QI: Improving Surveillance of Comorbidities in Patients with Tuberculosis

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India has a high TB burden with the total number of incident TB patients (new & relapse) notified during 2020 being 16,28,161[1]. National Tuberculosis Elimination Programme (NTEP) has been resilient in its fight against tuberculosis and in improving the screening for HIV, diabetes, and undernutrition in patients with tuberculosis. It is well understood that tuberculosis is a multidimensional problem, hence, different facets of government support are needed to address the disease burden. Besides the anti-tubercular treatment, screening for comorbidities like HIV, diabetes, and undernutrition in patients with tuberculosis is vital and significantly affects the outcome of the treatment.

National Guidance

- As per the collaborative effort between NTEP and the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke (NPCDCS)- *all TB patients who have been diagnosed and registered under NTEP should be referred for screening for diabetes.*
- Tuberculosis is considered to be the most common opportunistic infection in HIV patients in India*. All patients who present with signs or symptoms that suggest tuberculosis whether TB is suspected or already confirmed should be screened for HIV infection.*
- Undernutrition is a serious co-morbidity in patients with active TB in India and increases the risk of severe disease, death, drug toxicity, drug malabsorption, and relapse after cure. *WHO guidance suggests nutritional assessment for all patients with Tuberculosis*.
- *The NTEP surveillance guidance mandates screening for HIV, diabetes, and a standard check-up for nutrition status in all patients diagnosed with any form of tuberculosis[2]*.

Plan

- A high number of tuberculosis patients were not being screened for comorbidities like HIV, diabetes, and undernutrition as per the NTEP guidelines.
- To evaluate whether screening for HIV, diabetes and undernutrition is being performed for patients diagnosed with any form of TB and registered for treatment under NTEP.
- To evaluate if the digital portal *Nikshay* is being properly updated with data pertaining to comorbidities in patients diagnosed with tuberculosis.
- Patient data was collected for District TB and Chest Hospital, Ambala from *Nikshay*, a web-enabled patient management system for TB control under NTEP.

Data collection

- A total of 2,730 tuberculosis diagnoses were made between September 2020 and September 2021, out of which:
    - 89.5% (n = 2443) were screened for diabetes
    - 93% (n= 2539) were screened for HIV
    - 89.3% (n= 2438) were screened for undernutrition

Aim

- We aimed to improve the surveillance of comorbidities in tuberculosis patients by identifying the problems in the current practice and taking steps for their rectification.
- Within three months of the project, more than 99% of the registered tuberculosis patients should be screened for HIV, diabetes, and undernutrition.

Problems identified

- Patient weights were not recorded for all the patients at District TB and Chest Hospital, Ambala.
- Faulty ground plan for the patients that required them to undergo HIV and diabetes screening after collecting their ATT medications from the government health facility. Patients would fail to attend screening after collecting their medications.
- The supply chain for HIV and diabetes testing kits in the health facility was frequently interrupted.
- The data entry process consisted of manually recording the data into physical registers and then further manually transferring the data from the registers into the digital database *Nikshay*. This would make the process of updating the digital database very tedious and cumbersome, and result in significant delays in appropriate patient follow-ups for the comorbidities.

Interventions

- Patients were directed toward the screening department before going to the drug collection counter. A staff member of the District TB and Chest Hospital was relocated to oversee and direct the patients toward the HIV and diabetes screening prior to the collection of their prescribed medications.
- Staff members responsible for patient registration at their first point of contact were asked to additionally do a nutritional assessment for the patients.
- The step of maintaining physical registers with patient records was eliminated and the staff was guided to upload/update the details directly in the digital database. The Senior Treatment Supervisors (STS) were thoroughly briefed and trained about the change in the process.
- To avoid interruptions in supply chains, a threshold for the total number of test kits available at the healthcare facility was defined and an early notification system was developed. To avoid shortages, the next order for the screening kits was to be placed once the number of HIV and diabetes screening kits fell below the defined threshold.
- These changes were reinforced after each cycle of data collection by thoroughly briefing the staff and gaining feedback.

Results

Data collected from *Nikshay* for the month of October 2021 after the implementation of the changes showed:

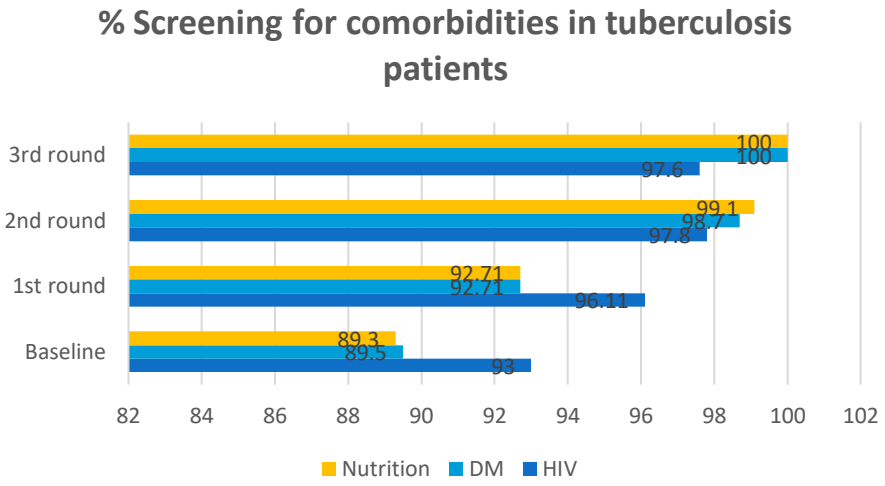
- A total of 206 patients were diagnosed with tuberculosis out of which
  - 96.11% (n=198) were screened for HIV
  - 92.71% (n=191) were screened for diabetes
  - 92.71% (n=191) were screened for undernutrition

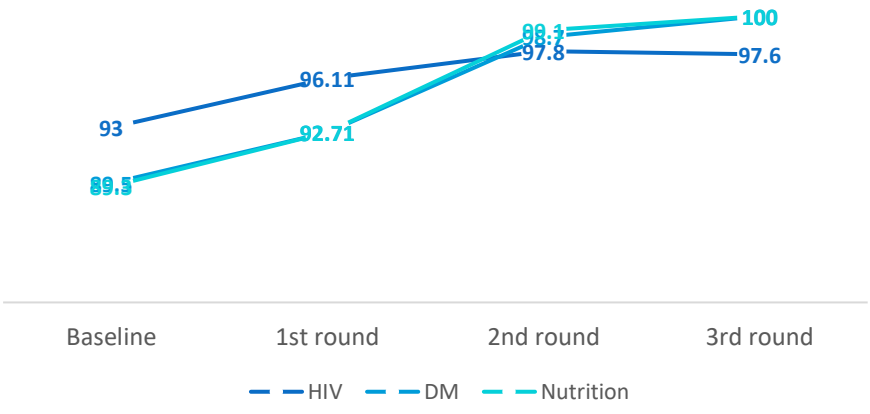
Data collected from *Nikshay* for the month of November 2021, 2 months after the implementation of the changes and reinforcing them to the staff showed:

- A total of 231 patients were diagnosed with tuberculosis out of which
  - 97.8% (n=226) were screened for HIV
  - 98.7% (n=228) were screened for Diabetes
  - 99.1% (n=229) were screened for undernutrition

Data collected from *Nikshay* for the month of December 2021, 3 months after the implementation of the changes and reinforcing them to the staff showed:

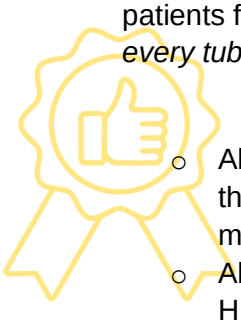
- A total of 252 patients were diagnosed with tuberculosis out of which
  - 97.6% (n=246) were screened for HIV
  - 100% (n=252) were screened for Diabetes
  - 100% (n=252) were screened for undernutrition





Conclusion

Successful implementation of the strategies like the presence of a surveillance officer, robust supply chains, prompt data entry into the digital database, and mobilizing staff effectively helped to mitigate the problem and help us achieve our aim of screening more than 99% of tuberculosis patients for comorbidities. *The implemented strategies and techniques ensured that almost every tuberculosis-diagnosed patient was screened for comorbidities.*



Lessons & Limitations

- Although the results of the QIP were promising, we did observe significant resistance by the staff members to adopt these changes, and regular briefing was initially required to mobilize them and overcome this barrier.
- Although we ensured timely order placements for the screening kits for diabetes and HIV, it was not always possible to maintain a full inventory owing to limitations in government supplies and logistics.
- More training needs to be imparted to the staff members to allow the ease of use of digital resources.

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2 https://tbcindia.gov.in/showfile.php?lid=3587