GARD P
Global Antibiotic Research & Development Partnership

GLOBAL CHALLENGES

ANTIBIOTICS FOR CHILDREN

1 in 5 deaths
from antibiotic-resistant infections are in children under five

99% of which occur in LMICs

BARRIERS TO TREATMENT AND ACCESS

CHILDREN ARE NEGLECTED IN R&D
Very few clinical trials in babies and children

LIMITED INFORMATION
Limited information to guide dosage and frequency of antibiotics

REGISTRATION
Limited, especially new antibiotics in LMICs

SUPPLY
Inadequate and sometimes sparse supply, especially in LMICs

CHALLENGES FOR CHILDREN WITH ANTIBIOTIC-RESISTANT INFECTIONS

Antimicrobial resistance (AMR) is one of the greatest threats to the health and survival of children, particularly newborns. Currently children under the age of five make up one out of every five deaths due to drug-resistant infections, with 99% in low- and middle-income countries (LMICs).

This is partly because young children are more vulnerable to infections, particularly newborns whose immune systems are not yet fully developed and who are too young to benefit from most vaccines. Despite their greater need for protection, too few antibiotic treatments are developed and made available for young children. This puts children across the world at risk, especially those in LMICs where conditions of poverty and inadequate infection prevention and control (IPC) measures can increase the threat.

In recent decades some progress has been made in reducing under-five AMR mortality, thanks largely to improved access to childhood immunization. However, with the greatest gains having already been made, children will continue to be one of the most at-risk groups and are expected to make up a significant proportion of AMR-related deaths in the coming years.

To change that, urgent action is needed to transform the way that new antibiotic treatments are developed for children and to improve access to existing ones. According to data from 2014, an estimated 445,000 children die from a lack of access to effective antibiotics every year. However, such figures are believed to be underestimates because of the scarcity of data around AMR and children. This not only increases the vulnerability of young children, but it makes them a significant global health blind spot.

The lack of treatment options for children and the lack of access to them is undermining progress towards United Nations Sustainable Development Goal 3, which aims to end preventable deaths of newborns and children under five by 2030. We now urgently need global solutions that can deliver new treatments for children that are appropriate, available and affordable.

BARRIERS TO TREATMENT AND ACCESS TO ANTIBIOTICS

LACK OF TREATMENT OPTIONS

With few exceptions, paediatric AMR has not been a priority for the pharmaceutical industry. The development of antibiotics for children trails that of adults by nearly a decade. This is why treatment options are inadequate for children and newborns with drug-resistant bacterial infections, such as pneumonia, neonatal sepsis and intra-abdominal infections.

OBSTACLES TO ANTIBIOTIC ACCESS

Even when appropriate treatment options do exist and are supported by a timely diagnosis, it can be challenging to ensure that antibiotics are available and accessible to children and newborns in LMICs. A key challenge is identifying manufacturers that are willing to supply antibiotics, particularly to LMICs, where the commercial opportunities can be limited.

DEVELOPING NEW TREATMENTS FOR BABIES AND CHILDREN

Children and newborns lie at the heart of GARDP's mission. We prioritize the development of new tools and other measures for diagnosis, treatment and care of children and newborns with drug-resistant infections, with a key emphasis on the development of novel treatments.

NOVEL TREATMENTS

One example is cefiderocol, a novel antibiotic treatment in GARDP's portfolio which is seen to have a potentially important role in helping stop the rise and spread of AMR. While cefiderocol is currently only licensed for adults, Shionogi is completing regulatory trials to establish the paediatric dose. GARDP will initially investigate its use in treating neonatal sepsis when used alone and then in combination with other antibiotics, in settings with infections caused by bacteria that are resistant to carbapenem antibiotics.

COMBINATION TREATMENTS

In addition to novel antibiotics for children, GARDP is also exploring whether new treatments could be developed by combining existing antibiotics. This, together with GARDP's approach of integrating access into its entire R&D processes, has the potential to accelerate the availability of much-needed new treatments for newborns. To this end, we have launched a clinical trial on new antibiotic combinations for newborn babies.

The NeoSep1 trial, launched in South Africa and Kenya in early 2023, is evaluating new combinations of existing antibiotics and comparing them to treatment regimens that are currently used to treat newborn babies with suspected sepsis. It is also looking at the appropriate dose and formulation for newborns. The trial will be expanded to other countries in Africa and the Asia-Pacific region with the expected target of enrolling more than 3,000 newborns by 2028.

GARDP hopes to identify one or more effective treatment regimens for neonatal sepsis and establish sources of quality-assured and affordable supply of the identified treatment regimens. The trial aims to inform WHO guidelines, improve the treatment of babies with sepsis and potentially avert the 214,000 deaths from drug-resistant neonatal sepsis every year.

DATA TO INFORM GLOBAL GUIDELINES

GARDP is also helping to fill critical gaps in data that will ultimately help to improve the antibiotic needs of children in LMICs. In 2023, we released the findings of a global neonatal sepsis observational study, "NeoObs", which involved more than 3,200 newborn babies suffering from sepsis in 19 hospitals in 11 countries spanning four continents.

The study showed that many newborns are dying due to sepsis and highlighted wide variations in the standard of care for treating it. The findings provided a wealth of high-quality data which has informed the design of the NeoSep1 trial.

Using the data collected, the team developed tools, based on 10 signs and symptoms, that can be used in clinical trials and in any neonatal intensive care unit worldwide. The NeoSep Severity Score will identify newborns with a high risk of dying to ensure they get special attention more quickly.

GARDP is committed to improving the global AMR response for healthier children and newborns.

€43.5 million

Funding needed for the period 2024-2028 to develop and make accessible effective and life-saving antibiotic treatments for neonatal sepsis.

SNIP-AFRICA

The GARDP-sponsored NeoSep1 trial also forms part of a 5-year project by a consortium of partners called SNIP-AFRICA (Severe Neonatal Infection Adaptive Platform Trials in Africa), which aims to reduce mortality among newborns with sepsis in hospitals in Africa.

SNIP-AFRICA, led by Penta **and supported by the Global Health EDCTP3**, is developing a clinical research platform for the implementation of adaptive trials in Sub-Saharan Africa. This includes the NeoSep1 trial as well as pharmacokinetic studies to determine the appropriate doses of antibiotics for newborns. It will also collect data on how newborns with sepsis are treated and how healthcare resources are used.
For more information, visit www.snip-africa.org/