

SCHOOL OF PHARMACEUTICAL SCIENCES

Department of Pharmacy Practice

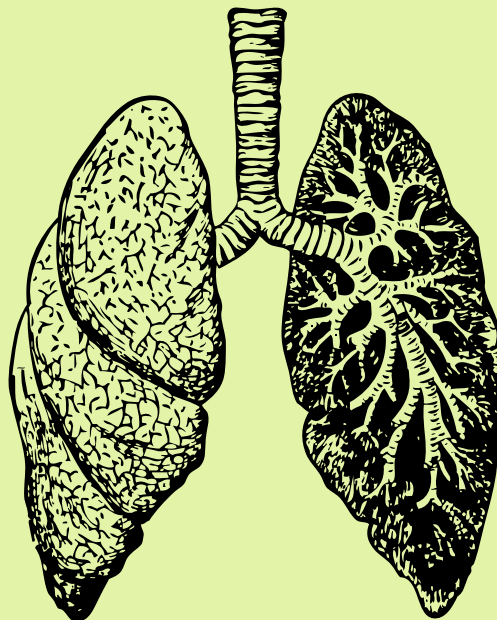
in collaboration with

ESI HOSPITAL AYANAVARAM

WORLD
 Tuberculosis
DAY

March 24

THEME: Invest to End TB - Save Lives



World TB day was organized at ESI Hospital Ayanavaram by the Pharm.D 5th year students on March 24,2022. The Events for the day included competitions like Infographic presentation and Exhibition, Quiz, distribution of TB awareness pamphlets on the theme for this year - **Invest to end TB- SAVE LIVES.**

TB 's health, social and economic consequences has an alarming impact globally. Asit remains as one of the World's deadliest infectious killers, it is an urgent need to ramp up the fight against TB and achieve the commitments made by the global leaders to end TB

WORLD TUBERCULOSIS DAY
உலக காசநோய் தினம்
MARCH, 24 2022

INVEST TO END TB **SAVE LIVES**

DEPARTMENT OF PHARMACY PRACTICE
SCHOOL OF PHARMACEUTICAL SCIENCES
VELS INSTITUTE OF SCIENCE TECHNOLOGY AND ADVANCED STUDIES
IN COLLABORATION WITH
ESI HOSPITAL, AYANAVARAM
CHENNAI - 600023

INVITATION



VELS
INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
CHENNAI CAMPUS
PALLAVARAM - CHENNAI
ACCREDITED BY NAAC WITH 'A' GRADE
Marching Beyond 30 Years Successfully

School of Pharmaceutical Sciences
Department of Pharmacy Practice
In Collaboration with
ESI HOSPITAL AYANAVARAM

**WORLD
TUBERCULOSIS
DAY**

24TH MARCH 2022 (THURSDAY)

THEME: INVEST TO END TB-SAVE LIVES

CHIEF GUESTS

Dr.K.Venkata Madhu Prasad,MBBS.,D.A.,
Hospital Superintendent

Dr.P.K.Ashokan,M.S.,(Chief civil surgeon)
Resident Medical Officer
ESI HOSPITAL, AYANAVARAM, CHENNAI-23

PROGRAMME SCHEDULE

- Invocation song
- Lighting of the lamp
- Welcome address
- Inaugural address
- Students speech
- Infographics session
- Prize distribution
- Vote of thanks

Organized by
Dr.K.Karthickeyan
Professor and Head
Dr.E M Neena Priyamalar
Assistant professor
Dr.M K Sundar Sri
Assistant professor
DEPARTMENT OF PHARMACY PRACTICE
SCHOOL OF PHARMACEUTICAL SCIENCES
VISTAS

ORGANIZING COMMITTEE



Student Committee:Sandhya.A.M, Sowndarya Valli.A, Uma Maheswari.R, Pranayini.D,
Sanjay.G, Abinash.M

The Ceremony was graced by the presence of Dr. K. Venkata Madhu Prasad, Medical Superintendent, ESI Hospital Ayanavaram.

Support and Encouragement from Dr. P. K. Ashokan, Resident Medical Officer and Matron made this event a success.






Competition-1

INFOGRAPHICS

Topics were chosen related to the theme **Invest to end TB: SAVE LIVES.** 9 innovative infographics were presented to the judges and 4 teams were awarded best posters. An exhibition was conducted after the competition. Many Doctors visited the Infographics exhibition and appreciated the students for their efforts





INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University Estd. no.3 of the U.G.C(Ae), 1956)
PALLAVARAM - CHENNAI
ACCREDITED BY NAAC WITH 'A' GRADE
Marching Beyond 30 Years Successfully

**School of Pharmaceutical Sciences
Department of Pharmacy Practice**

In Collaboration with
ESI HOSPITAL AYANAVARAM

WORLD TUBERCULOSIS DAY 2022

24TH MARCH 2022 (THURSDAY)

THEME: INVEST TO END TB - SAVE LIVES

Infographics Designing Competition

Topics:

1. TB Advancement in the development of new drugs and treatment regimen
2. New treatment for MDR-TB
3. Advances in molecular diagnosis in TB
4. Role of Biomarkers in diagnosis of active TB

VENUE: Drug Information Centre
at ESI Hospital



Rules:

1. Two students per team.
2. Last day for Registration 22.03.2022.
3. Infographics can be prepared on anyone of the given topics.
4. High Resolution A3 size (.png , .jpeg)
Infographics should be sent to **neena.sps@velsuniv.ac.in** before 6:00pm 23.03.2022.
5. **2** Best Infographics will be awarded
6. Certificate will be issued to all Participants

Registration Free





Team-1

Abdul Aziz. A &
Dhanasekhar. R

MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB)

GLOBAL BURDEN

The latest anti-TB drug resistance surveillance data show that 3.5% of new and 1.8% of previously treated TB cases in the world are estimated to have multidrug-resistant or rifampicin-resistant tuberculosis (MDR/RR-TB).

In 2017, an estimated 558 000 new cases of MDR/RR-TB emerged globally. MDR/RR-TB caused 230 000 deaths in 2017. Most cases and deaths occurred in India and China.

DETECTION

In 2017, 24% of new and 70% of previously treated TB patients notified globally were tested for MDR/RR-TB (up from 12% and 53% respectively in 2015). In many countries a steady increase has occurred in recent years, driven by the continued expansion in the use of rapid molecular tests.

TREATMENT OUTCOMES

Only 55% of the MDR/RR-TB patients who started treatment globally in 2015 were successfully treated, while 15% of patients died and treatment failed in 8% of patients (21% were lost to follow-up or not evaluated). The treatment success in XDR-TB patients was only 34%.

558 000

estimated new MDR/RR-TB cases in 2017

161 000

MDR/RR-TB cases detected in 2017

139 000

patients started on MDR-TB treatment in 2017

55%

treatment success in MDR/RR-TB patients starting treatment in 2015

ABOUT DRUG-RESISTANT TB

Most anti-TB medicines have been used for decades, and resistance to them is widespread. TB strains that are resistant to at least one anti-TB medicine have been documented in every country surveyed.

Multidrug-resistant tuberculosis (MDR-TB) is caused by bacteria that do not respond to, at least, isoniazid and rifampicin, the two most powerful anti-TB medicines.

Patients with multidrug-resistant or rifampicin-resistant tuberculosis (MDR/RR-TB) require treatment with second-line treatment regimens, which are more complex than those used to treat patients without drug-resistant TB.

NEW TREATMENTS FOR MDR/RR-TB

More countries are now using bedaquiline and delamanid, the two newer medicines approved by stringent regulatory authorities for the treatment of MDR-TB in recent years. By the end of 2017, 68 countries reported importing or starting to use bedaquiline (map) and 42 countries had used delamanid. In addition, 62 countries, mostly in Africa and Asia, reported using shorter MDR-TB regimens lasting 9–12 months by the end of 2017.

Countries that had used bedaquiline for the treatment of MDR/RR-TB as part of expanded access, compassionate use or under normal programmatic conditions by the end of 2017


NEW POLICIES FOR MDR-TB TREATMENT

In March 2019, WHO consolidated its drug-resistant TB treatment guidelines into one comprehensive document. This groups in one place the latest WHO policies on the care of patients with isoniazid-resistant TB and MDR/RR-TB and provides links to the evidence and the methods used to derive them.

Team-2



Aishwarya. B &
Yoga Vigneshwaran. C.P



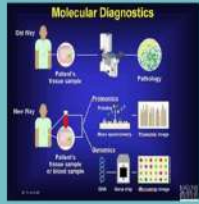



RECENT ADVANCES IN MOLECULAR DIAGNOSIS OF TUBERCULOSIS

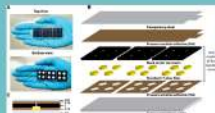
C.P. Yogavigneshwaran & Aishwarya. B.
(Pharm.D U. School of Pharmaceutical sciences, VISTAS.

Current molecular tests endorsed by WHO include: Xpert MTB/RIF and Xpert MTB/RIF Ultra assays (Cepheid, Sunnyvale, USA); loop-mediated isothermal amplification test (TB-LAMP; Eiken Chemical, Tokyo, Japan); Truenat MTB, MTB Plus and MTBRIF Dx tests (Molbio Diagnostics, Goa, India) and lateral flow urine lipoarabinomannan assay (LF-LAM; Alere Determine TB LAM Ag, Abbott, San Diego, USA).






1. NAAT - Nucleic Acid Amplification Test





While most biomolecular tests are NAAT detecting the presence of *Mtb* DNA, the LF-LAM test detects a lipopolysaccharide present in mycobacterial cell walls. While not in use in most countries in the developed world, the LF-LAM assay has been recommended for use in HIV-coinfected patients. It is a urinary antigen test that is often employed in resource-limited settings and is of particular benefit in cases where a sputum sample cannot be obtained. It has a 42% sensitivity in HIV patients with TB symptoms

2. Xpert MTB/RIF and Xpert MTB/RIF Ultra assays

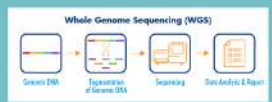
They are cartridge-based nucleic acid amplification tests (NAAT) that detect the presence of TB DNA, as well as common mutations associated with RIF resistance along the *rpoB* gene, within 2 h.

3. Line probe assays

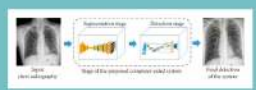
Another method of molecular detection of *Mtb* resistance is line probe assay (LPA). Genotype MTBDRplus and Genotype MTBDRsl (Hain LifeScience GmbH, Nehren, Germany) are used for the detection of *Mtb* and its associated drug resistance. This *in vitro* test delivers results in <6 h

4. Whole-genome sequencing (WGS)





WGS provides a comprehensive review of the entire *Mtb* genotype with a 96% concordance for culture-based sensitivity testing. It provides genotypic sensitivity to most drugs required for the treatment of MDR-TB. While full clarification on the clinical correlation between genotypic and phenotypic sensitivities remains to be shown, progress has been made in assigning the probability of pDST based on genotypic results.

5. Computer aided detection for chest radiographs



Given the limitations, in terms of time, cost and infrastructure, to the above testing methods, it has become clear that there need to be affordable, accessible methods of screening available in high-burden areas to assist with risk stratification for allocating further testing. One such proposed method is the use of computer software to digitally interpret chest radiographs, and assign a score indicating the likelihood of TB. The most commonly studied software is CAD4TB, currently on version 6. When compared with NAAT, CAD4TB has been shown to have 90–100% sensitivity, and 23–45% specificity at detecting TB disease

References: WHO consolidated guidelines for TB-2021, Cara M. Gill, Lorraine Dolan, Laura M. Piggott, Anne Marie McLaughlin Breathe 2022 18: 210149; DOI: 10.1183/20734735.0149-2021

© 2022 by Wolters Kluwer | www.karger.com



Team-3 Rakshana. S & Indhira. R



WORLD TUBERCULOSIS DAY ADVANCEMENT OF MOLECULAR DIAGNOSIS IN TB

VELS
Vellore Institute of Christian Health Services
Vellore, Tamil Nadu, India

RAKSHANA.S, INDHIRA.R PHARM.D V

TESTING AND DIAGNOSIS

Tuberculosis (TB) is a potentially serious infectious disease that mainly affects the lungs. The bacteria that cause tuberculosis are spread from person to person through tiny droplets released into the air via coughs and sneezes.

How Drug Resistance Develops?

Changes in DNA can cause TB bacteria to become resistant to treatments. Even one change in the right location in a DNA sequence can lead to DR.

Why is WGS Useful to Tuberculosis Programs?

By comparing the Mtb DNA from different patients, WGS allows health officials to find and investigate the spread of TB.

This information can help public health officials better respond to TB outbreaks.

WGS is a Significant Scientific Advancement

Conventional genotyping methods examine **less than 1%** of the genome.

Whole genome sequencing can examine **more than 90%** of the genome.

Why is MDDR Service Important?

The Mycobacterium tuberculosis organism grows slowly. The MDDR service can provide molecular test results in days. These results are used to decide the best treatment regimens for patients.

Rapid detection of DR TB saves lives and money.

Earlier initiation of effective therapy: Improves patient outcomes. Can reduce periods of infectiousness of MDR TB cases.

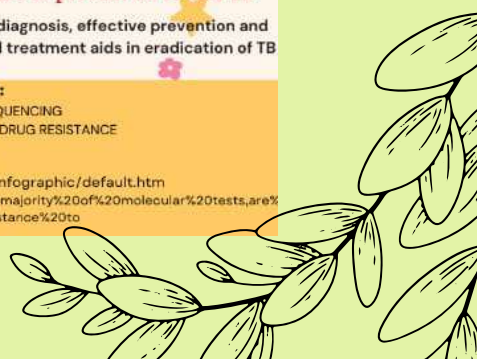


It's time to prevent TB to end TB

early diagnosis, effective prevention and advanced treatment aids in eradication of TB

ABBREVIATIONS:
WGS- WHOLE GENOME SEQUENCING
MDDR- MOLECULAR DETECTION OF DRUG RESISTANCE

REFERENCE:
<https://www.cdc.gov/tb/publications/infographic/default.htm>
<https://pubmed.ncbi.nlm.nih.gov/19650669/#:~:text=The%20majority%20of%20molecular%20tests,are%20associated%20with%20resistance%20to>



Team-4

Fhamitha Saara. A & Nitharshana Ashi. A



ROLE OF BIOMARKERS IN DIAGNOSIS OF ACTIVE TUBERCULOSIS

VELS
Vellore Institute of Christian Health Services
Vellore, Tamil Nadu, India

Active tuberculosis is a multi-organ disease caused by primary infection or as a reactivation of latent tuberculosis. Active tuberculosis could be primary tuberculosis or reactivation tuberculosis. Primary tuberculosis occurs when the immune system is unable to defend against the Mycobacterium tuberculosis bacterium (MTB) infection. Reactivation tuberculosis is the reactivation of contained mycobacterial infection. Reactivation Tb is the most common form of active tuberculosis, representing 90% of the cases.

BIOMARKERS

A biomarker is a predictor of a natural biological process. TB biomarker is a component of both hosts as well as pathogenic origin.

PATHOGEN

- Diagnostic biomarkers: urine, sputum, plasma, saliva, CSF, and pleural fluid.
- Most promising antigen lipoarabinomannan (LAM) found in the outer cell of Mtb excreted by the kidney and detectable in urine.
- Assay used to detect is based on a sandwich capture ELISA format to detect LAM in sputum or urine. This antigen is considered for rapid diagnosis via urine.
- Another rapid test to detect Mtb antigens (LAM and Ag85B) using polyclonal antibodies for the diagnosis of active TB.

HOST

- Diagnostic biomarkers: urine, unstimulated blood, stimulated blood, and breath.
- Volatile organic compounds (VOC) in breath contain metabolites of Mtb (Biomarker) in the host.
- Detection of VOC is technically difficult because breath VOCs are excreted in picomolar concentration (parts per trillion).
- IFN, TFN, CD4+ T cells in pleural fluid have promising performance.


- Biomarkers for active TB can be revealed by plasma proteomic profile.
- Biomarker helps to monitor TB therapy efficacy
- High accuracy for detecting Mtb is a biomarker in sputum.
- Detection of pathogen DNA on the basis of WHO endorsed PCR-based diagnostic test.
- Detection of Mtb pathogen marker has higher specificity than host marker.

Prepared by:
A.Fhamitha Saara &
A.Nitharshana Ashi
Pharm.D –V
SPS-VISTAS.




Team-5

Pavitra Devi. M & Priyadarshini. C



TB DRUG REGIMEN



(NTEP GUIDELINES)

TB Drug Regimen
Based upon

Drug sensitivity ↔ **Drug Resistance**

- Presumptive TB
- All notified cases of TB
- Non responders to Rx

undergo

CBNAAT
(to rule out RIF Resistance)

RIF Sensitivity ↔ RIF Resistance

↙ ↘

FL-LPA

INH Sensitive ↔ INH Resistance

↙ ↘

Drug Sensitive & TB regimen SL-LPA

FQs & 2nd line injectable sensitive FQs & 2nd line injectable resistance

↙ ↘

H-Monol poly TB regimen **XDR TB regimen** **RIF resistance regimen or Shorter MDR regimen**

Drug Sensitive TB regimen

Intensive phase

- INH+RIF+PZA+EMB x 2 months fixed dose on a daily basis.

Continuation phase

- INH+RIF+EMB x 4 months on daily basis.
- It can be extended to 12 - 24 wks in C/O CNS disseminated or Skeletal TB.

H Mono Resistance TB & Poly Drug Resistance TB Management

- LFX+RIF+PZA+EMB x 6 months.

Shorter MDR TB regimen

Intensive phase
(4-6 months)

- inj. KM
- MXF (high dose)
- Pto or Eto
- cfz
- INH (high dose)
- PZA
- EMB

Continuation phase (5 months)

- MXF (high dose) +PZA+EMB+CFZ x5months

Longer MDR TB/ XDR TB regimen

- BDQ x6months+ LFX+ LZD+CFZ+CS (18-20 months)

- CBNAAT- Cartridge-based nucleic acid amplification
- FL-LPA - First line (FL) line probe assay
- SL-LPA - Second line (SL) line probe assay
- CNS - Central nervous system

- MDR - Multidrug-resistant TB
- XDR - Extensively drug-resistant
- RIF - Rifampin
- INH - Isoniazid
- PZA - Pyrazinamide
- EMB - Ethambutol
- FQs - Fluoroquinolone
- KM - Kanamycin

- LFX - Levofloxacin
- MXF - Moxifloxacin
- BDQ - Bedaquiline
- LZD - Linezolid
- CFZ - Clofazimine
- CS - Cycloserine
- Pto - Prothionamide
- Eto - Ethionamide


👤 M. PAVITRA DEVI
👤 C. PRIYADHARSHINI






Team-6

Monisha. R & Shalini.P

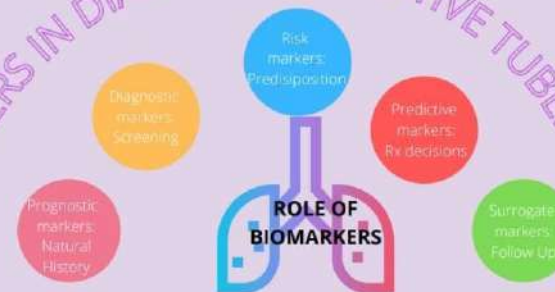


P.SHALINI
PHARM.D



R.MONISHA
PHARM.D


BIOMARKERS IN DIAGNOSIS OF ACTIVE TUBERCULOSIS



ROLE OF BIOMARKERS

TUBERCULOSIS


Tuberculosis (TB) is a contagious infection caused by *Mycobacterium Tuberculosis*, that usually attacks your lungs. It can also spread to other parts of your body, like your brain and spine.



BIOMARKERS


A characteristic that is objectively measured and evaluated as an indicator of normal biologic processes, pathogenic processes or pharmacologic responses to a therapeutic intervention.

AIR-BORNE DISEASE




STAGES OF TB


EXPOSURE PHASE



LATENT PHASE



ACTIVE PHASE



BIOMARKERS IN DIAGNOSIS OF ACTIVE TB

Biomarkers in different specimens for different kinds of *Mycobacterium tuberculosis* infection.

LTBI	<ul style="list-style-type: none"> T-cell level biomarkers, eg, IGRAs Innate cell biomarker, eg, apoptosis marker, like <i>lipoxin</i>/PGE2
PTB	<ul style="list-style-type: none"> Innate cellular biomarker, eg, DoR3, PGE2, <i>lipoxin</i> T-cell level biomarkers, eg, IFN-γ, FasL Inflammatory markers, eg, CRP, PCT Sputum biomarkers, eg, uricase Urine biomarkers, eg, LAM
TPE	<ul style="list-style-type: none"> Pleural biomarker, eg, IFN-γ, ADA, DoR3, FasL, PCT Serum biomarkers, eg, PCT

BLOOD MARKERS

SERUM INFLAMMATORY MARKERS

- Procalcitonin, IL-10, CRP

APOPTOSIS ASSOCIATED MARKER

- Decoy receptor3, PGE3, *Lipoxin*

SERUM CYTOKINE

- IL-2, IL-9, IL-13, IL-17, TNF-alpha

SPUTUM BIOMARKERS

- volatile organic compounds (VOC) alter in breath
- TB stearic acid exists in sputum from TB patient.

URINE BIOMARKERS

Urine antigen test

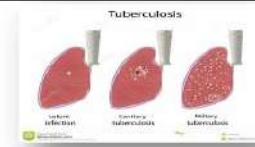
- Detect Lipoarabinomannan
- Decreased CD4 lymphocyte count



Team-7

Nasrudeen. A & Malini.N

WHAT IS ADVANCES MOLECULAR DIAGNOSIS IN TB ?



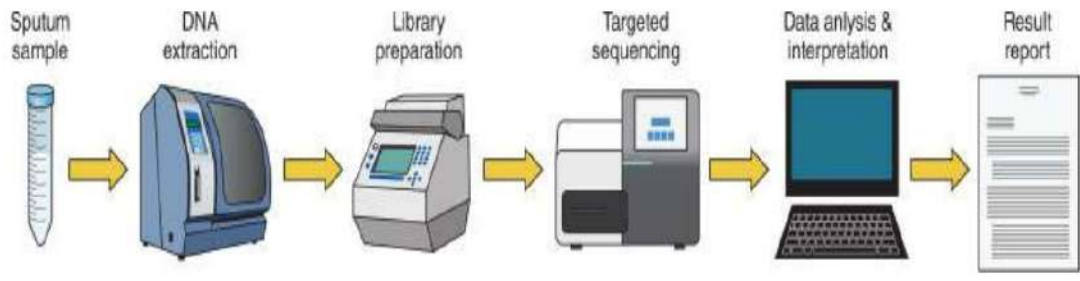
WHO has recommended the use of molecular nucleic acid amplification tests (NAATs) tests for TB detection instead of smear microscopy, as they are able to detect TB more accurately, particularly in patients with paucibacillary disease and in people living

Molecular Biology advances with Nucleic acid based tests

• NAATs are molecular systems that can detect small quantities of genetic material (DNA or RNA) from microorganisms such as *Mycobacterium tuberculosis*. PCR is the most common among the variety of NAATs. NAATs are available as commercial kits and in-house tests and are used routinely in high-income countries for TB detection



TARGETED SEQUENCING WORKFLOW SCHEMATIC:



CFDA-endorsed molecular test for TB diagnosis and drug susceptibility testing^a

Technology	Method principle	Intended use	Sensitivity (%)	Specificity (%)	Target setting of use
EasyNAT	Cross priming amplification	<i>M. tuberculosis</i> diagnosis	87 (pooled)	97 (pooled)	District or subdistrict laboratory
SAT-TB	Isothermal amplification of <i>M. tuberculosis</i> 16S RNA	<i>M. tuberculosis</i> diagnosis	71-94 (range)	54-83 (range)	District or reference laboratory

CONCLUSION: optimizing the impact of NAATS.

Advances in molecular TB diagnostics in the last decade have resulted in TB tests that are highly accurate and faster than conventional microbiological tests, and emerging technologies promise to continue this trend. In some respects, NAATs are having a positive clinical impact.

BY:
A.NASRUDEEN. B.Pharm
N.MALINI. B. Pharm



Team-8

Padmapriya. V & Navin. B. Mammen



TB ADVANCEMENT IN THE DEVELOPMENT OF NEW DRUGS AND TREATMENT REGIMEN

Tuberculosis (TB) is a communicable infectious disease which is caused by mycobacterium tuberculosis bacteria. The outgrowth of drug resistance is a major threat to global tuberculosis (TB) care and control.

NTEP [NATIONAL TUBERCULOSIS ELIMINATION PROGRAM]



The National strategic plan (2017-2025) of India has a national goal of elimination of tuberculosis by 2025.



TB STATISTICS AND NTEP'S ROLE IN INDIA

- Each year, about 10 million people fall ill with TB, and 1.5 million people die. WHO estimates that approximately a quarter of the world population is infected with M. tuberculosis, and 5-10% of people will develop active TB during their lifetime. In 2021, estimated number of MDR/RR-TB cases in India is 1,24,000 (9.1/lakh population).
- NTEP has a vision of achieving a "TB free India", with a strategies under the broad themes of "Prevent, Detect, Treat and Build pillars for universal coverage and social protection".
- [1] The program provides, various free of cost, quality tuberculosis diagnosis and treatment services across the country through the government health system.



NEW DRUGS AND INNOVATIONS IN TB



- Bedaquiline (Bdq) is a diarylquinoline that is Used for MDR-TB. In combination with at least 3 other agents. Week 0-2: Bdq 400 mg daily Week 3-24: Bdq 200 mg 3 times per week.
- Delamanid (Dlm) is the first approved drug in the class of nitro-dihydro-imidazo-oxazoles for the treatment of MDR-TB. It is bactericidal drug with 36 hours of half-life.
- Pretomanid - Indicated as part of a combination regimen with bedaquiline and linezolid for treatment of adults with pulmonary (XDR) or treatment-intolerant or non responsive MDR-TB. 200 mg once daily for 26 weeks, bedaquiline - 400 mg once daily for the first 2 weeks of treatment (days 1-14) and then 200 mg three times a week for 24 weeks, and linezolid - 1200 mg once daily for 24 weeks (after 1 month, dose and duration modification for linezolid is permissible).

GOALS OF TB TREATMENT:

- Render the patient non-infectious, break the chain of transmission and decrease pool of infection.
- Decrease TB deaths and concomitant comorbidity by ensuring relapse-free cure.
- Minimize & prevent development and increase of drug resistance.



WORLD TUBERCULOSIS DAY

COMPARISON OF RNTCP AND NTEP GUIDELINES

Case detection rate was to achieve more than 70% aimed to achieve 80% Treatment success rate Earlier no newer drugs were implemented added intermittent regimen was followed earlier No specific apps are used for TB

*New target is to achieve more than 90%
*NTEP aims to achieve >90% successful Rx rate
*Newer drugs like bedaquiline, delamanid are
*Daily regimen is followed here
*NIKSHAY - online monitoring software

NIKSHAY SOFTWARE:



- Case based patient identification system, NIKSHAY will to get notifications of TB cases continuous monitoring and treatment of all registered cases and tracking of all notified cases are done .
- NIKSHAY word is combination of two Hindi words NI AND KSHAY meaning eradication of tuberculosis. NIKSHAY (WWW.NIKSHAY.GOV.IN) is a web enabled application, which facilitates monitoring of universal access to TB patients data by all concerned

NIKSHAY HAS TWO BROAD OBJECTIVES.

- To create database of all TB patients including Multi-Drug Resistant cases across the country.
- To use this database for monitoring and research purposes at all levels so that TB can be eradicated from India in an effective manner.



PADMAPRIYA V, NAVIN B MAMMEN,
PHARM D INTERNS





Team-9

Somasundaram. P
&
Venkatesh. N



MULTIDRUG RESISTANT TB

Biological specimen resistant to INH and Rifampicin with or without resistant to other Anti-TB drugs

BURDEN OF MDR TB

An estimated 1,24,000(6.19%) cases of MDR-TB was reported in india in 2021



NEWER DIAGNOSTIC APPROACH

- CB NAAT
- Gene Xpert
- TRUNAT
- Line Probe Assay
- Culture and DST



NEWER TREATMENTS FOR MDR -TB

- Bedaquiline
- Delamanid
- Linezolid
- Pretomanid



LET'S INVEST TO END TUBERCULOSIS

We have set the aim to eradicate TB by 2025 ,Ahead of SDG goal of 2030



WORLD TUBERCULOSIS DAY 2022
N VENKATESH
SOMASUNDARAM.P





Infographics Exhibition





BEST INFOGRAPHICS

1. Rakshana.S & Indhira.R

2. Somasundaram.P & Venkatesh.N

3. M.Pavitra Devi & Priyadarshini.C

4.Nitharshana Ashi.A & Fhamitha Saara.A



Competition-2

QUIZ COMPETITION



**School of Pharmaceutical Sciences
Department of Pharmacy Practice**

In Collaboration with
ESI HOSPITAL AYANAVARAM

WORLD TUBERCULOSIS DAY 2022

24TH MARCH 2022 (THURSDAY)

THEME: INVEST TO END TB - SAVE LIVES

Quiz Competition

Topics:

1. Respiratory System
2. Diagnosis for TB
3. Newer drugs in TB management

Certificates:

- Participants selected for round 2 will be provided with E-CERTIFICATE
- Winner and runner teams will be awarded based on scores

VENUE: Drug Information Centre
at ESI Hospital

Round 1:

- Preliminary round individual participation
- MCQ pattern questions

Round 2:

- 18 participants will be selected based on preliminary score, and will be grouped into 6 teams. (3 per team)

Round 3:

- 3 teams will be shortlisted for the final round based on the score.





QUIZ RESULTS

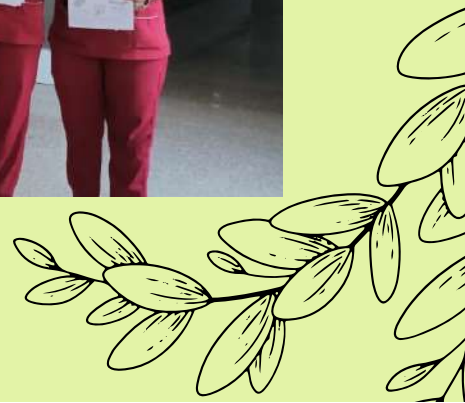
Winners: Priyadarshini.C,
Navin.B.Mammen & Selvakumar.K

Runners: Gadi Anusruthi,
Padmapriya.V & Nitharshana Ashi.A

Infographics evaluation & Prize Distribution



Pamphlet Distribution





Pharm.D Interns



Pharm.D V years

