- ACADEMIA
- OPINION

Insight: How many AMR deaths will it take before we act?

- Widjaja Lukito

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At least 700,000 deaths worldwide are caused by drug-resistant bacteria each year, slashing about US$100 trillion from the combined gross domestic product and an additional $210 trillion from secondary effects, according to the United Nations Interagency Coordination Group on Antimicrobial Resistance. (Shutterstock/File)

Population and economic growth, compounded by increasing demand for food, specifically for meat, have driven the overuse of antibiotics for animal health and in animal food production globally, contributing to the development of antimicrobial resistance (AMR) and a growing number of human deaths.

In spite of the alarming death rates, the world has not seen much action to stem the AMR threat.

The figures are mind-blowing. At least 700,000 deaths worldwide are caused by drug-resistant bacteria each year, slashing about US$100 trillion from the combined gross domestic product and an additional $210 trillion from secondary effects, according to the United Nations Interagency Coordination Group on Antimicrobial Resistance.

This number could increase to 10 million deaths per year by 2050, if business continues as usual.

In 2014, Indonesia alone had 130,000 AMR-related deaths, making it the fourth-ranked country with the most significant risk of an AMR outbreak.

How many deaths do we need before the nation takes serious action?

AMR genes like Mobilized Colistin Resistance-1 (MCR-1) and New Delhi metallo-beta-lactamase-1 (NDM-1) among livestock and fisheries are endangering the domestic food chains.

Thanks to the excellent research work of Maria Fatima Palupi of the Bogor Agricultural University (IPB), Indonesia at least knows the extent of the problem and that should prompt it to act. The MCR-1 gene in E.coli bacteria has permeated our food chains, particularly in poultry and in traditional markets, according to Palupi's 2019 work, the first on the subject in Indonesia.

Indonesia must come up soon with an enforceable national AMR action plan. The government seems to be on the right track but must move faster.

Since this is a global problem, there is never any shortage of international cooperation. In June, Health Minister Nila F. Moeloek cohosted with her Dutch counterpart the second ministerial conference on Antimicrobial Resistance in Noordwijk, the Netherlands.

Yet urgent matters, such as investing in the development of new molecules, international coordination and maximum antibiotic consumption targets in animal husbandry, have not been addressed.

Antibiotics have been used in animal husbandry for decades with two main purposes: medical treatment of infections with pathogenic bacteria and reduction of bacterial growth in the intestinal tract, which improves animal growth by optimizing the absorption of nutrients.

The latter purpose led to antibiotics being used in feed additives — the antibiotic growth promoters. This practice was further encouraged after 1953 following the publication of *Nutritional Effects of Antibiotics* by Thomas Jukes and William Williams.

But there is now scientific evidence not only of growing antimicrobial resistance, but also of the transfer of antibiotic resistance genes from animals to humans through the food chain.

Palupi's research work found the MCR-1 gene in almost 90 percent of E. coli isolates showed resistance to colistin, one of the last-resort antibiotics, in the entire supply chain of broiler meat in West Java province, the biggest poultry producer in Indonesia.

Global use of antimicrobials in food animal production is projected to increase by 67 percent from 63,000 tons in 2010 to 106,000 tons by 2030, according to the UN Working Group on Antimicrobial Resistance in April 2019.

China uses 160,000 tons of antibiotics each year, 50 percent of the total global consumption. Half of China's antibiotics use goes into livestock. A 2016 Chinese study used the 2003 severe acute respiratory syndrome (SARS) outbreak model to calculate the cost of an AMR outbreak: 467 billion yuan ($67 billion) for China's animal husbandry sector alone.

Various global studies found high antibiotic residues in commercial poultry meat and milk tanks. There is no guarantee this is not happening in Indonesia. If it does, it would hit hard on Indonesia's $4.2 billion annual shrimp exports.

An AMR outbreak would halt tourism, slash international trade and seriously impact investment.

Indonesia's population growth would continue to put pressure on the country to produce more foodstuff, so the use of antibiotics looks inevitable. Bacteria develops resistance faster than we can develop novel antibiotics and this is posing great risks to the nation's food security.

We urgently need alternative feed additives to antibiotic growth promoters.

The government has made several attempts to tackle AMR, but it may face complex challenges that involve intersection between various stakeholders' interests, including profit motives.

Although the National Action Plan on AMR of 2017 to 2019 stipulates key actions such as increasing awareness and knowledge of AMR and rationalizing the use of antibiotics, it lacks enforcement, including law enforcement.

There are also complexities between different government agencies. The AMR Control Committee in the Health Ministry focuses on AMR in human health, while the Agriculture Ministry and Maritime Affairs and Fisheries Ministry each have their own drug regulatory unit supervising general veterinary and fishery drugs, including antibiotic uses.

The discovery of the MCR-1 gene in Palupi's study should sound alarm bells.

A national emergency approach is required with the involvement of all relevant ministries, scientists and key stakeholders, such as food producers and consumer groups, as stipulated in the National Action Plan. Indonesia must come up with effective tangible actions that are realistic and implementable.

With President Joko "Jokowi" Widodo preparing for his second term in office, there is no better moment to take the AMR threat more seriously.

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The writer was a special advisor to the health minister (2006 to 2009) and secretary to a member of the Advisory Council of the President (2010 to 2014).

Disclaimer: The opinions expressed in this article are those of the author and do not reflect the official stance of The Jakarta Post.

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INSIGHT

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