

ANTIBIOTIC RESISTANCE

# Combating the global threat to public health

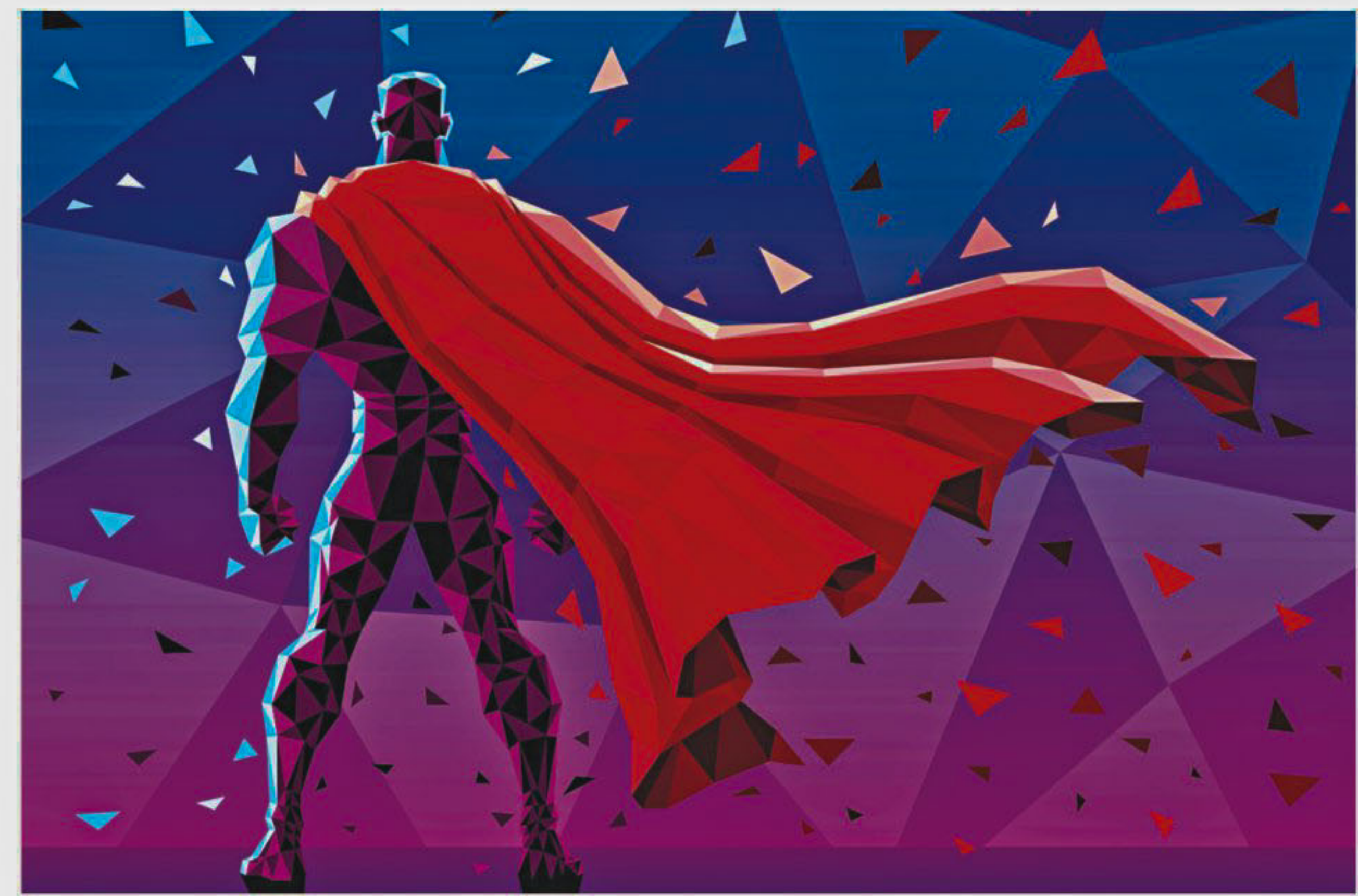
ZUBAIR KHALED HUQ

As can be seen by global reports, in the vast majority of cases where antimicrobials are used, the microorganisms have found a way to evade or resist the antimicrobial agent. Resistance occurs wherever antimicrobials are used -- in the community, on the farm, and in healthcare. Antibiotic resistance is a public health problem of increasing magnitude, and finding effective solutions to address this problem is critical.

Infections with resistant bacteria were first reported over 67 years ago. Antimicrobial is a general term for the drugs, chemicals, or other substances that either kill or slow the growth of microbes. Among the antimicrobial agents in use today there are antibiotic drugs (which kill bacteria), antiviral agents (which kill viruses), antifungal agents (which kill fungi), and antiparasitic drugs (which kill parasites). An antibiotic is a type of antimicrobial agent made from a mold or a bacterium that kills, or slows the growth of other microbes, specifically bacteria.

Early on the problem was often overlooked, because if one antibiotic did not treat the infection, another was usually available. Since then, infections with resistant bacteria have become more common in healthcare and community settings, and many bacteria have become resistant to more than one type or class of antibiotics. Consequently, doctors and nurses today are faced with treating infections where antibiotic options are very limited, and in some cases, where no effective antibiotics exist.

The use of antibiotics at any time in any setting puts biological pressure on



SOURCE: VEARSA

bacteria that promote the development of resistance. When antibiotics are needed to prevent or treat disease, they should always be used. But research has shown that as much as 50 percent of the time, antibiotics are prescribed when they are not needed or are misused (for example, a patient is given the wrong dose). This inappropriate use of antibiotics unnecessarily promotes antibiotic resistance.

A reason why the use of antibiotic is so high is poor understanding and awareness of the differences between bacteria, viruses and other pathogens, and of the proper use and value of

antibiotics. Especially in Bangladesh, antibiotics are very often unnecessarily prescribed. Too many antibiotics are prescribed for viral infections such as colds, flu and diarrhea. Unfortunately, public misconceptions regarding the effectiveness of antibiotics are often perpetuated by print and electronic media, where, until recently, antibiotics would be indiscriminately recommended.

Through the use of generic terms such as 'germs' and 'bugs', in a recent report the World Health Organisation (WHO) focused on determining the rate of antibiotic resistance to seven

bacteria responsible for many common infections, including pneumonia, diarrhea, urinary tract infections, gonorrhoea and sepsis. Their findings were worrying. The report revealed that resistance to common bacteria has reached "alarming" levels in many parts of the world, with some regions already out of treatment options for common infections. In fact, it has been found that resistance to carbapenem antibiotics used to tackle *Klebsiella pneumoniae* - the bacteria responsible for hospital-acquired infections such as pneumonia and infections in newborns - has spread to all parts of the globe.

Antibiotic resistance occurs as part of a natural process in which bacteria evolve; this process can be slowed but not completely stopped. Therefore, new antibiotics will always be needed to keep up with resistant bacteria, as will new tests to track the development of resistance. But developing new antibiotics alone will not be enough to tackle resistance to these drugs. There needs to be a drastic change in the way antibiotics are prescribed by doctors and used by patients, since this has been a key contributor to resistance. WHO recommends that patients only use antibiotics when they are prescribed the drugs by a doctor. Furthermore, patients should take the full prescription, even if they are feeling stronger, and they should never share antibiotics with others or use leftover antibiotics. When it comes to healthcare workers, WHO states they should only prescribe antibiotics when patients truly need them, and should ensure that they are prescribing the correct antibiotic to treat the illness. One way of tackling antibiotic resistance is to prevent infection, thereby reducing the amount of antibiotics that have to be used. How do we prevent infections, you ask? There are a number of ways: immunisation, infection prevention actions in healthcare settings, safe food preparation and handling and general hand washing. Also, basic research on antimicrobial resistance on a national level is a must.

With the growing development of antibiotic resistance, it is imperative that we no longer take the availability of effective antibiotics for granted. As a nation, we must respond to this growing problem, and our response needs to be multifaceted, addressing all disciplines.

The writer is a medical practitioner.

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PROJECT SYNDICATE

## The end of poverty in China?



HANNAH RYDER

ONE of the most cited statistics about China may well be the number of Chinese who have been lifted out of

poverty over the last 35 years. At over 800 million, it is a huge number -- and an extraordinary feat. Indeed, no other country has achieved such a level of poverty reduction in such a short period. But what about the millions of Chinese who have remained behind?

China's government is committed to finishing the task, with the aim of reducing rural poverty essentially to zero by 2020. The authorities first made the pledge at the United Nations in 2015, and have reiterated it in subsequent official settings. But fulfilling that promise -- which would now entail improving the wellbeing of about 45 million people, roughly equivalent to Sudan's entire population -- will carry significant costs.

Poverty reduction, like so many important endeavours, is subject to the law of diminishing returns: the more you do something, the less productive your efforts become. Think of winding a watch: the more you wind, the more resistance builds up in the mainspring, and the more energy it takes to move the stem the same distance.

When it comes to poverty reduction, the people who benefit first are most likely those who were best equipped to do so, owing to,

phenomenon perfectly. During the first seven years of China's official "reform and opening up," which began in 1978, it is estimated that around 110 million people annually rose out of poverty. For the next 15 years -- from 1985 to 2000 -- the pace of progress slowed considerably, with around 26 million people moving above the poverty line each year. From 2000 to 2015, the figure stood at just over 22

report, together with World Bank data. In 2000, lifting a person out of poverty in China cost the central government approximately USD 48 per year (in nominal terms). By 2010, this figure had increased more than three-fold, to USD 150 per year. Now that the government is working to reach the most remote people -- those without access to roads, electricity, or clean water -- the cost exceeds USD 200 per year.

This is not to say that China will not be able to meet its 2020 target. On the contrary, the government's plans and implementation appear as strong as ever. In fact, last year, the government exceeded its target, with 12.4 million people escaping rural poverty. And the budget for this year is 30 percent larger, meaning that at least USD 1,000 has been allocated for each of the ten million people China's government plans to lift out of poverty in 2017.

But, as the government attempts to "get to zero" on rural poverty --

by moving all people above the national rural poverty line of CNY2,230 (USD 324) per year -- it should not lose sight of broader poverty-related challenges. China continues to experience rapid urbanisation -- a phenomenon that contributed substantially to past poverty reduction, but that also places a growing number of urban dwellers at risk of destitution.

According to official figures, the average income of the poorest 5 percent of households in Chinese cities amounts to about USD 1,128 (CNY7,521). That is about 3.5 times China's rural poverty line. But, overall, the average income in cities is at least four times higher than that in the countryside, suggesting that living on such a budget may be even tougher than living at the rural poverty line. And that does not even account for the many migrant workers who live under the radar in cities and are likely to earn even less than the poorest 5 percent.

These forms of poverty may be even harder to address, not least because China has less experience doing so. Given this, just as China's successful efforts to reduce rural poverty can serve as a model for others, other countries' successes in managing urban poverty can -- and should -- help to guide China's efforts.

China is far from alone in focusing on the fight to end poverty; indeed, the very first Sustainable Development Goal calls for an end to poverty in all of its manifestations by 2030. With the process becoming increasingly challenging and costly, looking across borders could prove vital to enabling all Chinese to live decent, dignified lives.

The writer is a former head of policy and partnerships for the United Nations Development Programme in China. Copyright: Project Syndicate, 2017. www.project-syndicate.org (Exclusive to The Daily Star)

*China continues to experience rapid urbanisation -- a phenomenon that contributed substantially to past poverty reduction, but that also places a growing number of urban dwellers at risk of destitution.*

say, their background or geography. By the time there are only a few -- or even a few million -- left, one can expect reaching them to be much harder. China's experience illustrates this

million per year. The government's target now is to lift ten million people out of poverty annually.

As the pace of poverty reduction has slowed, its costs have risen -- a trend illustrated in a new UN

QUOTABLE Quote



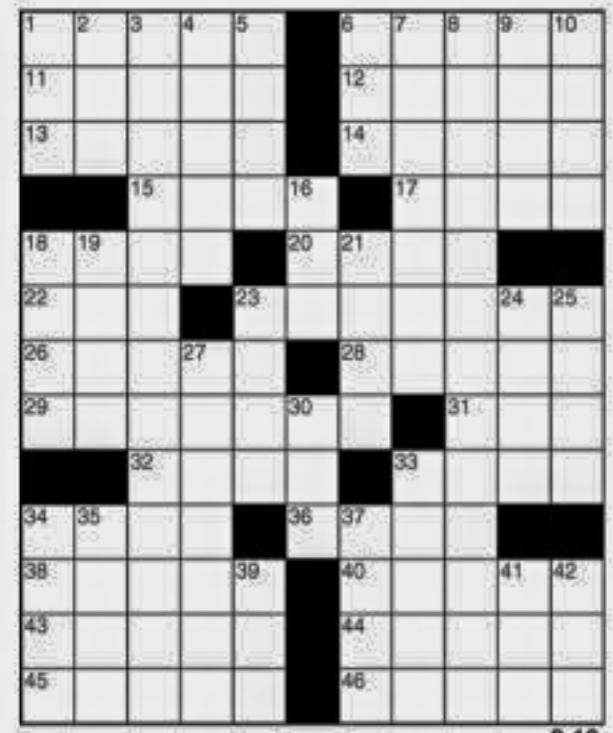
FRIEDRICH NIETZSCHE

GERMAN PHILOSOPHER, CULTURAL CRITIC, POET, PHILOLOGIST, AND LATIN AND GREEK SCHOLAR

In individuals, insanity is rare; but in groups, parties, nations and epochs, it is the rule.

CROSSWORD BY THOMAS JOSEPH

- ACROSS**
- 1 One in dreadlocks
  - 6 Low singer
  - 11 Impromptu
  - 12 Theater worker
  - 13 Sculptor Henry
  - 14 Go piece
  - 15 Eject
  - 17 Tire tracks
  - 18 Funny folks
  - 20 Forget
  - 22 Parisian pal
  - 23 Yes men
  - 26 Comfort food source
  - 28 Japanese fencing
  - 29 Personalize, in a way
  - 31 Empty talk
  - 32 Act sulkily
- DOWN**
- 1 Flock father
  - 2 Hubbub
  - 3 Marksman's competition
  - 4 Bagel's shape
  - 5 Good pair
  - 6 Tour carrier
  - 7 Sitting on, as a horse
  - 8 Loud quarrel
  - 9 Dispatched
  - 10 Valuable rocks
  - 16 Additionally
  - 18 Walk in water
  - 19 Poker declaration
  - 21 Produce
  - 23 Fairway sight
  - 24 Dutch cheese
  - 25 Fair
  - 27 Hot stuff
  - 30 Dog doc
  - 33 Writer Nin
  - 34 Renown
  - 35 "Cold as Ever" rapper
  - 37 West Point: Abbr.
  - 39 Big truck
  - 41 Wrath
  - 42 Sine qua--



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