Update from WHO and Pew Charitable Trusts:
Urgent Action Needed to Accelerate Antibiotic Development

Recent assessments from both organizations find that
there are not enough antibacterial treatments in development to keep up with growing resistance

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Just as the COVID-19 pandemic started taking the world by storm, The World Health Organization (WHO) and The Pew Charitable Trusts (Pew) each released assessments of the global antibiotic pipeline. Both found there are still not enough antibacterial treatments in clinical development worldwide to fight the growing threat of drug-resistant bacterial infections.

Antibiotics are life-saving drugs. They are essential in fighting common infections such as urinary tract infections or strep throat, and underpin almost every aspect of modern medicine, from chemotherapy and Caesarean sections to dialysis and joint replacements. But increased global drug resistance diminishes the efficacy of the antibiotics we are currently using and increases the need for development of new ones.

Developing new, innovative antibiotics is resource-intensive and scientifically difficult. And, when more antibiotics are used the less effective they become, hence new antibiotics are often held in reserve to help preserve their potency. This is good for public health, but results in relatively low potential sales volume, making it challenging for companies to recoup their investment. As a result, major pharmaceutical companies have backed away from antibiotic development. The remaining small companies struggle to sustain their operations – with many facing bankruptcy even after successfully bringing a new antibiotic to market.

Almost all antibiotics in our arsenal today are based on discoveries from more than 35 years ago. And only about 1 in 4 candidates currently in the development pipeline represent the truly new types of drugs needed to overcome resistance. Even more problematic is that historical data suggest that many candidates will fail in clinical trials, with just a small fraction obtaining regulatory approval.

COVID-19 has so poignantly reminded us that we need to build more resilient health systems that include access to effective antibiotics to better tackle future outbreaks. Antibiotic resistance is a looming public health crisis also requiring improved preparedness, including a robust clinical antibacterial development pipeline.

Pew and WHO ask the following of policymakers, pharmaceutical companies, research funders and antibiotic innovation stakeholders:

1. **Increase public funding for early-stage research for innovative antibiotics** to overcome the basic scientific challenges of antibiotic discovery.
2. **Ensure promising antibiotics successfully move through clinical development** by increasing push and pull incentives - this includes public-private partnerships such as CARB-X and GARDP.
3. **Identify innovative solutions for sufficient return on investment for new antibiotics while ensuring their appropriate use.** This could include different reimbursement and procurement models to facilitate bringing urgently needed antibiotics to market.

These efforts must be robust and sustained in order to stabilize and revitalize the broken antibiotic development pipeline and market. As the threat of antibiotic resistance continues to grow, novel antibiotics are needed urgently – now more than ever.

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The WHO is committed to shaping the public health R&D priority setting agenda to combat antimicrobial resistance and will continue to review the preclinical and clinical antibacterial pipeline on an annual basis as well as expanding to fungal pathogens of public health importance.

The Pew Charitable Trusts tracks the global antibiotic pipeline to shed light on the status of antibiotic development, to evaluate and advocate for public policies, and to bring researchers together to spur new drug discovery. Pew also works to reduce the inappropriate use of antibiotics in human medicine and animal agriculture that accelerates drug resistance.