ALL INDIA INSTITUTE OF MEDICAL SCIENCES RAJKOT
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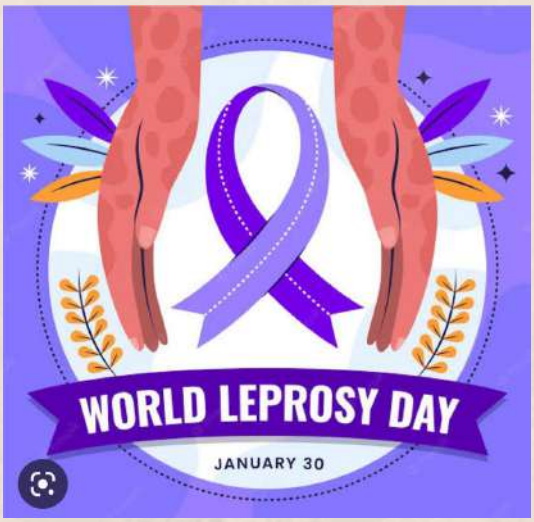
विद्या अमृतम् श्नुते
अखिल भारतीय आयुर्विज्ञान संस्थान राजकोट

DEPARTMENT OF MICROBIOLOGY
INFECTIOUS DISEASE BULLETIN

VOLUME 2 ISSUE 1 January 2023



World Leprosy Day
30 th January 2023
"Act Now. End Leprosy."

World Leprosy Day takes place on Sunday 29th January 2023 (Last sunday of January). In India, World Leprosy Day is celebrated on 30th January, the anniversary of Mahatma Gandhi's death

The theme of World Leprosy Day 2023 is "Act Now. End Leprosy."

This year's theme calls attention to three key messages.
1. Elimination is possible: We have the power and tools to stop transmission and defeat this disease.
2. Act now: We need the resources and commitment to end leprosy. Prioritize leprosy elimination.
3. Reach the unreached: Leprosy is preventable and treatable. Suffering from leprosy is needless.

If you want to raise awareness this World Leprosy Day, here are some key facts and details that you can share:

Leprosy is curable with a combination of antibiotics known as Multi Drug Therapy (MDT). This treatment is available for free across the world. If leprosy is not treated, it can lead to serious complications.
Leprosy is at least 4,000 years old, making it one of the oldest diseases known to humanity. However, we believe we can be the generation that finally ends the transmission of leprosy – our target is to achieve 120 countries with zero new autochthonous leprosy cases by 2030.

Leprosy still exists! Although around 200,000 people were diagnosed with leprosy each year before COVID-19, this number has fallen by 30% because of disruptions caused by the pandemic to leprosy programmes. Many millions are living with leprosy-related disabilities, particularly across Asia, Africa, and South America.

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LEPROSY

Leprosy was renamed Hansen's disease after Norwegian scientist Gerhard Henrik Armauer Hansen, who in 1873 discovered the slow-growing bacterium now known as Mycobacterium leprae as the cause of the illness. It is difficult to catch, and it can take many years to develop symptoms of the disease following an infection. However, people who catch the disease can easily be cured with antibiotics

Burden of Hansen's Disease

The number of new cases reported globally to World Health Organization (WHO)external icon in 2019 was more than 200,000.
Close to 15,000 children were diagnosed with Hansen's disease in 2019, more than 40 a day.
An estimated 2 to 3 million people are living with Hansen's disease-related disabilities globally.
In 2019, the countries with the highest number of new diagnoses were India, Brazil, and Indonesia.
Over half of all new cases of Hansen's disease are diagnosed in India, which remains home to a third of the world's poor, a group disproportionately affected by the disease.

WORLD LEPROSY DAY 30TH JANUARY

Challenges of Hansen's Disease

Hansen's disease mainly affects people in resource-limited countries, especially those who live in crowded conditions. Many have difficulty accessing health care due to high costs of going to the doctor and long distances to reach providers and clinics familiar with Hansen's disease. Because of this, many of those affected don't complete treatment or don't receive it at all, even though the WHO has a program that provides free treatment. Due the continued stigma against people with Hansen's disease, they may not seek help when first symptoms appear, causing delay in diagnosis and development of disabilities.

Girls and women affected by Hansen's disease face the added issue of gender and social discrimination, which may also delay detection of the disease. In some countries, the law allows a person to legally divorce a spouse because they are affected by the disease. Unfortunately, this may leave many women destitute, homeless, and unable to care for their children.

Many people living with Hansen's disease are unable to work due to disability caused by the disease or may face stigma that prevents them from working.

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- Leprosy is a nonfatal chronic infectious disease caused by M. leprae, an obligate intracellular bacterial species indistinguishable microscopically from other mycobacteria.
- The organism is confined to humans, armadillos (in some locales), and sphagnum moss.
- Leprosy, which is associated with poverty and rural residence, is a disease of the developing world; its global prevalence is difficult to assess and is variously estimated at 0.6-8 million.
- More than 80% of the world's cases occur in a few countries: India, China, Myanmar, Indonesia, Nepal, Brazil, Nigeria, and Madagascar.
- The route of transmission is uncertain but may be via nasal droplets, contact with infected soil, or insect vectors.

WORLD LEPROSY DAY 30TH JANUARY

Differences between lepromatous leprosy and tuberculoid leprosy.

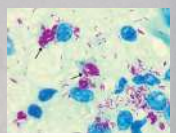
Characters	Lepromatous leprosy (LL)	Tuberculoid leprosy (TT)
Bacillary load	Multibacillary	Paucibacillary
Bacteriological index	4–6+	0–1+
Skin lesions	Many, symmetrical Margin is irregular Lesions appear as: • Multiple nodules (lepromata) • Plaques and xanthoma-like papules Leonine facies and eyebrow alopecia	One or few, asymmetrical Margin is sharp Lesions appear as: Hypopigmented, annular macules with elevated borders Tendency towards central clearing
Nerve lesion	Nerve lesions appear late Hypoesthesia is a late sign Variable nerve palsies	Early anesthetic skin lesion, Enlarged thickened nerves, Nerve abscess seen (common in BT)
CMI	Low	Normal
Lepromin test	Negative	Positive
Humoral immunity	Exaggerated	Normal
Macrophages	Foamy type (lipid-laden)	Epithelioid type
Langhans giant cells	Not seen	Found

Abbreviations: BT, borderline tuberculoid leprosy; CMI, cell-mediated immunity.

Laboratory Diagnosis

1. Smear Microscopy

Smear microscopy is done to demonstrate the acid-fast bacilli in the lesions



Grading of the Smear

The smears are graded, based on the number of bacilli per oil immersion field (OIF) as follows:
1–10 bacilli in 100 OIF =1+
1–10 bacilli in 10 OIF = 2+
1–10 bacilli per OIF = 3+
10–100 bacilli per OIF = 4+
100–1000 bacilli per OIF = 5+
>1000 bacilli or bacilli in clumps and globi in each OIF = 6+
Bacteriological index (BI)
Morphological index (MI)
SFG percentage (solid, fragmented granular rod percentage)

2. Mouse Foot Pad Cultivation

3. Antibody Detection

>FLA-ABS (Fluorescent leprosy antibody absorption test)
>ELISA detecting IgM antibodies to PGL-1 (phenolic glycolipid-1) antigen of M. leprae

4. Test for Detecting CMI (Lepromin Test)

>Discovered by Mitsuda (1919).
>Not used for diagnosis of active infection

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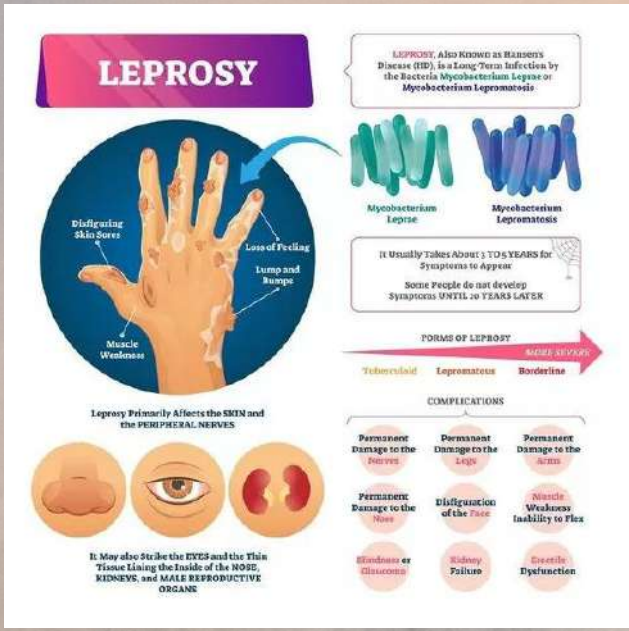
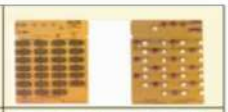


MDT regimen (Adult)

The appropriate dose for children under 10 years of age can be decided on the basis of body weight.

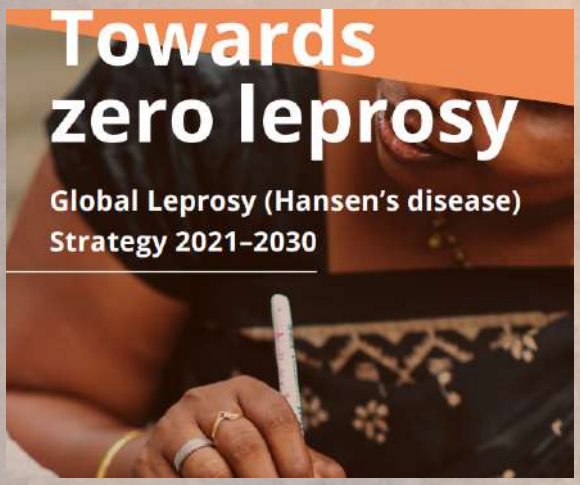
	Drugs used (adult)	Dosage	Frequency of Administration	Criteria for RFT	
MB leprosy	Rifampicin Dapsone Clofazimine Clofazimine	600 mg 100 mg 300 mg 50 mg	Once monthly Daily Once monthly Daily	Completion of 12 monthly pulses	
PB leprosy	Rifampicin Dapsone	600 mg 100 mg	Once monthly Daily	Completion of 6 monthly pulses	

MDT regimen (Child - 10-14 years of age)

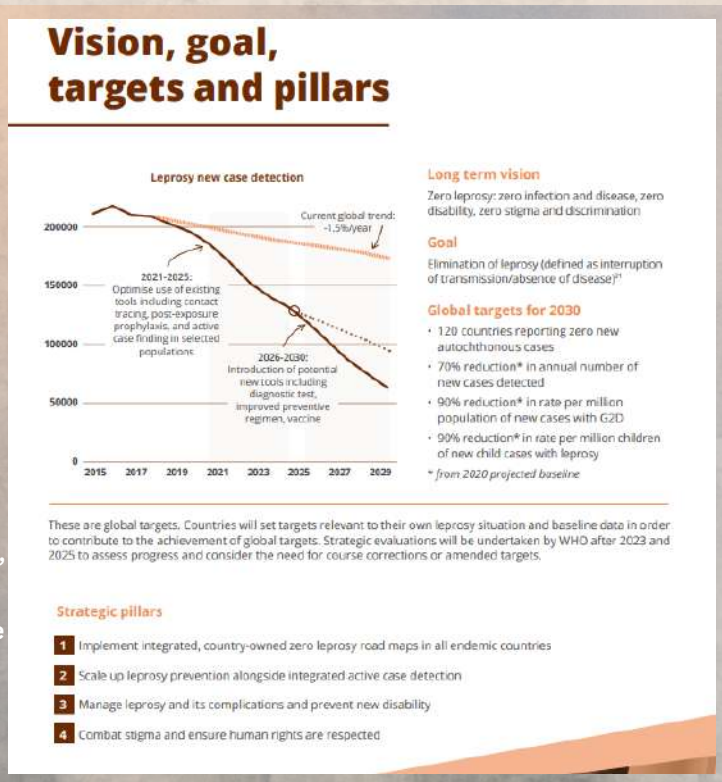
MB leprosy	Rifampicin Dapsone Clofazimine Clofazimine	450 mg 50 mg 150 mg 50 mg	Once monthly Daily Once monthly Every other day	Completion of 12 monthly pulses	
PB leprosy	Rifampicin Dapsone	450 mg 50 mg	Once monthly Daily	Completion of 6 monthly pulses	

The appropriate dose for children under 10 years of age can be decided on the basis of body weight.

- Rifampicin: 10 mg per kilogram
- Clofazimine: 6 mg per kilogram monthly and 1 mg per kilogram per body weight daily
- Dapsone: 2 mg per kilogram body weight daily.



The Global Leprosy Strategy 2021–2030 "Towards zero leprosy" was developed through a broad consultative process with all major stakeholders during 2019 and 2020. Valuable inputs were provided by national leprosy programme managers, technical agencies, public health and leprosy experts, funding agencies and persons or members of communities directly affected by leprosy.



WHO 2030 target, sub-targets and milestones

Indicator	2020 (provisional estimate)	2023	2025	2030
Number of countries with zero new autochthonous leprosy cases	50 (26%)	75 (39%)	95 (49%)	120 (62%)
Annual number of new leprosy cases detected	184 000	148 000	123 500	62 500
Rate (per million population) of new cases with grade 2 disability	1.3	0.92	0.68	0.12
Rate (per million children) of new paediatric cases with leprosy	7.81	5.66	4.24	0.77

Immunoprophylaxis for leprosy

1.Mycobacterium bovis – BCG

2.BCG + killed M. leprae

3.M. w (Mycobacterium indicus pranii [MIP])

4.ICRC bacilli

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KNOW YOUR Vaccine

Union Minister Dr Jitendra Singh announces India's first indigenously developed vaccine, "CERVAVAC" for the prevention of cervical cancer

The Serum Institute of India (SII) launched CERVAVAC, India's first indigenously developed quadrivalent human papillomavirus (qHPV) vaccine, on Tuesday, January 24, 2023, on the occasion of India's National Girl Child Day. January is also Cervical Cancer Awareness month. CERVAVAC is a vaccine against cervical cancer

CERVAVAC

What Are HPV Vaccines?

HPV vaccines protect against infection caused by human papillomaviruses (HPV), which represent a group of more than 200 related viruses. Of these, more than 40 are spread through direct sexual contact. As many as two HPV types cause genital warts, and about a dozen HPV types can cause certain types of cancer, namely cervical, oropharyngeal, vulvar, vaginal, penile, and anal cancers.

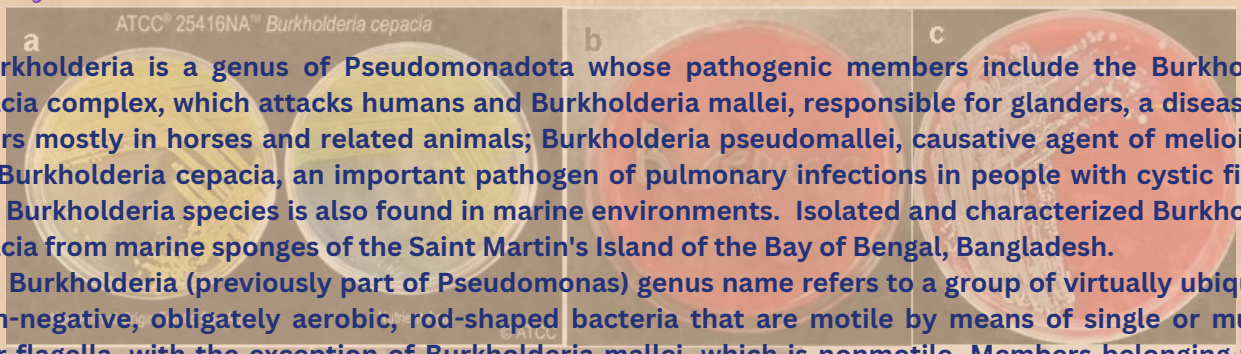
According to the US National Institute of Health's (NIH's) National Cancer Institute, three vaccines that prevent infection with disease-causing HPV are currently being marketed in many countries throughout the world. These are Gardasil, Gardasil 9, and Cervarix.

Gardasil is a quadrivalent vaccine, Gardasil 9 is a nonavalent vaccine, and Cervarix is a bivalent vaccine. This means that Gardasil, Gardasil 9, and Cervarix contain four, nine, and two strains of HPV, respectively.

Gardasil prevents infection against HPV types 6, 11, 16, and 18,
and Cervarix prevents infection against HPV types 16 and 18.
Gardasil 9 prevents infection against HPV types 6, 11, 16, 18, 31, 33, 45, 52, and 58
About 70 per cent of cervical cancers are caused by HPV types 16 and 18

KNOW YOUR Bug

Burkholderia



Burkholderia is a genus of Pseudomonadota whose pathogenic members include the Burkholderia cepacia complex, which attacks humans and Burkholderia mallei, responsible for glanders, a disease that occurs mostly in horses and related animals; Burkholderia pseudomallei, causative agent of melioidosis; and Burkholderia cepacia, an important pathogen of pulmonary infections in people with cystic fibrosis (CF). Burkholderia species is also found in marine environments. Isolated and characterized Burkholderia cepacia from marine sponges of the Saint Martin's Island of the Bay of Bengal, Bangladesh.

The Burkholderia (previously part of Pseudomonas) genus name refers to a group of virtually ubiquitous Gram-negative, obligately aerobic, rod-shaped bacteria that are motile by means of single or multiple polar flagella, with the exception of Burkholderia mallei, which is nonmotile. Members belonging to the genus do not produce sheaths or prosthecae and are able to use poly-beta-hydroxybutyrate (PHB) for growth. The genus includes both animal and plant pathogens, as well as some environmentally important species. In particular, B. xenovorans (previously named Pseudomonas cepacia then B. cepacia and B. fungorum) is renowned for being catalase positive (affecting patients with chronic granulomatous disease) and its ability to degrade chlororganic pesticides and polychlorinated biphenyls. The conserved RNA structure anti-hemB RNA motif is found in all known bacteria in this genus.

Due to their antibiotic resistance and the high mortality rate from their associated diseases, B. mallei and B. pseudomallei are considered to be potential biological warfare agents, targeting livestock and humans.

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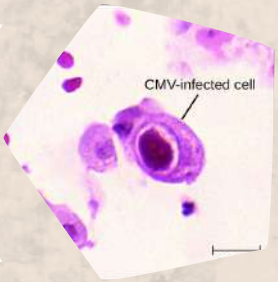
NEWS UPDATE

Norovirus Infection: Kerala reports cases of viral infections among kids; Health authorities on alert
https://www.financialexpress.com/lifestyle/health/norovirus-infection-kerala-reports-cases-of-viral-infections-among-kids-health-authorities-on-alert/2958778/

Cytomegalovirus is the Common Infection That Many Are Unaware Of
https://etvnews.com/cytomegalovirus-is-the-common-infection-that-many-are-unaware-of/

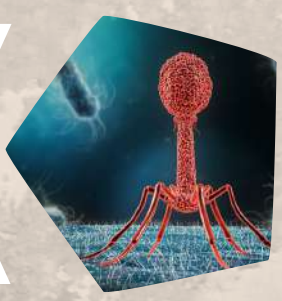


Drug-resistant bacteria thriving at hospitals: Doctors

https://m.timesofindia.com/city/hyderabad/drug-resistant-bacteria-thriving-at-hosps-docs/articleshow/97266137.cms

As egg prices soar, the deadliest bird flu outbreak in US history drags on
https://arstechnica.com/science/2023/01/as-egg-prices-soar-the-bloodiest-bird-flu-outbreak-in-us-history-drags-on/

Trial begins for bacteriophage cocktail in cystic fibrosis patients
https://www.cidrap.umn.edu/antimicrobial-stewardship/trial-begins-bacteriophage-cocktail-cystic-fibrosis-patients



Q Fever Scare in Hyderabad: Several Butchers Infected, Asked to Stay Away From Slaughter Houses
https://www.news18.com/news/india/q-fever-scare-in-hyderabad-several-butchers-infected-asked-to-stay-away-from-slaughter-houses-6928273.html

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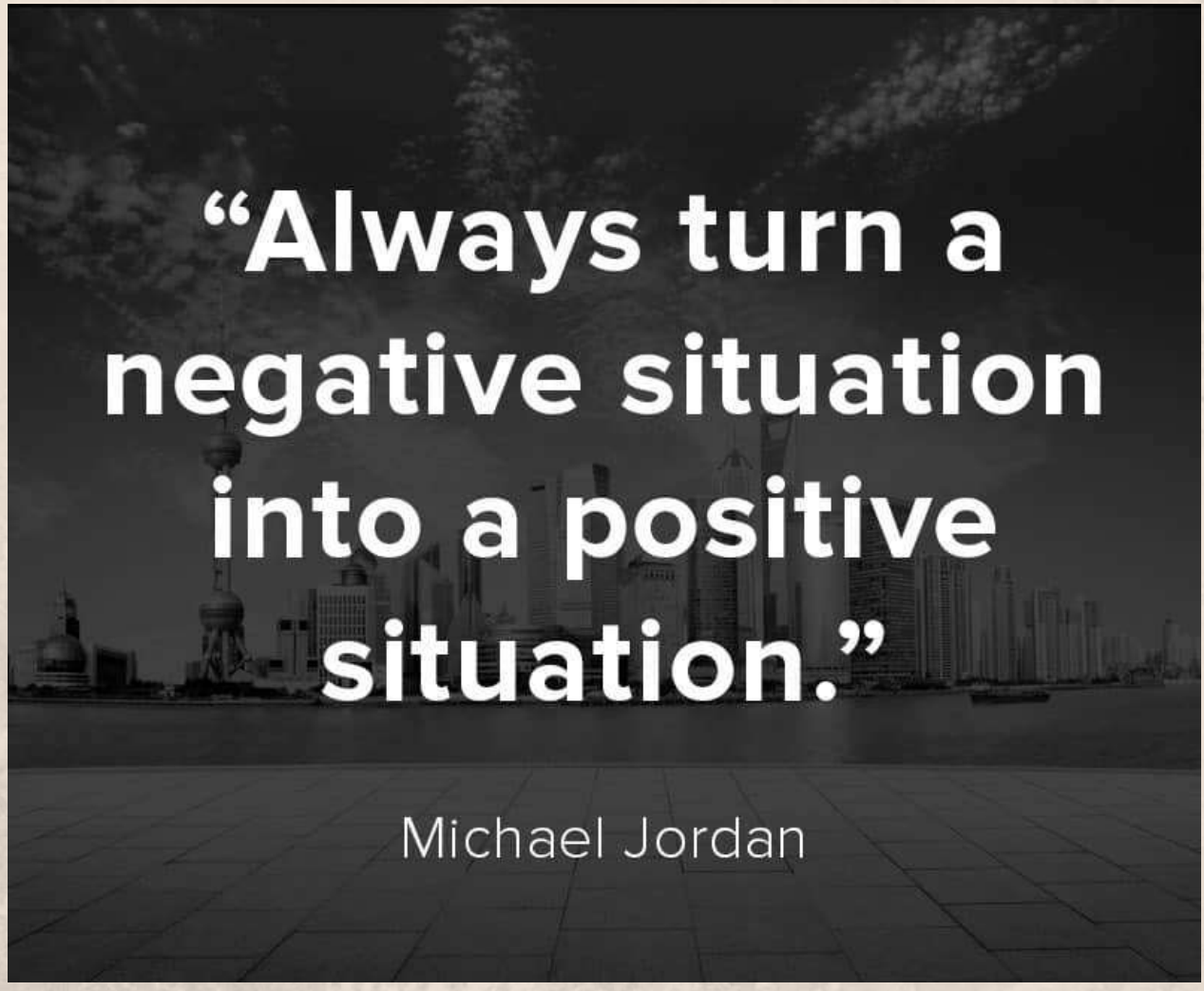

World Cancer Day

4th February

World Neglected Tropical Diseases Day 2023

Act Now. Act Together. Invest in Neglected Tropical Diseases

30th January 2023