

Tuberculosis in Clark County

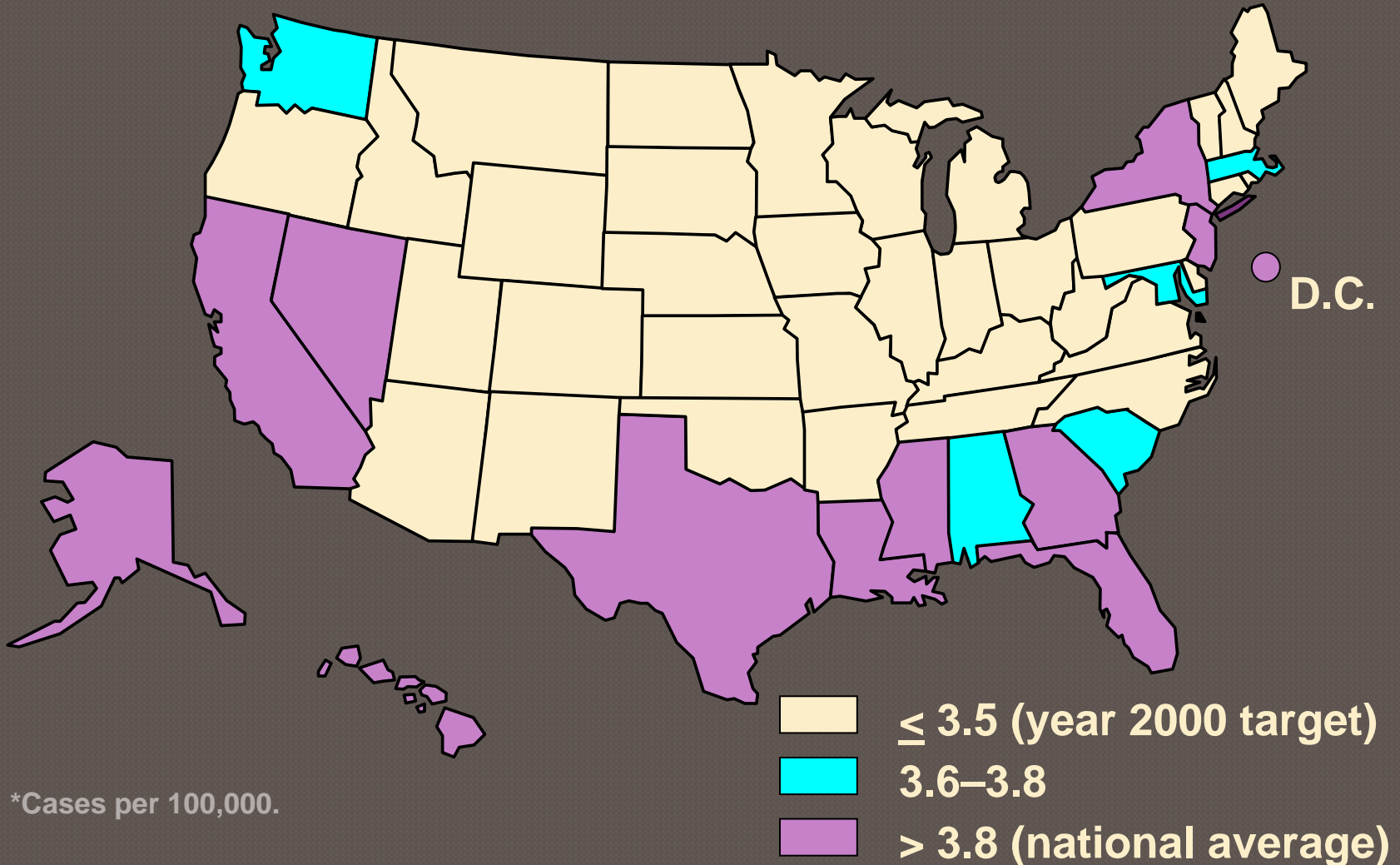
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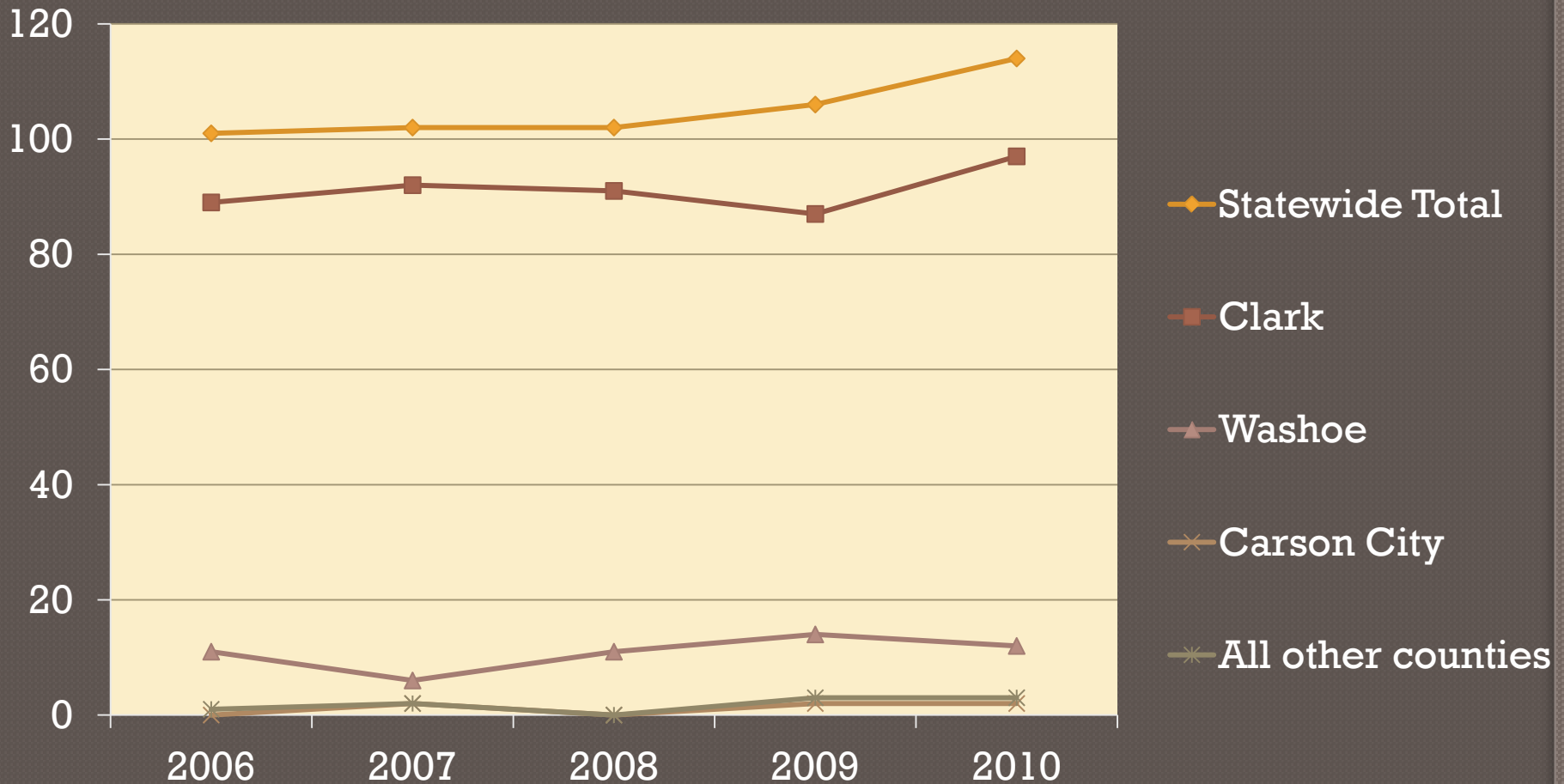
Objectives

- Discuss the prevalence of tuberculosis in Clark County
- Describe factors influencing case characteristics in Clark County

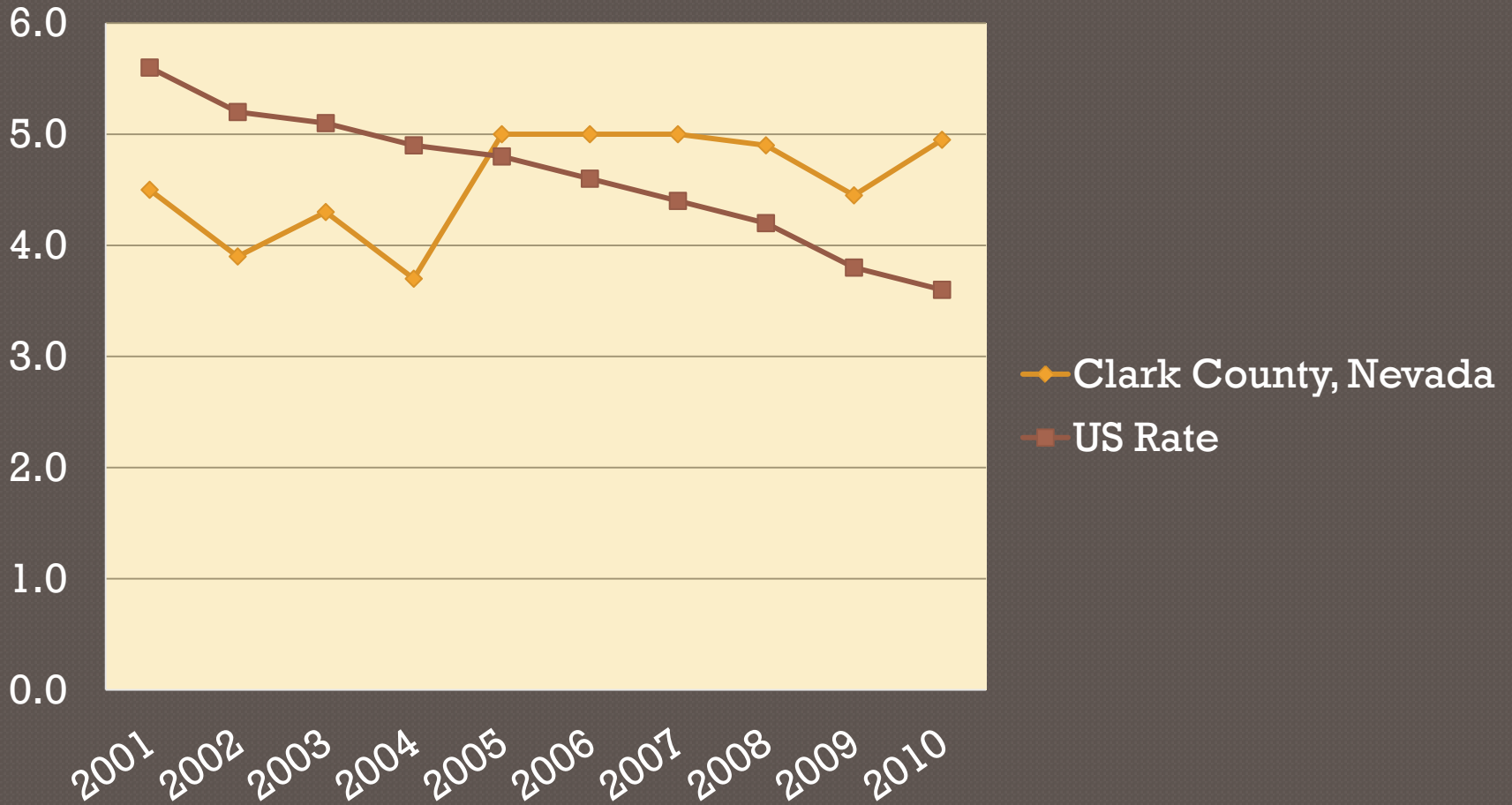
TB Case Rates, U.S., 2009



Nevada TB Cases By year



TB Rate per 100,000 Population



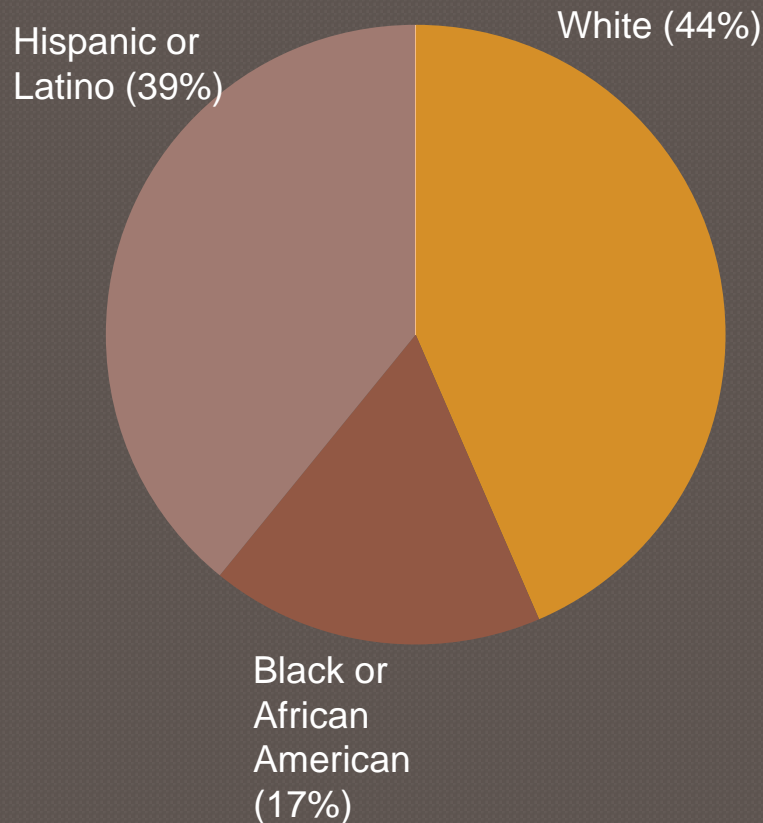
TB in Clark County

Year	2009	2010	2011
Total Case Diagnosis	87	97	85
Foreign Born	71% <ul style="list-style-type: none"> • 11% Mexico • 36% Philippines 	69% <ul style="list-style-type: none"> • 14% Mexico • 22% Philippines 18 other countries 	73% <ul style="list-style-type: none"> • 18% Mexico • 25% Philippines 15 other countries
Homeless	3%	9%	2%
Uncontrolled Diabetes	22%	19%	15%
HIV/AIDS Co-infected	3%	6%	2%
Children born in US with risk factors	8%	13%	4%

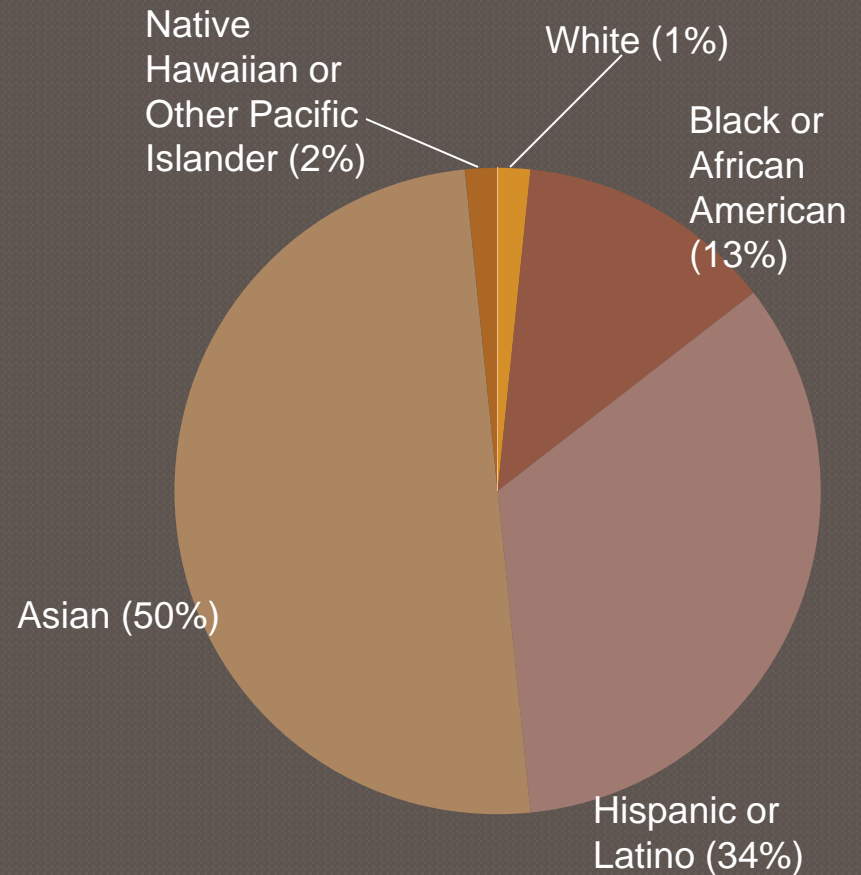


Reported TB Cases by Origin and Race/Ethnicity 2011

U.S.-born



Foreign-born



Persons at Higher Risk for Exposure to and Infection With TB

- Close contacts of person known or suspected to have active TB
- Foreign-born persons from areas where TB is common
- Visitors to TB-prevalent countries
- Residents/employees of high-risk congregate settings
- Health Care Workers serving high-risk clients
- Children and adolescents exposed to adults at increase risk for infection or disease

Special Note on Pediatric Cases

- A child with active TB disease indicates an unidentified, contagious adult/adolescent with active TB disease
 - Sentinel event
- Children unlikely to yield positive smears/cultures
- Need source case's culture results for drug sensitivities to determine child's treatment regimen
 - Also needed for genotyping
 - If high suspicion of drug resistance, gastric aspirate may also be helpful
- Thorough contact investigation is critical to prevent further transmission!

Contact Investigation

- All cases of active TB were once contacts
- The best way to reduce active TB cases is to identify and treat latent TB infection in those who are exposed.
- Pulmonary, laryngeal, and pleural active TB cases

Contact Investigation

- Elicit contacts from index case
 - Household
 - Work/school
 - Social networks
- Site survey/field investigation
- Prioritize contacts
 - Household
 - Children <5 years of age
 - Immunocompromised
 - Duration and location of contact
- If contact less than 8 weeks ago, need 2nd test 8-10 weeks after last exposure
 - Window-period prophylaxis
 - Children & immunocompromised

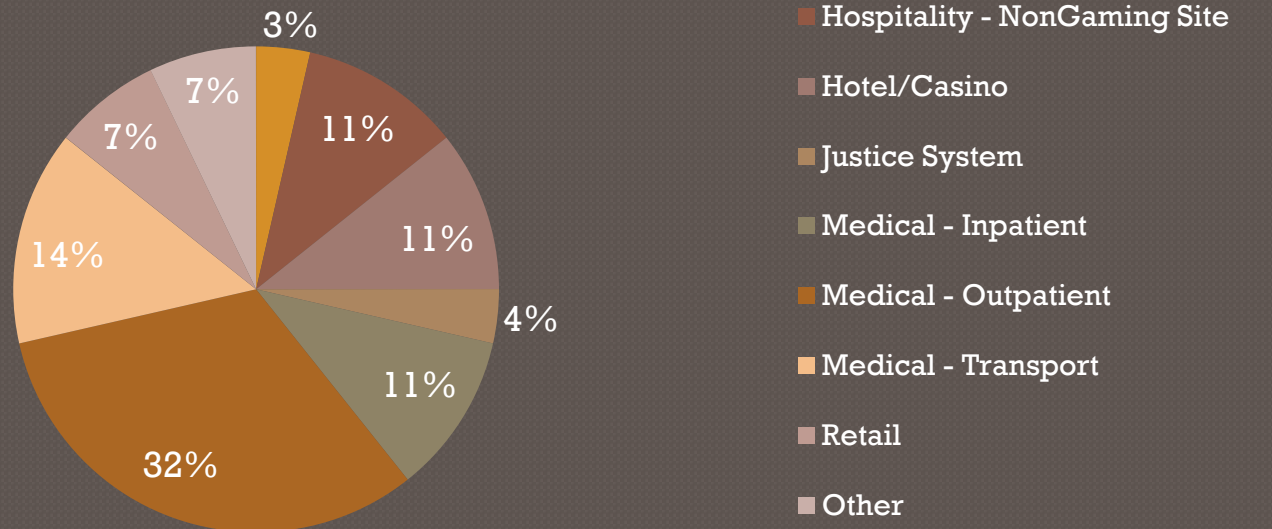
Contact Investigation

Contacts to Sputum AFB smear-positive TB patients	2008 SNHD	2010 SNHD	2015 Goal	2008 National
Percent who are evaluated for infection and disease	92%	94%	93%	82%
Percent with newly diagnosed LTBI who start treatment	66%	77%	88%	74%
Percent who start LTBI treatment that complete treatment	62%	71%	79%	64%

Contact Investigation 2011

- 66 cases for investigation
 - Average of 15 contacts per case
- 92 total sites for investigation

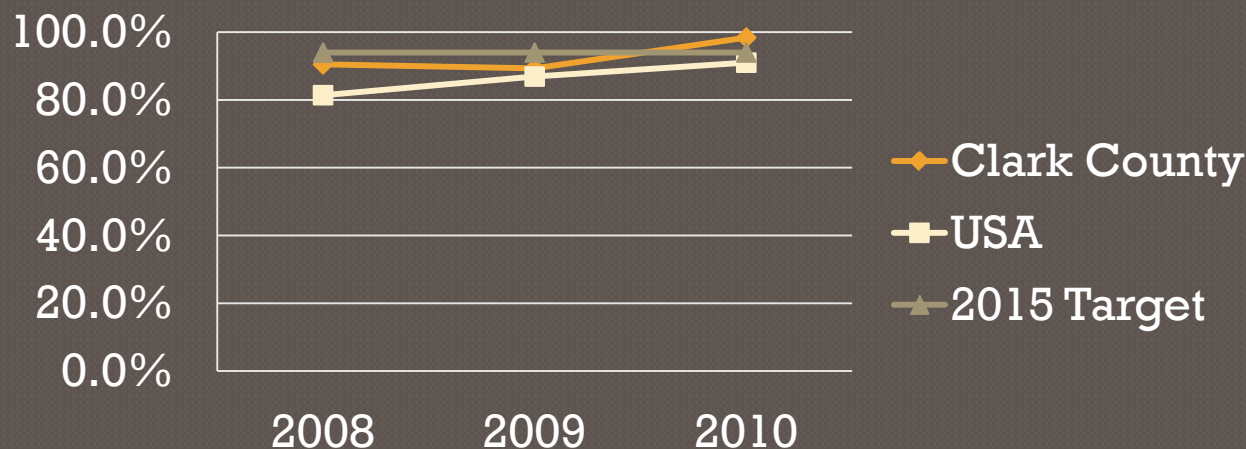
**Contact Investigation Sites
(excluding private residences)**



TB Fingerprinting/DNA Genotyping

- Spoligotyping and mycobacterial interspersed repetitive units (MIRU) analysis based on PCR
 - Done on one culture positive specimen from each active case, regardless of disease site

Universal Genotyping



TB Fingerprinting/DNA Genotyping

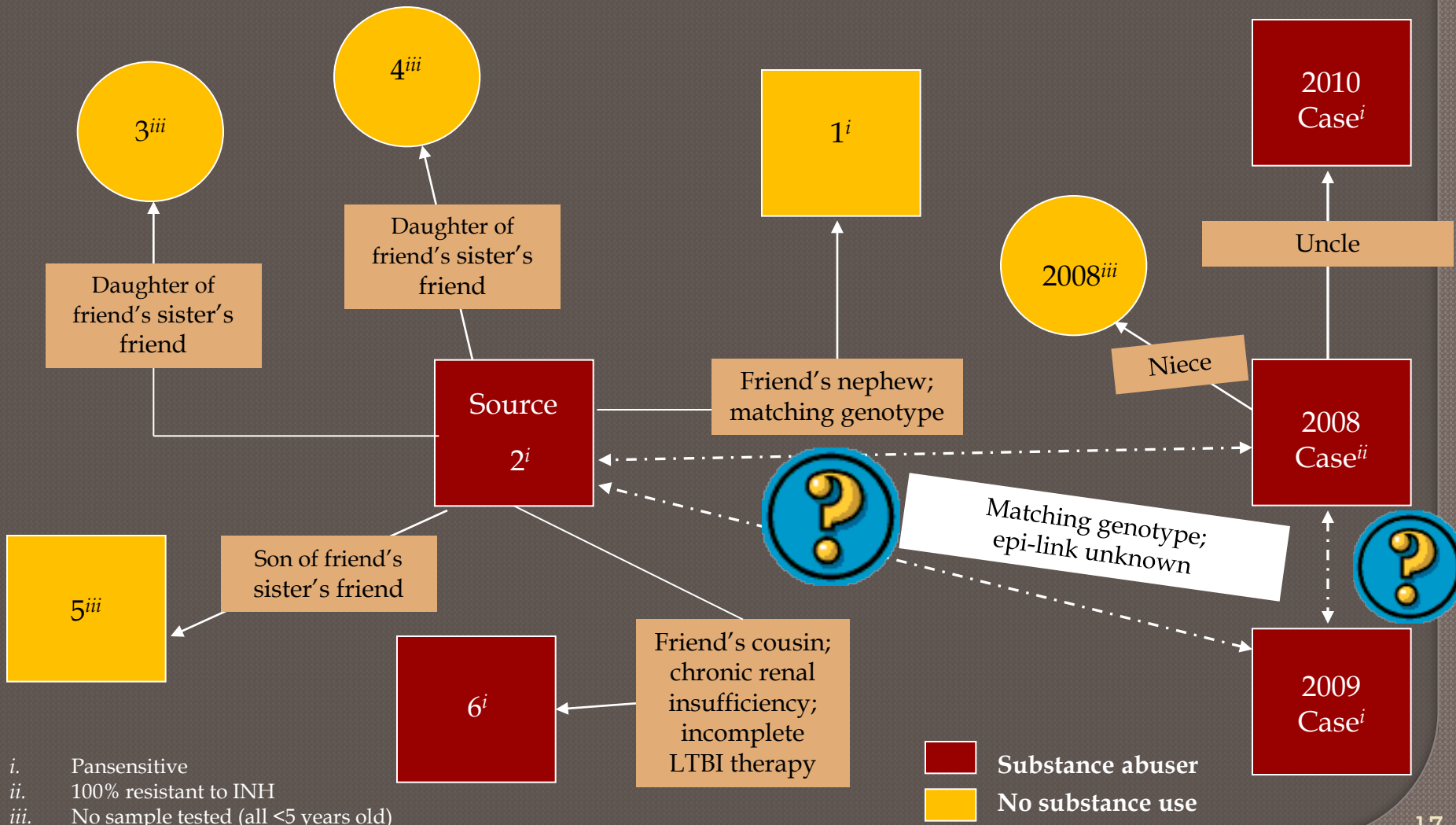
- TB outbreaks will be detected earlier and controlled more easily
- Can also be used to rule out an outbreak
- Unsuspected relationships between cases and new and unusual transmission settings can be discovered
- Transmission that occurs between patients in different jurisdictions can be detected more rapidly

Genotyping & Investigation in Action

- Notified of pediatric TB case by local hospital
 - MTB grew from ear fluid culture = likely disseminated tuberculosis
- Characteristics of outbreak
 - Primarily African-American
 - Living below poverty level
 - Claim strong gang affiliation
 - History of incarceration
 - 55% of those found with LTBI
- Epidemiologically linked to index case
 - Spent significant amount of time inside child's home
 - Matching genotype



Outbreak Epidemiologic Links



Conclusion

- ◉ Nationally, TB is declining overall
- ◉ High TB rates persist among some groups
- ◉ Local epidemiology affects trends
 - Cases have been seen all income levels and in most ZIP Codes
- ◉ Targeted testing and treatment of high risk individuals is essential to TB prevention and control
 - Contacts to active cases
 - Immigrants from high burden countries
 - Medical/social history indicators

Resources/References

- Online Tuberculosis Information System (OTIS), National Tuberculosis Surveillance System, United States, 1993-2009. U.S. Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), Division of TB Elimination, CDC WONDER Online Database, April 2011. Accessed at <http://wonder.cdc.gov/tb-v2009.html> on Feb 23, 2012 1:19:16 PM
- Core Curriculum on Tuberculosis: What the Clinician Should Know. U.S. Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), Division of TB Elimination, 2011
- TB Today, National Prevention Information Network, U.S. Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), Division of TB Elimination, March 2011. Accessed at <http://www.cdcnpin.org/scripts/tb/tb.asp> on February 23, 2012. 1:59 PM.
- National Tuberculosis Indicators Project (NTIP), U.S. Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), Division of TB Elimination. Accessed at <https://webappx.cdc.gov> on March 13, 2012 11:29 AM. Restricted access.
- 2010 Clark County Demographic Profile, U.S. Census Bureau, Accessed at <http://www.census.gov/popfinder?s=32> on March 14, 2012.