



MICHIGAN MEDICINE  
UNIVERSITY OF MICHIGAN

# Impact of a Novel Multidisciplinary Anti-Tubercular Stewardship Program in a Tertiary Care Center in India

Sanjeev Singh MD MPhil<sup>1</sup>, Vidya Menon MD<sup>1</sup>, Binny P.P. MD, Ananya Dutt BS<sup>1</sup>, Akhilesh Kumar MD<sup>1</sup>, Fabia Edathadatil MSc<sup>1</sup>, Twisha S. Patel PharmD<sup>2</sup>, Keith Kaye MD, MPH<sup>2</sup>, Payal K. Patel MD, MPH<sup>2, 3</sup>

<sup>1</sup> Amrita Institute of Medical Sciences, Kochi, India <sup>2</sup>Division of Infectious Diseases, University of Michigan Medical School, Ann Arbor, MI

<sup>3</sup>Division of Infectious Diseases, VA Ann Arbor Healthcare System, Ann Arbor, MI, <sup>4</sup>



AMRITA  
VISHWA VIDYAPEETHAM  
UNIVERSITY

## INTRODUCTION

- India has the highest tuberculosis (TB) burden in the world.
- The private sector cares for more than half of TB patients and is often rife with inappropriate TB diagnosis and treatment.
- Given the rising rates of anti-TB drug resistance, TB-directed stewardship could have a large impact in India.

## OBJECTIVE

- Characterize the appropriateness of anti-TB drug use including indication for treatment, drug selection, dose and frequency following review by a novel antimicrobial stewardship program

## METHODS

**Study population:** All inpatient admissions at Amrita Institute of Medical Sciences, a 1450 bed hospital in Kochi, Kerala, India, excluding obstetrics, psychiatry and neonatology floors

### TB-Directed Antimicrobial Stewardship Program:

- Time period: 07/01/2017-06/30/2018
- Multidisciplinary, including an administrative champion, pulmonologist, internist and clinical pharmacists.
- Met twice weekly and audited all inpatients on TB therapy
- WHO TB Treatment Guidelines were used as standard of care
- Recommendations communicated via phone/email and chart
- Patients were followed until completion of regimen

### Primary Endpoint:

- Appropriateness of TB therapy

### Statistical Approach:

- Appropriate descriptive statistics were used

## RESULTS

Figure 1: Distribution of TB Cases with ASP Review

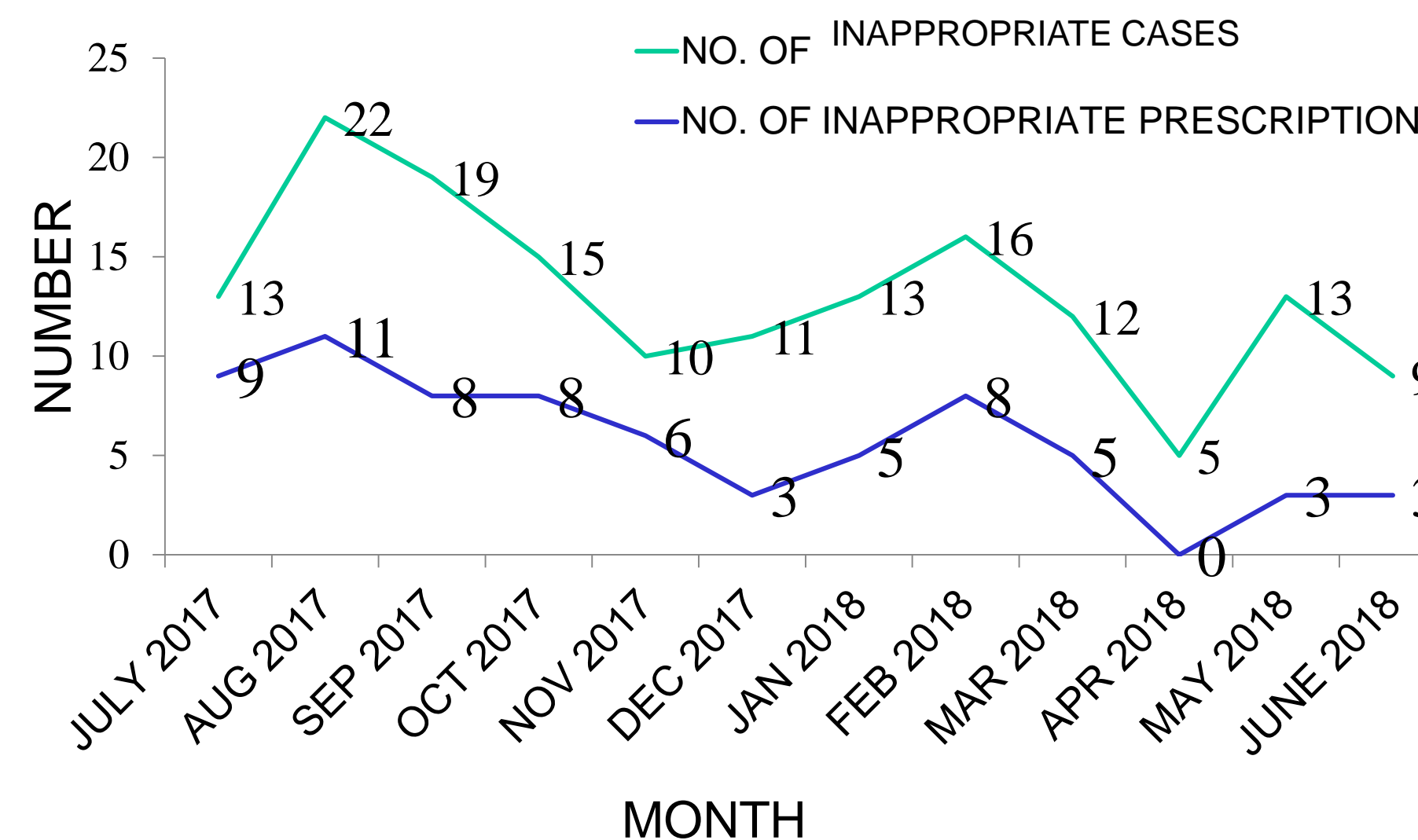
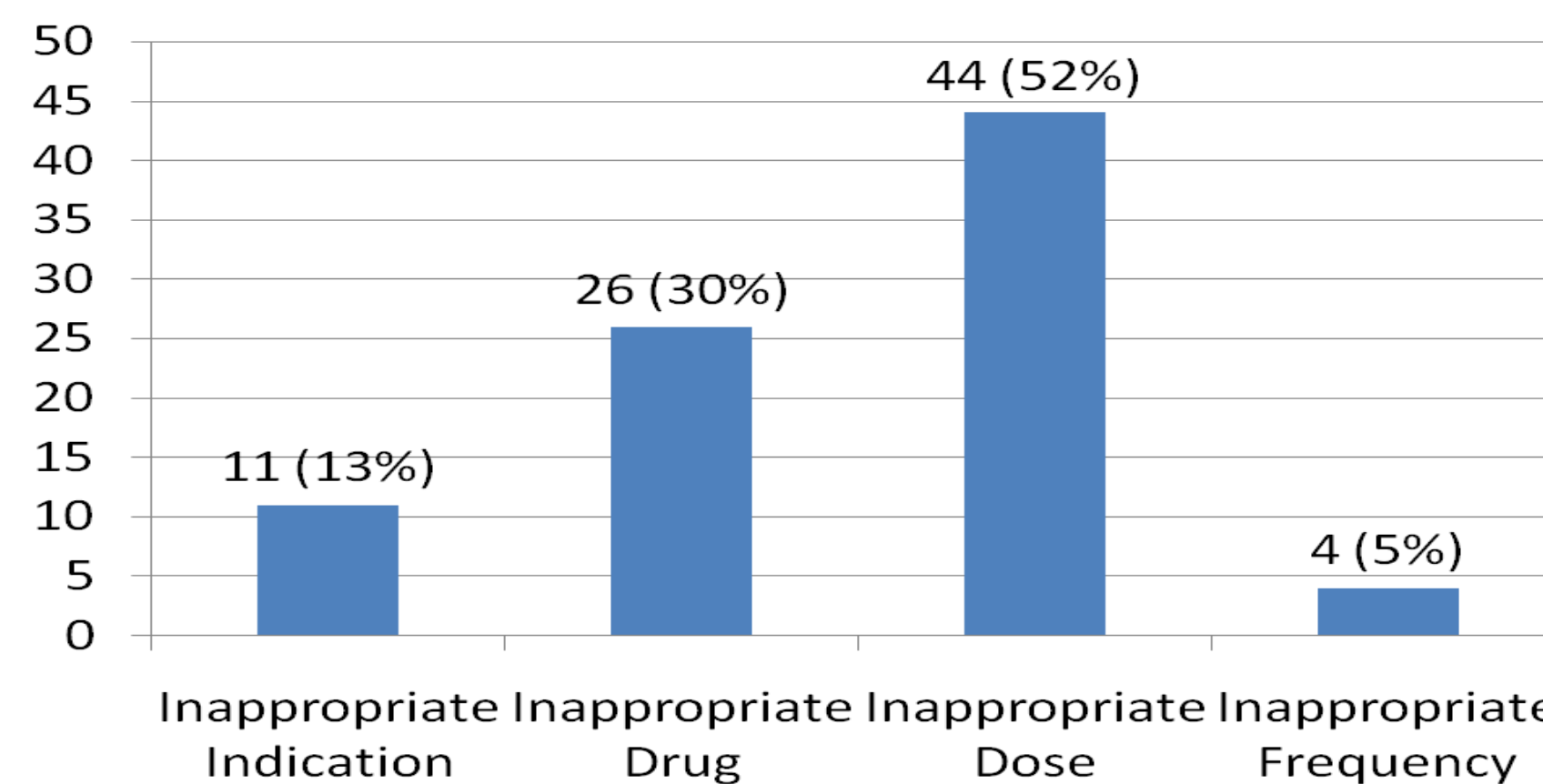


Figure 2: Reasons for Inappropriate TB Therapy



- During the 12-month study period, 158 patients received a course of antibiotics for TB treatment [Figure 1]
- Mean age was 52 years and 68% of patients included in the study were male
- Extrapulmonary TB was the most commonly suspected manifestation (83 patients, 52%) whereas pulmonary TB was suspected in 69 patients (44%)
- Disseminated TB was suspected in 6 patients (4%)
- Of the 158 patients treated with anti-TB therapy, 78 (48%) had a definitive TB diagnosis proven by microbiology (diagnosis based on Technical and Operational Guidelines for TB Control in India 2016)
- Of the 158 cases of TB reviewed by the ASP, 69 (43.7%) were inappropriate
- The most common reason for inappropriateness was incorrect dosing (52% of anti-TB regimens, n=44) [Figure 2]
- Adverse drug reactions were common and happened in 26 (16%) patients
- Elevated liver function tests were a common cause of adverse drug reactions (22 patients, 84% of total adverse drug events)

## CONCLUSIONS

- The rate of inappropriate TB therapy was high (43.7%) in this cohort of patients admitted to a hospital in South India.
- A TB-directed antimicrobial stewardship approach can improve appropriateness of TB therapy and can be easily replicated in countries with high TB prevalence
- Work in this space could lead to a decrease in multi-drug resistant TB consistent with global health priorities

Contact information: @Sanjeevsinghhjpr @drvm16 @Payal\_Patel