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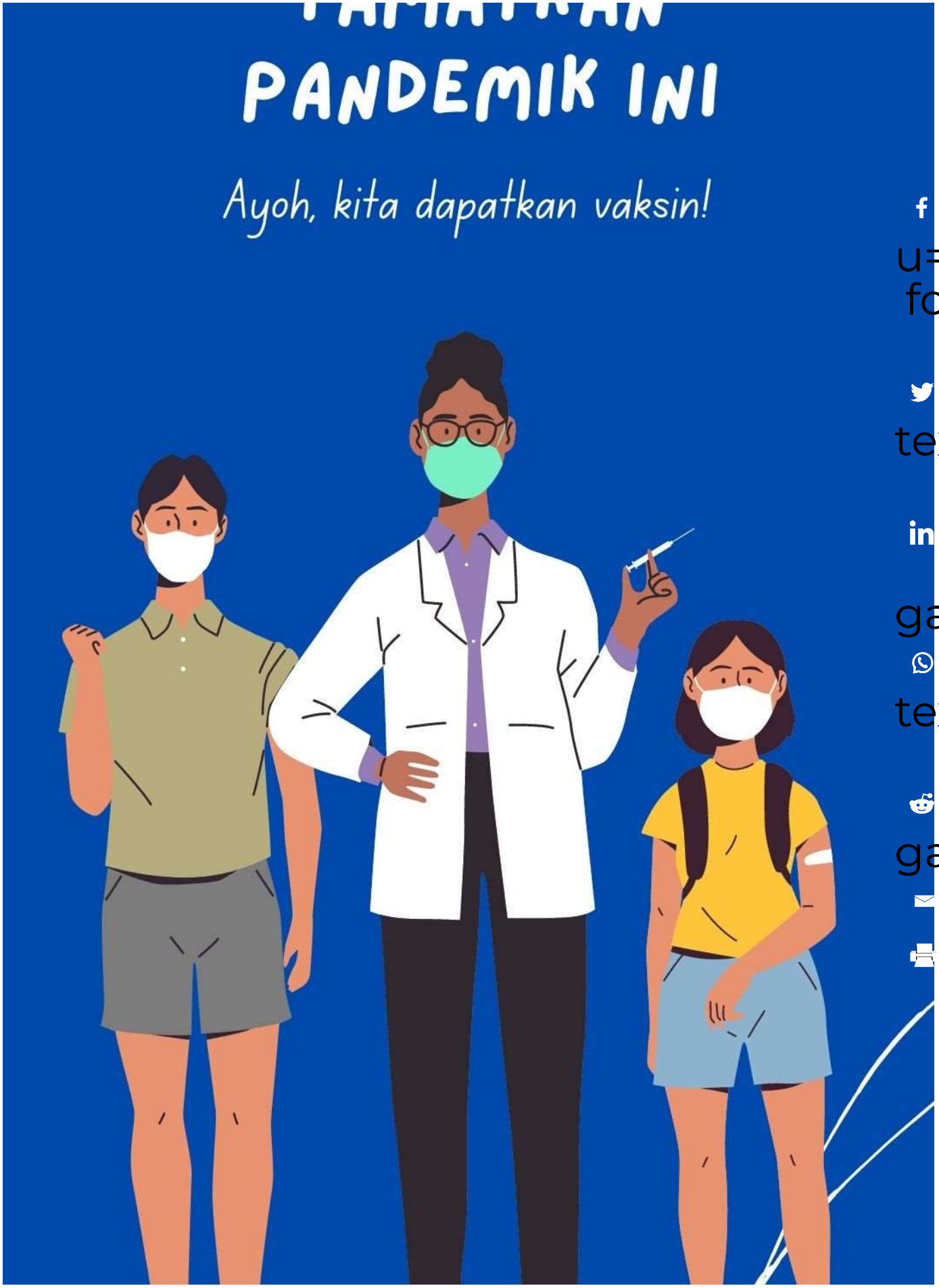

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Hand, Foot And Mouth Disease: Are We Closer To Finding A Drug Or Vaccine? – Ahmad Mahfuz Gazali

By CodeBlue | 27 May 2022

The increase in HFMD since April 2022 has been expected, because of the loosening of social restrictions and the opening of schools, kindergartens, and daycare centres.

As our country is heading towards an endemic state, we are facing another problem.

The Ministry of Health (MOH) issued a statement on May 26, 2022, which stated that there have been 57,510 cases of hand, foot and mouth disease (HFMD) this year, which is a 24-fold increase compared to 2021 (https://www.facebook.com/photo?fbid=384408250387851&set=pcb.384408400387836).

The increase in HFMD since April 2022 has been expected, because of the loosening of social restrictions and the opening of schools, kindergartens, and daycare centres.

HFMD is not a new disease, as we have encountered it before the Covid-19 pandemic started in 2020.

Previously, the MOH had declared HFMD as an endemic in 2012 (https://www.moh.gov.my/index.php/pages/view/193).

HFMD is caused by an infection of Coxsackievirus A16 (CA16) and Enterovirus 71 (EV71), and is common among children.

It is spread by direct contact through nose and throat discharges, saliva, fluid from blisters, or the stool of an infected person.

Therefore, the disease is considered contagious, and public health measures must be taken to control the spread.

Despite being contagious, HFMD is usually mild and self-limiting.

However, the virus may affect the brain and the heart on rare occasions, leading to permanent damage, or even death.

According to HFMD guidelines published by MOH in 2007 (https://www.moh.gov.my/moh/resources/auto%20download%20images/589d71f714d23.pdf), mild HFMD cases are treated mostly through adequate hydration and rest.

However, given its infectious nature, are we closer to the discovery of antiviral drugs or vaccines to treat HFMD?

One of the essential lessons from the pandemic is that drugs can be repurposed to treat Covid-19.

For instance, baricitinib and dexamethasone were given approval by MOH to treat Category Four and Five Covid-19 patients (https://www.astroawani.com/berita-malaysia/kkm-guna-baricitinib-rawat-pesakit-covid19-kategori-empat-dan-lima-309995), despite being initially approved for other medical use.

Baricitinib is a medication used to treat rheumatoid arthritis in the United States and Europe.

Dexamethasone is approved for use to treat inflammatory and autoimmune disorders such as rheumatoid arthritis, bronchospasm, and idiopathic thrombocytopenic purpura.

With the advent of bioinformatics, computational analysis, and simulation, research can be done to formulate potential drugs that may block the

virus's entry into the human body, or even inactivate the virus.

Drugs with good safety profiles can then be chosen, and clinical trials can be done faster than the normal pre-clinical stage of drug discovery, which might take years before clinical trials can start.

Let us look at the pathogens that cause HFMD, namely C16 and EV71.

Both viruses come from the Picornaviridae family, a group of related non-enveloped RNA viruses which infect vertebrates, including fish, mammals, and birds.

Coxsackievirus and Enterovirus have been known to cause severe illnesses in humans, causing Type 1 diabetes, encephalitis, myocarditis, and pericarditis.

Therefore, pharmaceutical companies are developing vaccines to fight these viruses.

Clinialtrials.gov (https://clinicaltrials.gov/ct2/home) is an online database detailing drugs and vaccine candidates used in clinical trials.

According to the database, 58 and 2977 clinical trials involving Coxsackievirus and Enterovirus have been done respectively.

A recent study also revealed that immunity in a breakthrough infection of the Omicron variant of SARS-CoV-2 may confer protection against other SARS-CoV-2 (https://www.nature.com/articles/s41586-022-04865-0).

Interestingly, the immunity is limited to vaccinated individuals, not unvaccinated subjects, who might be susceptible to future SARS-CoV-2 infections.

It is hoped that future vaccines that fight Coxsackievirus and Enterovirus will confer protection against all variants of Coxsackievirus and Enterovirus, and not just CA16 and EV71.

The rise in HFMD cases should be a cause for concern, since the number of cases continues to exceed the danger level.

But before any drugs or vaccines can be approved for HFMD treatment, let us continue to be vigilant and practise proven public health measures.

Let us work together to control the HFMD endemic in the same way that we have successfully managed the Covid-19 pandemic.

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