



# Is the Rising Fungal Resistance a Global Concern?

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Treatment for fungal infections is becoming more challenging due to increased resistance, which is a worldwide health concern. Therefore, there is an urgent need for research, better diagnosis, and more effective infection prevention measures. The increased severity of these infections—which can range from minor skin disorders to serious systemic illnesses and antifungal resistance—is making treatment more difficult, especially when dealing with pathogens like *Aspergillus fumigatus* and *Candida auris*. A better understanding of fungal biology, enhanced diagnostic capabilities, and well-thought-out public health regulations are necessary to address this problem (1).

Even in generally healthy individuals, fungi can cause relatively frequent disorders. For instance, in young, healthy women, yeast like *Candida* is a prominent cause of vaginal and urinary tract infections. Ringworm and athlete's foot are common illnesses because fungi like dermatophytes and yeast like *Candida* are common causes of infections of the skin and nails. Although they usually don't cause death, they can occasionally be chronic issues that affect people's quality of life and illnesses that affect millions of people annually (2).

On the opposite end of the spectrum are more deeply invasive fungal infections that spread to deeper parts of the body, including the lungs, circulation, and other organ systems. These infections are rather prevalent in hospitals, especially in patients with suppressed immune systems. There is a need for increased funding for innovative antifungal medications and quick diagnostic equipment in intensive care units and other critical care settings. These kinds of fungal infections are frequently harder to cure and resistant to at least some antifungal medications. Antifungal resistance is increasingly seen in both outpatient settings, with skin and soft tissue infections, urinary tract infections,

vaginal infections, and among more severely ill patients with more severe infections in the hospital (3).

To enhance infection prevention and public health, several policies are necessary, such as:

(1) Enhanced surveillance systems: Monitoring fungal infections and resistance trends at national and international levels.

(2) Hospital infection control measures: Implementing stricter disinfection protocols to prevent outbreaks of *C. auris*.

(3) Antifungal stewardship programs: Encouraging judicious antifungal use to prevent the emergence of resistance.

(4) Regulation of agricultural fungicide: Addressing the link between environmental fungicide overuse and antifungal resistance in clinical settings (4).

It is crucial to understand that not all problems in a hospital or healthcare facility are caused by bacteria; fungi may be the cause of other infections. If a physician observes a pattern of instances, they should remember that molds are present in all areas of our surroundings and might cause epidemics in a medical facility with susceptible patients. Immunocompromised patients were exposed to spores and molds from contaminated bed linens and other hospital surfaces in recent years, leading to mold infections. Therefore, consider fungi and the hospital environment if you notice odd clusters of cases, both clinically and from the perspective of infection prevention. Recognize these characteristics sooner rather than later and search specifically for fungi (4).

To effectively combat fungal infections, a multipronged approach is needed, including:

- Investment in research: Increased funding for novel antifungal agents and rapid diagnostic tools.

- Education and awareness: Training healthcare professionals to recognize fungal infections early and implement appropriate treatment strategies.

- Multidisciplinary collaboration: Encouraging partnerships between researchers, clinicians, policymakers, and the agricultural sector to address antifungal resistance comprehensively (5).

In Iran, according to a recently published article by Ghazanfari et al., a significant amount of azole resistance was found in hospital ambient samples, which is a major red flag for patients susceptible to aspergillosis. Additionally, a systematic review by Kermani et al. observed resistance in *C. albicans* isolated from oropharyngeal candidiasis. Relapse following treatment may be caused by the emergence of resistant species due to prolonged use, insufficient treatment, overdosing, or the use of several antifungals when treating candidiasis. To prevent the emergence of multidrug resistance, antifungals should be administered in conjunction with therapeutic drug monitoring and an antifungal stewardship strategy (6, 7).

In conclusion, fungal infections represent a growing yet often overlooked public health challenge. The rise of resistant fungal pathogens, particularly in hospital settings, demands improved diagnostics, innovative treatments, and comprehensive infection control policies. Addressing these issues proactively can help mitigate the impact of fungal infections and strengthen preparedness against emerging threats.

## Footnotes

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