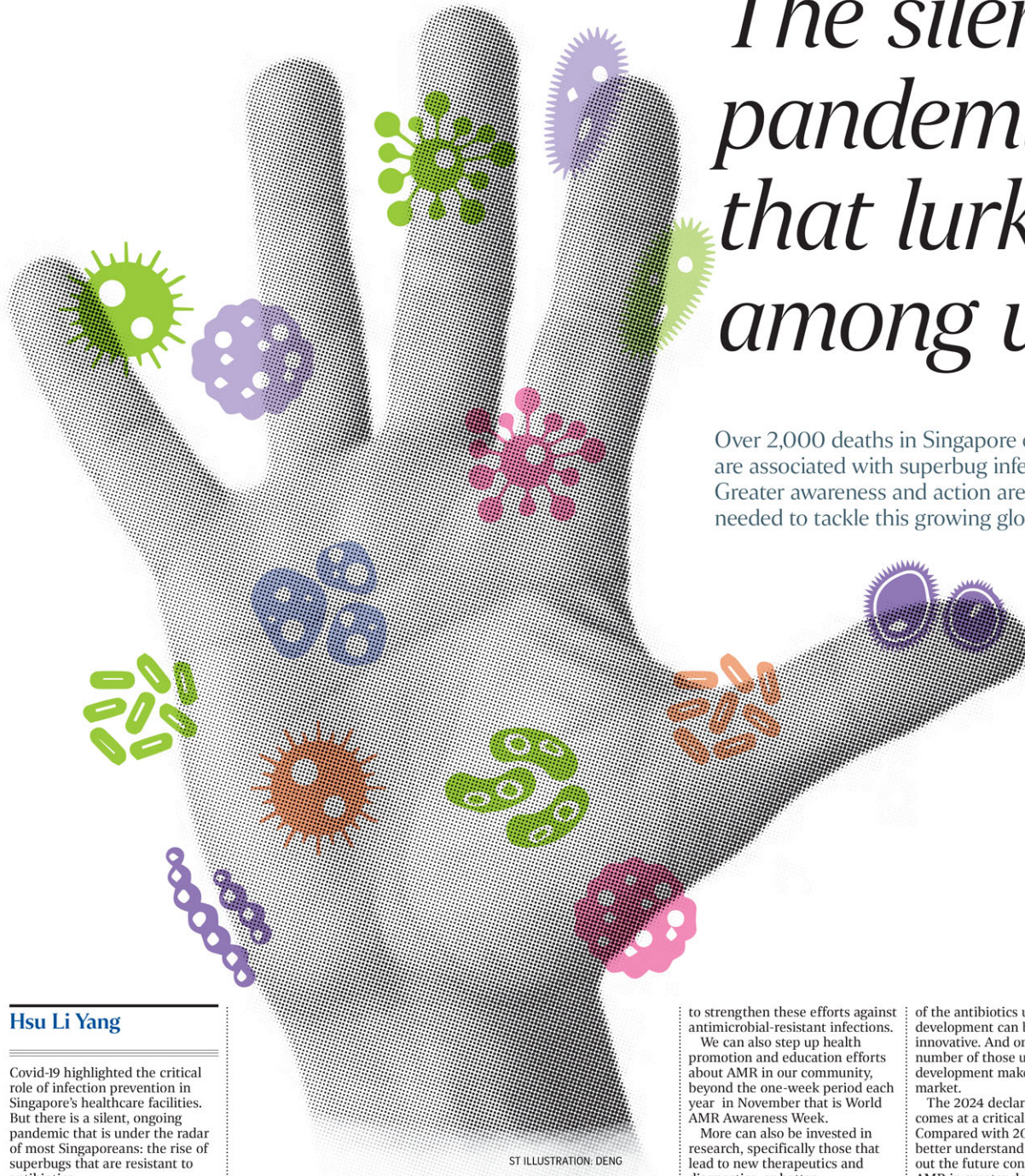


The silent pandemic that lurks among us

Over 2,000 deaths in Singapore each year are associated with superbug infections. Greater awareness and action are needed to tackle this growing global threat.



ST ILLUSTRATION: DENG

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Covid-19 highlighted the critical role of infection prevention in Singapore's healthcare facilities. But there is a silent, ongoing pandemic that is under the radar of most Singaporeans: the rise of superbugs that are resistant to antibiotics.

These superbugs are associated with close to five million deaths annually worldwide. In Singapore, over 10,000 people a year come down with antibiotic-resistant infections, leading to an estimated 2,300 deaths despite our advanced healthcare capabilities.

By one estimate, over the next 25 years, deaths associated with drug resistant pathogens worldwide could come to as high as 169 million – a figure that is over 24 times the number of deaths from Covid-19 in the past four years.

In my previous role as an infectious diseases specialist, patients suffering from antibiotic resistant infections comprised the majority of those I treated. Most were unaware of the antimicrobial-resistant nature of their infections, or how the superbugs were acquired.

This lack of awareness goes to the heart of why antimicrobial resistance – or AMR – is often called the “silent pandemic”. Unlike more “dramatic” pandemics linked to viruses like Covid-19, AMR is slow-burn, lurking off centre-stage even while it is steadily claiming its share of victims.

For all its low-key nature, globally, if nothing is done, antimicrobial resistance is estimated to reduce average life expectancy by 1.8 years by 2035, along with causing up to US\$3.4 trillion (S\$4.4 trillion) in gross domestic product losses each year by 2030 and additional healthcare costs of up to US\$1 trillion each year by 2050.

UN CALL FOR ACTION

Antimicrobials – including antibiotics, antifungals and anti-virals, among others – are medicines used to treat infectious diseases in humans, animals and plants. However, some bacteria or pathogens have become resistant to antibiotics and this has reached the point of being a global pandemic.

A high-level meeting of the United Nations General Assembly on Sept 26 announced a

declaration to tackle the superbugs, to which Singapore affirmed its support. The 2024 declaration is notable for the strong commitments made by UN member states, including a specific target: to reduce the 4.95 million global deaths associated with AMR in 2019 by 10 per cent by 2030.

The declaration also calls for sustainable national financing and US\$100 million in funding, to help achieve a target of at least 60 per cent of countries having funded national action plans on AMR by 2030.

WHAT HAS LED TO THIS PROBLEM?

For nearly a century, antimicrobials have been wonder drugs curing people of once-fatal infections. The widespread use of penicillin and the like transformed medicine, enabling organ transplants and complex surgery.

But now, in Singapore and around the world, there are patients in hospitals fighting infections that no antimicrobial can cure.

This dire state of affairs has arisen in the course of an ongoing “arms race” between microbes and medicines; sometimes some of the former manage to survive the drugs used to treat diseases they cause. As these tougher survivors spread, the old antibiotic arsenal becomes less efficacious, prompting the search for new drugs. The cycle repeats itself as yet again some bugs evolve to beat the new drugs. This worrying drug resistance is being accelerated by the increasing use of antimicrobials in human health and agriculture.

In agriculture, antibiotics are not just used to treat animals when they are unwell, but are also used as “growth promoters” in many meat-producing countries. They are included in the animals’ feed to make them grow faster, especially in the crowded conditions under which they are raised. While this has led to cheaper meat on the table, it has

led to a sharp rise in antibiotic-resistant bacteria in the animals, which has led to spillover infections in humans.

This has meant that treatment for some highly antibiotic-resistant bacterial infections – the “Critical Group” of the World Health Organisation (WHO)’s Bacterial Pathogen Priority List – has become constrained to a limited number of more expensive and less effective antibiotics.

This highlights another aspect of the AMR issue – the lack of research into antibiotic development. Drug development is expensive, not least because of the high cost of failed trials. Bottomline-conscious pharmaceutical companies do not find it attractive to pursue this line of research when profits are cramped by restrictions on antimicrobial use in hospitals and the pressures on them to keep the cost of antibiotics low for people in low- and middle-income countries.

The good news is that more research into new antibiotics has started to happen recently due to governmental and non-governmental investment. Several philanthropic organisations like the Wellcome Trust and Gates Foundation, along with newly formed global partnerships such as CARB-X and the AMR Action Fund, have sought to tackle the market failure of the global antibiotic pipeline.

Ninety-seven new antibiotics are in different phases of development in 2023. That said, this number is low compared with over 2,000 cancer drugs under development. It will take concerted effort and investment – from policymakers, healthcare professionals, public and private sectors, as well as the community – to get on top of the global health crisis that is AMR.

WHAT SINGAPORE CAN DO

Along with updating Singapore's National Strategic Action Plan, further resources can be invested

to strengthen these efforts against antimicrobial-resistant infections.

We can also step up health promotion and education efforts about AMR in our community, beyond the one-week period each year in November that is World AMR Awareness Week.

More can also be invested in research, specifically those that lead to new therapeutics and diagnostics, or better understanding of the impact of AMR in Singapore. We have statistics on cancer and many other diseases, but even today, we do not know the exact number of people who succumb each year to antimicrobial-resistant infections in Singapore.

EIGHT YEARS ON, A CRITICAL JUNCTURE

The 2024 UN resolution on AMR follows a first political declaration in 2016. That was the first time AMR was acknowledged as a global health crisis by the UN General Assembly, leading to heightened awareness of the issue among policymakers and the public. This shift in perception resulted in wide-ranging international responses across various sectors, including human health, animal health, agriculture and the environment.

Many countries – including Singapore in 2017 – developed national action plans against AMR based on this “One Health” approach that recognises that human, animal and environmental health are interconnected. A smaller number of countries and the European Union enacted legislation that limited the routine use of antibiotics in farming.

Still, the 2016 declaration did not achieve its full intended impact. Most low and middle-income countries – facing limited resources, competing public health priorities and inadequate infrastructure, especially in the Covid-19 pandemic – were unable to commit substantive resources towards implementing their national action plans.

Antibiotics prescribed for humans continue to be used in substantive amounts – outweighing use in humans – in livestock farming. Antibiotic growth promoters are still routinely used in most of the major meat-producing countries in the world, many of whom export to Singapore.

We are still far away from establishing a pipeline developing new antibiotics. Only a minority

of the antibiotics under development can be considered innovative. And only a tiny number of those under development make it to the market.

The 2024 declaration therefore comes at a critical juncture. Compared with 2016, we now better understand and can map out the future consequences of AMR in greater detail.

The new declaration is an important step forward, with stronger commitments and a clear target. But as with any global health crisis, the real test will be in the implementation. Member states must now translate these commitments into tangible actions, backed by sustained investment and accountability.

YOU CAN MAKE A DIFFERENCE TOO

AMR can seem overwhelming, but individual effort can make a difference in a multi-front battle that involves not just the medical and scientific communities. For instance, we can use antibiotics responsibly – taking antibiotics only when prescribed, and not asking doctors for antibiotics for viral infections such as flu or the common cold. Preventing infections is also important. It could be something as simple as maintaining proper hand hygiene as well as practising safe food handling, and keeping wounds clean.

We can also educate ourselves and others about AMR, spreading awareness among family and friends. Finally, although this is difficult to do locally and results in additional costs, we can choose meat and dairy products from animals raised without antibiotics. Consumer pressure and preference resulted in McDonald's using only chicken raised without antibiotics important to human medicine for its nuggets and burgers in the US in 2015, extending this gradually worldwide from 2018 (this has not reached Singapore yet). Several other fast-food chains have made similar commitments in the US and parts of Europe.

Without increased effort and investment locally and globally, AMR will continue to grow as a silent pandemic, undermining modern medicine and reversing decades of progress in public health. The time for action is now.

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