TUBERCULOSIS

Presented By:
Public Health Madison &
Dane County
What is Tuberculosis?

Tuberculosis, or TB, is a disease caused by a bacteria called *Mycobacterium tuberculosis*.

The bacteria can attack any part of the body, but they usually attack the lungs.

Taken from Wisconsin Tuberculosis Program Website
http://www.dhs.wisconsin.gov/tb
### Active TB
- Usually has a skin test or blood test result indicating TB infection
- May have an abnormal chest x-ray, or positive sputum smear or culture
- Has active TB bacteria in his/her body
- Usually feels sick and may have symptoms such as coughing, fever, and weight loss
- May spread TB bacteria to others
- Needs treatment to treat active TB disease

### Latent TB Infection
- Usually has a skin test or blood test result indicating TB infection
- Has a normal chest x-ray and a negative sputum test
- Has TB bacteria in his/her body that are alive, but inactive
- Does not feel sick
- Cannot spread TB bacteria to others
- Needs treatment for latent TB infection to prevent TB disease; however, if exposed and infected by a person with multidrug-resistant TB (MDR TB) or extensively drug-resistant TB (XDR TB), preventive treatment may not be an option

Obtained from CDC website
http://www.cdc.gov/tb/pubs/tbfactsheets/LTBIandActiveTB.htm
How is Active TB Spread?

Pulmonary Tuberculosis is spread from person to person through the air.

When people who have TB in their lungs or throat cough, laugh, sneeze, sing, or even talk, the germs that cause TB may spread throughout the air. If another person breathes in these germs there is a chance that they will become infected with tuberculosis.

Repeated contact is usually required for infection.
Active TB Disease Incidence in Wisconsin

- Wisconsin considered a “low incidence” state

- In 2013, Wisconsin had 50 active disease cases
  - 37 (74%) were Pulmonary TB Cases
  - 11 (22%) were Extra Pulmonary TB Cases
  - 2 (4%) were both Pulmonary & Extra Pulmonary
  - 29 (58%) were Foreign Born
  - 6 (12%) were children
  - 3 (6%) were Multi Drug Resistant TB Cases

Info Obtained from Wisconsin TB Program
Signs and Symptoms of Active TB

- Unexplained weight loss
- Loss of Appetite
- Night Sweats
- Fever
- Chills
- Fatigue
- Hemoptysis (if TB is in the lungs)
- Cough for 3 weeks or longer (if TB is in the lungs)

Obtained from CDC Website
http://www.cdc.gov/tb/pubs/tbfactsheets/LTB1andActiveTB.htm
Who is at risk for Active TB?

- Born in country with high TB burden
  - SE Asia, former USSR, some of Latin America
- Child of parents born in a country with endemic TB or lived with those born in country with endemic TB
- Lived when TB was common and untreated
- HIV+, immunosuppressive treatments/conditions such as diabetes, Crohn’s Disease and arthritis
- Close contact to a person with active TB
- Living or working in congregate settings
  - Corrections, long term care, homeless shelter
- Medically underserved
  - Low income, uninsured, homeless, drug or alcohol abuse, etc

Info Obtained from Wisconsin TB Program
Diagnosis of Active TB

- **Medical History**
  - Ask about TB exposure, TB history, contact to TB Disease, Consider Country of Origin, HIV status

- **Physical Exam**

- **Test for TB Infection**
  - TB Skin Test, Tspot, Quantiferon Gold

- **Chest X-ray**
  - To assess for lesions or cavitation

- **Sputum Smear**
  - Mycobacterium may be AFB (+)
  - All sputum's should be cultured, regardless of AFB status

Obtained from CDC Website
HIV & TB

- HIV testing is recommended for all TB suspects or confirmed cases (MMWR on HIV 12/17/2004)

- HIV + persons with TB disease have higher HIV viral loads than HIV + persons without TB Disease

- HIV disease can mask TB symptoms and vice versa

- HIV + persons who are TB Test + have a 5-10% annual risk of TB disease

Info Obtained from Wisconsin TB Program
Active TB Treatment

Standard Drug Regimen: RIPE

*Rifampin
*Isoniazid
*Pyrazinamide
*Ethambutol

This drug regimen should be started until drug susceptibilities come back.
What should I do if I suspect TB in a patient?

- Isolation! Isolation! Isolation! Give them masks to wear and tell them to stay home.
- Call Public Health Madison & Dane County within **24 hours at 266-4821** to report a suspect case of TB
- During the weekend, call 911 and ask them to page the Public Health Manager on call
- Set up sputum collections (for AFB smears, MTD & Cultures)
- Chest X-Ray
- Begin Medication Therapy (RIPE)
- Refer to Infectious Disease Doctor, if appropriate
The role of Public Health in Active TB cases

The responsibility of the health department in the control of tuberculosis is to ensure that all persons who are suspected of having tuberculosis are identified and evaluated promptly and that an appropriate course of treatment is prescribed and completed successfully.

- Assist with isolation issues
- Case Management, from diagnosis to cure
- Provide medication free of charge
- Monitor for side effects and adherence
- Provide Directly Observed Therapy
- IGRA or Skin Testing for contacts
- Patient Education
Latent TB Infection

Skin Test Cutoff Points

- Suspect Case - 5mm
- Recent Contact to Case - 5mm
- High Medical Risk - 5mm
- General Medical Risk - 10mm
- History of Past Contact to Case - 10mm
- Endemic Area Risk - 10mm
- Socio/Economic Risk - 10mm
- Other Unspecified, Non-Medical Risk - 10mm
- Occupational Risk - 10mm
- No Risk, required for job, school, volunteer - 15mm
BCG & the Skin Test

- BCG is a vaccine given to infants & children in endemic countries if they have access to medical or public health care.
- BCG has been proven to decrease TB meningitis & Disseminated TB in children in endemic countries.
- Skin Test Reactions 10mm or greater are considered true LTBI’s and should be treated as such.
- BCG effectiveness wanes over time and generally does not interfere with the skin test if the reaction is over 10mm.
- Prior BCG vaccination is not a contraindication for TB testing. The new interferon gamma release assays (IGRA s) do not react to BCG strains and may be useful in distinguishing likely TB infection from BCG reaction.

Info obtained from Wisconsin TB Program.
Diagnosis of LTBI

- Positive Skin Test
  - For more info on how to place skin tests please visit the Francis J. Curry National TB Center at http://www.nationaltbcenter.ucsf.edu/abouttb/tb_control_faq.cfm
- Positive Quantiferon or T-Spot
- Normal Chest X-Ray
**Treatment of LTBI**

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Duration (months)</th>
<th>Interval</th>
<th>Total Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid</td>
<td>9</td>
<td>Daily</td>
<td>270</td>
</tr>
<tr>
<td>Rifampin</td>
<td>4</td>
<td>Daily</td>
<td>120</td>
</tr>
<tr>
<td>Isoniazid/Rifapentine</td>
<td>3 months/ 12 weekly doses</td>
<td>Weekly</td>
<td>12</td>
</tr>
</tbody>
</table>

*Isoniazid/Rifapentine regimen requires Directly Observed Therapy*

*Obtained from CDC Website*
Role of Public Health in LTBI Treatment

- Provide medication free of charge on a monthly basis
- Monitor for adherence and side effects
- Patient Education
Forms

- TB Suspect Case Data
- Tuberculosis Infection Initial Request for Medication
- Tuberculosis Disease Initial Request for Medication

Forms can be obtained from Wisconsin TB Program Website
http://www.dhs.wisconsin.gov/tb/forms.htm

OR

From Public Health Madison & Dane County Website
http://www.publichealthmdc.com/disease/tb
TB Resources

- Public Health Madison & Dane County
  266-4821
- Public Health Madison & Dane County TB Program
  Manager- Kate Louther 243-0317
- Wisconsin TB Program – 266-9692
- Mayo Clinic Center for TB (for Drug Resistant cases, Physician to Physician consults)
  1-855-360-1466 OR tbcenter@mayo.edu
Key Points to Remember

- Difference between Active TB Disease and Latent TB Infection
- HIV & TB Disease Incidence
- All TB Suspects must be reported to PHMDC within 24 hours
- ISOLATE! ISOLATE! ISOLATE!
- TB medications can be obtained through PHMDC FREE of charge
- BCG & Skin Test Facts
- Feel free to call PHMDC at 266-4821 with any questions!