

## Despite concerns over antimicrobial resistance, global antimicrobial use in animals could increase by 2030

The use of antimicrobials in animal farming has allowed for intensive animal production to meet the growing demand for animal protein. However, the widespread use of these drugs has led to antimicrobial resistance, posing a threat to animal and potentially human health. Monitoring of antimicrobial use in farming is necessary to track progress in reducing reliance on these drugs and to identify countries where antimicrobial-stewardship efforts should be targeted.

A study was conducted to estimate the global usage of veterinary antimicrobials in 2020 and 2030, using data from 42 countries. Statistical analyses were employed, along with projections of animal counts for cattle, sheep, chicken, and pigs from the Food and Agriculture Organisation. Maps of animal densities were used to identify areas where antimicrobial use was particularly high.

The estimates revealed that global antimicrobial usage in animal farming was 99,502 tonnes in 2020, with a projected increase of 8% to 107,472 tonnes by 2030 based on current trends. The majority of hotspots for antimicrobial use were located in Asia (67%), with less than 1% in Africa.

The findings also suggest a higher global antimicrobial usage in 2030 compared to prior projections that used data from 2017, which is likely due to an upward revision of antimicrobial use in Asia/Oceania and the Americas. It is important to encourage national-level reporting of antimicrobial use to better evaluate the impact of national policies on usage levels.

In conclusion, the study highlights the need for continued monitoring of antimicrobial use in animal farming and targeted efforts to reduce reliance on these drugs. The identified hotspots for antimicrobial use can serve as a guide for antimicrobial-stewardship efforts in specific regions. Furthermore, national-level reporting of antimicrobial use is crucial to effectively evaluate and implement policies to curb antimicrobial resistance.



### STAR HEALTH DESK

It has been more than 100 years since the first and only tuberculosis (TB) vaccine – the Bacillus Calmette-Guérin (BCG) vaccine – was used for the first time medically in 1921. With an estimated 1.6 million people dying from TB in 2021, there is an urgent need for new vaccines to help stem the never-ending pandemic.

"In order to reach the World Health Organisation (WHO)'s target of ending TB as a global health problem, we desperately need an effective and safe vaccine for use in adults and adolescents," explains Prof Frank Cobelens, Professor of Global Health at the University of Amsterdam and the Amsterdam Institute for Global Health and Development (AIGHD), Netherlands.

Despite this, for the first time since decades there are several promising new TB vaccine candidates entering phase 3 trials (efficacy testing in humans). "However, the current need for long trials implies that licensure of any of these candidates will take at least several years," says Prof Cobelens. He adds that a key issue for WHO in licensing any new TB vaccine is evidence of prevention of disease (POD) – however many of the current trials are looking at prevention of infection (POI) or prevention of recurrence (POR) in those with latent

infection – which are not quite the same as POD.

Prof Cobelens highlights that, for the first time in decades there is a different platform candidate that has shown protection in adults and adolescents in a phase II trial: M72/AS01E (an adjuvanted subunit vaccine – since the antigens alone in a subunit vaccine are insufficient to produce high immunogenicity, non-immunogenic materials known as adjuvants are typically incorporated into the vaccine formulation to improve the immune response and enhance the vaccine's efficacy). This is also important because it allows the field to identify correlates of protection. In a trial of some 3500 participants in Kenya, South Africa, and Zambia, the vaccine demonstrated 50% protection against TB infection after three years follow-up. It was also safely tested in 400 people living with HIV.

This vaccine is now going to enter a phase III trial in high-incidence settings across Africa, with an estimated 26,000 participants. It will include people never infected with TB and those with latent TB to see if they are protected from TB disease. But as the trial will require three years for recruitment and five for follow up, it is unlikely to provide results until the start of the 2030s.

Other vaccines considered frontrunners include the Russian Vaccine GamTBVac, currently in a phase 3 trial with 7,000 participants expected to report in or around 2025. Also considered promising is the VPM1002 (live recombinant BCG), which is about report on trials on prevention of infection in babies and prevention of recurrence in adults in the next two years (delayed due to COVID pandemic) – while a further phase 3 trial, to test prevention of infection in adult household contacts of primary infected persons, is currently underway.

Another genetically modified live-attenuated vaccine, MTBVAC, has just begun a BCG-controlled phase 3 trial in babies in South Africa and Madagascar, while a phase 3 trial in BCG-vaccinated and unvaccinated adults is in its planning stages. Results from these trials are likely to be announced at the end of this decade.

"We have waited more than a century for a new effective TB vaccine, and unfortunately that wait is set to last at least several more years," concludes Prof Cobelens. "However, there are promising new approaches that include alternative routes of delivery for BCG-vectored vaccines that will hopefully enter the development pipeline soon."

### HAVE A NICE DAY

## The poison of pride

DR RUBAUL MURSHED

"Generosity is giving more than you have, and pride is taking less than you need" – Khalil Gibran. Some ancient thinkers thought proud people were worthy of great things. So, is it better to not feel proud at all? Well, it is said that pride breakfasted with plenty, lunched with poverty, dined with infamy.



This was divided into two emotions by social scientists: hubristic and authentic. Authentic pride with moderation is innocent, confident feeling. Authentic pride is adaptive because this inoffensive emotion encourages success.

Our societies usually face the other one. That is, 'Hubristic pride' which is egotism and arrogance. The latter encourages snobbish behaviour, and arrogance increases narcissism and lower self-awareness. Like an 'arrogant boss' who always brags to put others down. Sometimes this pride comes from exaggerated appreciation of oneself by devaluing others, so one culture turns other cultures into their competitors, which we are observing today throughout the world.

Pride becomes poison for the proud persons themselves, and sadly, they may not realise it! It destroys people. Some of their overconfidence and arrogant emotions force their mindsets to reject the help they need from others. Proudful people do not listen or learn. Some have heavy certificates that hang like necklaces, but in their practical field, their pride destroys by misleading others.

Pride usually means self-importance and superiority, both of which are destructive. It may be colourful and delicious, but it is indigestible. Some people think of pride as the worst crime. This consideration reminds us that everyone makes mistakes, but few get up and fix them because they hate looking in the mirror.

Pride underlies human suffering. Theologians believe that pride is the origin of the evil spirit's sin, while lust is the origin of Adam's sin. In a nutshell, the poison of pride justifies selfishness that destroys relationships.

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## Increasing the immunity of diabetics

### STAR HEALTH REPORT

Dhaka University and Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) General Hospital conducted a joint research that found that "Karkuma Immune Plus," a turmeric-based functional food, can increase the immunity of diabetic patients by 27%, says a press release.

The research highlighted that Type 2 diabetic patients are vulnerable to various diseases and take a long time to recover. The curcumin in turmeric, which is an active ingredient, reduces oxidative stress in the body and boosts antioxidant levels, contributing to the functional food's effectiveness.

The research shows that "Karkuma Immune Plus" can reduce oxidative stress in high-risk diabetic patients without any negative side effects. Oxidative stress occurs when there is an imbalance of reactive oxygen species and antioxidants in the body. This condition can

damage important cell components such as proteins, lipids, and DNA.

Professor Dr Khaleda Islam, Director of Institute of the Nutrition and Food Science, University of Dhaka was the principal investigator of this research. She emphasised the importance of disease resistance, especially in the face of the COVID-19 pandemic.

The research on "Karkuma Immune Plus" was conducted as a means to increase disease resistance in patients with non-communicable diseases such as type 2 diabetes, hypertension, and cancer. As lifestyle, longevity, and treatment have evolved, it is crucial to focus on preventing diseases through food and other natural methods, in addition to medicine.

"Karkuma Immune Plus" is considered a functional food, which is more than just a complete meal or medicine, the study group claimed.

Dr Khaleda further added, "Karkuma Immune Plus" is a functional food made from several natural ingredients, including

turmeric. These ingredients are sourced from outside the country and are much stronger than regular turmeric or other commonly used ingredients. The turmeric used in the product is a special type with much greater strength. The product is made into capsule form using ingredients like cloves, cinnamon, and black pepper.

The research on Karkuma Immune Plus was conducted on type 2 diabetic patients, as they have a weakened immune system. The study found that the functional food increased the immunity of diabetic patients by 27%, indicating that it could be effective for non-diabetic patients as well.

However, it works as a blood thinner, so those already taking blood thinners should consult their doctors before taking it. If any allergic reactions occur after consumption, the product should be stopped. This was stated by Dr Khaleda Islam.

The research was conducted on 94 diabetic patients between the ages of 18 and 60 years old. After 30 days of observation, it was found that consuming Karkuma Immune Plus resulted in a 23% decrease in the biomarker for oxidative stress (MDA) and a 45%, 63%, and 100% increase in the biomarkers for antioxidants (TAC, SOD, and GSTM1) respectively.



## Dementia centre launched in Dhaka

### STAR HEALTH REPORT

Dementia awareness in Bangladesh is still in its early stages. Our knowledge about dementia and its proper care is very limited. People with dementia are being deprived of proper care, and their families are constantly facing various problems. We need to focus on prevention and care.

It is often said that there is a lack of skilled and trained dementia caregivers in the country. However, we need to pay attention to prevention and taking precautions. An inauguration ceremony for the Dementia Centre was held at Uttara, Dhaka, recently.



Md Abdul Matin, Chairman of the Dementia Centre, said in his welcome speech they have taken an initiative named "Dementia Centre" in collaboration with the Alzheimer's Society of Bangladesh to improve the lives of people with dementia and their caregivers and provide humane services.

This project will provide services like dementia information and day care, dementia care and counselling, nutrition information, yoga, physiotherapy advice, caregiver training, long-term care (male or female), and residential services for professionals.



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