WHO issues its first-ever reports on tests and treatments for fungal infections

The World Health Organization (WHO) today published its first-ever reports addressing the critical lack of medicines and diagnostic tools for invasive fungal diseases, showing the urgent need for innovative research and development (R&D) to close these gaps.

Fungal diseases are an increasing public health concern, with common infections – such as *candida*, which causes oral and vaginal thrush – growing increasingly resistant to treatment. These infections disproportionately impact severely ill patients and those with weakened immune systems, including individuals undergoing cancer chemotherapy, living with HIV, and who have had organ transplants.

“Invasive fungal infections threaten the lives of the most vulnerable but countries lack the treatments needed to save lives,” said Dr Yukiko Nakatani, WHO Assistant Director-General for Antimicrobial Resistance *ad interim*. “Not only is the pipeline of new antifungal drugs and diagnostics insufficient, there is a void in fungal testing in low- and middle-income countries, even in district hospitals. This diagnostic gap means the cause of people’s suffering remains unknown, making it difficult to get them the right treatments.”

The fungi in the top ‘critical priority’ category of the WHO’s fungal priority pathogens list (FPPL) are deadly, with mortality rates reaching as high as 88%. Advancements in treatments mean that more people are likely to be living with immunocompromised conditions, which also could mean increases in cases of invasive fungal diseases. This is a complex challenge to manage due to inaccessibility of diagnostic tools, limited availability of antifungal medicines, and a slow and complex R&D process for new treatments.

Constrained process in developing treatments against deadly fungal infections

WHO’s report on antifungal drugs highlights that, in the past decade, only four new antifungal drugs have been approved by regulatory authorities in the United States of America, the European Union or China. Currently, nine antifungal medicines are in clinical development to use against the most health-threatening fungi, as detailed in the FPPL.

However, only three candidates are in phase 3, the final stage of clinical development, meaning few approvals are expected within the next decade. Twenty-two drugs are in preclinical development, an insufficient number to feed a clinical pipeline considering the dropout rates, risks and challenges associated with earlier development stages.

Issues with current antifungal treatments include serious side effects, frequent drug-drug interactions, limited dosage forms and the need for prolonged hospital stays. The report highlights the urgent need for safer antifungal medicines, possibly reducing requirements for continuous drug monitoring.

Antifungal medicines that work against a wide range of severe infections caused by fungal priority pathogens are also needed. Children are particularly underserved with few clinical trials exploring paediatric dosing and age-appropriate formulations.

WHO recommends investing in global surveillance, expanding financial incentives for drug discovery and development, funding basic research to help identify new and unexploited targets on fungi for medicines, and investigating treatments that work by enhancing patients’ immune responses.

Landscape report of diagnostics for fungal priority pathogens

The new diagnostics report shows that while commercially available tests exist for fungal priority pathogens, these rely on well-equipped laboratories and trained staff, which means that most people in in low- and middle-income countries (LMICs) do not benefit from them. All countries, but particularly LMICs, need faster, more accurate, cheaper and easier testing for a broad range of fungal priority pathogens, including diagnostic tools that can be used at or near point-of-care.

There are many challenges with existing antifungal diagnostics; they work only for a limited range of fungi, are insufficiently accurate and take a long time to obtain results. Most of the tests are not well suited to primary and secondary health facilities as certain diagnostics require stable electricity supplies within suitable and equipped laboratories.

Health workers often have insufficient knowledge about fungal infections as well as the impact of fungi growing more resistant to treatments, resulting in limited ability to perform the testing needed to determine the appropriate treatment. WHO calls for strengthening the global response against invasive fungal diseases and antifungal resistance, and is also developing an implementation blueprint for the FPPL.

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