



Editorial

The invisible killer

Agus Santosa

Department Medical Surgical of Nursing, Universitas Muhammadiyah Purwokerto, Purwokerto, Jawa Tengah, Indonesia

ABSTRACT

Viruses have been around for billions of years ago. They are everywhere, with varieties of shapes and sizes. They are microparasites with the ability to evolve and mutate. Some viruses can be so malignant and cause an disease outbreak that kills hundreds, and even millions, of people. What the world recently faces is one of those malignant viruses.

INTRODUCTION

The whole world is in battle—the battle against the invisible killer which snatched the life of thousands of people. We are currently living in a world where everyone has to breathe behind a mask, where everyone is suspicious of one another, where the social and physical interaction is limited. This is the biggest quarantine in the history of humankind^{1,2}.

In 2020, there is a global pandemic caused by the new coronavirus, which had infected more than a million people, and killed thousands of them. This is not the first time that a virus causes a massive outbreak, but is undoubtedly the biggest global pandemic throughout millennia.

SARS

In the year of 2002-2003, there was a Severe Acute Respiratory Syndrome (SARS)-CoV outbreak. This disease outbreak started to spread in November 2002 from the Guangdong Province, China, and reported to spread across another 33 countries. This virus had infected more than 8000 people and killed at least 774 of them³⁻⁵. This virus was believed to infect humans from Civet cats and later went through a mutation so that it could infect by the human to human transmission⁶.

H5N1

This virus is commonly known as "Avian Influenza." This virus was first detected in a sick swan in Guangdong Province, China, in January 1996. The virus was known to infect a human for the first time in Hong Kong in May 1997^{7,8}. Around 18 cases were found, and 6 of them reported

to die. The massive killing of all birds and fowls (1,5 million) in farms and markets in Hong Kong had stopped this virus from spreading even further. However, in January 2003, Japan, South Korea, Vietnam, Thailand, Indonesia, Mainland China, Cambodia, Laos, and Malaysia had reported the recurrence of the H5N1 virus outbreak. The total of cases from 2003 until 2020 in 15 countries were recorded to be 861 cases with a mortality of 455 people (a fatality rate of 52.8%)^{9,10}.

H1N1

Influenza A (H1N1) pandemic occurred in 2009. This virus was first to be identified in March 2009 in Mexico City and spread across 214 countries and caused the death for more than 18.449 people in the world. The virus was called swine flu or pig flu, believed to spread from pigs to humans, and later went through a mutation until it can infect humans through humans¹¹⁻¹³.

MERS

Middle East respiratory syndrome (MERS)-CoV was first identified in Saudi Arabia on June 13th, 2012, and had become an outbreak in 2014. Until late November 2019, this virus had recorded to be infected roughly 2.494 people, with the mortality rate of 858 cases (a fatality rate of 34,4%). The majority of cases happened in Saudi Arabia (2102 cases with the number of mortality 780), and the rest of the cases were reported to happen in other countries. This virus was originated from camels, which at one point infected a human and got mutated so that it can transmit from an individual human to another^{14,15}.

<https://doi.org/10.30595/medisains.v18i1.7194>

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EBOLA

Ebola killed almost 12.000 people in West Africa. This virus was believed to come from a bat and infected a human^{16,17}. The virus started to mutate and spread among humans to each other through blood and bodily fluids (urine, feces, saliva, sweat, urine, vomit, breast milk, semen, and vaginal fluids)¹⁸. Ebola is a first-level pathogen, meaning it is lethal to humans. If other viruses need hundreds, thousands, or even millions of virus copies to make someone sick, Ebola is just one virus¹. The mortality rate can reach up to 90%¹⁹. The Ebola virus was first reported as an endemic in 2013 in the Democratic Republic of Congo. Then similar cases were reported in March 2014 in Southwest Guinea and soon spread to Liberia and Sierra Leone, which shares a border with Guinea. In August 2014, WHO stated this phenomenon as a Public Health Emergency of International Concern (PHEIC). The virus was first found in 1976 in Sudan, with several recurrences. The biggest Ebola outbreak happened in 2013-2015, with more than 27.000 cases with the mortality exceeding 11.000 victims in West Africa²⁰⁻²².

COVID-19

On December 27th, 2019, Wuhan Jinyintan Hospital in Hubei province, China, had a patient sent from Tonji Hospital. The patient had symptoms similar to pneumonia, unlike common flu. The patient was barely breathing, cough, and had a high fever. They have tested the patient for the possibility of every virus known and came in negative results. Not very long, a new patient came up with similar symptoms. In the National Institute of Virus Control and Prevention, a group of scientists conducted researches on the samples taken from the patients. Then, they identified a genome of the newest coronavirus. They named it 2019 Novel (New) Coronavirus (COVID-19, named by WHO on Feb 11, 2020)^{2,23}. It is easily spread and very contagious; it was recorded to cause hundreds and thousands of cases in just a few days. Until the early of April 2020, it had spread to 213 countries and had infected 1.524.161 people with a number of mortality of 92.941 people²⁴. Recent research has found that this virus comes from pangolin²⁵.

Question

1. Why can't we predict and anticipate this outbreak?
2. Why can't we understand and be not ready for the potential of the next outbreak in the future?
3. Why can't we stop an disease outbreak from its lasting?
4. Why can't we avoid the spread of a pandemic globally?

Declaration

The title of this article cited from the discovery channel "Invisible Killer: Ebola."

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