*, December 5, 2014.

¹⁴¹ Robin Herman, "A disease's spread provokes anxiety," *The New York Times*, August 8, 1982, accessed December 5, 2014, <http://www.nytimes.com/1982/08/08/nyregion/a-disease-s-spread-provokes-anxiety.html>

¹⁴² Centers for Disease Control and Prevention, "CDC health protocol for handling occupational exposures to HIV," November 10, 1992, accessed December 15, 2014, <http://wonder.cdc.gov/wonder/prevguid/p0000085/p0000085.asp>.

positive for HIV. All three had breaks in their skin where the virus could enter and spread.¹⁴³ AIDS patients themselves faced discrimination, as shown by articles covering Ryan White, the teenager denied entrance to his public school because he had AIDS.¹⁴⁴

For both AIDS and Ebola, anxiety affected political and economic issues as well. After Ebola appeared in the United States, the government took serious action to address the issue. Much of the press coverage about this increased effort, however, appeared in the form of criticism. The country was in the middle of congressional elections, and journalists were quick to point out that the federal response to Ebola had become a political ploy for many politicians, who took the opportunity to criticize the Obama administration's response to the outbreak in West Africa.¹⁴⁵ Longer, in-depth articles started appearing. Journalists took the time to analyze the situation in West Africa, noting the collapse of health care systems in the afflicted countries and the lack of government response before the disease hit larger population centers.¹⁴⁶

During the AIDS epidemic, many articles analyzed how the disease affected politics, although again this discussion was presented primarily through the experiences of the gay community rather than the country as a whole. Initially, the coverage expressed how the gay community didn't want AIDS to detract from its other issues and threaten its progress. Although the community came together to help fight the disease, the funding for research and community action against AIDS ended up diverting money away from gay rights campaigns.¹⁴⁷ To further complicate matters, the Reagan administration didn't address the epidemic until 1985, four years

¹⁴³ "When Doctors Refuse to Treat AIDS," *The New York Times*, August 3, 1987, accessed March 21, 2015, <http://www.nytimes.com/1987/08/03/opinion/when-doctors-refuse-to-treat-aids.html>.

¹⁴⁴ Dirk Johnson, "Ryan White Dies of AIDS at 18."

¹⁴⁵ Jim Kuhnenn, "In face of ongoing criticism, Obama confronts Ebola head on," *Associated Press*, October 19, 2014.

¹⁴⁶ *Ibid.*

¹⁴⁷ Thomas Morgan, "Amid AIDS, Gay Movement Grows but Shifts," *The New York Times*, October 10, 1987, accessed March 21, 2015, <http://www.nytimes.com/1987/10/10/us/amid-aids-gay-movement-grows-but-shifts.html>.

after it began. When the surgeon general issued his own response, the articles that appeared afterward included criticisms from public health officials about the government's handling of the epidemic, similar to the articles blaming the Obama administration and the World Health Organization for the Ebola epidemic.¹⁴⁸ As AIDS grew outside of the gay community, many homosexuals believed it was still viewed as a gay issue and continued to express frustration at the seemingly uphill battle they still faced. In a *New York Times* article, Virginia Apuzzo, deputy executive director of the New York State Consumer Protection Board, criticized the slow response of government officials to the homosexuals' plight: "AIDS makes it impossible for heterosexual people to ignore us. What a pity that we have to die to get their attention."¹⁴⁹

The third wave of coverage

For both Ebola and AIDS, the third wave of coverage illustrates some of the most complicated issues involved in covering the epidemics. Although the third wave of coverage doesn't always come at the end of an epidemic, the articles and scientific reports are more in-depth than the early coverage. Journalists look at the full scope of the epidemic and ask, "What went right and what went wrong?" This question isn't a simple one and often involves looking into issues about how the epidemic was handled by both health organizations and the media.

By December 2014, the media began presenting a clearer view of how a disease that had never killed more than 300 people in rural Africa had suddenly turned into a global pandemic. In December, TIME magazine named the Ebola fighters as their Person of the Year, beating out the Ferguson protesters and Vladimir Putin. The ensuing articles drew attention to how the disease had affected these countries and how a lack of immediate effort by the World Health

¹⁴⁸ Boffey, "Federal Efforts Criticized as Gravely Weak."

¹⁴⁹ Morgan, "Amid AIDS, Gay Movement Grows but Shifts."

Organization had worsened the epidemic. According to this coverage, WHO initially turned away the CDC's offers for help and ignored warnings from Doctors Without Borders, who were the first to arrive in Guinea at the start of the outbreak.¹⁵⁰ Dr. Joanna Liu, the international president of Doctors Without Borders, recalled: "WHO was saying the outbreak was under control, and it took us a while to convince them that it was not."¹⁵¹ Liu criticized the response after the CDC released their report estimating that 1.4 million people could contract Ebola if the response effort wasn't increased. She called the relief effort a "coalition of inaction."¹⁵²

In the U.S., this failure was seen firsthand at the Dallas hospital where Thomas Duncan fell ill. At the beginning of the outbreak, Dr. Tom Frieden, the director of the CDC, said the U.S. was prepared to deal with the Ebola epidemic. His statement proved to be untrue when the Dallas hospital not only sent Duncan home after knowing he had been in West Africa but also failed to adequately prepare its staff, resulting in the infection of two nurses. Many news articles criticized the CDC's response in the United States and the World Health Organization's response abroad, all the while asking what needed to be done next.¹⁵³

Although criticism of the handling of the outbreak seemed to be the pervasive subject for this wave of coverage, a more scientific stance was taken as well. In-depth research and detailed accounts of the history of Ebola increased as the American public became more curious about the disease that had finally reached its shores. David Quammen, a science journalist who specializes in zoonotic viruses, re-released the Ebola section of his book *Spillover: Animal Infections and the Next Human Pandemic*. In October 2014, Quammen released *Ebola: A Natural and Human History of a Deadly Disease*. The introduction briefly discussed the current

¹⁵⁰ David Drehle, "The Ones Who Answered the Call," *TIME*, December 22, 2014, 72-107.

¹⁵¹ *Ibid.*

¹⁵² *Ibid.*

¹⁵³ Alex Altman, "10 Tough Questions on Ebola," *TIME: The Science of Epidemics*, January 23, 2015, 30-37.

outbreak and provided detailed context about how the disease spreads.¹⁵⁴ By January 2015, the book had become a *New York Times* bestseller.

Because AIDS has been an issue for more than 30 years, journalists have had ample time to provide more information and deeper insights into the disease and why it became a new “plague” around the world, responsible for the deaths of millions of people. As with Ebola, some of the media coverage has been critical, especially with regard to the attention the disease received when a few cases first appeared in 1981. In the later days of the epidemic, journalists investigated the severe lack of research funding. By the end of 1983, for example, Mayor Edward I. Koch had spent less than \$25,000 on AIDS research despite a death toll of more than 850 people in New York City alone.¹⁵⁵ In 1985, the same year that President Reagan said he would make AIDS research a top priority, his administration suggested cutting \$10 million from AIDS research.¹⁵⁶ Later that year, Reagan’s friend Rock Hudson died of the disease. Although Reagan didn’t publically address AIDS until a speech in 1987, his surgeon general, C. Everett Koop, issued what would later be described as a groundbreaking Surgeon General’s Report. Koop frankly discussed AIDS and AIDS education. He released the report without informing the White House in advance.¹⁵⁷ According to news articles, the report was considered a significant step forward for a conservative administration that had generally ignored the disease.¹⁵⁸

Criticism grew throughout the epidemic. Randy Shilts, a journalist who covered AIDS at the *San Francisco Chronicle*, pinpointed the problems with press coverage, treatment, and

¹⁵⁴ David Quammen, *Ebola: The Natural and Human History of a Deadly Virus* (New York: W.W. Norton & Company, 2014).

¹⁵⁵ Hugh Ryan, “How to Whitewash a Plague,” *The New York Times*, August 3, 2013, accessed October 12, 2014, <http://www.nytimes.com/2013/08/04/opinion/sunday/how-to-whitewash-a-plague.html>.

¹⁵⁶ Chris Geidner, “Nancy Reagan Turned Down Rock Hudson’s Plea for Help Nine Weeks Before He Died,” *Buzzfeed News*, February 2, 2015, accessed March 24, 2015, <http://www.buzzfeed.com/chrisgeidner/nancy-reagan-turned-down-rock-hudsons-plea-for-help-seven-we#.hnLAKdrdw>.

¹⁵⁷ *Ibid.*

¹⁵⁸ Boffey, “Surgeon General Urges Frank Talk to Young on AIDS.”

research funding in his 1987 book *And the Band Played On: Politics, People, and the AIDS Epidemic*. Shilts, who had lost friends to the disease and would later die of AIDS himself, wrote about government indifference to the gay community during the epidemic, the uphill battle to convince blood banks to screen blood before giving it to hemophiliacs and other patients, and the lack of early reporting about the disease. Shilts cited, for example, how *The Wall Street Journal* didn't report on AIDS until it appeared in heterosexuals.¹⁵⁹ The book, which was on the *New York Times* bestseller list for five weeks, was widely considered to be the first historiography of AIDS. Reviews of the book appeared in medical and scientific journals, as well as newspapers and magazines.¹⁶⁰ After Shilts' death, many journalists wrote obituaries describing his work. Jennifer Warren and Richard Paddock of *The Los Angeles Times* described him as a voice who helped “awaken the nation to a health crisis.”¹⁶¹

Besides criticizing the mistakes of federal agencies during both the AIDS and Ebola epidemics, reporters looked to the future to determine what else could be done. For Ebola, that meant examining the potential for vaccines, which illustrated new and far-reaching concerns. After Dr. Kent Brantly contracted Ebola, he was given an experimental drug called ZMapp, as no vaccine yet exists for Ebola. As more Americans began to contract the disease, the public expressed a greater interest in creating a vaccine. Some journalists—and some scientists—were less enamored with the idea, given the low death toll of Ebola compared to other diseases, such as AIDS. In a satirical article, *The Onion* stated that scientists had declared an Ebola vaccine to be 50 white people away, poking fun at the lack of interest in Ebola until a handful of Americans

¹⁵⁹ Shilts, *And the Band Played On*.

¹⁶⁰ Howard Merkel, “Journals of the Plague Years: Documenting the History of the AIDS Epidemic in the United States,” *American Journal of Public Health* 91 (2001).

¹⁶¹ Jennifer Warren and Richard Paddock, “Randy Shilts, Chronicler of AIDS Epidemic, Dies at 42,” *The Los Angeles Times*, February 18, 1994, accessed February 12, 2015, http://articles.latimes.com/1994-02-18/news/mn-24467_1_randy-shilts.

contracted the disease.¹⁶² Other journalists pointed to the inequality of healthcare. While Ebola has killed 10,000 people since its start, the disease still doesn't compare to other dangerous diseases like measles, malaria, flu, HIV, tuberculosis, and cancer. None have vaccines. All cause more deaths in Africa than Ebola, but they aren't receiving media attention.¹⁶³

For Bill Gates, this awareness of health problems in Africa is important. At the start of the epidemic, the Bill and Melinda Gates Foundation pledged \$50 million to West African countries grappling with Ebola. In an interview with *The Guardian*, Gates said, "More kids are dying of malaria in these three countries now than they were before Ebola came along...almost certainly more people are dying of non-Ebola diseases than are dying of Ebola."¹⁶⁴

The legacy of epidemics

One of the largest and most complex topics covered during the third wave of coverage is the damaging legacy the diseases leave behind. For months, Ebola was a distant threat until Kent Brantly returned to the U.S. for treatment. For AIDS, the disease wasn't extensively covered until it started affecting heterosexuals. Both cases exemplify the tendency to sympathize with individuals rather than a large group suffering from the same ailment.¹⁶⁵ Much of the coverage of the legacies of these diseases is editorialized, usually by those who have experienced the ailment firsthand. Although Ebola has killed more than 10,000 people since December 2013, the AIDS epidemic stands as the most devastating modern plague, causing the deaths of 39 million people.

¹⁶² "Experts: Ebola Vaccine at Least 50 White People Away," *The Onion*, July 30, 2014, accessed August 19, 2014, <http://www.theonion.com/article/experts-ebola-vaccine-at-least-50-white-people-awa-36580>.

¹⁶³ Olga Khazan, "An Ebola Vaccine is Not the Answer," *The Atlantic*, August 5, 2014, accessed January 12, 2015, <http://www.theatlantic.com/health/archive/2014/08/an-ebola-vaccine-is-not-the-answer/375592/>.

¹⁶⁴ Heidi Moore, "Bill Gates on Ebola and the low risk of the disease in the US: 'Health is very unjust,'" *The Guardian*, October 3, 2014, accessed February 12, 2015, <http://www.theguardian.com/world/2014/oct/03/bill-gates-ebola-shutting-down-healthcare-system-african-countries>.

¹⁶⁵ Drehle, "The Ones Who Answered the Call."

For some journalists, media coverage is partly to blame for the impact these epidemics have on the public. For AIDS, lack of interest initially kept the disease out of the public's attention, while Ebola was used as both a political ploy and a sensational subject.¹⁶⁶ The first wave of coverage was problematic for Dr. Lawrence K. Altman, a medical doctor and science journalist at *The New York Times*. Altman was the first reporter to cover the AIDS epidemic at the paper and wrote most of the early articles about the disease. He also covered one of the earliest Ebola outbreaks in Gabon in 1996. In his column *The Doctor's World*, Altman called AIDS and Ebola epidemics of confusion: "The epidemics have prompted eerily similar reactions from health officials and the public, raising crucial questions about why the world remains persistently unprepared to react to the sudden emergence of viral threats."¹⁶⁷

For both diseases, doctors were not prepared or equipped to deal with the outbreaks, and public officials and the media had difficulty conveying information in a way the public could understand, sometimes leading to misunderstanding and hysteria. The ambiguity about the diseases led the public to discriminate against AIDS patients and Ebola healthcare workers, and politicians were slow to address the threat of either disease early on. AIDS crippled the already weak health infrastructure in Africa, and Ebola is destroying whatever is left of it, leading to more non-Ebola related deaths.¹⁶⁸ Two very different diseases have left legacies that are essentially the same.

¹⁶⁶ Connor Jackson, "Journalists and Professors Blast CBS News' Ebola Coverage in an Open Letter to '60 Minutes,'" *The Huffington Post*, March 27, 2015, accessed April 22, 2015, http://www.huffingtonpost.com/2015/03/27/cbs-news-ebola-coverage-60-minutes-open-letter_n_6955090.html.

¹⁶⁷ Lawrence Altman, "Epidemics of Confusion," *The New York Times*, November 10, 2014, accessed November 14, 2014, <http://www.nytimes.com/2014/11/11/health/like-aids-before-it-ebola-isnt-explained-clearly-by-officials.html>.

¹⁶⁸ Moore, "Bill Gates on Ebola."

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