

Better diagnosis of fungal infections key to reducing antibiotic resistance

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Poor diagnosis worldwide of fungal disease causes doctors to overprescribe antibiotics, increasing harmful resistance to antimicrobial drugs, according to a paper published today in *Emerging Infectious Diseases*.

"Inadequate attention is paid to fungal infection as the cause of antibacterial treatment failure," the authors, members of the Global Action Fund for Fungal Infections (GAFFI), write in a call for improved fungal disease diagnosis.

Antibiotic resistance is one of the biggest threats to global health, according to the World Health Organization. It is linked to 23,000 deaths per year and nearly \$25 billion in excess health care costs in the United States alone, where the U.S. Centers for Disease Control is heading a \$160 million, 50-state initiative to combat antibiotic-resistant bacteria. Paying closer attention to underlying fungal infections is necessary to reduce drug resistance, the paper concludes.

"If we're trying to deliver globally on a comprehensive plan to prevent antimicrobial resistance, and we're treating blindly for fungal infections that we don't know are present with antibiotics, then we may inadvertently be creating greater [antibiotic resistance](#)," said David Perlin, a lead author and executive director of Rutgers New Jersey Medical School's Public Health Research Institute.

Inexpensive, rapid diagnostic tests are available for important fungal infections but are not being widely used, Perlin said. Better training is needed to encourage health care practitioners to test for fungal infections so the correct drugs are administered.

The report cites four common clinical situations in which a lack of routine diagnostic testing for [fungal diseases](#) often worsens the problem:

- Many people diagnosed with tuberculosis of the lungs don't have TB - known as smear negative cases - but are treated ineffectively with costly TB drugs. A simple antibody test can pick up the fungus *Aspergillus*, which can be treated by antifungal drugs rather than unnecessary anti-TB antibiotics. In 2013, more than 2.7 million smear-negative TB cases were reported to the World Health Organization.
- Inaccurate diagnosis of fungal sepsis in hospitals and intensive care units results in inappropriate use of broad-spectrum antibacterial drugs in patients with invasive candidiasis, [fungal infections](#) caused by yeasts.
- Fungal asthma is often misdiagnosed as COPD (chronic obstructive pulmonary disease) and treated with antibacterial drugs and steroids. Of more than 200 million asthma sufferers, an estimated 6 million to 15 million have fungal asthma, which can be diagnosed with skin testing or blood tests and responds to antifungal agents, not antibiotics, the report notes.
- Overtreatment and undertreatment of *Pneumocystis pneumonia* (PCP) in HIV-positive patients. The report estimates 400,000 patients with PCP go undiagnosed while more than 2 million mistakenly receive noxious PCP therapy.

Fungal infections, often undiagnosed, result in 1.5 million deaths a year. GAFFI launched in 2013 to promote global awareness of fungal disease as a major cause of deaths worldwide.

"Fungal disease diagnostics are critical in the AMR fight and will improve survival from fungal disease across the world," said David Denning, GAFFI president and a professor of infectious diseases in global health at the University of Manchester. "The close link between fungal diagnostics and antibacterial prescribing needs a great deal more

attention."

More information: David W. Denning et al, Delivering on Antimicrobial Resistance Agenda Not Possible without Improving Fungal Diagnostic Capabilities, *Emerging Infectious Diseases* (2017). DOI: [10.3201/eid2302.152042](https://doi.org/10.3201/eid2302.152042)

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