

# #RESIST RESISTANCE

## DEVELOPING TREATMENTS FOR DRUG-RESISTANT INFECTIONS



The Global Antibiotic Research and Development Partnership (GARDP) is a not-for-profit organization developing new treatments for the drug-resistant infections posing the greatest threat to health. Our mission is to ensure that everyone who needs antibiotics receives effective and affordable treatment, no matter where they live.

## WHY IS THERE AN ANTIBIOTIC RESISTANCE CRISIS?

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Bacteria, not people's immune systems, develop resistance to antibiotics. Bacteria reproduce quickly. Some can double their numbers every 20 minutes. A very small number of bacteria may naturally evolve to develop resistance to certain drugs.

However, when repeatedly exposed to antibiotics, the vulnerable bacteria die, leaving behind the drug-resistant bacteria to multiply. Sometimes called 'superbugs', they can reach huge numbers within one day. Inappropriate use of antibiotics creates a favourable environment for drug-resistant bacteria to grow.

This has led to a drug resistance crisis. Humans use an estimated 34.8 billion antibiotic doses each year, with global consumption increasing 65 percent between 2000 and 2015. In the United Kingdom, 1 in 5 antibiotics are prescribed unnecessarily. In the United States, this number rises to 1 in 3.

## WHICH BACTERIAL INFECTIONS ARE BECOMING RESISTANT?

Antibiotic-resistant bacteria are found in all parts of the world. A growing list of infections – such as pneumonia, blood stream infections, gonorrhoea, urinary tract infections, skin disorders and foodborne disease – are becoming harder, and sometimes impossible, to treat. The World Health Organization (WHO) has identified a list of drug-resistant priority bacterial infections for which new drugs are needed and that represent the greatest threat to health.

## WHY HAVE SO FEW NEW ANTIBIOTICS BEEN DEVELOPED?

With billions of antibiotics used each year, why is the development of new antibiotics not seen as attractive by pharmaceutical companies? Half of all antibiotics used today were discovered between the 1950s and 1970s. Since that time, discovery and development of antibiotics has become more complex, time consuming and expensive. New antibiotics that are approved for use typically have a short treatment duration and controls in place to slow the emergence and spread of resistance. This limits their profitability. Even when new antibiotics are approved, they rarely target priority drug-resistant bacteria and are only registered for use in a small number of countries. As a result, most pharmaceutical companies are no longer developing new antibiotics.

# MAKING BACTERIAL INFECTIONS TREATABLE

A post-antibiotic world is not inevitable. The Global Antibiotic Research and Development Partnership (GARDP) was established in 2016 by WHO and Drugs for Neglected Diseases *initiative* to accelerate the development of treatments for drug-resistant infections. GARDP is working with partners on treatments for the priority drug-resistant bacteria identified by the WHO as the greatest threat to health.

## SUPPORT OUR LIFESAVING WORK

Our work can only be done together. Join a growing network of people, companies, academic, civil society and government partners committed to developing treatments for drug-resistant infections. Your support will allow us to discover antibacterial ingredients and perform clinical trials for new treatments. It will fund critical work to enable access to antibiotics for every person who needs them and to ensure treatments remain effective for as long as possible.

## DELIVERING IMPACT

GARDP is supporting the late-stage development of a new treatment for gonorrhoea and is collaborating on a new lifesaving treatment for hospital-acquired infections with limited treatment options.

GARDP has completed the largest-ever global study on newborns with sepsis, to transform prevention and treatment and end sepsis as a leading cause of death among babies. Alongside this study, GARDP has completed a safety evaluation of an existing antibiotic for use with children and babies.

Working collaboratively, GARDP has screened 65,000 compounds and evaluated more than 100 substances for antibacterial activity, resulting in six drug candidates for priority drug-resistant infections.

GARDP is also working with partners to ensure that once approved, these treatments will be available to everyone who needs them, wherever they live.

## A SMART INVESTMENT

Investing in the development of new, urgently needed antibiotics through GARDP is good value for money that improves wellbeing, save lives and safeguards economies. Good health is a powerful driver of productivity, social stability and economic growth. With your support we can develop treatments urgently needed to protect our health now, and the health of future generations.

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