Improving TB-DM Care in the Pacific: Can we make a difference?

National TB Nurse Coalition Meeting
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R. Brostrom, MD-MSPH
Hawaii TB Control Branch Chief
Regional TB Field Medical Officer, CDC-DTBE
CDR USPHS

- Quick Update of TB-DM Link
- Epidemiology of TB-DM in US
- Pacific Standards
- Pacific Plan
- Summary - Questions

TB cases with DM

- India
- Mexico
- Pacific Islander

Global Rising Tide of Diabetes

Millions of Cases in 2000 and Projected Cases for 2030


A1c > 7

No DM

A1c < 7

DM

HIV

Foreign Born

Homeless

TB in Diabetics: Bad Outcomes?

No Diabetes

Foreign Born

Drug Resistant

HIV

Non-Compliance

Age

Homeless

Foreign Born
TB-DM Outcomes: Relapse

3.89

TB-DM Outcomes: Death during TB Tx

4.95

Improving TB-DM Care

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### TB Risk Factors in the US - 2011

- Diabetes Mellitus
- Contact of Infectious TB
- Immuno-suppression
- Incomplete LTBI Tx
- End-Stage Renal Disease
- Missed Contact
- Post-Transplant
- TNF-Alpha Antagonist Tx
- Contact of MDR TB

### DM Reported Among US Adults with TB – 2011

- NH-PI
- Hispanic
- Asian
- Al-AN
- Black/AA
- White
- United States

### Improving TB-DM Care

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- **Pacific Standards**
  - Pacific Plan
  - Summary - Questions
Screening for TB in persons with DM

Standard 2 Every person with DM should be screened for active TB disease and latent TB infection.

2.1 A test for TB infection (TST or IGRA) should be done at the time of DM diagnosis.

2.2 Screening should be repeated as often as the local TB epidemiology may warrant.

Screening for TB in persons with DM

Standard 3 Persons with DM and TB infection should be encouraged to take preventive therapy.

3.1 Persons with DM are at increased risk of peripheral neuropathy. If INH is used for prevention, give B6 to help prevent INH induced neuropathy (10 – 25 mg/day).

3.2 Monitoring for adherence and side effects of preventive treatment.*

* Targeted tuberculin testing and treatment of latent TB infection, MMWR 2000;49.

Screening for DM in persons with TB

Standard 1 Every person with tuberculosis (TB) over the age of 18 should be screened for DM.

1.1 The diagnosis of DM may be made using one of the following criteria:

- Fasting plasma glucose ≥ 126 mg/dl
- Random plasma glucose ≥ 200 mg/dl
- Hemoglobin A1c ≥ 6.5%

1.2 Abnormal glucose values should be verified in patients who have no symptoms of DM.

1.3 Rifampin can elevate blood glucose in TB patients. Glucose testing should be repeated after 3-4 weeks of TB treatment, or if symptoms of hyperglycemia develop during TB treatment.

Best Practices: Saipan Island

Best Practices: RMI Community Clinic
Treating TB in persons with DM

Standard 5
Clinicians may need to adjust TB treatment in persons with DM

5.1 Make sure that TB medications are properly dosed. Check creatinine for diabetic nephropathy, and if present, adjust the frequency of pyrazinamide (PZA) and ethambutol (EMB) according to ATS-CDC guidelines.*

5.1 Administer B6 to prevent INH-induced neuropathy (10–25 mg/day).

5.2 Observe closely for TB treatment failure in persons with DM. Be aware of poor absorption of some TB meds in DM. Manage the many interactions between TB and DM meds.

5.2 “Assure the Cure” Consider extending treatment to 9 months for persons with DM, especially those patients with cavitary disease or delayed sputum clearance.*

Patients with DM have relative immune suppression and often begin with a higher burden of TB disease. Upon completion of therapy, obtain sputum for AFB smear and culture. Evaluate patients at one year after treatment for evidence of relapse.

*Treatment of Tuberculosis, American Thoracic Society, CDC, and Infectious Diseases Society, MMWR 2003;52

Managing DM in persons with TB

Standard 6
Use TB clinic visits to help the patient manage their DM

6.1 There should be a glucometer in every TB clinic for monitoring blood glucose.

6.2 TB patients with DM should have their glucose checked at least weekly for the first 4 weeks, and less frequently thereafter if the diabetes is well controlled. Monthly glucose testing during treatment is recommended.

6.3 All clinic staff should reinforce lifestyle changes at TB clinic visits.

6.4 If available, refer persons with DM to the Diabetes Clinic for long-term diabetes care. Ensure the DM clinician is aware of TB diagnosis and TB medications.

Standard 7
Use DOT visits to help the patient manage their DM

7.1 DOT workers should encourage lifestyle changes at every patient encounter. DOT workers should use standardized diabetes educational materials.* Dietary changes and physical activity are most important.

7.2 Consider delivering DM meds with TB meds via DOT for persons with poorly-controlled DM who have suspected non-adherence to diabetic medications.


Best Practices: TB-DM Educational Tool (PITCA - Australian Respiratory Council)

- Standardized approach
- DOT-based education
- Weekly topics: TB and DM
  - Simplified and focused
  - “Brief Intervention”
  - 5 min or less
  - Repeated messages
Improving TB-DM Care

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Chi Test Probability = 0.02

Long-term Outcomes of TB and Glucose Control: 1935

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Chi Test Probability = 0.02
Best Practices: Ummm Not so Much...

TB-DM Nurses Training: Yes We Can!

- Ask about DM at monthly case conference and quarterly cohort review (Aug, 2010)
- Improve TB-DM Surveillance with A1C for every adult case on entry to TB Program (Dec, 2010)
- Expand A1C to q 3 months while tx (June, 2012)
- Initiate TBC Glucometry Training (Oct, 2012)
- Begin TBC Hemoglobin A1C Training (Feb, 2013)
- Started TBC Diabetes Education Training
  - 2 Afternoon sessions 3/13, 4/13
  - Community Clinic partnership

TB-DM Nurses Education
Hawaii TB-DM Study

- Measure A1C on all adult TB Cases
  - If DM, then measure A1C at 3 mo
- Integrate Standard 7 and Standard 8 into care
  - Glucose testing at each visit
  - A1C Testing every 3 months
  - Refer to DM Center for Care
  - TB-DM Patient Education in Clinic
  - TB-DM Patient Education during DOT

Hawaii TB-DM Study

Clinical Disease vs. Lifestyle Disease

130 encounters in 6 months
May be the patient’s best opportunity to be motivated for lifestyle changes

TB-DM: Partnerships for Progress - Summary

- Improve Patient Care During TB Tx
- Improve Life-Long Diabetes Control
- Improve TB Outcomes

Regional Partners (FJ Curry, SPC)
Local and External Diabetes Programs
Improve Life-Long Diabetes Control
National TB Controllers Association
www.tbcontrollers.org
Resources

Collaborative framework for care and control of tuberculosis and diabetes

Pacific Regional Standards for the Management of TB and DM:
http://www.currytbcenter.ucsf.edu/international/TBDM_poster_pressquality.pdf

Key Messages for TB and DM:

Acknowledgments

• US Centers for Disease Control and Prevention
• WPRO, World Health Organization
• International Union Against TB and Lung Diseases
• Curry International TB Center
• Secretariat for the Pacific Community
• Australian Respiratory Council
• CNMI Public Health Department
• Pacific Islands Health Officers Association
• Pacific Islands TB Controllers Association