



## Sri Lakshmi Narayana Institute of Medical Sciences

From

Date: 02.07.2018

Dr. Vijay Kumar  
Assistant Professor and Head,  
Department of TB & Chest,  
Sri Lakshmi Narayana Institute of Medical Sciences  
Bharath Institute of Higher Education and Research,  
Chennai.

To

The Dean,  
Sri Lakshmi Narayana Institute of Medical College  
Bharath Institute of Higher Education and Research,  
Chennai.

**Sub: Permission to conduct value-added course: DIAGNOSIS AND TREATMENT OF DRUG  
SENSITIVE TUBERCULOSIS**

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: **Diagnosis and treatment of Drug sensitive Tuberculosis** for interns August to September 2018. We solicit your kind permission for the same.

Kind Regards

Dr. Vijay Kumar

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### FOR THE USE OF DEANS OFFICE

Names of Committee members for evaluating the course:

The Dean: **Dr. Jaya lakshmi**

The HOD: **Dr. Vijay Kumar**


The Expert: **Dr. Prakash Rao Balan**

The committee has discussed about the course and is approved.



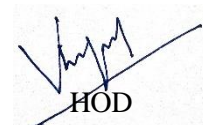
Dean

**Dr. G. JAYALAKSHMI**, BSC., MBBS., DTCD., M.D.,  
DEAN  
Sri Lakshmi Narayana Institute of Medical Sciences  
Osudu, Agaram, Kudapakkam Post,  
Villanur Commune, Puducherry-605502.



BR Subject Expert

Dr. Prakash Rao Balan



HOD

Dr. Vijay Kumar



OFFICE OF THE DEAN

## **Sri Lakshmi Narayana Institute of Medical Sciences**

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,  
PUDUCHERRY - 605 502.

[ Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME ( P -II ) dt. 11/07/2011 ]

[ Affiliated to Bharath University, Chennai - TN ]

### **Circular**

10.07.2018

#### **Sub: Organising Value-added Course : DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS**

With reference to the above mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, **Bharath Institute of Higher Education and Research** is organizing “**DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS**”. The course content is enclosed below.”

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before 30.7.2018. Applications received after the mentioned date shall not be entertained under any circumstances.

  
**Dean**  
Dr. G. JAYALAKSHMI, BSC., MBBS., DTCO., M.D.,  
DEAN  
Sri Lakshmi Narayana Institute of Medical Sciences  
Osudu, Agaram, Kudopakkam Post,  
Villianur Commune, Puducherry - 605502.

### Course Proposal

Course Title: **DIAGNOSIS AND MANAGEMENT OF DRUG SENSITIVE TUBERCULOSIS**

**Course Objective:**

1. DIAGNOSIS OF DRUG SENSITIVE TUBERCULOSIS
2. MANAGEMENT OF DRUG SENSITIVE TUBERCULOSIS

**Course Outcome: Improvement in management of Drug sensitive Tuberculosis**

**Course Audience: Medical Interns of 2018 Batch**

**Course Coordinator: Dr.Vijay Kumar**

**Course Faculties with Qualification and Designation:**

**1.Dr Vijay Kumar ,assistant professor**

**2.Dr.Prakash Rao Balan, Senior Resident**

**Course Curriculum/Topics with schedule (Min of 30 hours)**

SIN o	Date	Topic	Resource faculty	Time	Hou rs
1.	2/8/2018	Introduction	Dr.vijay kumar	2-6p..m	4
2.	4/8/2018	History , Epidemiology	Dr.prakash rao balan	2-6pm	4
3.	6/8/2018	Epidemiology-global perspective	Dr.vijay kumar	2-6p.m	4
4.	9/8/2018	Pathology	Dr.prakash rao balan	2-6p.m	4
5.	11/8/2018	The mycobacteria	Dr.vijay kumar	2-6p.m	4
6.	13/8/2018	Immunology of tuberculosis	Dr.prakash rao balan	2-6p m	4
7.	16/8/2018	Genetic susceptibility parameters in tuberculosis	Dr.vijay kumar	2-6P.M	4
8.	18/8/2018	Genetic of susceptibility of tuberculosis	Dr.prakash rao balan	2-6p.m	4

9.	20/8/2018	Laboratory diagnosis	Dr.vijay kumar	4-6p.m	2	
			<b>Total</b>			34hr

### REFERENCE BOOKS:

1. Miller GE(1990), The assessment of clinical skills/competence/performance. Academic medicine, 65(9), 63-67.
2. Sydneysmee ABC of skill learning BMJ 2003; 326.703-706.
3. Biomedical Waste Management & Handling Rules (2016) with Amendment, updated on 2018.
4. BangBangal V. Training and assessment of medical interns using “direct observation of procedural skills (DOPS)” tool in obstetrics and gynecology.*MOJ Womens Health*. 2018;7(4):120–123. DOI: 10.15406/mojwh.2018.07.00181al V. Training and assessment of medical interns using “direct observation of procedural skills (DOPS)” tool in obstetrics and gynecology. *MOJ Womens Health*. 2018;7(4):120–123. DOI: 10.15406/mojwh.2018

## **VALUE ADDED COURSE**

### **1. Name of the programme & Code**

DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS & CT01

### **2. Duration & Period**

34 hrs & August – September 2018

### **3. Information Brochure and Course Content of Value Added Courses**

*Enclosed as Annexure- I*

### **4. List of students enrolled**

*Enclosed as Annexure- II*

### **5. Assessment procedures:**

Multiple choice questions - *Enclosed as Annexure- III*

### **6. Certificate model**

*Enclosed as Annexure- IV*

### **7. No. of times offered during the same year:**

1 time

### **8. Year of discontinuation: 2018**


### **9. Summary report of each program year-wise**

<b>Value Added Course- August – September 2018</b>					
<b>Sl. No</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Resource Persons</b>	<b>Target Students</b>	<b>Strength &amp; Year</b>
<b>1</b>	CT 01	DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS	Dr. Vijay Kumar	CRRRI Interns	8 students Aug – Sept 2018

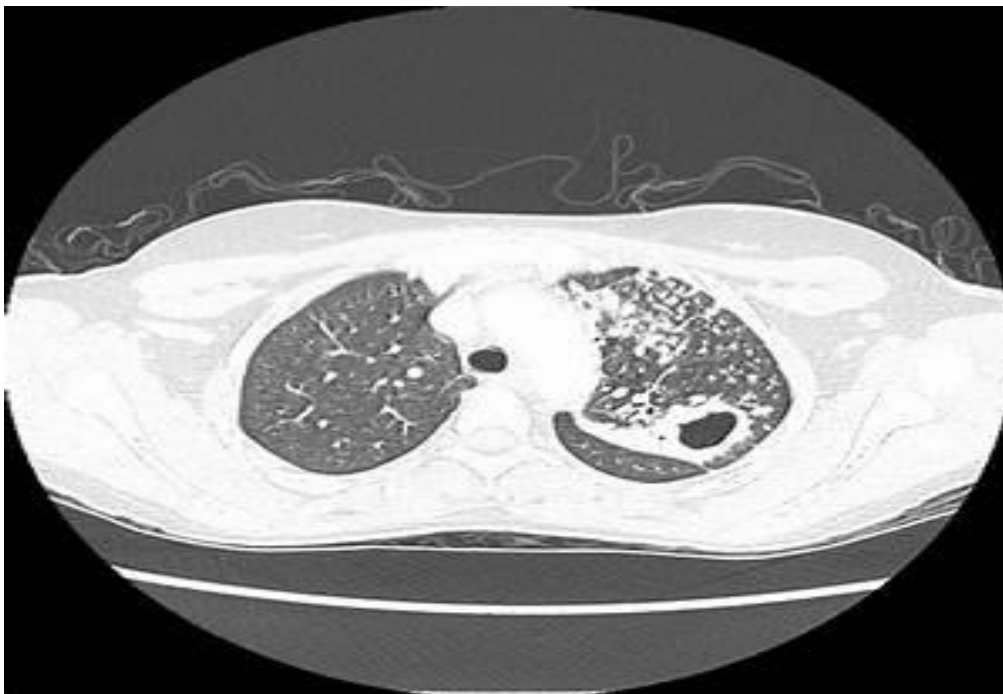
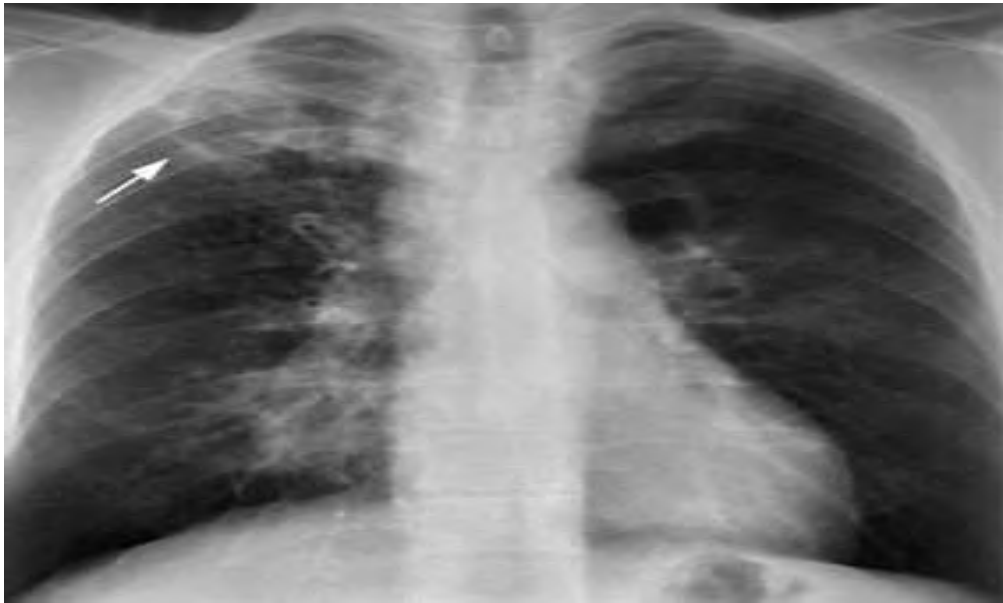
### **10. Course Feed Back**

*Enclosed as Annexure- V*

  
**RESOURCE PERSON**

  
**COORDINATOR**

## TUBERCULOSIS



# PARTICIPANT HAND BOOK

## COURSE DETAILS

Particulars	Description
Course Title	Tuberculosis
Course Code	CT01
Objective	1.INTRODUCTION 2.HISTORY OF TUBERCULOSIS 3.TRANSMISSION OF TUBERCULOSIS: 3.CLASSIFICATION: 4.PATHOGENESIS AND PROGRESSION OF TUBERCULOSIS: PROGRESSION OF TUBERCULOSIS: 5.DIAGNOSIS OF TUBERCULOSIS: 6.TREATMENT OF DRUG SENSITIVE TUBERCULOSIS
Further learning opportunities	Diagnosis and treatment of Tuberculosis
Key Competencies	On successful completion of the course the students will have skill in diagnosing and treating Tuberculosis.
Target Student	CRRI Interns
Duration	34hrs August – September 2016
Theory Session	32 hours + 2 hours(MCQ)
Assessment Procedure	Multiple choice questions

## **1.INTRODUCTION:**

Tuberculosis [TB] continues to intimidate the human race since time immemorial not only due to its effects as a medical malady, but also by its impact as a social and economic tragedy.

At the dawn of the new millennium, we are still mute witnesses to the silent yet efficient march of this sagacious disease, its myriad manifestations and above all its unequalled, vicious killing power.

Through the millennia, TB never ever disappeared from the developing world. In the developed world, it only went into hibernation for a while in the mid and late 1970s, to explode once again with the advent of human immunodeficiency virus [HIV] infection and acquired immunodeficiency syndrome [AIDS] pandemic in the 1980s.

There have been references to this ancient scourge in the Vedas [vide infra] and it was called “rajayakshma” [meaning “wasting disease”].

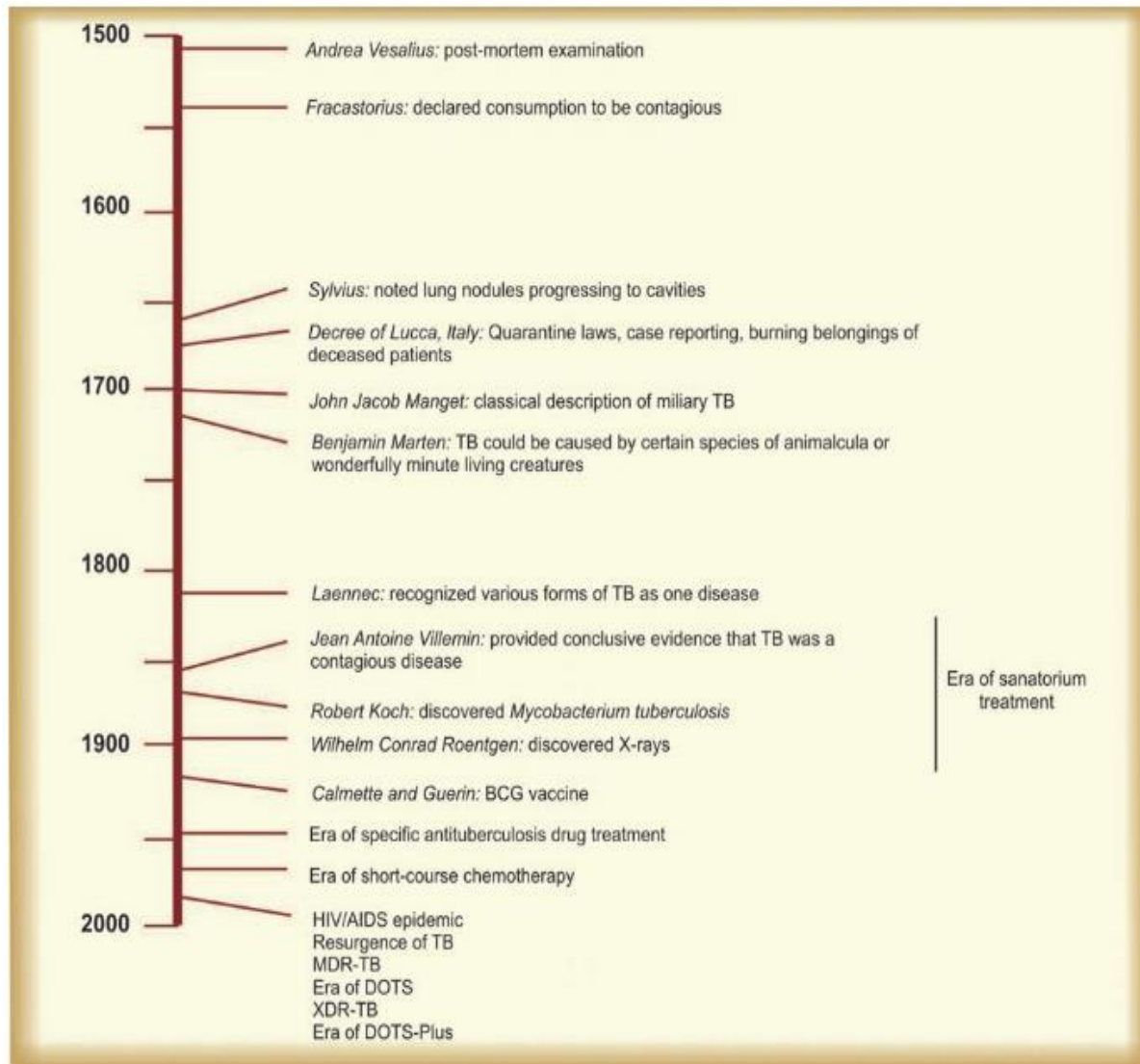
Hippocrates [460-377 B.C.] called the disease “pthisis”, a Greek word which meant “to consume”, “to spit” and “to waste away” (2,3).

The word “consumption” [derived from the Latin word “consumere”] has also been used to describe TB in English literature.

The Hebrew word “schachepheth” [meaning “waste away”] has been used in the Bible. J.L. Schonlein, Professor of Medicine at Zurich, is credited to have named the disease “tuberculosis”.

## **2.HISTORY OF TUBERCULOSIS:**





### 3. TRANSMISSION OF TUBERCULOSIS:

*M. tuberculosis* is carried in airborne particles, called droplet nuclei, of 1–5 microns in diameter.

Infectious droplet nuclei are generated when persons who have pulmonary or laryngeal TB disease cough, sneeze, shout, or sing.

### 3.CLASSIFICATION:

Based on sequence of events following the first exposure

#### Primary TB

Disease caused by *Mycobacterium tuberculosis* in a person with no previous exposure

#### Progressive primary TB

Primary disease which is generally self-limiting may progress to give rise to larger lesions

#### Post-primary TB

Disease which is the result of endogenous reactivation [in a person previously exposed to *Mycobacterium tuberculosis*] or exogenous reinfection

Based on location

#### Localized disease

Pulmonary TB

Extra-pulmonary TB

#### Disseminated TB

Tuberculosis disease process involving more than 2 non-contiguous sites. Disseminated TB can occur in primary [early generalized TB] and post-primary [late generalized TB] forms of the disease. When the lesions are uniform and are of the size of a millet seed [ $< 2$  mm], the term miliary TB is used

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TB = tuberculosis

### 4.PATHOGENESIS AND PROGRESSION OF TUBERCULOSIS:

The lung is the predominant primary site of TB infection in postnatal life.

## CONDITIONS PREDISPOSING TO TUBERCULOSIS:

Immunodeficiency disorders affecting CMI including HIV infection and AIDS

Immunosuppressive therapy

Immunomodulator drugs [e.g. infliximab, etanercept]

Malignant neoplasm [carcinomas of the head and neck, stomach, intestines and lungs; Hodgkin's disease, non-Hodgkin's lymphoma, acute lymphocytic and myelogenous leukaemia]

Silicosis

High dose, long-term corticosteroid treatment

Poorly controlled diabetes mellitus

Chronic renal failure, haemodialysis

Connective tissue disorders

Organ transplantation

Intravenous drug abuse, heroin addiction

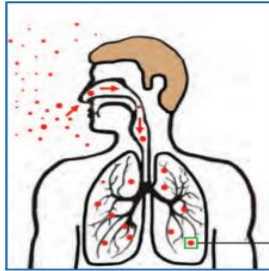
Tobacco smoking

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CMI = cell-mediated immunity; HIV = human immunodeficiency virus; AIDS = acquired immunodeficiency syndrome

## PATHOGENESIS OF TUBERCULOSIS:

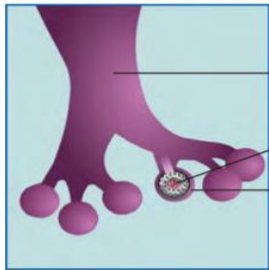
1.



**Area of detail for boxes 2, 4, and 5**

Droplet nuclei containing tubercle bacilli are inhaled, enter the lungs, and travel to the alveoli.

2.



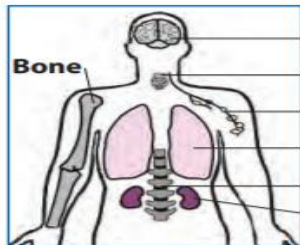
**Bronchiole**

**Tubercle bacilli**

**Alveoli**

Tubercle bacilli multiply in the alveoli.

3.



**Brain**

**Larynx**

**Lymph node**

**Lung**

**Spine**

**Kidney**

**Bone**

A small number of tubercle bacilli enter the bloodstream and spread throughout the body. The tubercle bacilli may reach any part of the body, including areas where TB disease is more likely to develop (such as the brain, larynx, lymph node, lung, spine, bone, or kidney).

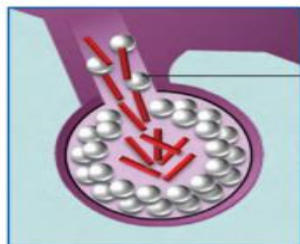
4.



**Special immune cells form a barrier shell** (in this example, bacilli are in the lungs)

Within 2 to 8 weeks, special immune cells called macrophages ingest and surround the tubercle bacilli. The cells form a barrier shell, called a granuloma, that keeps the bacilli contained and under control (**LTBI**).

5.

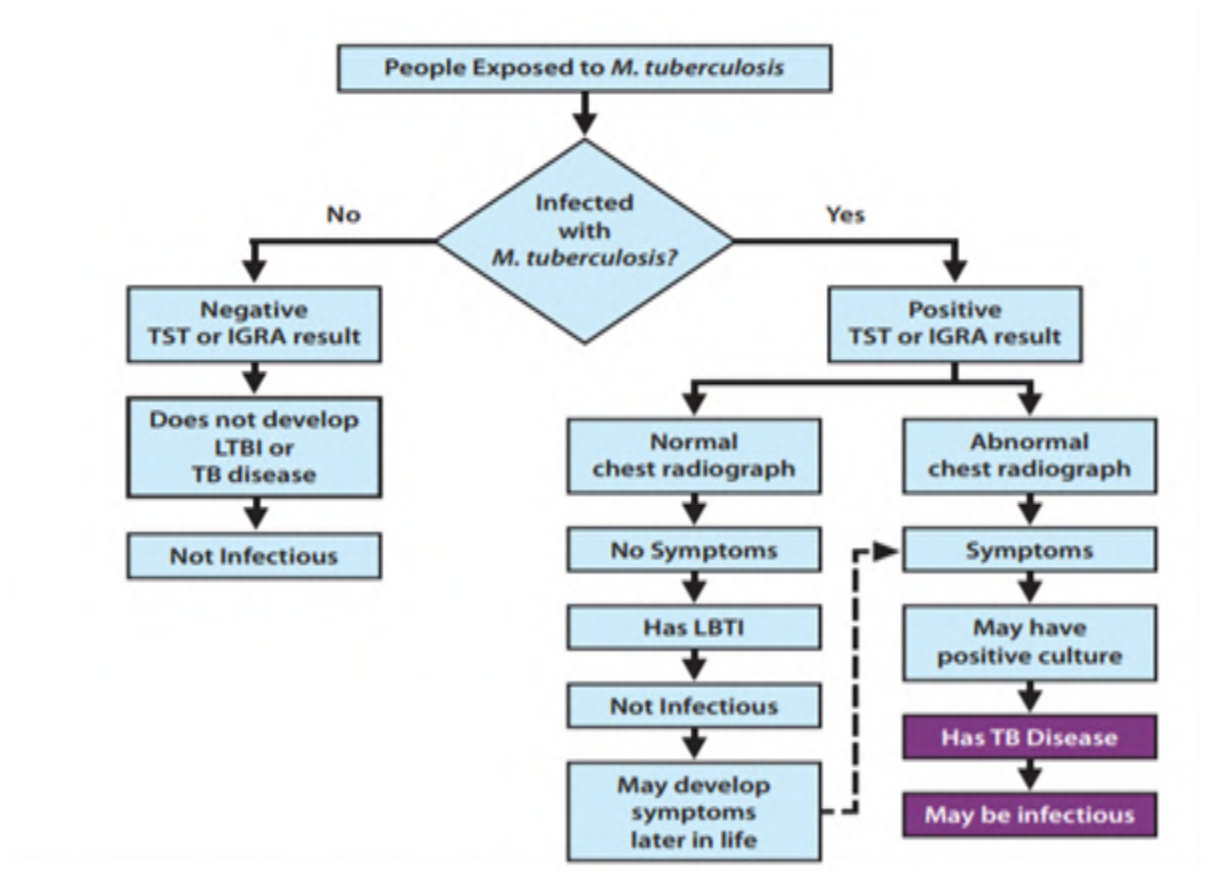


**Shell breaks down and tubercle bacilli escape and multiply**

If the immune system **cannot** keep the tubercle bacilli under control, the bacilli begin to multiply rapidly (**TB disease**). This process can occur in different areas in the body, such as the lungs, kidneys, brain, or bone (see diagram in box 3).

## PROGRESSION OF TUBERCULOSIS:





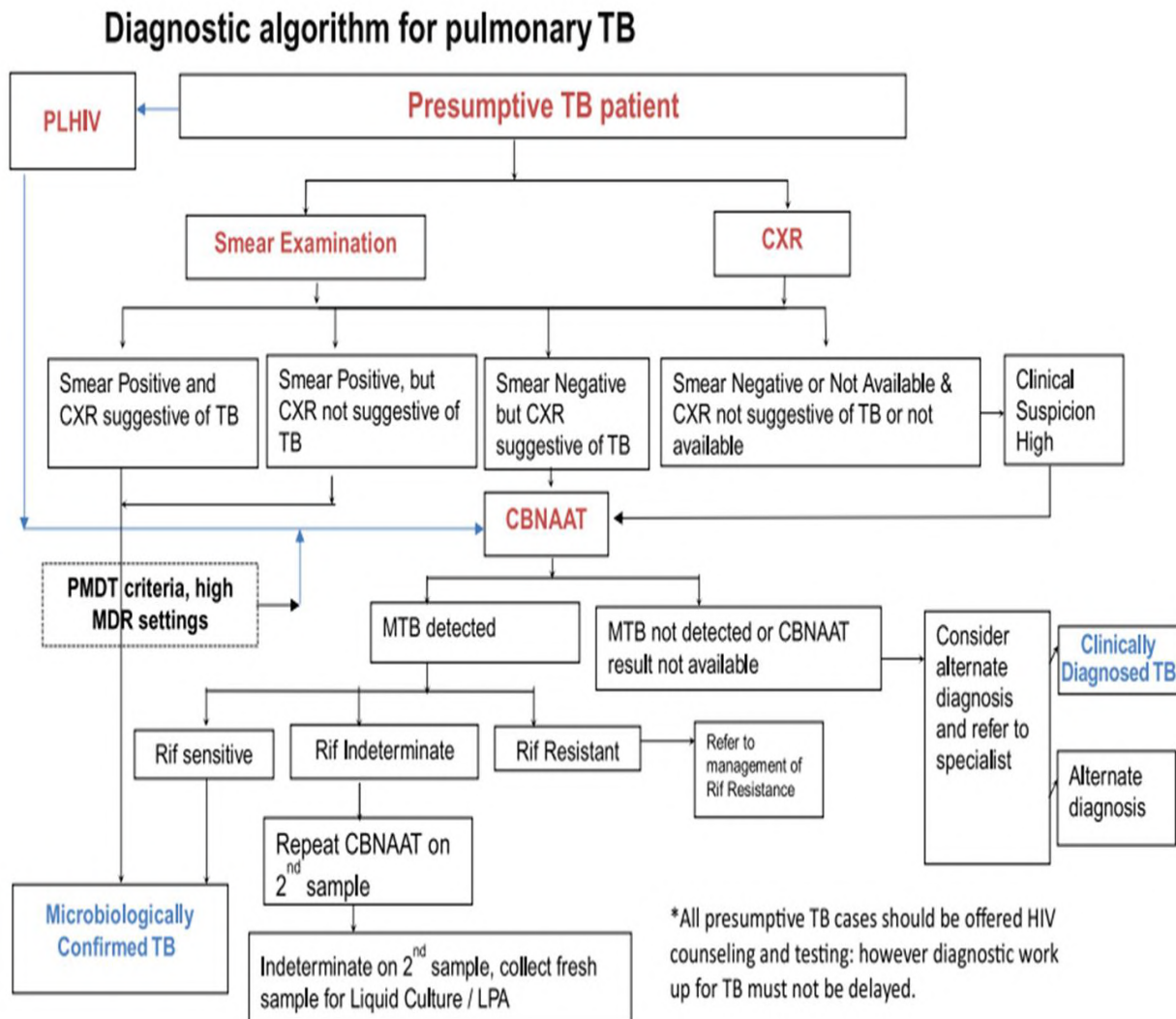
## 5.DIAGNOSIS OF TUBERCULOSIS:

The primary screening method for tuberculosis (TB) infection (active or latent) is the [Mantoux tuberculin skin test](#) with purified protein derivative (PPD). An in vitro blood test based on interferon-gamma release assay (IGRA) with antigens specific for *Mycobacterium tuberculosis* can also be used to screen for latent TB infection. IGRA assays offer certain advantages over tuberculin skin testing

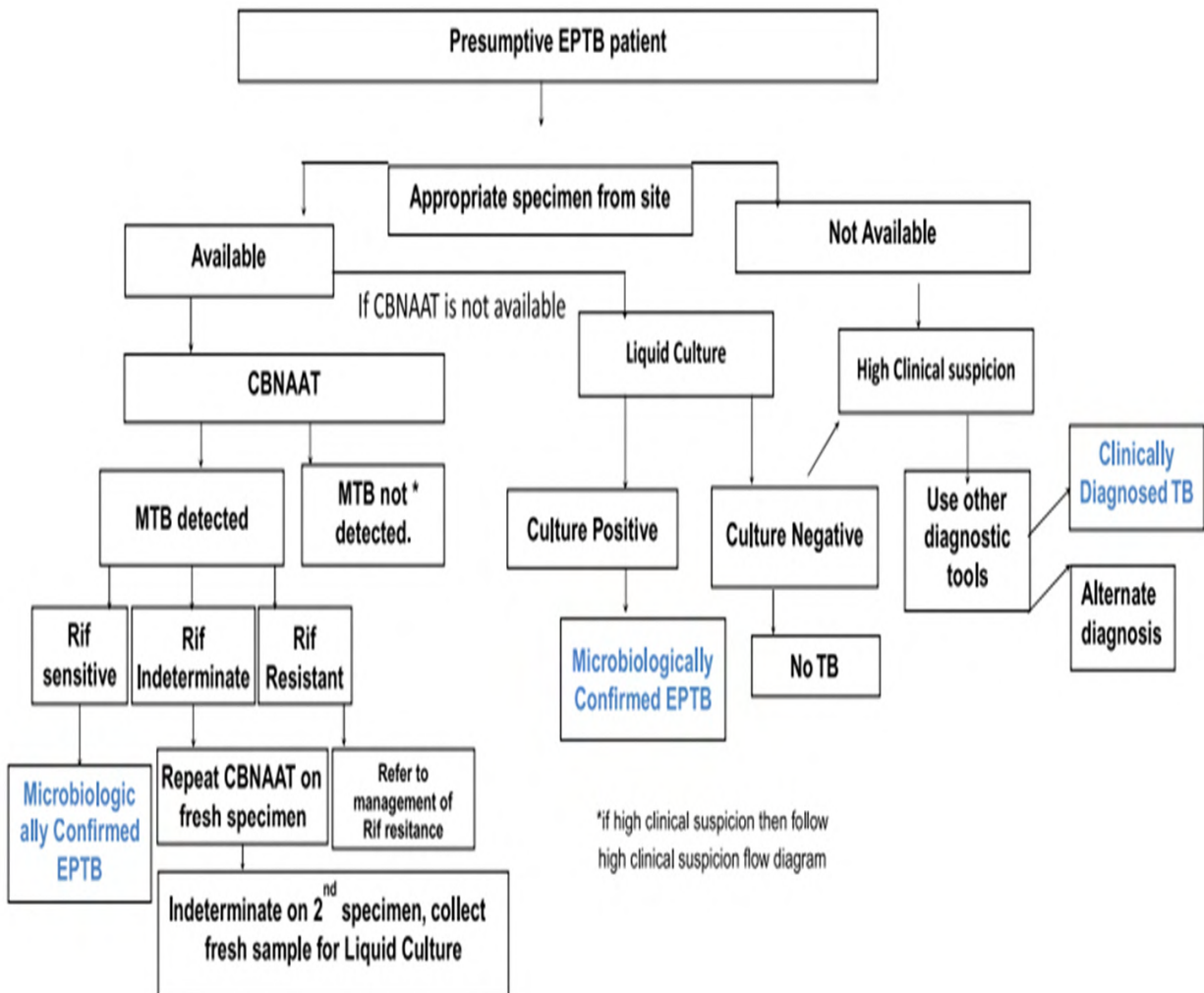
- **Molecular diagnosis** : PCR- Gene Xpert , LPA
- **Bacteriological test** : Sputum smear for AFB ,Sputum for AFB culture
- **Histopathological diagnosis**: FNAC/Biopsy

- **Radiological diagnosis:** X-Ray, USG, CT scan, MRI

## Clinical diagnosis



## Diagnostic Algorithm for Extra Pulmonary TB



## 6.TREATMENT OF DRUG SENSITIVE TUBERCULOSIS:

Administration of daily fixed dose combination of first-line AKT as per appropriate weight bands

Weight Category (2019)	Number of Tablets (FDCs)	
	Intensive Phase - 4FDC (HRZE) 75/150/400/275	Continuation Phase -3FDC (HRE) 75/150/275
25-34	2	2
35-49	3	3
50-64	4	4
65-75	5	5
>75Kg*	6	6

\*patients >75 kg may receive 5 tablets/day if they do not tolerate this dose



**VALUE ADDED COURSE****DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE  
TUBERCULOSIS & CT01****4. List of Students Enrolled AUG 2018 – SEPT 2018**

1 <sup>st</sup> Year MBBS Student			SIGNATURE
Sl. No	Name of the Student	Roll No	
1	NILA.R	U14MB281	nila R.
2	NIMINESH.B.S	U14MB282	B.S. Niminsh
3	NIVETHA. B	U14MB283	Nivetha B.
4	NONG LEGO	U14MB284	Nong Lego.
5	OBED NEWMAI	U14MB285	Obed Newmai
6	PAVITHRA. S	U14MB286	Pavithra S.
7	PRADEEPA. A	U14MB287	Pradeepa A.
8	PRASANNA.S	U14MB288	Prasanna S.

  
RESOURCE PERSON

  
COORDINATOR



SRI LAKSHMI NARAYANA INSTITUTE OF HIGHER EDUCATION  
AND RESEARCH

Annexure - III

DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS

MULTIPLE CHOICE QUESTIONS.



*Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry*

CANDIDATE AND ASSESSOR INFORMATION

Course code: CT 01

Candidate Name	PAVITHRA . S	Assessor Name	DR. VIJAY KUMAR
Date of Assessment	20.8.2018	Assessor Position	ASSISTANT PROFESSOR HOD

1. Which of the following family members exposed to TB would be at highest risk for contracting the disease?

- A 45-year-old mother
- B 17-year-old daughter
- C 8-year-old son
- ☒ D 76-year-old grandmother

2. Which of the following symptoms is common in patients with TB?

- ☒ A Weight loss
- B Increased appetite



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AND RESEARCH**

- C Dyspnea on exertion
- D Mental status changes

3. The Causative agent of Tuberculosis is said to be:

- ☒ A Mycobacterium Tuberculosis
- B Hansen's Bacilli
- C Bacillus Anthracis
- D Group A Beta Hemolytic Streptococcus

4. A patient with primary TB infection can expect to develop which of the following conditions?

- A Active TB within 2 weeks
- B Active TB within 1 month
- C A fever that requires hospitalization
- ☒ D A positive skin test

5. Which of the following antituberculous drugs can cause damage to the eighth cranial nerve?

- ☒ A Streptomycin



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AND RESEARCH

- B Isoniazid
- C Para-aminosalicylic acid
- D Ethambutol hydrochloride

6. Community health nurse is conducting an educational session with community members regarding TB. The nurse tells the group that one of the first symptoms associated with TB is:

- A A bloody, productive cough
- ☒ B A cough with the expectoration of mucoid sputum
- C Chest pain
- D Dyspnea

7. INH treatment is associated with the development of peripheral neuropathies. Which of the following interventions would the doctor teach the patient to help prevent this complication?

- A Adhere to a low cholesterol diet
- ☒ B Supplement the diet with pyridoxine (vitamin B6)
- C Get extra rest
- D Avoid excessive sun exposure

8. A client with a positive Mantoux test result will be sent for a chest x-ray.



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AND RESEARCH**

For which of the following reasons is this done?

- A To confirm the diagnosis
- B To determine if a repeat skin test is needed
- ☒ C To determine the extent of the lesions
- D To determine if this is a primary or secondary infection

9. A patient has active TB. Which of the following symptoms will he exhibit?

- A Chest and lower back pain
- ☒ B Chills, fever, night sweats, and hemoptysis
- C Fever of more than 104°F and nausea
- D Headache and photophobia

10. A chest x-ray should a patient's lungs to be clear. His Mantoux test is positive, with a 10mm of induration. His previous test was negative. These test results are possible because:

- A He had TB in the past and no longer has it.
- B He was successfully treated for TB, but skin tests always stay positive
- ☒ C He's a "seroconverter", meaning the TB has gotten to his bloodstream
- D He's a "tuberculin converter," which means he has been



SRI LAKSHMI NARAYANA INSTITUTE OF HIGHER EDUCATION  
AND RESEARCH

Annexure - III

DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS



MULTIPLE CHOICE QUESTIONS.

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## Sri Lakshmi Narayana Institute of Medical Sciences



This is to certify that Nivetha.B(U14MB283) has actively participated in the Value Added Course on **DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS** held during August - September 2018 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

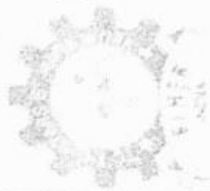
  
Dr. Prakash Rao Balan

RESOURCE PERSON



Dr. Vijay Kumar

COORDINATOR



Sri Lakshmi Narayana Institute of Medical Sciences



This is to certify that \_\_Pavithra.S(U14MB286)\_\_\_\_ has actively

participated in the Value Added Course on DIAGNOSIS AND TREATMENT OF DRUG

SENSITIVE TUBERCULOSIS held during August - September 2018 Organized by Sri

Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr. Prakash Rao Balan  
RESOURCE PERSON

Dr. Vijay Kumar  
COORDINATOR

### Student Feedback Form

Course Name: DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS

Subject Code: CT 01

Name of Student: NIVETHA . B Roll No.: U14HB283

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear				/	
2	Course contents met with your expectations					/
3	Lecturer sequence was well planned				/	
4	Lectures were clear and easy to understand					/
5	Teaching aids were effective				/	
6	Instructors encourage interaction and were helpful					/
7	The level of the course				/	
8	Overall rating of the course	1	2	3	4	5

\* Rating: 5 - Outstanding; 4 - Excellent; 3 - Good; 2 - Satisfactory; 1 - Not-Satisfactory

Suggestions if any:

GOOD

Date: 20.8.2018

  
Signature

### Student Feedback Form

Course Name: DIAGNOSIS AND TREATMENT OF DRUG SENSITIVE TUBERCULOSIS

Subject Code: CT 01

Name of Student: PAVITHRA S Roll No.: U14MB286

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear				✓	
2	Course contents met with your expectations					✓
3	Lecturer sequence was well planned					✓
4	Lectures were clear and easy to understand					✓
5	Teaching aids were effective				✓	
6	Instructors encourage interaction and were helpful				✓	
7	The level of the course					✓
8	Overall rating of the course	1	2	3	4	5

\* Rating: 5 - Outstanding; 4 - Excellent; 3 - Good; 2 - Satisfactory; 1 - Not-Satisfactory

Suggestions if any:

Date: 20.8.2018

  
Signature

Date: 20.8.2018

From

Dr. Vijay Kumar  
Assistant Professor and Head,  
Department of Microbiology,  
Sri Lakshmi Narayana Institute of Medical Sciences  
Bharath Institute of Higher Education and Research,  
Chennai.

Through Proper Channel

To

The Dean,  
Sri Lakshmi Narayana Institute of Medical Sciences  
Bharath Institute of Higher Education and Research,  
Chennai.

**Sub: Completion of value-added course: DIAGNOSIS AND MANAGEMENT OF DRUG  
SENSITIVE TUBERCULOSIS**

Dear Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: : **DIAGNOSIS AND MANAGEMENT OF DRUG SENSITIVE TUBERCULOSIS , AUG-SEP 2018** for 8 interns . We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards,

Dr. Vijay Kumar

**Encl: Certificates**

**Photographs**

