

# More Vaccines Coming Down the Fast Track

In a way, vaccines are preventative medicine. Get the shot; develop immunity for a potentially deadly disease. Vaccine research development now wants to take the preventative mindset to a new level. Inspired by the Ebola outbreak that killed more than 11,000 people in Africa and the more recent Zika virus scare, the Coalition for Epidemic Preparedness Innovations (CEPI) has committed 460 million dollars to drive forward the development of three vaccines for Middle East respiratory syndrome (MERS), Lassa fever, and Nipah virus. The coalition is also asking the World Economic Forum for a 500 million dollar donation to enable their goal of developing two different experimental vaccines for each disease within five years.

## What's the Big Deal?

There are many serious diseases with no known curative treatment beyond fluids and rest. So what is it about these three diseases that make them special? And what's the hurry? According to Dr. Jeremy Farrar of the Wellcome Trust (one of the Investors in CEPI), "We know from Ebola, Zika and SARS that epidemics are among the significant threats we face to life, health and prosperity. Vaccines can protect us, but we've done too little to develop them as an insurance policy." The three diseases highlighted by CEPI currently have no vaccines and no clear treatment plans. They're also on the World Health Organization's (WHO) list of diseases that urgently need to be addressed with research and development.

# The Chosen Three

## MERS

MERS is a viral respiratory infection caused by the MERS-coronavirus. Since its discovery in 2012, the WHO has confirmed nearly 1,900 cases of MERS with 666 deaths, resulting in a 35% death rate. People with the infection report varying levels of fever, cough, diarrhea, and shortness of breath. Symptoms are more severe in people with pre-existing health conditions.

While the virus itself is believed to have originated from bats, camels appear to be the current viral host. The spread of the infection is believed to be through coughing or contact with respiratory secretions. Most people contract the virus in healthcare settings. While the majority of cases of MERS have been reported in the Arabian Peninsula, South Korea experienced an outbreak that infected 82 people in three days. In 2014, 2 cases were confirmed in the U.S.

## Lassa Fever

Of the three diseases fast-tracked for research and development, Lassa fever has been around the longest. It was discovered in 1969 in Nigeria. It predominantly occurs in West Africa and is transmitted to humans from the African rat, the most common rat in West Africa. Eighty percent of the people who contract Lassa fever have no symptoms other than a mild fever, but around 5,000 of the cases reported every year result in death. The cases that are fatal include symptoms of vomiting, fever, bleeding from body parts, and pain in the back, chest, and abdomen. A quarter of the survivors experience hearing loss. Lassa fever is difficult to distinguish from other hemorrhagic fevers like Ebola, yellow fever, and malaria.

# Nipah Virus

Fruit bats are the natural hosts of the Nipah virus. Outbreaks of the virus occur almost every year in Bangladesh, and the virus occurs in India and surrounding countries as well. While the Nipah virus has not caused as many fatalities as the other two diseases targeted by CEPI, the death rate is more severe with nearly three-quarters of those infected dying. Symptoms of the virus include acute respiratory syndrome and acute fatal encephalitis. Nipah virus is transmitted to people through contact with pigs (a likely food source for bats), fruit bats, and raw date palm sap that has been contaminated by them.

## Is This the Only Way to Accomplish This?

This is a very aggressive research and development campaign. Developing a single vaccine is a long process that takes from 10-15 years. CEPI's goal is an ambitious one, but then that makes sense. CEPI is founded by some familiar entities, including the government of Norway, the government of India, and the Bill and Melinda Gates Foundation. In the midst of the flurry of announcements and ambition, it's easy to ignore potential issues.

As long as camels, pigs, mice, and bats are around, these diseases will always be present. In the case of Nipah virus, vaccines won't necessarily stop the spread of it as there has never been a case of it being transmitted from person to person. Sanitation and ensuring that people have the knowledge and option to avoid using contaminated date palm sap. It would be interesting to see how education and strategies on how to avoid African rats in Western Africa would impact the number of people who contract Lassa fever.

As we've seen over and over, sanitation and education make a

huge difference in preventing the spread of disease. Dispersing sanitation and disease prevention information and improving living conditions has helped to stop the spread of polio, measles, and mumps. Why not utilize sanitation and education to eradicate these diseases as well? The answer is obvious. It may cost less than the development of a vaccine, but it won't result in a product pharmaceutical companies can sell.

### **Recommended Reading:**

- *Is Our Vaccine Schedule Killing Our Children?*
- *Vaccines, Retroviruses, DNA, and the Discovery That Destroyed Judy Mikovits' Career*
- *How To Detoxify and Heal From Vaccinations – For Adults and Children*
- *Influenza Vaccine – A Comprehensive Overview of the Potential Dangers and Effectiveness of the Flu Shot*
- *How Plumbing (Not Vaccines) Eradicated Disease*
- *Doctors Against Vaccines – Hear From Those Who Have Done the Research*

### **Sources:**

- *Vaccines for Three Deadly Viruses Fast-tracked – BBC*
- *Resources – cepi.net*
- *Middle East Respiratory Syndrome Coronavirus (MERS-CoV) – WHO*
- *Lassa Fever – WHO*
- *Nipah Virus Outbreaks in the WHO South-East Asia Region – WHO*