

## Virginia's Populations at Risk

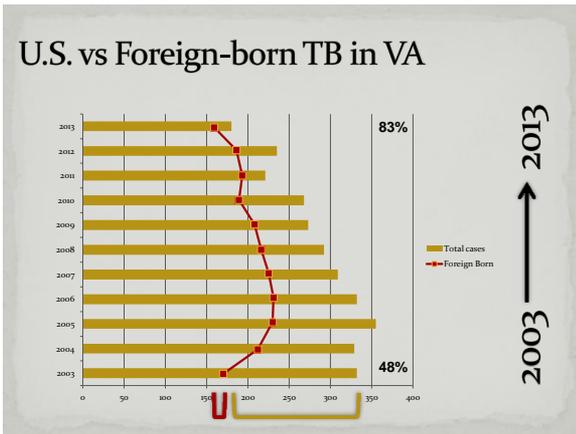
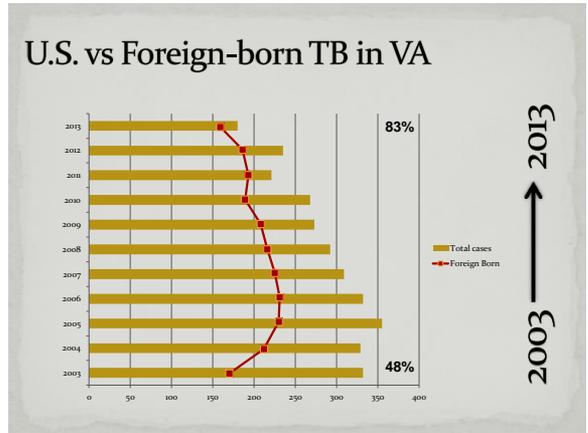
Denise Dodge, RN

## A 2013 Snapshot

**Virginia compared with the United States**

- Foreign-born: ↑
- Race/Ethnicity:
  - Asian/Pacific Islander ↑
  - Black ↓
  - Latino ↓
  - White ↓
- Medical Comorbidity:
  - HIV ↔
  - Diabetes ↔

## Country of Origin



## Foreign-born TB – The Challenge

- Shifting demographic
  - Language
    - How to appropriately use interpreter services
  - New cultural imperatives
    - How is trust built?

Ethiopia

India

Vietnam

Philippines

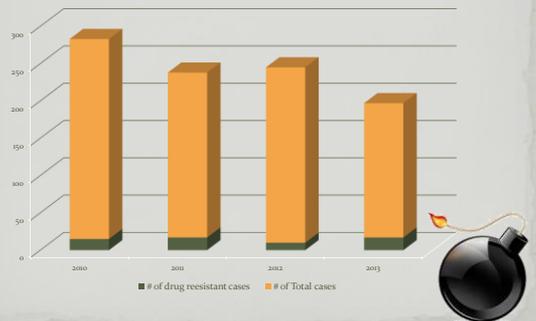
El Salvador

## Using the Interpreter Service

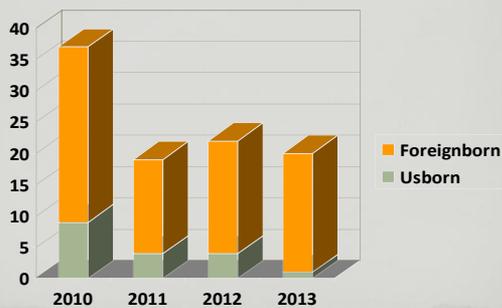
- We are responsible for interpretation, not the client
- Introduce yourself
  - Do not provide the clients name
- Look at the client when you speak
- Speak in short sentences and pause often
- Avoid using technical terms while not over simplifying
- Watch body language
- When to stop and check!
  - Translation is much longer than your comment
  - Conversation between the client and the interpreter only

**DANGER! DANGER!**

## Drug Resistance TB in VA



## Drug Resistance in Virginia: US-born compared to Foreign-born



## U.S. born TB in VA

- For those <50 years old
  - Likely more 'recent' transmission
  - Improve the collection site information
- Enhance epi interview
  - Consider the big picture
  - Finding connections
  - Identify locations
  - Repeat, repeat, repeat
  - Revisit the inquiry
  - Seek training



## Medical Co-morbidities

## Impact of Diabetes in Virginia

Table 5. Tuberculosis Cases by Selected Risk Factors: Virginia, 2009-2013

Total Cases	2009		2010		2011		2012		2013	
	No.	%								
Occupation										
Health Care	11	4.0	12	4.5	7	3.2	8	3.4	5	2.8
Migrant	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	3	1.1	5	3.0	5	2.3	2	0.9	4	2.2
Prison/Jail	4	1.5	8	3.0	8	3.6	6	2.6	0	0.0
Homeless	9	3.3	12	4.5	1	0.5	10	4.3	8	4.4
Co-Morbidity										
Diabetes	37	13.6	37	13.8	31	14.0	27	11.5	26	14.4
IDU	19	6.6	8	3.0	9	4.1	12	5.1	10	5.6
Substance Use										
Alcohol	21	7.7	23	8.6	17	7.7	21	8.9	13	7.2
IDU	6	2.2	1	0.4	0	0.0	2	0.9	2	1.1
Non-IDU	6	2.2	4	1.5	13	5.9	15	6.4	7	3.9

11-14.4%

[http://www.vdh.state.va.us/epidemiology/diseaseprevention/programs/tuberculosis/documents/annual\\_final\\_8\\_16\\_2013\\_revised.pdf](http://www.vdh.state.va.us/epidemiology/diseaseprevention/programs/tuberculosis/documents/annual_final_8_16_2013_revised.pdf)

## Special care for diabetics

- Serum Drug Levels (Therapeutic Drug Monitoring) at 2 - 4 weeks of treatment done automatically for **known** diabetics
  - Rifampin and Isoniazid only
- **HbA1c** for all new TB cases/suspects to detect undiagnosed diabetes
  - If HbA1c  $\geq 6.5$  SDL are done 2 - 4 wks after treatment begins
- **TB & Diabetes Education**
  - More info to come



## NCM clinical Pathway

Week	Details
Week 2	Continue DOT Discuss option to change to intermittent regimen with treating clinician <b>Diabetic clients only: perform serum drug level testing per VDH protocol</b>
Week 3	Continue to collect three sputum at 7 - 10 day intervals per month for AFB smear and culture until culture conversion, induce as needed. You will continue until there are <b>two consecutive negative cultures</b> followed by no positive cultures Assure you have smear results for all bacteriology specimens collected to date Discuss option for change to intermittent therapy with treating clinician Continue DOT
Week 4	Monthly clinical assessment - <a href="#">BI</a> or <a href="#">clinical</a> Weight, visual acuity, if labs needed Labcorp panels #332158 or #347692 (with glucose) Contact lab for most up to date results on AFB specimens (May take 8 weeks for culture results to be final) Collect sputum for AFB smear and culture. If smears have converted to negative plan to release the client from isolation. Must have 3 negative smears to return to congregate setting If client is slow to respond to treatment (smears not improving, no clinical improvement) re-evaluate adherence, consider <a href="#">serum drug level testing</a> . Ensure <b>Priority contacts</b> have begun window period treatment, if prescribed. MMWR Guidelines for the investigation of contacts of persons with infectious TB (2005) beginning on Pg17 Assign GRW to locate newly identified contacts.



## Take home Pearls



## TB and HIV

- Strongest risk factor for progression from LTBI to active TB disease
  - Estimated risk is 30 to 50 times greater
  - CD4 count + viral load
- Difficult to diagnose and treat
  - CXR
  - Testing for infection
  - Sputum
  - Drug/drug interactions
- All HIV patients should be screened for TB annually
- All TB patients should be tested for HIV



## HIV and TB Treatment

- Antiretrovirals and Rifamycins
- Initiating HAART and TB treatment
  - Begin TB treatment first
- Immune Reconstitution Disease (IRD), Immune Reconstitution Inflammatory Syndrome (IRIS), Paradoxical Reaction
  - Initial symptoms worsen
  - ~ 3 months
- Treatment recommendations
  - Only daily or thrice weekly for continuation phase
  - 6 months or 9 months

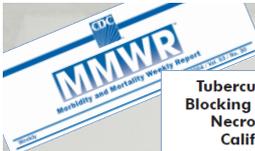


## TNF $\alpha$ blockers

- Risk of progression
- Biologics: TNF $\alpha$ -blockers
  - Remicad
  - Enbrel
  - Humira
  - Cimzia
  - Orencia
  - Simponi
- TB infection
  - Treatment before biologics started - 3, 6, 9 months?



Psoriasis, Chron's disease, Ankylosing spondylitis, Psoriatic arthritis, Rheumatoid Arthritis



### Tuberculosis Associated with Blocking Agents Against Tumor Necrosis Factor-Alpha — California, 2002–2003

- Risk screening before TNF- $\alpha$  treatment begins
- Interpret > 5mm as pos
- Interpret < 5mm as neg BUT not an exclusion of infection
- Start TBI treatment before commencing TNF- $\alpha$  blockers
- Consider treatment even for negative TST if epi info supports likely TBI
- Pursue TB disease in all patients if febrile or respiratory illness

Screen patients for risk factors for Mycobacterium tuberculosis and test them for infection before initiating immunosuppressive therapies, including TNF- $\alpha$  antagonists. Risk factors include birth in a country where TB is prevalent or history of any of the following: (1) immigration to the United States, (2) foreign travel, (3) contact with a TB case, (4) contact with a TB case in a high-risk setting (e.g., jail or prison), (5) close contact with a TB case, (6) a positive TST (TST) result, substance abuse (e.g., injection), health-care employment in patients, and close contact with a TB case. Patients with a positive TST result should be treated with TB disease. Patients with a negative TST result should be treated with TB disease if they have clinical signs and symptoms of TB disease. Patients with a positive TST result should be treated with TB disease if they have clinical signs and symptoms of TB disease. Patients with a positive TST result should be treated with TB disease if they have clinical signs and symptoms of TB disease.

## TB and Renal disease



- Blood Creatinine
  - Directly proportional to renal function
  - Creatinine levels remain relatively constant
  - >4 indicates serious impairment in renal function, likely chronic
- Creatinine clearance (24 hr urine and blood draw)
  - Measure the amount of blood the kidney can make 'creatinine free' per minute, 125 ml/min
  - Varies by age, sex and size
  - <60 ml/min usually indicates chronic renal disease (53)

### TB dosing for adult patients with reduced renal function & those receiving hemodialysis

Drug	Frequency change?	Recommended dose and frequency
Isoniazid	No change	300mg daily or 900 3X week
Rifampin	No change	600mg daily or 600 3X week
Pyrazinamide	Yes	<b>NOT DAILY</b> , 25-35mg/kg 3X week
Ethambutol	Yes	<b>NOT DAILY</b> , 15-25mg/kg 3X week
Levofloxacin (fluoroquinolone)	Yes	<b>NOT DAILY</b> , 750-1000mg 3X week
Streptomycin (aminoglycoside)	Yes	<b>NOT DAILY</b> , 12-15mg/kg 2-3X week

Medications should be given after dialysis on the day of dialysis

Treatment Guidelines: Page 64, Table 13

### Local resources

GUIDEBOOK FOR THE HOMELESS INCENTIVE AND PREVENTION (HIP) PROGRAM

Virginia Department of Health (VDH) Division of Disease Prevention (DDP) TB Drug Assistance Program

TB Nurse Case Management Clinical Pathway

Virginia Department of Health - TB Control and Prevention Program  
**Recommended Sample Collection Schedule for Monitoring Smear and Culture Conversion in Pulmonary TB Cases**

Monitoring	Frequency	Number of specimens	Comments
Initial contact with client	Collect 3 consecutive specimens	Minimum of 3 samples, with one collected in the early morning	At least one specimen collector should be reached by 9:00 a.m.

Recommendations and procedures for the use of therapeutic drug monitoring in clients with drug-susceptible tuberculosis receiving directly-observed therapy



### Centers for Disease Control and Prevention

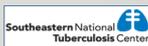
CDC 24/7. Saving Lives. Protecting People.™  
<http://www.cdc.gov/tb>

- Links to major guidelines
  - Treatment of TB
  - TB Testing and Treatment for Latent Infection
  - Infection Control in Facilities
  - Others
- The "Standards For Care"
  - <http://www.cdc.gov/tb/publications/guidelines/default.htm>

## RTMCC's



Center for Tuberculosis



- Regional Training and Medical Consultation Centers
  - Phone consultation for difficult to manage patients
  - <http://www.cdc.gov/tb/education/rtmc/default.htm>
- Online Continuing Education Opportunities
  - <http://www.cdc.gov/tb/education/CE/default.htm>

“Anyone who has never made a mistake has never tried anything new.” – Albert Einstein

감사합니다 Natick  
Danke Ευχαριστίες Dalu  
Thank You Köszönöm  
Grazie Спасибо Dank Gracías  
Tack Obrigado  
Merci Seé  
ありがとう