Genotyping Case Studies
PNLT Training 2013
Life in a Small Southern Town: Gambling with TB
Case 1

• LH is a 50 yo African American man with a history of alcohol abuse who was treated for TB in late 1996 with DOT and some self-administered therapy
• He was for the most part compliant with therapy but had refused an HIV test
• In the spring of 1997, he relapsed and was at this time found to have a diffuse nodular infiltrate
Case 1
(Continued)

- LH was re-started on therapy and was committed to AG Holley State TB hospital where he eventually completed therapy
- At the time the county was experiencing a disproportionately high rate of TB infection
- Case rate was 3-4 times more than state average at the time
- Rural county of north Florida with few foreign-born but surprisingly high HIV rates
Case 1
(Continued)

- Because of the high rates and very low numbers of contacts identified per case, an in depth investigation was started in late 1999
- Spoligotyping was not being done at the time but RFLP analysis using IS6110 was done on all available specimens over a five-year period from cases in the county
RFLP Sample
Case 1

- All African American patients matched with very little agreement with conventional contact investigation lists.
- No obvious social links existed and although it was a small town, no common work or home exposure between the RFLP linked cases with only a few exceptions.
Case 2

- Several months passed after re-interviewing the RFLP matched cases and there was no breakthrough.
- CW is a 53 yo African American man who was referred to the TB clinic for further evaluation of “bronchitis” symptoms.
- PPD negative and a chest x-ray was done.
Case 2
Case 2

- Normal x-ray
- Physical Exam was normal
- Recent HIV test was negative
- Had a history of smoking 1 pack per day for over 20 years
- No known contact with TB recently
- His social history was unremarkable except for . . .
Case 2

- When leaving the clinic he was seen shaking hands and being social with a man who was being treated for TB
- CW was brought back into the clinic and asked in a non-confrontational manner how he knew the man in the waiting room
- He said he played cards with him
Life in a Quiet Small Town

- The “card” game turned out to be a floating card game/gambling ring that was played at a local bar and attracted dozens if not over a hundred participants each week.
- Prostitution and drugs were also evident at the bar.
- TB screening was arranged at the bar and the PPD positivity rate of the 20 patrons present the night of testing was almost 60%.
- DOT LTBI therapy was done and most completed.
Woman in the Suwannee County Jail

• The discovery of the gambling, drugs, and prostitution in this “dry” county was better described as a re-discovery

• In the early 1950s, the town was in the national spotlight during the trial of a black woman charged with the murder of a prominent white physician
The Trial of Ruby McCollum
Feds seize Clyde’s Place

“It’s a day in the history of Live Oak that this place has gone down!” said Florida Department of Law Enforcement Special Agent Robin McDaniel who has helped make arrests at Clyde’s Place for years.

Susan K. Lamb
Democrat Managing Editor

It took years, but several murders and dozens and dozens of drug arrests later, Clyde’s Place at 1700 Railroad Avenue will no longer be a thorn in the side of law enforcement after federal marshals seized it yesterday at about 10:45 a.m.

With an entourage of Live Oak Police Chief Nolan McLeod, LOPD Capt. Buddy Williams, Suwannee County Sheriff Alton H. “Al” Williams Jr., Suwannee County Drug Task Force members LOPD Investigator Aubrey Land, Florida Department of Law Enforcement Special Agent Robin McDaniel and Sheriff’s Office Sgt. Robbie Sammons, US Marshals Don Exum and Ken Staab drove to the bar where a pile of

SEE FEDS, PAGE 5A
Case

Two Lives; One Mystery
Case 1

- A 34-year-old woman presented to her local physician complaining of fever and weight loss in June 1995.
- She was found to be positive for HIV at that time.
- During this initial evaluation, she was found to have retroperitoneal lymphadenopathy, which on biopsy and culture proved to be caused by *Mycobacterium tuberculosis*.
- Blood cultures taken during this time were also positive for *M tuberculosis*.
Case 1

- The organism was demonstrated to be susceptible to all the first-line drugs for TB.
- Shortly after starting medications in early July 1995, compliance with the regimen became a problem. The patient was being managed by a private physician and was receiving her medications through the health department.
- The patient’s mother was providing the presumed directly observed therapy. Although the patient was receiving four-drug therapy, she was receiving only 300 mg rifampin daily instead of the usual 600 mg daily.
Case 1

- In August 1996, the patient was found to have cervical adenopathy.
- A culture of the lymph node was positive for *M. tuberculosis*, and susceptibility testing revealed the organism to be resistant to rifampin alone.
- A subsequent chest radiograph in October 1996 showed evidence of pulmonary infiltrates.
- The patient died of respiratory failure in November 1996.
Case 2

• A 48-year-old woman developed dyspnea and a dry cough in 1993.

• She was noted to have had a chest radiograph suggestive of sarcoidosis and underwent a bronchoscopy which was nondiagnostic. PPD was negative.

• The clinical was most consistent with sarcoidosis and she began receiving prednisone.

• She responded well but was lost to follow-up until December 1996 when she presented once again with marked dyspnea and dry cough.
Case 2

- She began receiving prednisone and oxygen, and her condition improved somewhat.
- She had not received prednisone or any other therapy for sarcoid for > 2 years. Oral cyclophosphamide was added to the prednisone in March 1997.
- In April 1997, a bronchoscopy with transbronchial biopsy was performed.
- Histology results for biopsy specimens were negative, and the results of stains were negative for any organisms.
Case 2

- The cyclophosphamide was discontinued, and the patient was treated empirically for causes of atypical pneumonia with clarithromycin.
- She was admitted once again in June 1997 and was referred for lung transplantation. The patient died during that hospitalization.
- The cultures from the bronchoscopy in April grew *M. tuberculosis* 3 days prior to her death.
- Susceptibility testing later revealed the organism to be rifampin monoresistant (RMR).
Case Discussion

- No epidemiological links between the two cases other than they were from the same county
- No obvious potential transmission sites
- No other cases of Rifampin mono-resistant disease in that part of the state
Next Step?
DNA Fingerprint Patterns

What other information would you want at this point?
Case Discussion

- Funeral directors have an increased risk of TB infection and disease despite their high socioeconomic status.
- The implication is that deceased individuals can transmit active TB during routine embalming.
- The exhaust fan in this case was able to produce between 25.57 and 26.56 air changes per hour, however the fan was turned off immediately after the embalming.
- This case illustrates the need for use of available precautions in high risk settings.