



DEPARTMENT OF MICROBIOLOGY INFECTIOUS DISEASE BULLETIN

VOLUME 2 ISSUE 2

February 2023



WORLD NEGLECTED TROPICAL DISEASES DAY 2023
ACT NOW, ACT TOGETHER
INVEST IN NEGLECTED TROPICAL DISEASES

World Neglected Tropical Diseases Day
30th JAN

World Neglected Tropical Diseases Day (NNTD) is a global healthcare event celebrated on 30th January every year since 2021 with the goal of celebrating achievements made towards control of the World Neglected Tropical Diseases and encouraging everyone to join the growing movement in eradicating and eliminating Neglected Tropical Diseases.

World Neglected Tropical Diseases Day is observed every year on 30 January. This date marks the launch of the first WHO road map and the launch of the London declaration on neglected tropical diseases (NTDs), both in 2012.

The purpose of World Neglected Tropical Diseases Day is to reflect on the suffering caused by NTDs; celebrate those who are engaged in tackling their burden and the accomplishments of the global NTD community; and gather more support towards their control, elimination and eradication.

On 31 May 2021, the Seventy-fourth World Health Assembly recognized 30 January as World Neglected Tropical Diseases Day through the unanimous approval of decision WHA74(18) by WHO Member States. This Day is now one of the 10 Global Health Days and 2 Global Health Weeks recognized by WHO.

World Neglected Tropical Diseases Day has been observed by the global partners' community since 2019, while WHO first celebrated the event on 30 January 2022.

Buruli ulcer

A debilitating mycobacterial skin infection causing severe destruction of the skin, bone and soft tissue



Chagas Disease

A life-threatening protozoan illness transmitted to humans through contact with vector insects (triatomine bugs), ingestion of contaminated food, infected blood transfusions, congenital transmission, organ transplantation



Dengue and chikungunya

Two mosquito-borne, outbreak-prone viral conditions causing a flu-like illness that can be associated with severe, painful and disabling symptoms and, in the case of dengue, may cause shock, hemorrhage and death.



Dracunculiasis (guinea-worm disease)

A helminth infection transmitted exclusively by drinking water contaminated with parasite-infected water fleas; one year later, adult female worms painfully ulcerate through the skin, often of the legs, in order to expel their larvae.



Echinococcosis

A disease caused by the larval stages of tapeworms forming pathogenic cysts in human organs, acquired by ingesting eggs most commonly shed in the faeces of dogs and wild animals.





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Foodborne trematodiasis

A group of infectious diseases acquired by consuming fish, crustaceans and vegetables contaminated with larval parasites; clonorchiasis, opisthorchiasis, paragonimiasis and fascioliasis are the most common.



Human African trypanosomiasis (sleeping sickness)

A protozoan infection spread by the bites of tsetse flies that is almost 100% fatal without prompt diagnosis and treatment to prevent the parasites from invading the central nervous system.



Lymphatic filariasis (elephantiasis)

A helminth infection transmitted by mosquitoes and resulting in adult worms inhabiting and reproducing in the lymphatic system; it is associated with recurrent painful inflammation and abnormal enlargement of limbs and genitals.



Onchocerciasis (river blindness)

A helminth infection transmitted by the bite of infected blackflies causing severe itching and eye lesions as the adult worm produces larvae eventually leading to visual impairment and permanent blindness.



Rabies

A preventable viral disease transmitted to humans through the bites of infected animals, especially dogs, that is invariably fatal once symptoms develop.



Soil-transmitted helminthiasis

Helminth infections transmitted through soil contaminated by human faeces; they cause anaemia, vitamin A deficiency, stunted growth, malnutrition, intestinal obstruction and impaired development.



Taeniasis and cysticercosis

Taeniasis is caused by adult tapeworms in human intestines; cysticercosis results when humans ingest tapeworm eggs that develop as larvae in tissues, including the brain (neurocysticercosis).



Yaws

A chronic, disfiguring bacterial disease affecting mainly the skin and bone. Other endemic treponematoses similar to yaws are also considered NTDs



Schistosomiasis (bilharzia)

A group of trematode infections acquired when larval forms released by freshwater snails penetrate human skin during contact with infested water; schistosomiasis is typically associated with liver and urogenital pathology.



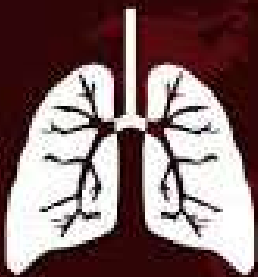


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Every year on February 1st, World Aspergillosis Day aims to raise awareness about this under-diagnosed fungal infection. It's also a day to educate the general public on the signs and symptoms of aspergillosis.



WORLD
ASPERGILLOSIS
DAY
FEBRUARY 01



HISTORY UNPLUGGED

Patients at the National Aspergillosis Centre in Manchester, UK, created this day for aspergillosis awareness. The first World Aspergillosis Day took place on February 1, 2018.

February 1 marks an important day for those living with or affected by aspergillosis; World Aspergillosis Day. This day is dedicated to raise awareness of the fungal infection, which affects millions of people around the world.

Aspergillosis is a type of lung infection caused by fungi in the genus *Aspergillus*. It can lead to a range of symptoms and complications, including asthma, bronchitis, sinusitis, and even death. Although it is treatable, many people are still unaware of the condition and its associated risks.

The WHO estimates **1.6 million** people a year die from long-term disease caused by **fungal infections**

Yet **less than 1.5%** of all research spending on infectious diseases is dedicated to **fungal pathogens**



We need action. Now.

Our current treatments for

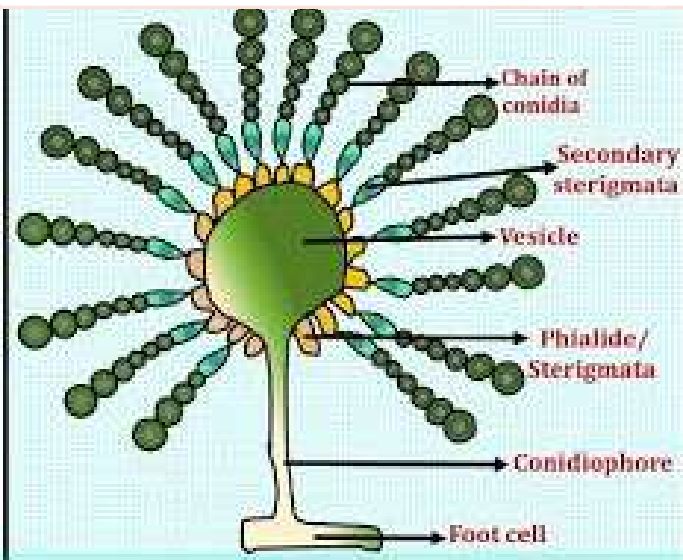




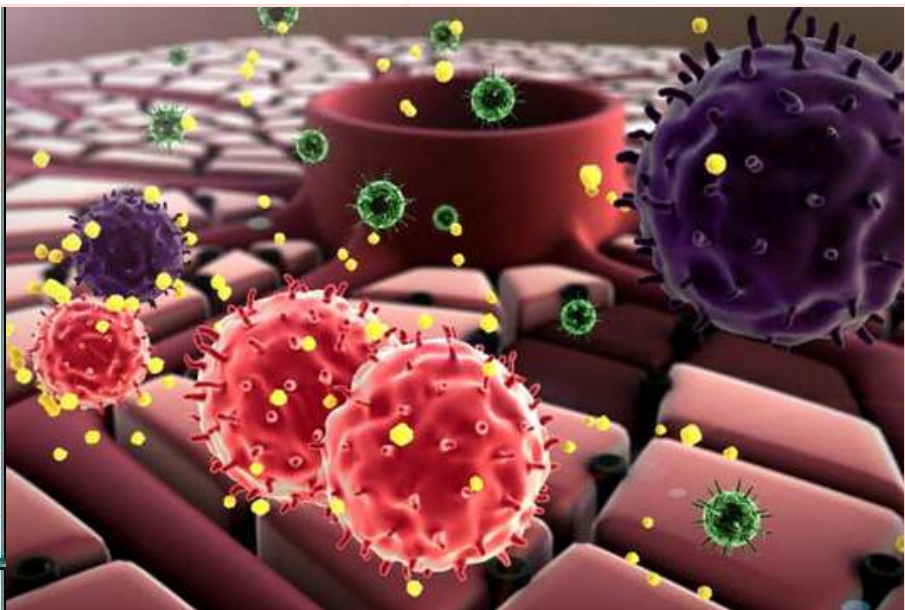
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Morphology of *Aspergillus*



KNOW YOUR BUG :-



Aspergillus lentulus is a species of *Aspergillus* fungus. It is a close relative of *Aspergillus fumigatus*. It is an opportunistic human pathogen that causes invasive aspergillosis with high mortality rates. *Aspergillus lentulus* was first found by Balajee and his colleagues in a medical center in the United States, and subsequently, the species was also isolated from patients in other countries as well as environmental samples. *Lentulus* is derived from the Latin word “*lentus*,” which means tough and slow, chosen to reflect its sporulation characteristics.

Macroscopically, colonies sporulate slowly and appear white, before generating pale green-blue conidia similar to *Aspergillus fumigatus*. *Aspergillus lentulus* is easily confused with *Aspergillus fumigatus* and its susceptibility to amphotericin B and azoles antifungal agents is reduced. *Aspergillus lentulus* has smaller, globose vesicles with shorter conidial heads, and it exhibits increased susceptibility to temperatures $>37^{\circ}\text{C}$.

Radiographic findings, including consolidations cavitory lesions and nodules. MALDI-TOF MS can be used as a rapid tool for presumptive identification of *Aspergillus lentulus* but confirmation requires DNA sequencing.





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Gross morphology of *Aspergillus* at glance



Aspergillus flavus



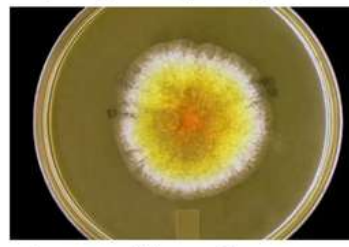
Aspergillus fumigatus



Aspergillus niger



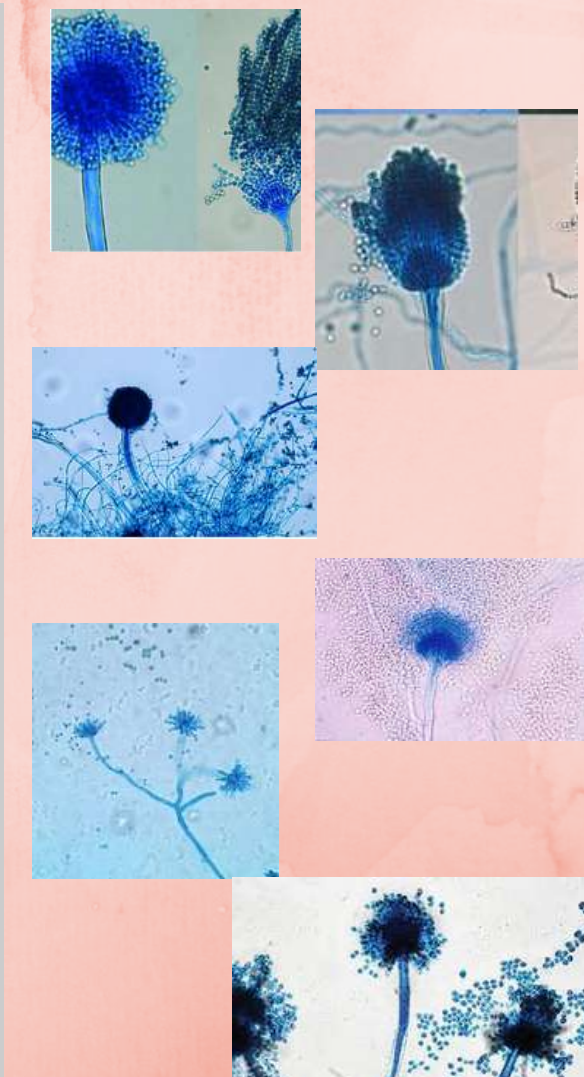
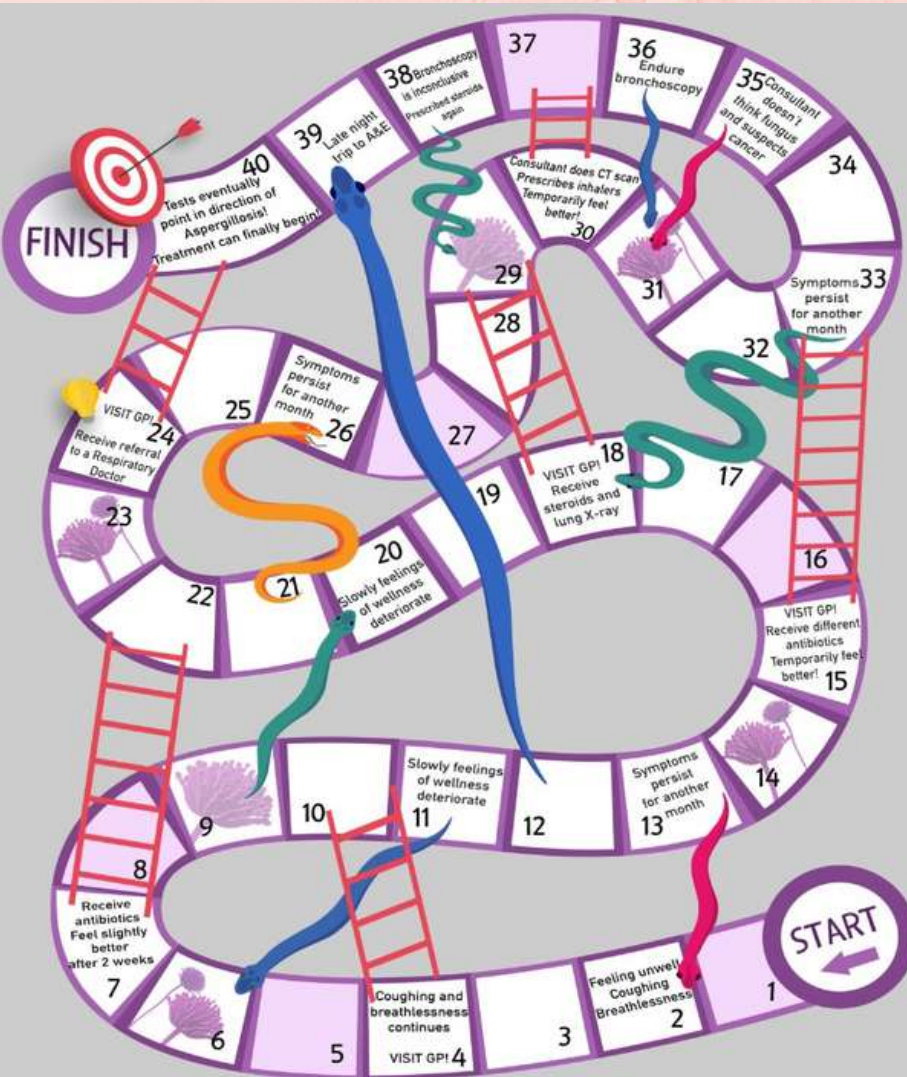
Aspergillus terreus



Aspergillus glaucus



Aspergillus nidulans





KNOW YOUR
DRUG



Voriconazole

Table 1: Recommended Dosing Regimen

| Infection | Maintenance Dose ^{a,†} | | |
|---|-------------------------------------|------------------------------|-------------------|
| | IV | IV | Oral [‡] |
| Invasive Aspergillosis[§] | 6 mg/kg q12h for the first 24 hours | 4 mg/kg q12h | 200 mg q12h |
| Candidemia in nonneutropenic patients and other deep tissue Candida infections | 6 mg/kg q12h for the first 24 hours | 3–4 mg/kg q12h | 200 mg q12h |
| Esophageal Candidiasis | # | # | 200 mg q12h |
| Scedosporiosis and Fusariosis | 6 mg/kg q12h for the first 24 hours | 4 mg/kg q12h | 200 mg q12h |

INTRODUCTION:

- Triazole antifungal medication used to treat serious fungal infections
- Voriconazole was approved by the FDA under the trade name Vfend on May 24, 2002
- Voriconazole is used to treat fungal infections caused by a variety of organisms but including Aspergillus species and Candida species.

Patients with voriconazole-resistant invasive aspergillosis have a higher mortality rate compared with patients with voriconazole-susceptible invasive aspergillosis,

:

INDICATION

- For the treatment of esophageal candidiasis, candidemia, invasive pulmonary aspergillosis, and serious fungal infections caused by *Scedosporium apiospermum* and *Fusarium* species.

TOXICITY:

- Photophobia and possible QTc prolongation.

CONTRAINDICATIONS :

- ANC patients
- People with arrhythmias or long QT.

MECHANISM OF ACTION:

- Voriconazole is a triazole antifungal exhibiting fungistatic activity against fungal pathogens.
- Like other triazoles, voriconazole binds to 14-alpha sterol demethylase, also known as CYP51, and inhibits the demethylation of lanosterol as part of the ergosterol synthesis pathway in yeast and other fungi.
- The lack of sufficient ergosterol disrupts fungal cell membrane function and limits fungal cell growth.
- With fungal growth limited, the host's immune system is able to clear the invading organism.





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NEWS

UPDATE

Coronavirus Vaccine: "Do I need a fourth COVID vaccine?" Here's what experts have to say in view of emerging variants of coronavirus

<https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/do-i-need-a-fourth-covid-vaccine-heres-what-experts-have-to-say-in-view-of-emerging-variants-of-coronavirus/photostory/97309502.cms>



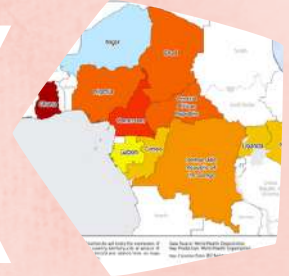
WHO convenes 'urgent' meeting over outbreak of Marburg virus — one of the world's deadliest diseases that kills 90% of patients and has no cure

<https://www.dailymail.co.uk/health/article-11750097/WHO-convenes-urgent-meeting-outbreak-one-worlds-deadliest-diseases.html>



Yellow fever - African Region (AFRO)

<https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON431>



Researchers discover how measles virus can cause a rare but fatal neurological disorder

<https://www.news-medical.net/news/20230127/Researchers-discover-how-measles-virus-can-cause-a-rare-but-fatal-neurological-disorder.aspx>



**India's kala-azar cases declined 98.7% since 2007:
Health ministry**

<https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1888631>



US unprepared for dangers posed by zoonotic diseases, new analysis concludes

<https://phys.org/news/2023-02-unprepared-dangers-posed-zoonotic-diseases.html>



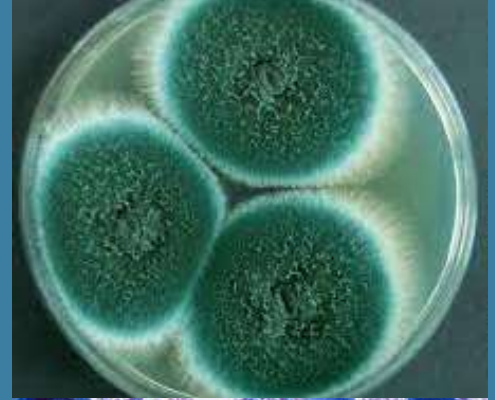


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Picture Quiz :-A 35-year-old retired painter with chronic myeloid leukemia complicated by acute graft-versus-host disease developed a necrotizing pneumonia with a bronchopleural fistula. Lobectomy showed the presence of filamentous hyphae and the culture growth and LPCB findings was observed as shown.



You can't go back and change the beginning, but you can start where you are and *change the ending.*



C.S. LEWIS

"It is often the small steps, not the giant leaps, that bring about the most lasting change."

HRM QUEEN ELIZABETH II

Do everything with a good heart and expect nothing in return and you will never be disappointed.



YES!
WE CAN END TB

WORLD TB DAY 2023

