Virginia’s Populations at Risk

Denise Dodge, RN

A 2013 Snapshot

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

Virginia compared with the United States

Country of Origin

U.S. vs Foreign-born TB in VA

Foreign-born TB – The Challenge

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

U.S. vs Foreign-born TB in VA

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 in Virginia: US-born compared to Foreign-born

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

Impact of Diabetes in Virginia

Table 5. Tuberculosis Cases by Selected Risk Factors, Virginia, 2006-2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Cases</th>
<th>Diabetes</th>
<th>HIV</th>
<th>COPD</th>
<th>Hx I.D.</th>
<th>Alcohol</th>
<th>Age</th>
<th>Male/Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>11.1%</td>
<td>10.6%</td>
<td>0.5%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>11</td>
<td>61.4%</td>
</tr>
<tr>
<td>2007</td>
<td>10.9%</td>
<td>10.5%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>10</td>
<td>61.2%</td>
</tr>
<tr>
<td>2008</td>
<td>10.7%</td>
<td>10.4%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>9</td>
<td>61.1%</td>
</tr>
<tr>
<td>2009</td>
<td>10.6%</td>
<td>10.3%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>9</td>
<td>61.0%</td>
</tr>
<tr>
<td>2010</td>
<td>10.5%</td>
<td>10.2%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>9</td>
<td>60.9%</td>
</tr>
<tr>
<td>2011</td>
<td>10.4%</td>
<td>10.1%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>9</td>
<td>60.8%</td>
</tr>
<tr>
<td>2012</td>
<td>10.3%</td>
<td>10.0%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>9</td>
<td>60.7%</td>
</tr>
<tr>
<td>2013</td>
<td>10.2%</td>
<td>9.9%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>9</td>
<td>60.6%</td>
</tr>
</tbody>
</table>

**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 > 6.5 SDL are done 2 - 4 wks after treatment begins
  - TB & Diabetes Education
  - More info to come

**NCM clinical Pathway**

**Week 2**
- Continue CBID
- Discuss option to change to intermediate regimen with treating clinician

**Week 3**
- Continue to collect three sputum at 7 - 10 day intervals per month for AFB smear and culture until culture conversion, culture is needed. You will continue until three consecutive negative cultures followed by no cough cultures
- Review plan for changes in treatment regimen
- Stop treatment

**Week 4**
- Monthly clinical assessment - TB & diabetes
- Smaller clinical audits if HbA1C is abnormal per TB and diabetes protocol with glucose
- Collect sputum for AFB smear and culture. If smear becomes consecutive negative plan to release the client from isolation.
- Must have 2 negative smears or return to appropriate setting
- continued care in required to treatment (preventing and improving, no clinical improvement)

**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 α blockers**
- Risk of progression
- Biologics: TNFα-blockers
  - Remicade
  - Enbrel
  - Humira
  - Cimzia
  - Orencia
  - Simponi
- TB infection
  - Treatment before biologics started = 3, 6, 9 months?
Risk screening before TNF-α treatment begins
- Interpret > 5mm as pos
- Interpret < 5mm as neg BUT not an exclusion of infection
- Start TBI treatment before commencing TNF-α blockers
- Consider treatment even for negative TST if epi info supports likely TBI
- Pursue TB disease in all patients if febrile or respiratory illness

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)

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

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

Medications should be given after dialysis on the day of dialysis

Local resources

- Treatment Guidelines: Page 64, Table 13
- TB and Renal disease
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Drug Frequency change? Recommended dose and frequency

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- Rifampin No change 600mg daily or 600 3X week
- Pyrazinamide Yes NOT DAILY, 25-35mg/kg 3X week
- Ethambutel Yes NOT DAILY, 15-25mg/kg 3X week
- Levofloxacin (fluoroquinolone) Yes NOT DAILY, 750-1000mg 3X week
- Streptomycin (aminoglycoside) Yes NOT DAILY, 12-15mg/kg 2-3X week

Medications should be given after dialysis on the day of dialysis

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
Regional Training and Medical Consultation Centers
- Phone consultation for difficult to manage patients
- Online Continuing Education Opportunities

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

감사합니다
Danke Ευχαριστίες Köszönöm
Thank You Dalu Gracias
Спасибо Tack
Dank Seé
Merci