

Manage TB
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Lecture - 62
Services offered by RNTCP in Diagnosis, Treatment, Supportive Care and
Prevention of TB
Session 01

Ladies and gentlemen I am Dr. Raghuram Rao. I am from the central TB division and I am a public especially with the profession. And today I will be speaking about the various services offered by the tuberculosis program and now in India on the diagnosis treatment supportive care and prevention of tuberculosis.

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ICMR - National Institute for Research in Tuberculosis (NIRT)

www.nirt.res.in

Revised National TB Control Programme (RNTCP)

- The systematic efforts for TB control began in India since 1961 through National TB Programme (NTP).
- Based on DOTS - the internationally-recommended strategy to control TB, Revised National TB Control Programme (RNTCP) was launched in 1997.
- Under RNTCP, HIV-TB Collaborative services and Programmatic Management of Drug Resistant Services began from 2007 and expanded to entire country.



The tuberculosis program was initiated in the country way back in 1961 and the efforts were then based on the newer experiences and the newer evidences that were available and with the introduction of dots. The program was revised and called as revised national tuberculosis control program and this was launched in 1997 and then was expanded across the country. Based on newer initiatives like the HIV program coming in the collaborative activities and then the drug resistant program coming in the these programs were introduced in 2007 and then expanded to cover the entire country.

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Revised National TB Control Programme (RNTCP)

- RNTCP provides quality assured diagnostic and treatment services to all the TB patients including necessary supportive mechanisms for ensuring treatment adherence and completion.
- RNTCP has developed National Strategic Plan 2017-25 with a vision to eliminate TB by 2025

The program provides quality assured diagnostic and treatment services free of cost, to all TB patients including the supportive mechanisms that is you know required to ensure that the patient continues and adheres to the treatment regimen and ensures completion of the entire duration of treatment. The program has now currently developed its strategic plan called the national strategic plan and it will it has been made from 2017 to 2025 with the elimination of TB by 2025 as the goal of the program.

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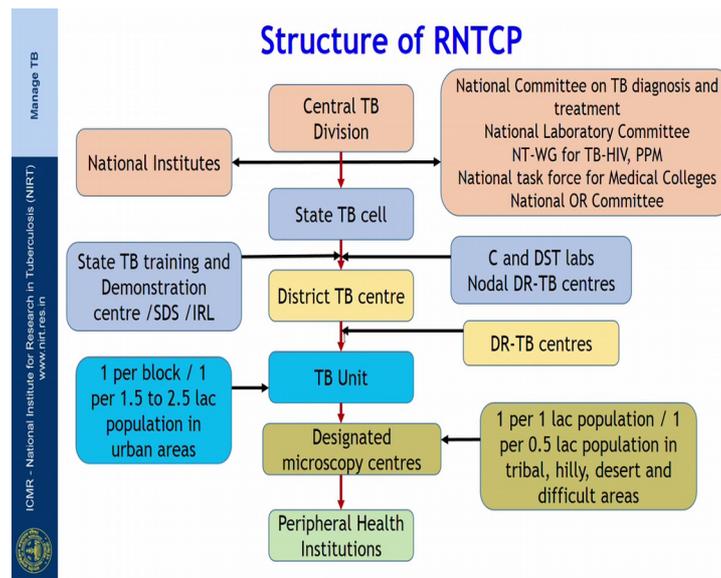


Overview of services offered by RNTCP

- Diagnostic services
- Treatment Services
- DR-TB Services
- TB-HIV Services
- Preventive Strategies
- Universal Health Coverages & Social protection
- TB Notification
- ICT enabled services

The current session we will have a look at the diagnostic services, the treatment services, the drug resistant treatment services and TB HIV services, they will also talk of preventive strategies and the social support and universal coverages and social protection that is being provided under the program. We will also have a look at how TB cases have to be notified and what are the ICT enabled services that we have under the program.

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So, the revised national tuberculosis control program is implemented by the central TB division at the apex or in the ministry of health and under the central TB division the program is implemented by the state governments through what is called as the state TB cells. The national central TB the division is supported by national institutes and it is also supported by expert advisory groups and you know there are national committees and advisory committees for diagnosis for treatment and likewise for all the other programs.

The state TB cell also has a similar structure where the state TB cell is supported by a technical unit called the state TB demo training and demonstration center STDCs and this is the technical wing which takes care of the training and the laboratories like the intermediate reference laboratory the reference laboratory for the state level.

The other state level structures that are there or the IRL is also attached to what is called as a culture and drug sensitivity or drug susceptibility testing laboratory culture and DST laboratories for diagnosing and you know drug resistant TB cases. The state structure is then decentralized and it is established at the district level where we have a district TB

center and at the block level tuberculosis unit is established for every 2.5 lakh population and of course, it is relaxed for difficult and terrains and northeast areas and tribal population and then at the below the block level there are you know units called as the designated microscopy centers, which do put a microscopy and do the diagnosis for TB.

These services are available I mean these centers are established for every 1.1 to 1.5 lakh population and in difficult areas for 3.5 lakh populations. And below the designated microscopy centers are the places where the doctor is physically present like the primary health centers where it is used for you know diagnosing and initiating treatment for tuberculosis.

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The various diagnostic services that we have apart from sputa microscopy is or the advancement with the newer molecular diagnostics that have come into the program like the gene expert machines; which is called as the cartridge based nucleic acid amplification test, even at is the you know the technology for that. Then there are radiography like chest X-ray is used as a diagnostic service and TrueNAT is a newer molecular diagnostic that has come in which is also a CBNAT you know similar to CBNAT. It is a again cartridge it is not a cartridge, but it is a chip based you know diagnostic tool molecular diagnostic tool.

Based on these different diagnostic tools the program also has certain you know technologies high end equipments for diagnosis of drug resistant TB where the culture

and DST services are provided in these in those laboratories. So, there are equipments called as midget and other like equipments for doing these high level investigations. As a strategy the program also implements what is called as an active case finding campaign, where the public health workers go out into the community and do outreach activities and go house to house to the at risk population to screen them for tuberculosis. Also mobile vans are used for these activities and the mobile vans are equipped with digital X-ray and microscopy services.

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So, like I said earlier the keys finding strategies for identifying a new case of tuberculosis, of course, there is the basic passive strategy where everybody coming into the hospital and coming who is symptomatic and seeks care in the public health facilities is provided diagnostic and treatment services. Then in certain settings there is what is called as intensified case finding strategy, now these settings are like you know where people are more prone to develop tuberculosis like the HIV care setting where now the people living with HIV come to seek services and being prone for tuberculosis there in those population and intensified screening for tuberculosis happens.

Similarly, in diabetic clinics or in the nutritional rehabilitation centers and like you know these settings there is intensified case finding efforts for identifying tuberculosis and the ones who do not come into the program and are at risk in to cover such population the program has implemented and strategy called as active case finding. So, it targets

different high risk population like you know people living in slums, the tribal population, in prisons or other congregate settings like orphanages, old age homes and in such settings the program the public health workers go out into the community and they screen them either through mobile vans or you know physically going and providing services in terms of doing symptom screening and then other diagnostic services required for it.

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Diagnosis of TB	Microbiological Tests	Supportive Tests
	Smear Microscopy ZN FM CBNAAT Culture Solid Liquid	Chest X-Ray TST IGRA Cytology - FNAC Histopathology - Biopsy
Drug Susceptibility Test	Molecular Tests	Growth based Tests
	CBNAAT LPA	Culture Solid Liquid



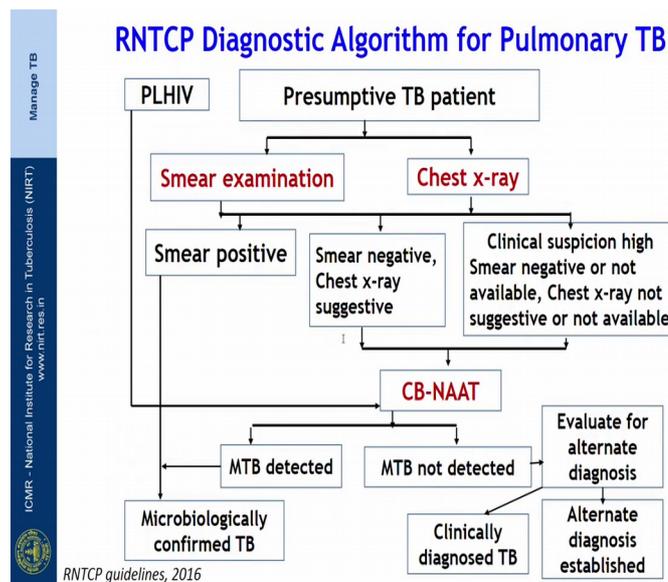
The various tools that are used for diagnosis of TB of course, the traditional smear microscopy is what has been used over the years for diagnosis of tuberculosis using different staining technologies like zillions technology or fluorescent microscopy. Now these are now of course, has limited sensitivity so there are newer diagnostics that have come into the program like the cartridge base nucleic acid amplification test then culture investigations.

There are two types of its solid culture and liquid culture investigations that happen; then there are other supportive tests to help confirm diagnosis like chest X-ray or radiography and then tuberculosis, the TST skin test, the IGRA test, the other you know for extra pulmonary cases, the biopsies that are taken from the neck, define needle aspiration cytology, histopathology these are different ways to support case to be confirmed case of tuberculosis.

The molecular test also is has the potential to identify drug you know resistance in the tuberculosis bacteria. So, there are drug susceptibility testing certain higher end equipments and laboratories are established and CBNAAT is one of the technology which gives a rapid diagnosis on not only for tuberculosis, but also for rifampicin resistance. So, it gives a result in as early as 2 hours.

So, there are you know more and more there are currently there are around 628 CBNAAT laboratories that are established across the country at all and practically covering all districts and at the district level facilities have been you know provided with these equipments. Then there is (Refer Time: 10:50) and also there are growth bait tests like the culture which I said earlier for solid and liquid culture to not only diagnose TB, but also to identify drug or resistance.

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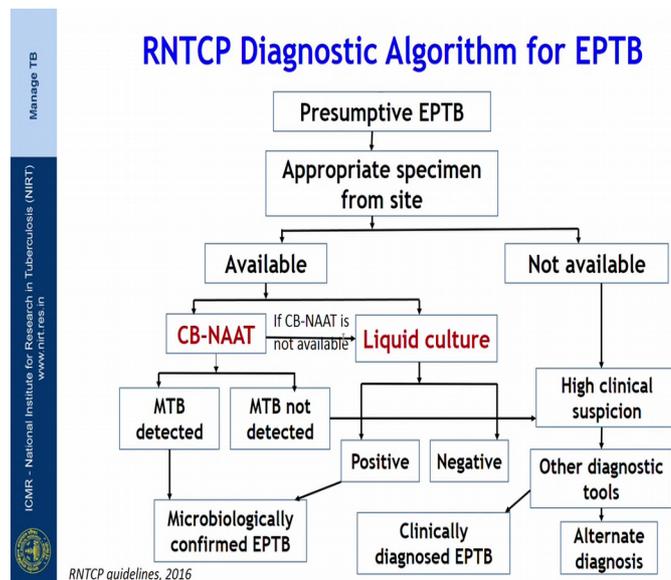
For pulmonary TB the algorithm for diagnosis is whenever a suspect or a presumptive TB case is identified he is offered smear examination, sputum smear examination and if he is not asymptomatic and has no sputum and is still symptomatic having other symptoms for tuberculosis he is also offered and chest X-ray simultaneously along with these sputum smear examination.

And based on those results if the sputum smear is positive he is directly started, he is considered as a microbiologically confirmed case of tuberculosis and initiated on treatment and if these sputum smear is negative and chest X-ray positive or suggestive of

tuberculosis he is offered molecular diagnostic being a higher sensitive test. So, the technology has the capacity to identify even very low levels of bacteria in the sputum sample.

So, it helps in microbiologically confirming the case of tuberculosis and based on these even if the chest X-ray is negative or is not suggestive, but the patient is symptomatic again the other investigations that would be required are you know are available for the declination to confirm his case. And he can clinically diagnosed and say case of tuberculosis even though if it is not microbiological confirmed, but if there is high suspicion of tuberculosis the medical officer has the options for deciding and initiating the treatment.

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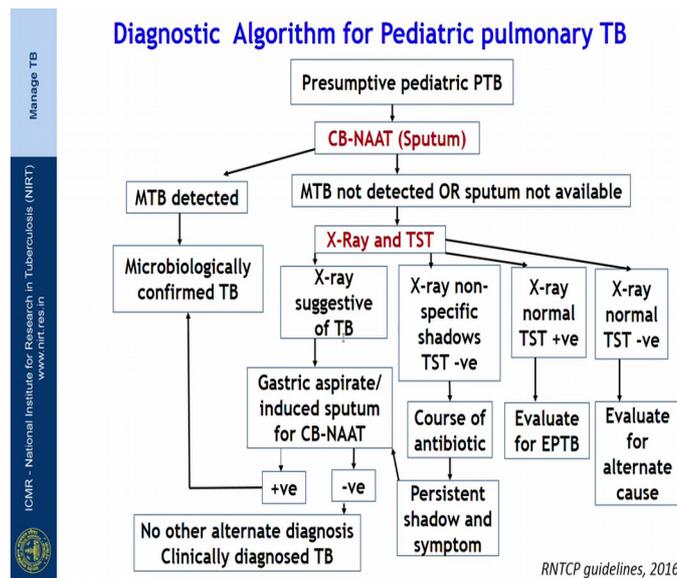


For extra pulmonary cases when the site from the site or specimen is collected like FNAC for a lymph node or pleural fluid or CSF fluid based on the type of extra pulmonary location the clinician suspects and based on that sample, if that sample is available it is offered directly CBNAAT is the technology that is offered now and also it can undergo liquid culture and if CBNAAT is not available CBNAAT is a rapid tool it gives results in 2 hours, liquid culture takes time.

So, based on the facilities available in the district the sample is processed and identified as tuberculosis or not tuberculosis of being microbiologically confirmed extra-pulmonary tuberculosis. If there is no sample available, but there is very high clinical suspicion

there are other diagnostics tools like you know CT Scan or MRI and other supportive investigations, but if even in spite of all these things the clinician feels that, he has tuberculosis extra-pulmonary, they can still even though it is not microbiologically confirmed it can still be diagnosed as clinically diagnosed extra-pulmonary tuberculosis and initiated on treatment.

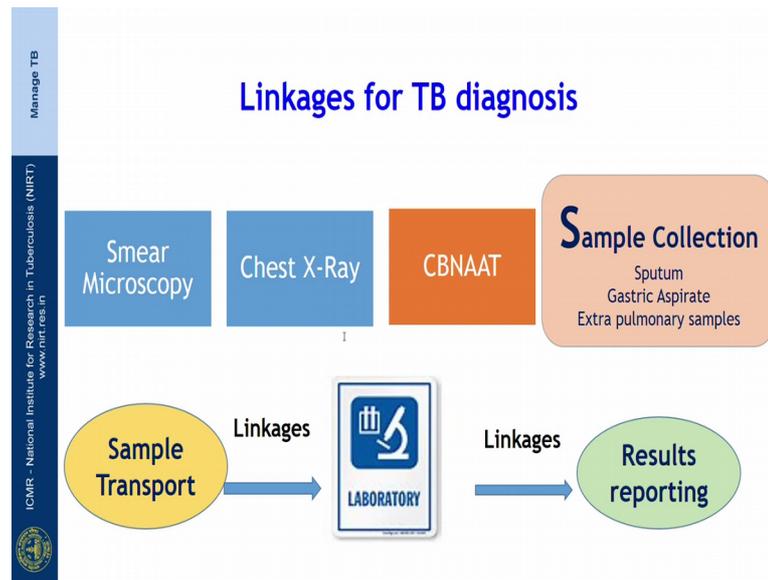
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For pediatric cases it is a little tricky because the child is unable to give samples or you know so it is difficult always difficult to diagnose pediatric case of tuberculosis. So, ah; however, with the advent of CBNAAT the specimens if the child in spite I mean if it cannot give sputum and induce sputum or gastric lavage sample can be processed in the CBNAAT platform and it can detect positive or negative for tuberculosis.

And even if you know it other supportive investigations like X-ray, TST and the likes are also used as tools for diagnosing pediatric cases, the option of again clinical diagnosis of tuberculosis also you know exists now in this scenario where; the pediatrician if he feels that this case is clinically suggestive of tuberculosis we can initiate treatment diagnose and initiate treatment.

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The different diagnostic investigations that are available under the program may not be physically available under one roof.

So, you know the public health based on the infrastructure available in the hospital it could all these services could probably be available in the district hospital, but may not be available in the primary health center. So, in such cases there is provision of sample collection and transportation which is existing under the scheme and so these sample the instead of the patient moving around the sample gets moved around; including X-ray now in this era there is digital X-ray that has come in so and telemedicine, teleradiology is also being used in some streets. So, these are the different tools that are used for diagnosis of tuberculosis in our country.

Thank you for the patient listening to this session.