The Intersection of Primary Care and Migration Health

Session 3: Orientation to Migration Health

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Medical Director

Enrolled in Health Network 8/02
“Fernando” is a 56 year old migrant farmworker diagnosed with diabetes at age 49. He traveled each year from South Texas to Minnesota or “wherever I can find work.”

Over the ten years Fernando was closed out of Health Network, 46 clinic contacts were transferred. He said that he was no longer migrating different clinics.
Fernando’s HBA1c While Enrolled in Health Network

Migrant Health

Underserved population whose health is challenged by...

- Migratory lifestyle
- Cultural and language barriers
- Immigration status
- Inherent dangers and health risks of occupation
- Lack of access to insurance or financial resources
- Lack of regulatory protection

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Our Work in Migration Health...

Vulnerabilities

Opportunities

Primary Care as a Gateway
How do you manage chronic illness with a patient who is on the move?

Questions that lead to solutions.....
How long do you think you are going to be in the area?

Is there any reason you would leave this area?

• Prioritize preventive/chronic care interventions
• Culturally competent evaluation
• Team approach
Identify possible barriers (today and tomorrow) to achieving the patient’s goals.

- Education! Education! Education!
- Self management! Self management!
- Continuity of Care

A lot in a short period of time
The patient in my office today was living in Central America last month. What do I need to know about infectious diseases?

Unusual Diagnoses
- Chagas
- Dengue Fever
- Other Tropical Disease

Management Challenges
- Hepatitis
- TB
- HIV/AIDS
Chagas’ Disease (American Trypanosomiasis)

Estimated global population infected by *Trypanosoma cruzi*, 2009

- 8-11 million people infected
- ~50,000 deaths per year
- In 2011 >300,000 people in the US are infected
- ~100,000 will progress to chronic disease*

*Nature 465,56-57(24 June 2010)
Reduviid Bug

Trypanosoma Cruzi,

- Reduviids found from southern USA to Argentina, but distribution is erratic
- Humans are not necessary to life cycle
- 150 species of mammals are infected
- Transmission around tree trunks, hollow trees and burrows to non-human mammals
- Disease in humans limited to areas where reduviid can adapt to primitive human dwelling
Case Report
Virginia 2012

- Bolivan mother, + Chagas
- Infant by C-sec; 29 wks; fetal Hydrops; ascites, pleural effusion and pericardial effusion
- Peripheral blood pos. *T. cruzi*
- 1st Documented case of Congenital Chagas in US!!!
- Estimated annually 65-315
- 1-10% of children born to infected mothers
- Rx: Infected newborns often asymptomatic (60-90%)
- 60 days benznidazol
- Age 10 months test of cure

(MMWR/Vol.61/No.26 July 6, 2012)
Chagas’ Disease
Acute Phase

• 2 successive phases, acute and chronic.
• Acute phase = 6-8 weeks.
• Acute phase often in childhood, 10-20% mild febrile syndrome (mean age—4; 85% by age 10)
• Chagoma—seen in 50% during acute phase

Chagas’ Disease
Acute Phase

• Other Symptoms—fever, tachycardia, fatigue, anemia, weakness, hepatosplenomegaly, and lymphadenopathy—myocarditis and meningoencephalitis are rare and have very poor outcomes.
• Most pts. experience spontaneous remission of symptoms, followed by lifelong low-grade parasitemia.

© WHO
Chagas’ Disease Chronic Phase

• 20% to 35% of the infected individuals will develop irreversible lesions of the autonomic nervous system in the heart, esophagus, colon and the peripheral nervous system (~100,000 in the US)

• Mean age of onset of chronic disease is 35-45 years old

Chagas’ Disease Chronic Phase

• Visceromegaly - the heart most often infected—CHF (often R-sided), dysrhythmias, emboli and cardiomyopathy

• #1 cause of cardiac lesions in young, productive adults in endemic regions in Latin America.

Think Chagas in Young Migrants with CHF
Chagas’ Disease
Chronic Phase

- Megaesophagus, like achalasia, regurg, dysphagia, chronic cough, recurrent aspiration, wt. loss, and increased esophageal cancer
- Megacolon leads to chronic constipation, abd. Pain (obstruction, perforation, sepsis, death)

Think Chagas in Migrants with GI Mega-GI

Chagas Treatment

 Unsatisfactory

- Nifurtimox and Benznidazole
- Nifurtimox only available in USA through CDC, not FDA approved
- Severe side effects-GI (nausea/vomiting, anorexia, abd. Pain, wt. loss); Neurologic (disorientation, insomnia, paresthesias, seizures and polyneuritis)
- Reduces the severity and duration of illness and decreases mortality (if patients complete a 60 day course at correct dose up to 80% cure*)

Chagas’ Disease Treatment

- Benznidazole—efficacy similar to Nifurtimox
- Only available in USA through CDC
- Side effects: granulocytopenia, peripheral neuropathy, rash
- Recommended duration—60 days
- BENznidazole Evaluation For Interrupting Trypanosomaiasis (BENEFIT) trial. Started 2004 in Argentina, Brazil and Columbia—3,000 patients. Results reported late 2010 or early 2011*

*Nature 465,S4-S5(24 June 2010)

Chagas Treatment

- Supportive Rx for myocarditis, meningoencephalitis, CHF, dysrhythmias; pacemaker may be helpful in bradyarrhythmias
- Rx megaesophagus-dietary changes, dilation of esophagogastric junction
- Megacolon-high fiber diet, laxatives, enemas, later partial resection
Prevention is most important method of treatment

• Identify endemic areas and institute insect eradication program
• Improve housing by eliminating “thatched roofs/stick walls” housing
• Pyrethroid-impregnated bednets
Most widespread arboviral illness worldwide (50 million cases) and 25,000 Deaths/year

Dengue Fever

• Transmitted by mosquitoes (Aedes aegypti)
• Most patients—mild dis. Flu-like symptoms; severe HA; aching joints/muscles “bone-break” dis;
• 500,000/yr dengue hemorrhagic fever (capillary leak syndrome—thrombocytopenia; abnormalities in coagulation/LFTs/potentially resulting in shock, bleeding, and organ failure). Almost exclusively in previously infected patients because of “antibody-dependent enhancement”.

Dengue, countries or areas at risk, 2011

[Map showing countries at risk for dengue fever]
Dengue

• Since 1980 a few locally acquired U.S. cases Texas/Mexico border

• September 2009 first case of dengue Key West, Florida, by April 2010, 28 total cases*

• Key West serosurvey revealed 5.4% residents with recent infection*

• Treatment; symptomatic and supportive only

*MMWR; Vol. 59/No. 19; May 21, 2010

Dengue

• Prevention is still best “treatment”
  – Eliminate mosquito breeding sites
  – Pyrethroid-impregnated Bed nets
  – Personal mosquito repellants
Dengue

• New Modalities to Cut Dengue risk!!
  – Adaption of *Wolbachia*, a bacterial parasite, mosquito life span reduced to 21 days
  – 2 weeks for mosquitoes newly infected by dengue virus to be able to transmit the infection
  – When *Wolbachia* transmitted to offspring they fail to reproduce offspring*

  *JAMA, Feb. 18, 2009—Vol. 301 No. 7

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HIV/AIDS
Important Issues Regarding HIV/AIDS in a Migrant Population

- **Continuity of Care!**

- Migrants coming from regions with different sexual mores - able to engage in new behaviors with fewer restrictions but they can be naive and open to risk. or they may have to engage in survival sex which also has tremendous risk

Hepatitis
Hepatitis

- Hep B - sexually transmitted disease same risks as HIV
- Hep C - this is actually the most common infectious disease - more so than HIV. While sexual contact is a risk factor the greater risk is blood exchange through needle sharing. Rudimentary tattooing in friend groups or social networks is a frequent activity and a concern.

“Tuberculosis is a social problem with a medical aspect”

Sir William Osler, 1904
• Spread when someone who is sick with TB disease of the lungs coughs or sneezes, releasing bacteria – and a person nearby breathes in these infected droplets.

• Untreated, a person with active TB can infect 10 to 15 people a year on average.

What is the probability that TB will be transmitted?

• Infectiousness of person
• Environment of exposure
• Duration of exposure
• Virulence of organism
Conditions that increase the risk of progression to TB disease

- HIV Infection
- Recent infection
- Chest x-ray findings suggestive of previous TB
- Diabetes mellitus
- Prolonged corticosteroid therapy
- Other immunosuppressive therapy
- History of inadequately treated TB

Disease affects:
- Lungs
- Pleura
- Lymphatic System
- Genitourinary System
- Bones and Joints
- Disseminated (miliary TB)
Global Burden of TB, 2010
WHO Global TB Report, 2011

<table>
<thead>
<tr>
<th></th>
<th>Estimated Number of Cases</th>
<th>Estimated Number of Deaths</th>
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<tbody>
<tr>
<td>All forms of TB</td>
<td>9.4 million</td>
<td>1.7 million*</td>
</tr>
<tr>
<td>HIV-Associated TB</td>
<td>1.1 million (12%)</td>
<td>380,000</td>
</tr>
<tr>
<td>Multidrug-resistant TB (MDR-TB)</td>
<td>440,000</td>
<td>~150,000</td>
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Approx. 1/3 of the world (2 billion people) is infected with *M.tb*

*including deaths among PLHIV*
Who carries the burden of Tuberculosis?
Largely, the most vulnerable

TB spreads in poor, crowded & poorly ventilated settings

700,000/yr women die of TB-- more suffer due to illness, stigma, infertility
TB-orphans are also a consequence

Over 25% of TB disease may be attributable to poor nutrition; 25% to HIV infection; TB rates are linked to tobacco & alcohol use as well as diabetes

Migrant workers, prisoners, minorities, refugees suffer from barriers to care

HIV-TB

• 1/3 of 33 million people living with HIV/AIDS co-infected with TB >10 million people
• Without treatment 90% will die within months
• TB is the leading cause of death among HIV positive people (up to 50% of all patients worldwide)
Emergence of “Worst-Case” TB Scenarios

Drug-Resistant TB

- Drug-resistant TB transmitted the same way as drug-susceptible TB
- Drug resistance is divided into two types:
  - Primary resistance develops in persons initially infected with resistant organisms
  - Secondary resistance (acquired resistance) develops during TB therapy
“Worst-Case“ TB Scenarios

Co-infection between TB and HIV

- Multidrug-resistant TB
- Extensively-drug resistant TB
- Totally drug resistant TB?

Why does TB infect one-third of the world’s population and still remain a global health threat despite the fact that highly cost-effective drugs are available to eradicate it?
United States, 1993-2011*

*Updated March 2012 with provisional 2011 data

Globalization of Economy = Globalization of Health Risks
Addressing the increasing difference between TB rates in foreign-born and US-born persons is critical for TB elimination,” CDC said. At the current rate, it would take until 2100 for the United States to eliminate TB, which is defined as less than one case per 1 million people, CDC noted.

**Diagnosis of TB**
Evaluation for TB

• Medical history
• Physical examination
• Mantoux tuberculin skin test/IGRA
• Chest radiograph
• Bacteriologic or histologic exam

History and Physical Exam
Medical History

- Symptoms of disease
- History of TB exposure, infection or disease
- Past TB treatment
- Demographic risk factors for TB
- Medical conditions that increase risk for TB disease
Abnormalities often seen in apical or posterior segments of upper lobe or superior segments of lower lobe
• May have unusual appearance in HIV-positive persons
• Cannot confirm diagnosis of TB

• Obtain 3 sputum specimens for smear examination and culture
• Persons unable to cough up sputum, induce sputum, bronchoscopy or gastric aspiration
• Follow infection control precautions during specimen collection
AFB smear

AFB (shown in red) are tubercle bacilli

Cultures

- Used to confirm diagnosis of TB
- Culture all specimens, even if smear negative
- Results in 4-14 days when liquid medium used

Colonies of *M. tuberculosis* growing on media
# Treatment of Latent TB Infection

## Drug Regimen for Treatment of LTBI

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Duration (months)</th>
<th>Interval</th>
<th>Minimum doses</th>
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<tbody>
<tr>
<td>Isoniazid</td>
<td>9</td>
<td>Daily</td>
<td>270</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Twice weekly</td>
<td>76</td>
</tr>
<tr>
<td>Isoniazid</td>
<td>6</td>
<td>Daily</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Twice weekly</td>
<td>52</td>
</tr>
<tr>
<td>Rifampin</td>
<td>4</td>
<td>Daily</td>
<td>120</td>
</tr>
<tr>
<td>INH/Rifapentine</td>
<td>3</td>
<td>Once a week</td>
<td>12</td>
</tr>
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INH Hepatotoxicity

<table>
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<tr>
<th>Percentage</th>
<th>Description</th>
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<tbody>
<tr>
<td>10-20%</td>
<td>Elevations of AST up to 5X normal</td>
</tr>
<tr>
<td>0.6%</td>
<td>Clinical Hepatitis (maybe less-in one study it was only 0.1%)</td>
</tr>
<tr>
<td>2.7%</td>
<td>INH plus RIF</td>
</tr>
<tr>
<td>2%</td>
<td>Persons 50-64 years of age</td>
</tr>
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INH hepatotoxicity is increased with liver disease/alcoholism/postpartum-especially Hispanic women

Treatment of TB Disease
Non-adherence is a major problem. Use case management and Directly Observed Therapy (DOT) to ensure patients complete treatment.

Treat of TB for HIV-Negative Persons

4 drugs in initial 8 week regimen

- Isoniazid (INH)
- Rifampin (RIF)
- Pyrazinamide (PZA)
- Ethambutol or Streptomycin (EM or SM)

- Adjust regimen when drug susceptibility results are known
- Usually INH-RIF in continuation phase (18 weeks)
- Total treatment = 26 weeks
• Management of HIV-related TB is complex
• Care for HIV-related TB should be provided by or in consultation with experts in management of both HIV and TB

BCG Vaccination
Recommendations for BCG Vaccination

- Not recommended in immunization programs or TB control programs in the U.S.
- BCG utilized extensively in most developing countries including Honduras
- **BCG only prevents TB Meningitis in infants**
- History of BCG immunization is **not a contraindication** for PPD skin testing—test is to be read the same

We have a big problem!
And if nothing is done?

We could just wait for this little guy, or....
New Diagnostic Test for TB

• **Xpert MTB/RIF** — New diagnostic test for TB
  – Automated Rapid Molecular Detection of TB and Rifampin resistance
  – From fresh sputum specimen—> diagnosing TB and detecting resistance to rifampin in less than 2 HOURS!!
  – “Could revolutionize TB care” Mario Raviglione WHO STOP TB Director
**Class 3 Active TB: TBNet Treatment Success (2005-2011)**

- 1,145 Class 3 Active TB Cases Referred
  - 34 treatment not recommended by destination country
- 1,111 Treatment Recommended
  - 13 deceased
- 1,098 Followed by TBNet for Active TB
  - 112 lost to follow up
  - 64 refused treatment

922 Complete Treatment = **84.0%**
Health Network’s International Reach

Health Network

• Continuity of care
• Decrease in lost to follow-up
• Completion reports
• Central hub for patient medical records
• Cultural competent team
• Patient advocacy
• Better communication among clinics (and patients as well)
• Better knowledge of health conditions and treatment options
February, 2010
• Screened in an ICE facility
• Negative smear
• RUL consolidation
• TST 20 mm
• Asymptomatic
• Medication was not started

Enrolled in TBNet prior to being deported to Central America

March, 2010
TBNet notified of positive culture results

Medical records sent to clinic by TBNet and patient started on 4 drug regimen using DOT

May 2010, wife calls TBNet to say that her husband is being held by "coyotes" on the west coast of the United States

May 2010, wife calls TBNet to say that her husband is being held by "coyotes" on the west coast of the United States

June 2010
Patient contacts TBNet from the east coast having been released by "coyotes" Medical records sent to clinic by TBNet and patient started on 4 drug regimen using DOT

September 2010
Patient calls TBNet to say he had moved to another east coast state Clinic found Appointment made Medical records transferred from both previous clinics Patient resumed DOT Wife in Central America updated on his progress

Contact

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