### NOLA TB TIMES March 2016 Volume 1, No 4

# WORLD TB DAY "The link between TB and **MARCH 24, 2016**

### **Hello from Wetmore**

As we usher in the sweet season of Spring, I would like to introduce you to the topic of two epidemics (also called Syndemic<sup>1</sup>), that is afflicting the world, i.e. Tuberculosis (TB) and Diabetes Mellitus (DM). March 24th is a special day for us as it is the World TB Day. We will review the current landscape with a special viewpoint provided by Dr. Juzar Ali, who is a medical director of Region 1 TB clinic amongst his many roles.

Please continue to spread the message of early screening, prevention, treatment, and education of TB. After reading this newsletter, you may feel more strongly about screening your diabetic patients. I welcome others to contribute their viewpoints as well, as the audience is growing.

Sincerely, Gavatri Mirani. MD Wetmore Clinic TB Fellow (2015-2016) Email: gmirani@tulane.edu Ph: 504.321.3251



diabetes [is] like a 'perfect storm.' We have a situation where in the countries where there's a large TB burden, the population is getting richer, diets are changing, and there's a rise in obesity. It's a looming co-epidemic. There's a lot of intersection between the two which is putting fuel on the fire."

- Paula Fujiwara, MD, MPH Scientific Director of International Union against Tuberculosis and Lung Disease<sup>2</sup>

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Villa Feliciana Medical Complex-State Facility for Inpatient TB treatment, Jackson, LA



Wetmore TB Clinic Staff

# Viewpoint

### **Clinical Vignette**

#### US Diabetes Statistics:

- In US, 29.1 million people are infected with DM (27.8% of people with diabetes are undiagnosed).
- 2. Diabetes was the 7th leading cause of death in US in 2010

## Research from India and China<sup>3</sup>:

Implementation program 1: Symptom based screening of DM patients for TB every time DM patient came to clinic  $\rightarrow$  positive screening referred for smear microscopy and Chest X-Ray

Result: High TB detection rate in 300-800 per 100,000 people screened per quarter in China; 600-950 per 100,000 people screened per quarter in India

Implementation program 2: Questionnaire about previous DM; if not, random blood glucose followed by fasting level for those at risk  $\rightarrow$  12%-13% TB patients screened had DM

 India has a national policy now to systematically screen all TB patients for DM

This is a 27-year-old female, previously a contact of an index case with pulmonary TB. At the time screening T-SPOT.TB® tests were negative x 2. There was no clinical follow-up in the interim. She had been diagnosed with DM, started on metformin but with no follow-up and not compliant with medications. Now, two years later, she was admitted with a diagnosis of pneumonia at an outside hospital and treated with non-TB broad spectrum antibiotics. Chest X-ray showed cavitary disease in the right lower lobe superior segment and nodular disease in the left upper lobe. T-SPOT.TB® was positive at this time, sputum smear negative, and culture grew *Mycobacterium tuberculosis*. At the TB clinic, we started her on four drugs anti-TB therapy. Random Blood Sugar (RBS) was 388 mg/dl at point of care at the clinic; patient had no primary care and it was logistically difficult to start patient on insulin. A week later, patient developed nausea, vomiting, right-sided abdominal tenderness, and liver function tests were done. Anti-TB therapy was temporarily held. Another RBS was 456 mg/dl at the time. We arranged for her to see a primary care physician, while TB treatment and follow up were maintained at the TB clinic.

#### **Global TB and DM** Statistics:

- 1. More than 9 million people with Tb disease every year
- 2. One in three people infected with latent TB
- 3. Over 1.5 million people die from TB annually
- 4. 350 million worldwide with DM
- Diabetes prevalence will 5. increase by 50% by 2030
- 6. India, China, Indonesia, Pakistan, Bangladesh, Philippines, Russia have highest numbers of diabetics, also with some of the highest numbers of TB cases
- 7. DM as an attributable risk factor for TB from 5%-30% in various populations

http://www.who.int/tb/publications/ diabetes tb.pdf

#### Care Issues in TB Patients with DM:

- TB and DM
- 2. At TB clinic, we do not check

### Table 1. TB Incidence Rates in USA, LA, and Region 1 in LA (rates are per 100,000 persons)

		LA	Region 1
Year	US Rate		
2013	3.0	3	5.6
2012	3.2	3.3	4.6
2011	3.4	3.7	6.5
2010	3.6	4.4	8.6
2009	3.8	4.3	6.4
2008	4.2	5.4	7.7
2007	4.4	5.2	9.1
2006	4.6	5.0	9.6
2005	4.8	5.7	9.4
2004	4.9	5.6	8.2
2003	5.1	5.8	9.7
2002	5.2	5.1	7.9
2001	5.6	6.6	9.2
2000	5.8	7.4	13

### Viewpoint

A multifaceted approach to control Tuberculosis across the globe historically has placed emphasis on increased implementation of the Directly Observed Treatment strategy (DOTs). This has been augmented by enhanced commitment of national TB control programs in recent years. Newer rapid diagnostic aides are in the pipeline, and where available, have further helped in early identification of active TB cases and in achieving better TB control. Awareness of multi-drug resistant TB and availability of newer drugs, albeit in limited settings, has also been pivotal in achieving this goal. In the 90's the dual threat of TB and HIV was appreciated with greater attention and guidelines to combat this threat were adopted. These successes notwithstanding, we still have a long way to go.

As we look ahead, we must expand our approach. "DOTs yes, but Connect the Dots too!"™ By and large, comprehensive patient centered health care delivery remains fragmented both in the resource rich low TB incidence countries and resource limited high incidence countries. The disconnect between public and private sector medicine, the isolation of primary care and public health in health care delivery and the discordance between individual patient care and programmatic disease and population health management can best be depicted in the co-morbidities associated with TB. Continued on page 4

American Academy of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN"

#### DOTS yes, but Connect the Dots too! \*TM



## Continued from page 3 Viewpoint

In this context, TB and Diabetes stands out as a glaring, though not an isolated unique example. If we add to this mix of a disconnect, the challenges of both documented and undocumented migrant and transient populations locally and across the globe, we have an "epidemiological onion whorl" to deal, be it in relation to contact screening, high risk foreign born and HIV and non-HIV immunocompromised patients with limited health care access. All these elements pose a significant challenge to patient care and public health control of TB at the ground level, even in clinics like the Metro Region 1 OPH Wetmore TB clinic in New Orleans as an example. We are acutely aware of these challenges and the need for programmatic approach and the need to connect the dots and establish a virtual comprehensive TB medical home. In this context, we at he Wetmore TB clinic have developed programs and processes through grants, public health student practicums and hospital system and primary care partnerships that addresses these challenges and are trying to connect the dots.

Sincerely, Juzar Ali, MD et Wetmore TB team





# World Health Organization

## TB in Diabetic Patients:

- Dysfunctional innate and adaptive immunity due to chronic hyperglycemia<sup>4</sup>
- 2. Delayed sputum clearance<sup>4</sup>
- More likely to have cavitary disease and lower lobe infiltrates
- 2-fold higher prevalence of DM in contacts with latent TB infection
- 5. Up to three times more likely to progress from latent TB infection to TB disease
- DM patients are more likely to have primary TB
- The mortality is higher (2-fold higher), which maybe associated with older age
- 8. Relapse rate is higher (up to 4-fold higher)

Editor: Jerry Wang, MPH&TM Candidate 2016, Tulane School of Public Health and Tropical Medicine







### **TB Clinic Staff**

### Potential Recommendations<sup>3, 5</sup>:

- 1. Routine TB test for all diabetic patients or symptom screening
- 2. Early screening glucose test (fasting or random blood sugar, or HbA<sub>1</sub>C) in TB patients
- 3. Repeat testing of glucose level in 4 weeks if initially high
- 4. DM education to TB patients with DM and optimize glucose control
- 5. Consider DOT for DM medications for those with poorly controlled DM while on TB DOT
- 6. Enhance TB infection control where diabetic patients are managed



From Top Left to Right: Chris Brown, Region 1 TB Program Manager; Shanika Green; Brittany Kimbrough From Bottom Left to Right: Joseph Porter; Tina Johnson Not in Pictures: Zelda Taylor, TB nurse; Lynn Riley





Number (in Millions) of Civilian, Non-institutionalized Adults with Diagnosed Diabetes, United States, 2014

### Population Based Risk Factors:

- 4.5 million in state of LA
- 887,892 in Region 1
- 27% of population live under poverty in New Orleans per 2014 census data
- High rates of homelessness and incarceration
- High rates of drug use, smoking, and alcohol dependence
- Increasing numbers of migrant workers and immigrants with improving post-Katrina economy



Clinic Stan and Doctors



### **Our TB Clinic Physicians**









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DEPARTMENT OF

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### **Our Administrators**







Louis Trachtman, MD, MPH Medical Director Charles DeGraw State TB Controller for over 35 years Michael Lacassagne State TB Controller

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### **Contact Us**

Send us your updates, TB vignettes, and thoughts. Join our listserv. Email: gmirani@tulane.edu

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