



The Kansas Melting Pot of Tuberculosis

Phil Griffin

Kansas Tuberculosis Controller

Objectives

- Basic Tuberculosis 101 in a small nutshell
 - Describe Tuberculosis in Kansas
 - Case study demonstration of the impact of Tuberculosis on a Kansas community
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Tuberculosis Impact

- Approximately one-third of the world's population is infected with *M. tuberculosis*.
 - In the United States, it is estimated that 9-14 million people have TB infection
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How you get TB infection

- Exposed to someone who has active TB disease
 - Tubercle bacilli (germs) are spread in the air by coughing, speaking loudly, singing etc.
 - These germs are then inhaled by another person and deposited in their body
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Transmission of TB

- The more prolonged and intense the exposure, the greater the likelihood that transmission will occur.
 - TB occurs most commonly in lungs (85% of the time), but can occur in other parts of the body
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Other Factors that Determine TB transmission

- Infectiousness of the person with TB disease
 - Environment in which exposure occurred
 - Length of time spent with the infectious TB patient
 - Virulence (strength) of the TB bacteria
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Tuberculosis Infection

- How do we determine TB infection?
 - Positive skin test
 - Normal Chest x-ray
 - Asymptomatic
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Before treating TB Infection

- Active disease should be ruled out
 - Determine if there is a history of treatment for LTBI or disease
 - Determine if there are contraindications to treatment
 - Obtain information about current and previous drug therapy
 - Recommend HIV testing if risk factors are present
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How do we treat TB infection?

- Isoniazid 300 mg daily for 9 months
 - Medication is free from KDHE TB Program
 - Monthly monitoring from the local health department
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Can TB infection be spread?

- No

- Someone who is infected can not spread tuberculosis
 - With treatment, an individual decreases their chance of going on and developing active disease by approximately 90-95%
 - Without treatment, an individual could live their entire life with the infection and never break down into active disease
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Infection to Disease

- Some individuals do break down once infected and go on to develop active disease
 - Typically this is a long process and the individual has some other condition or a compromised immune system that enables this break down to occur
 - Diabetes, HIV, organ transplant, gastric bypass surgery, prolonged corticosteroid therapy, end stage renal disease, silicosis, cancer of the head or neck, etc.
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TB Disease

- Occurs when the inactive tubercle bacilli become active in the body (the body's immune system becomes weak and the bacilli wake up)
 - May be infectious (TB of the lungs and throat)
 - Usually have clinical symptoms and don't feel well
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Symptoms of TB Disease

- Prolonged cough (2-3 weeks)
 - Chest pain
 - Hemoptysis
 - Fever
 - Chills
 - Night Sweats
 - Fatigue
 - Loss of appetite
 - Weight loss/failure to gain weight
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Other Clinical evidence

- How do we determine TB disease?
 - Usually have a positive skin test
 - Usually have an abnormal x-ray
 - Usually have one or more symptoms
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How do we treat TB disease?

- Combination therapy of INH, RIF, PZA, EMB taken for 6-12 months
 - Medication is free from KDHE TB Program
 - Directly observed therapy to ensure that the patient is adhering to the prescribed treatment
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Can TB disease be spread?

- Yes

- Someone who has TB disease can spread the germ to others and cause them to have TB infection
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Infectiousness of TB Disease

- Persons with active TB Disease of the lungs and throat are considered infectious if they:
 - Are coughing
 - Are undergoing cough-inducing procedures
 - Have sputum smears that are positive for Acid-fast bacilli and are not receiving therapy
 - Have just started TB therapy
 - Have poor clinical response to therapy

TB germs cannot be spread by:

- Brief contact
 - Casual contact
 - Sharing dishes and utensils
 - Using towels and linens
 - Handling food
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If you have been exposed to TB disease

- One cannot take the germ home and expose his/her family and friends to the TB germ
 - TB disease is preventable. If TB infection occurs after exposure one can take medicine to decrease the chances of developing disease.
 - TB disease is curable.
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TB Infection vs. TB Disease

- Tubercle bacilli in body
- TB skin test reaction (usually positive)
- Chest x-ray (usually normal)
- Sputum smear & culture negative
- Asymptomatic
- PERSON IS NOT INFECTIOUS

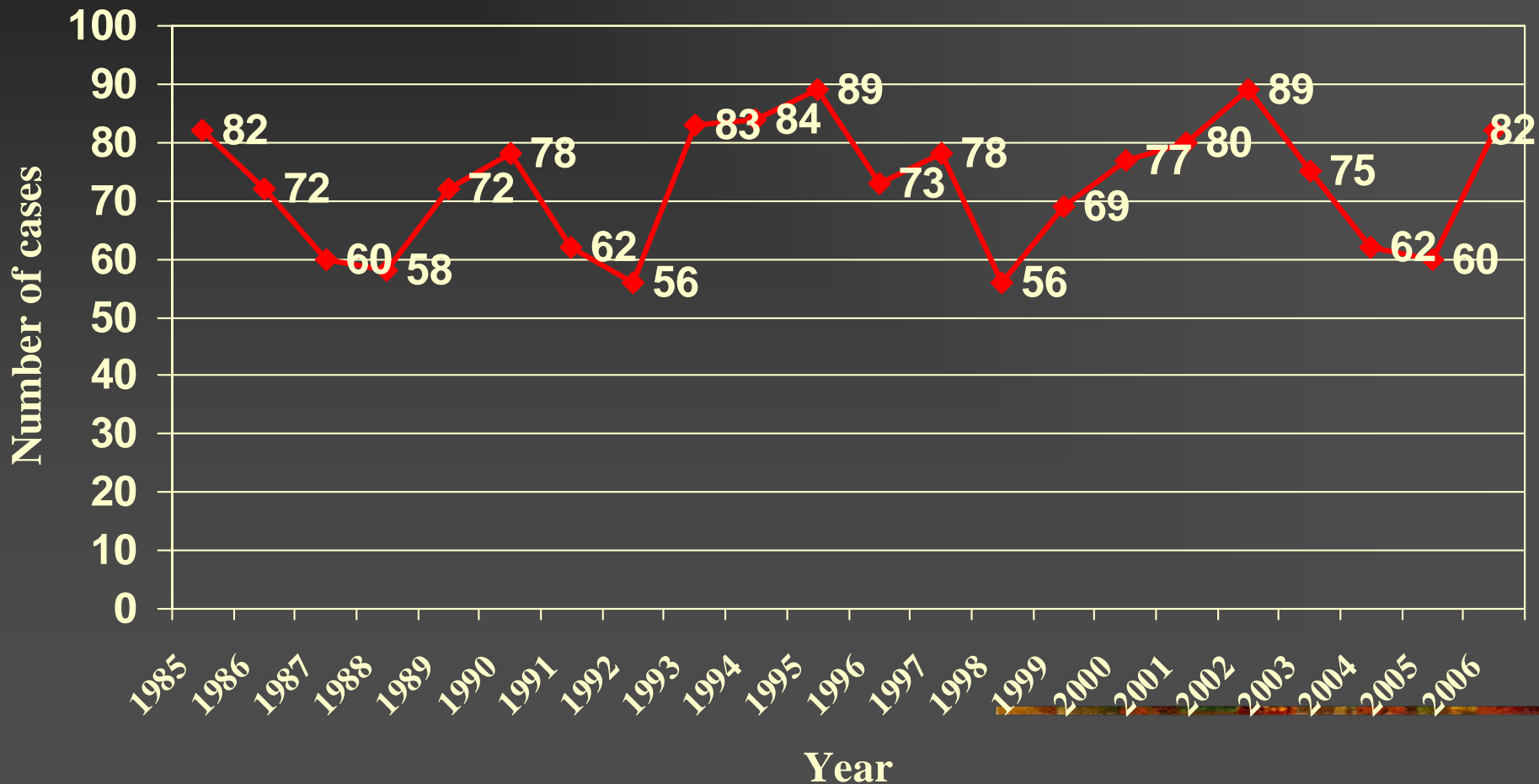
- Tubercle bacilli in body
 - TB skin test reaction (usually positive)
 - Chest x-ray (usually abnormal)
 - Sputum smear & culture positive
 - Usually has symptoms
 - OFTEN INFECTIOUS BEFORE TREATMENT
-



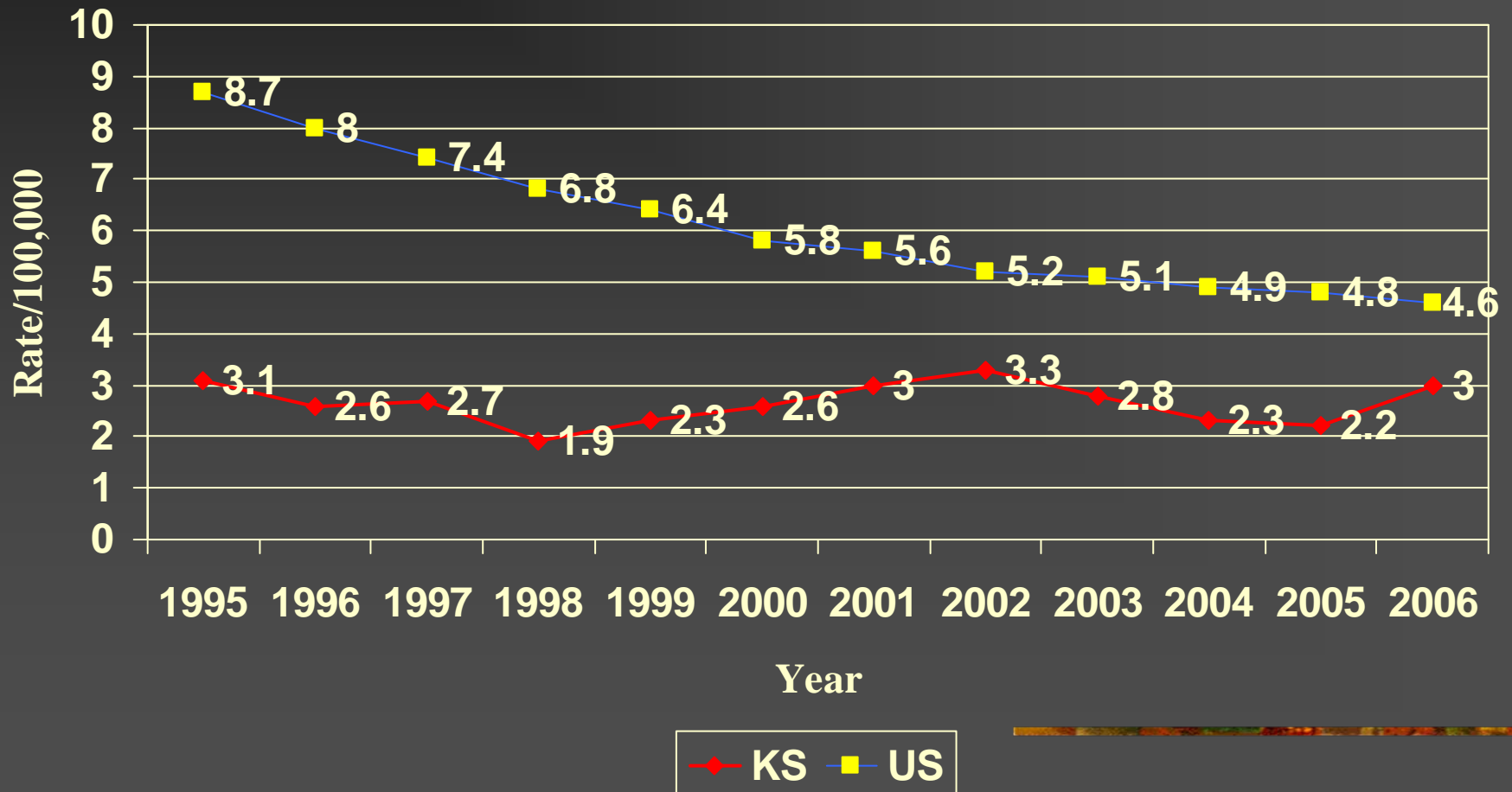
Kansas Demographics

A five year review

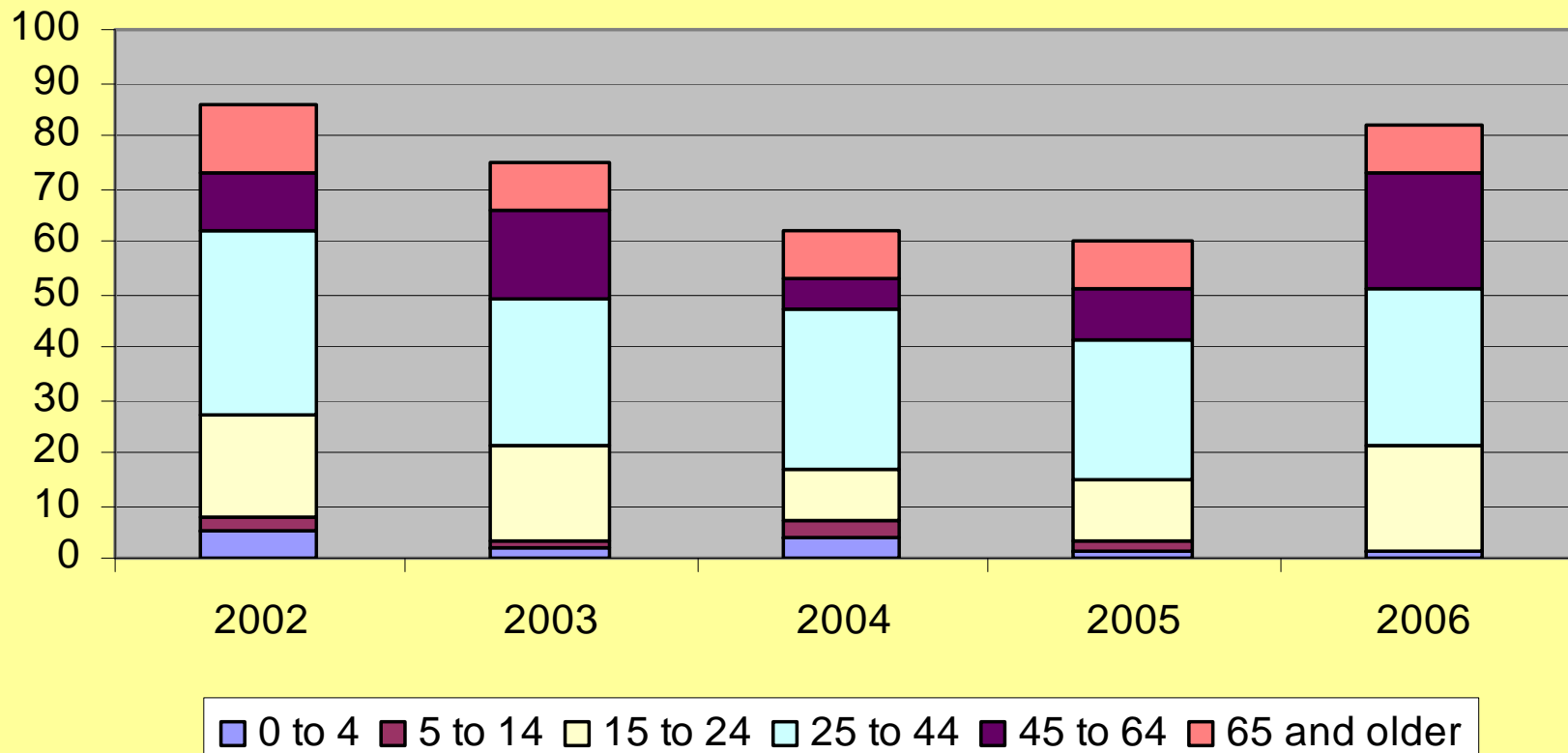
Twenty Years of Case Counts



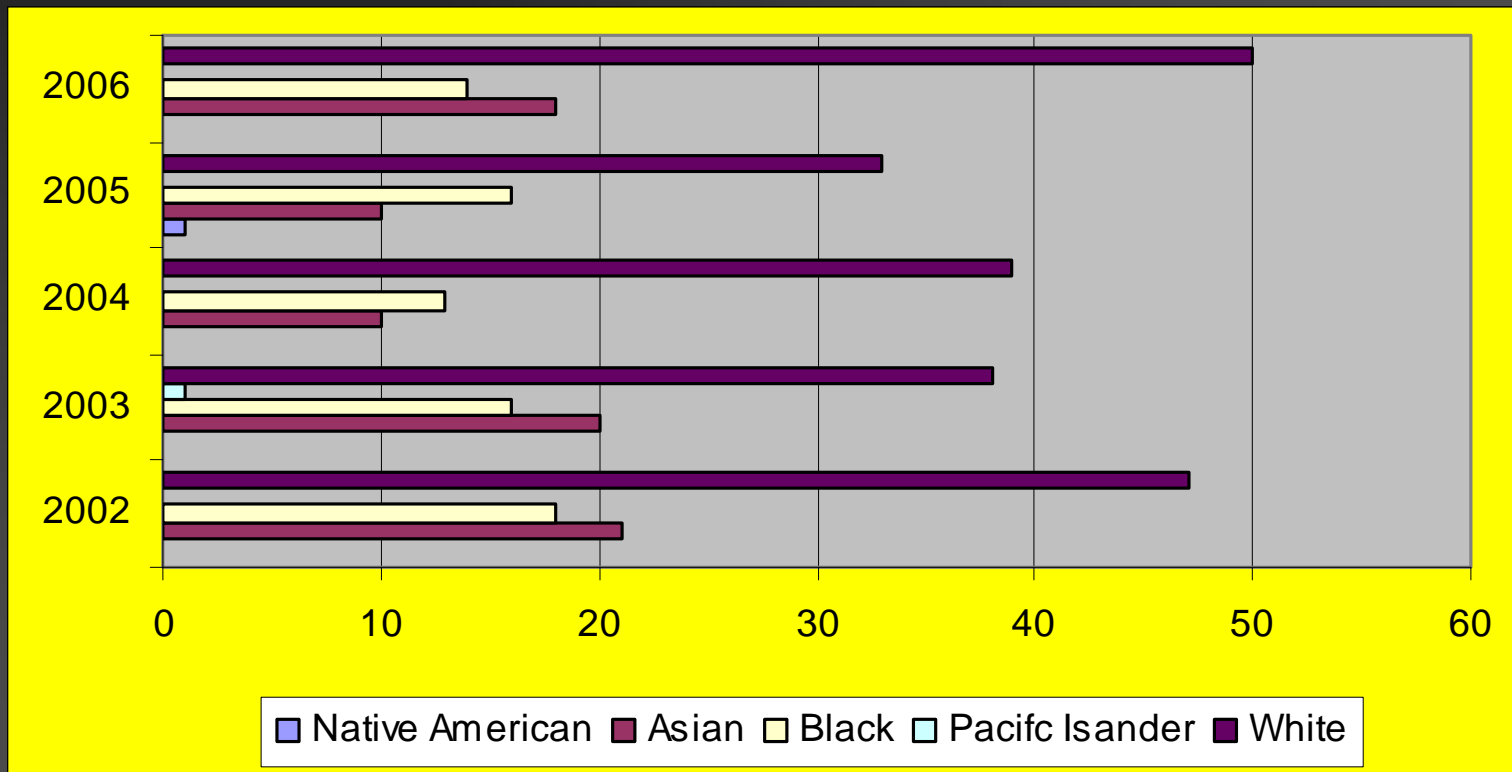
Case Rate Comparing KS to US



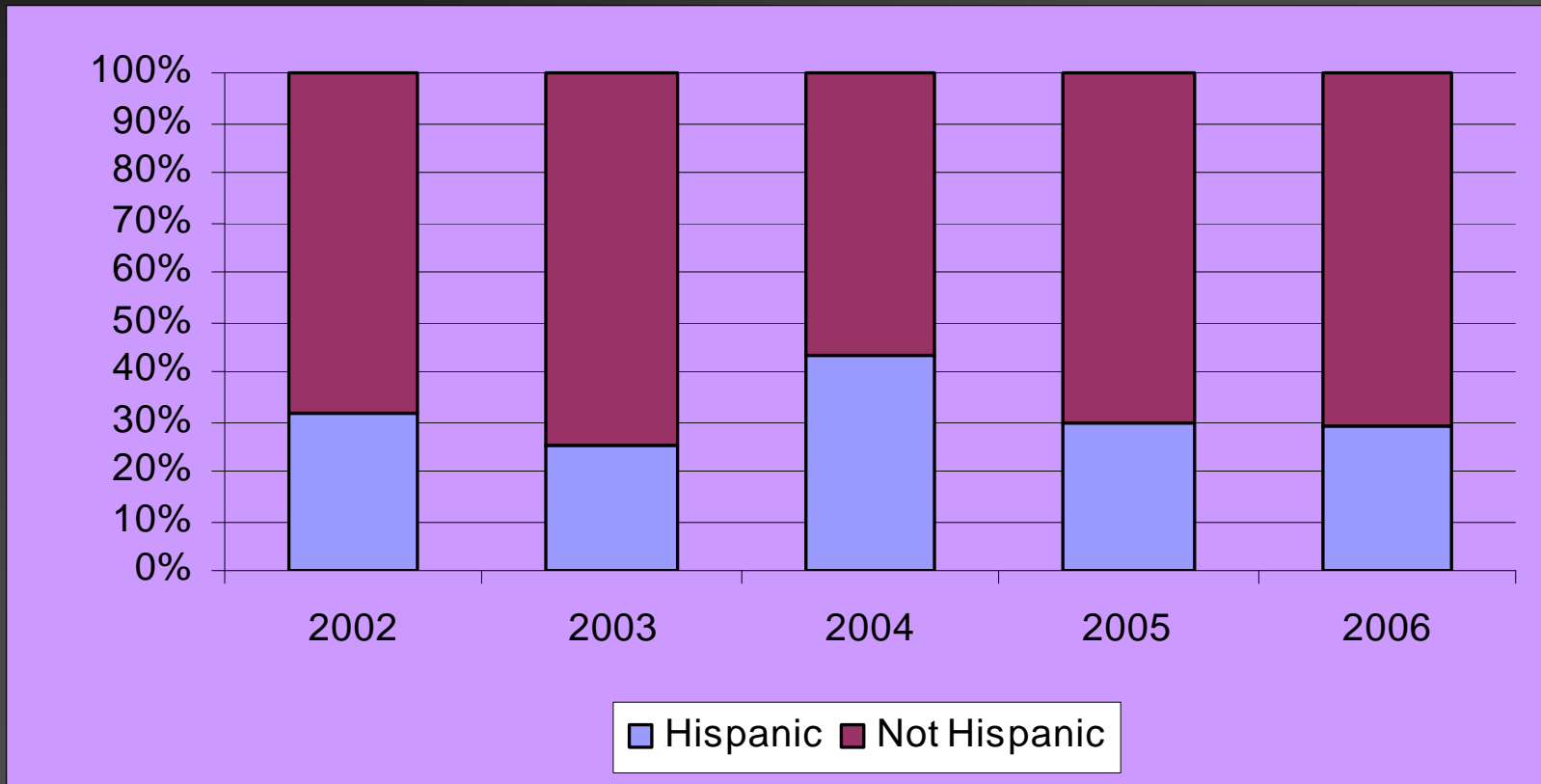
Age



Race



Ethnicity



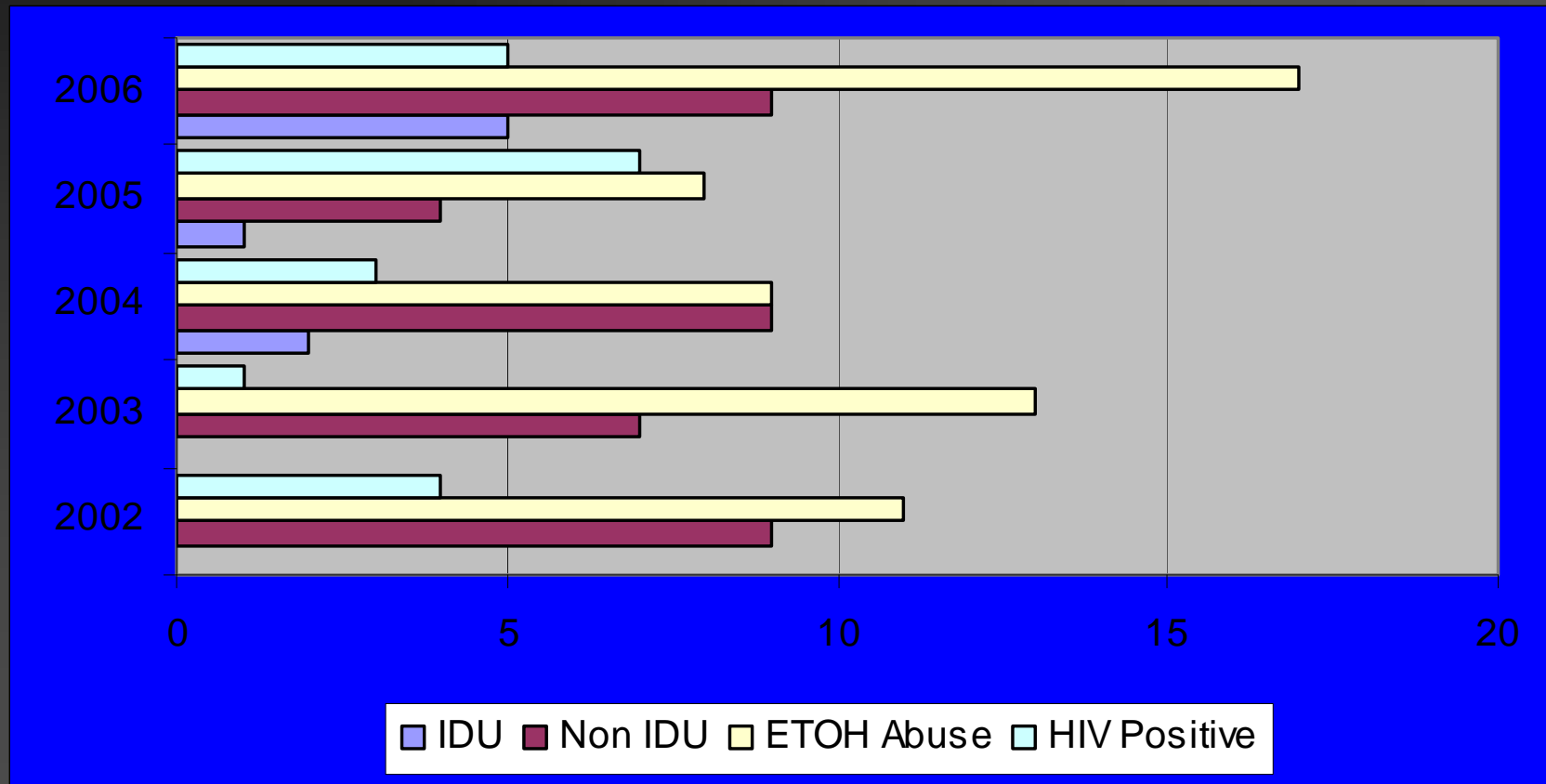
Gender



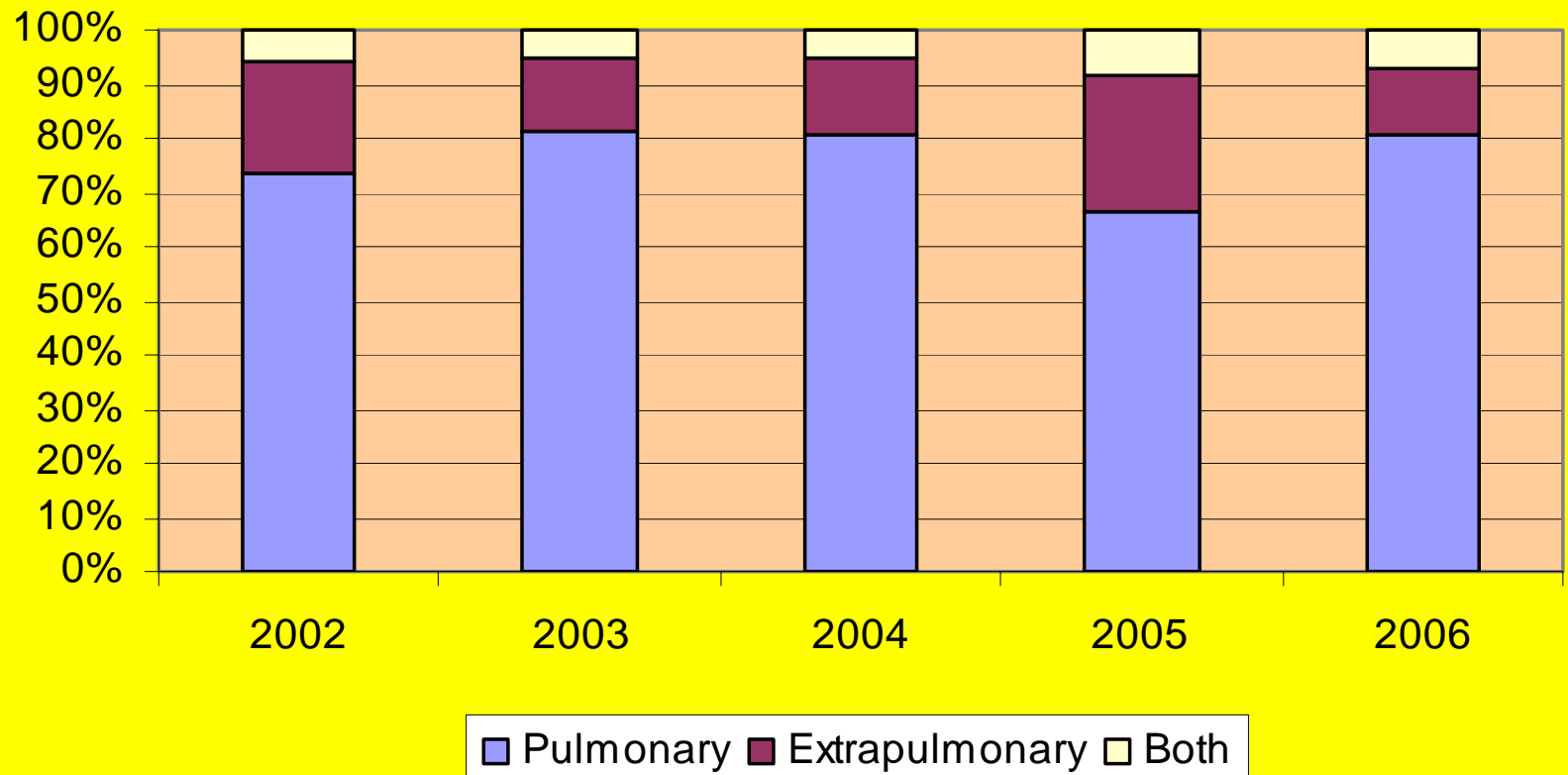
Residential Risk Factors



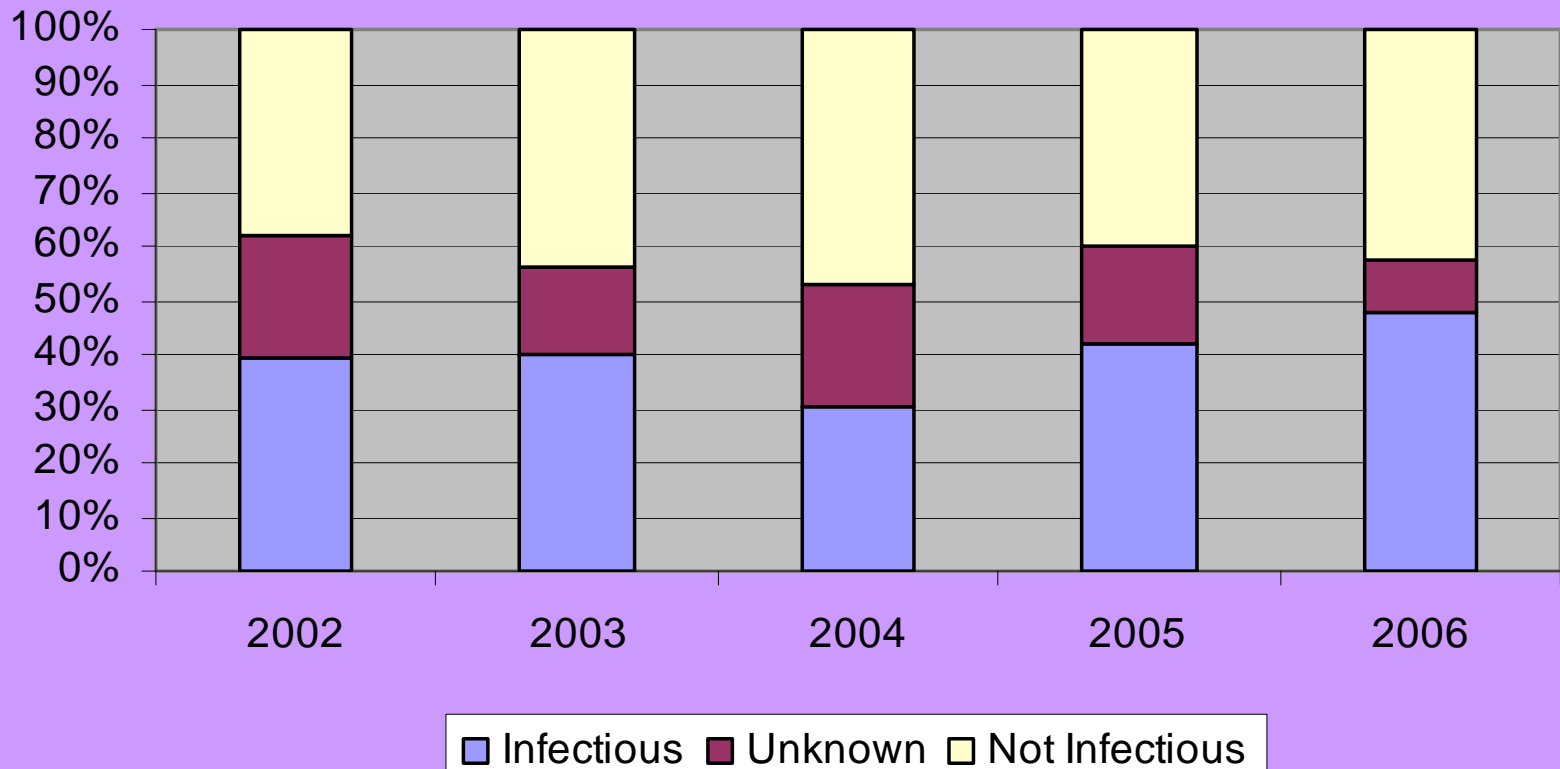
Clinical Risk Factors



Disease Site



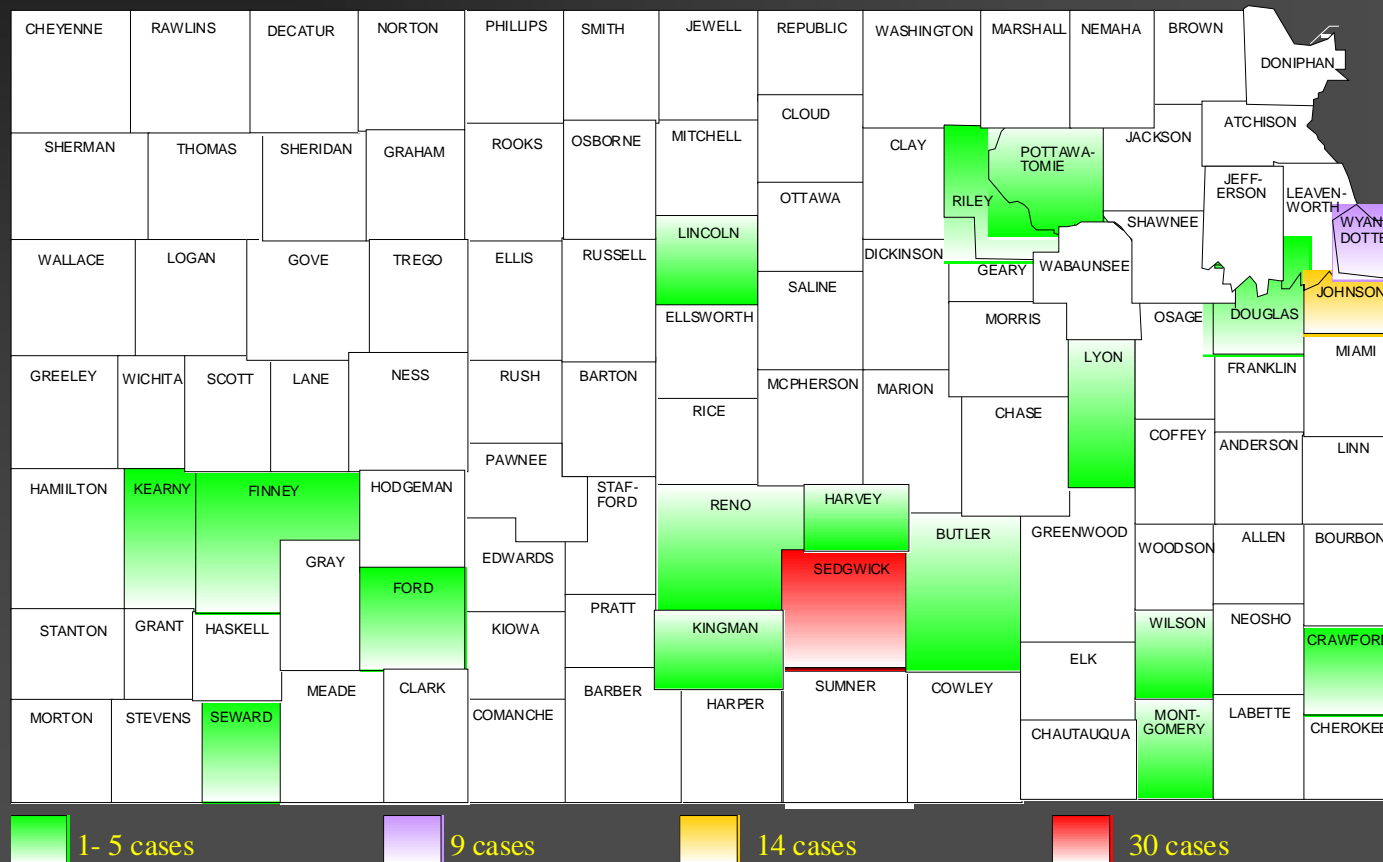
Likelihood of Infectiousness



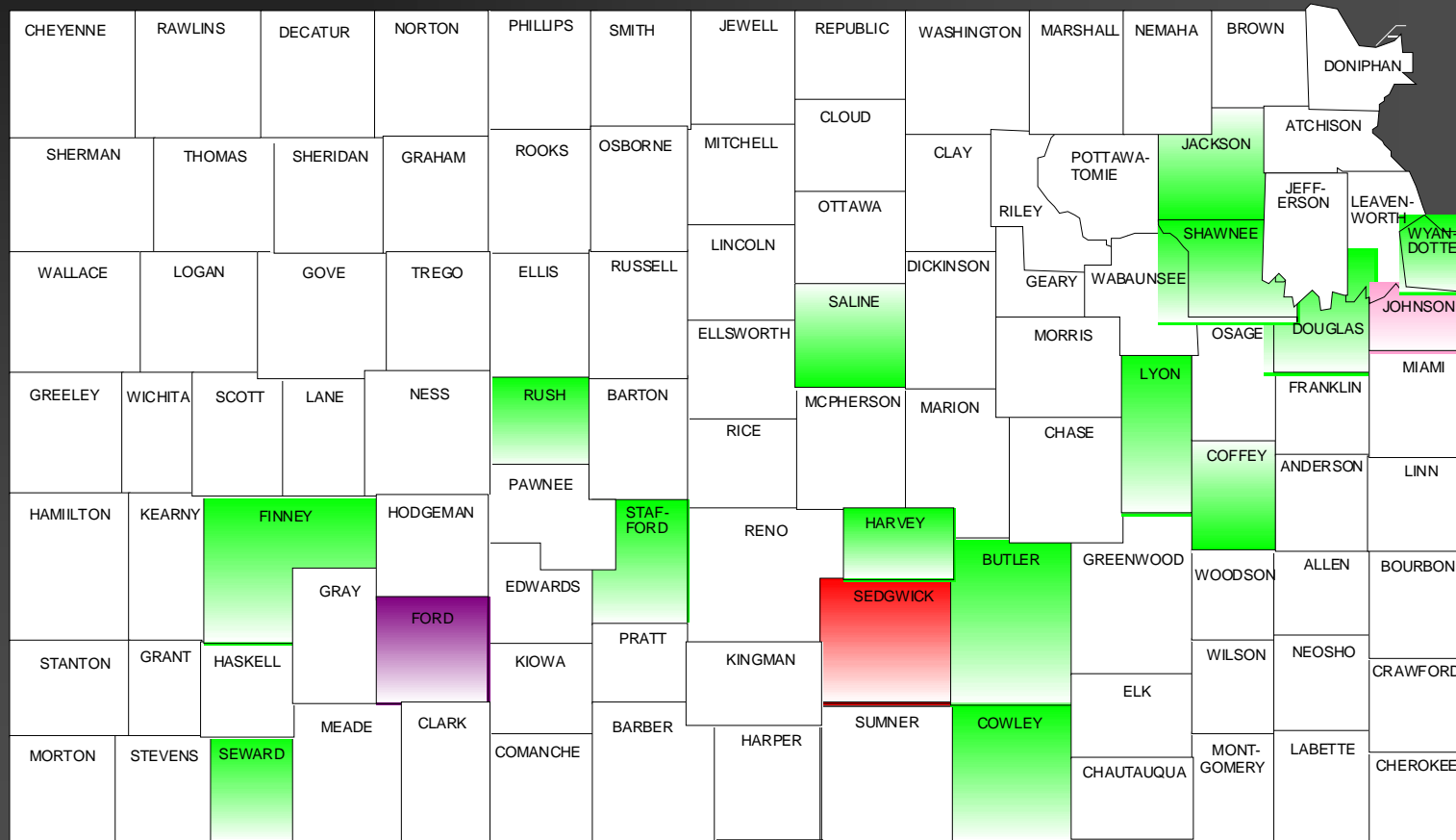
Case Distribution

- Some predictability
 - Many areas see cases only once in ten years
 - Distribution may explain some of the diversity
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2003 Case Distribution



2005 Case Distribution



1-5 cases

6 cases

11 cases

21 cases

2006 Case Distribution

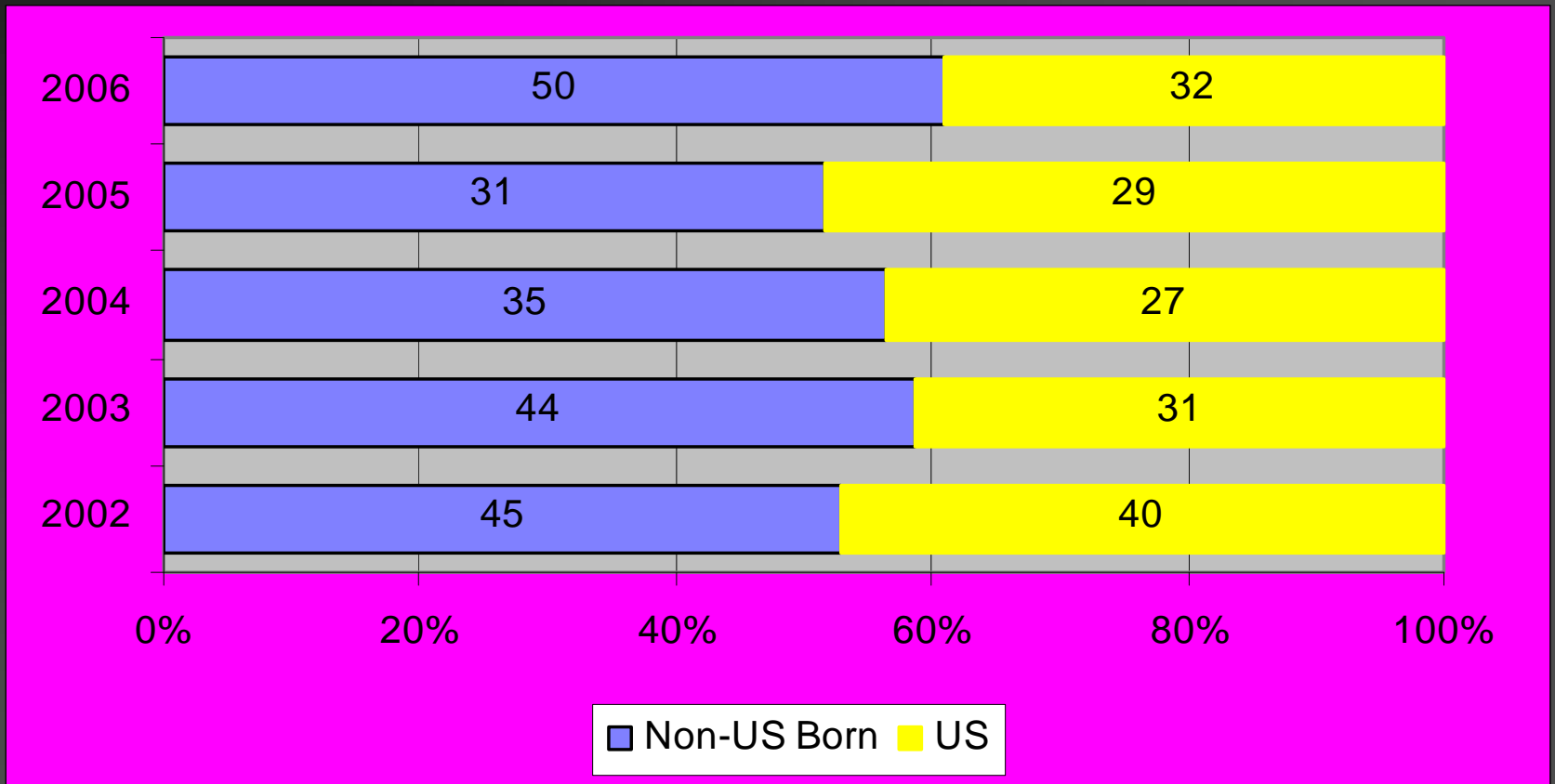
Statewide Active TB Distribution 2006



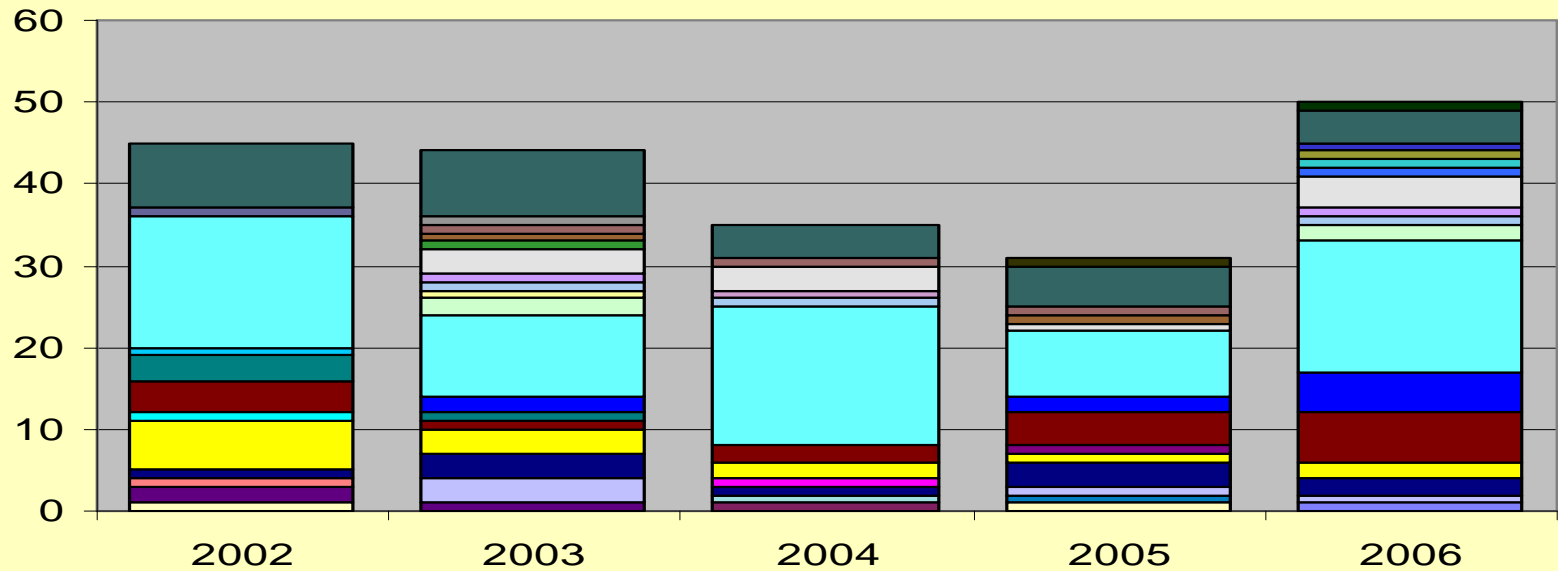
The Melting Pot

- 50% - 63% of cases are foreign born individuals
 - 36 countries of birth have been represented in Kansas in the past five years
 - Most cases are diagnosed within two to five years of arrival in Kansas
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Foreign Born vs US Born

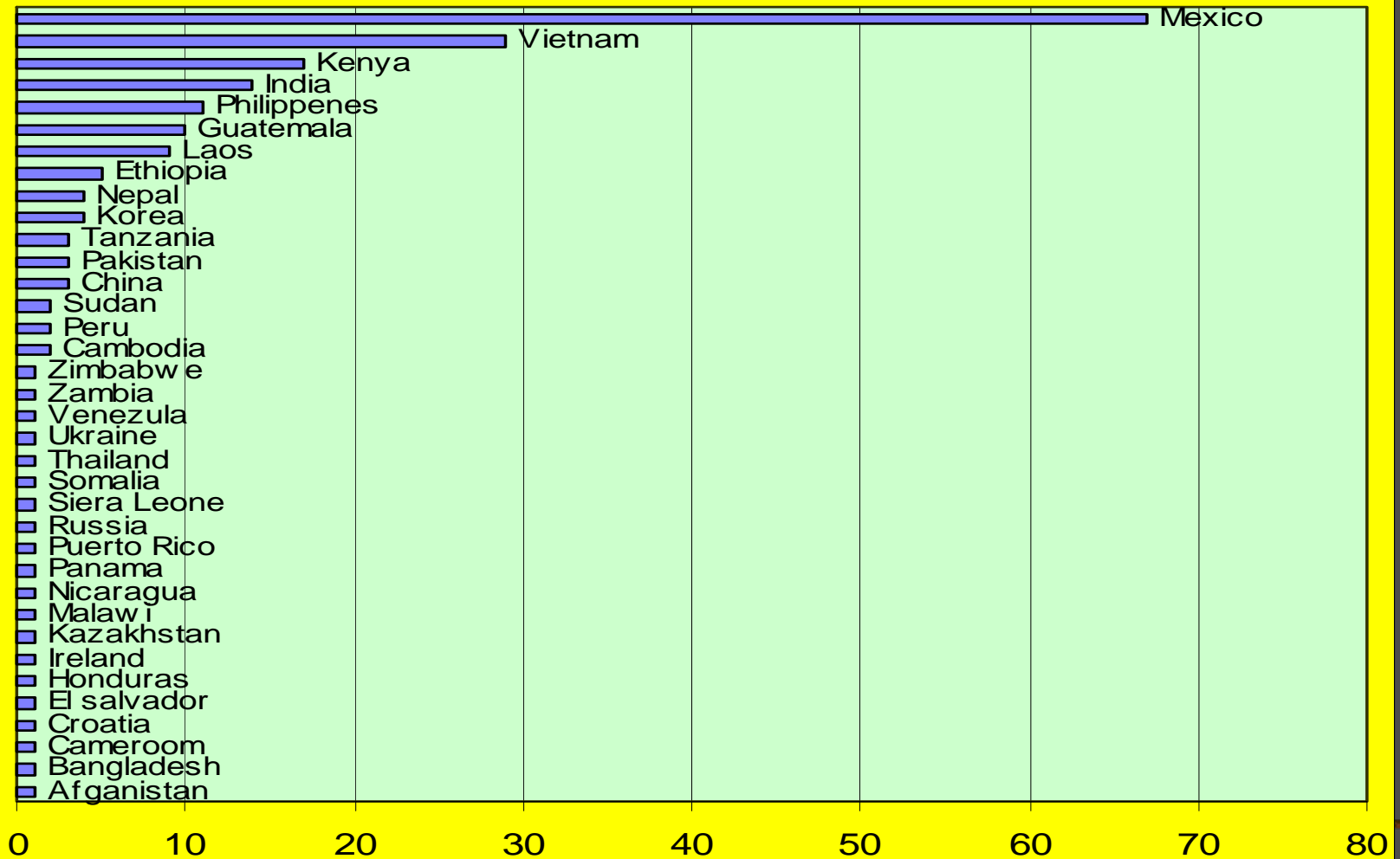


Country Distribution

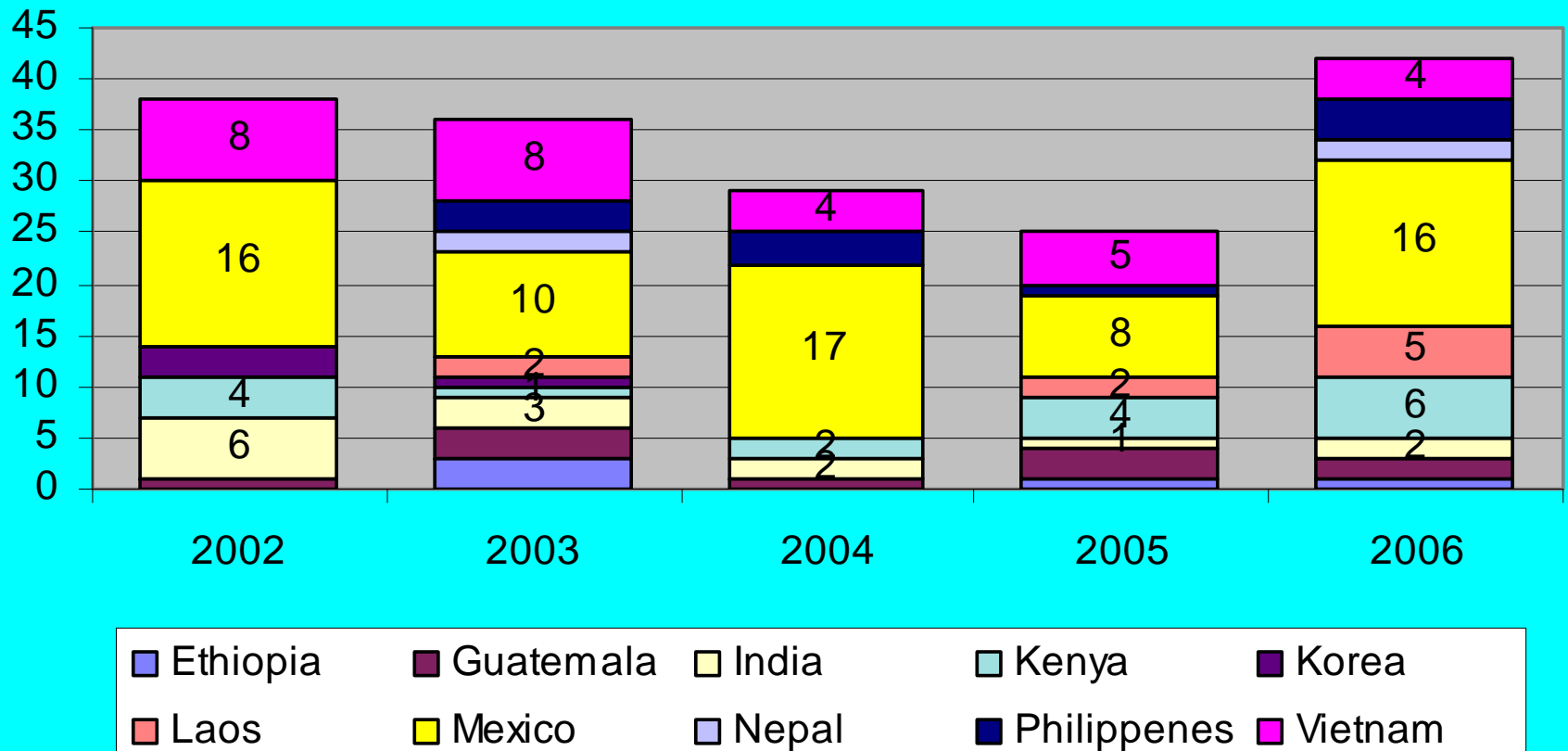


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|---------------|---------------|--------------|---------------|---------------|
| ■ Afghanistan | ■ Bangladesh | ■ Cambodia | ■ Cameroon | ■ China |
| ■ Croatia | ■ El salvador | ■ Ethiopia | ■ Guatemala | ■ Honduras |
| ■ India | ■ Ireland | ■ Kazakhstan | ■ Kenya | ■ Korea |
| ■ Laos | ■ Malawi | ■ Mexico | ■ Nepal | ■ Nicaragua |
| ■ Pakistan | ■ Panama | ■ Peru | ■ Philippines | ■ Puerto Rico |
| ■ Russia | ■ Siera Leone | ■ Somalia | ■ Sudan | ■ Tanzania |
| ■ Thailand | ■ Ukraine | ■ Venezula | ■ Vietnam | ■ Zambia |
| ■ Zimbabwe | | | | |

Country Distribution (5 YR Total)



Kansas Top Ten



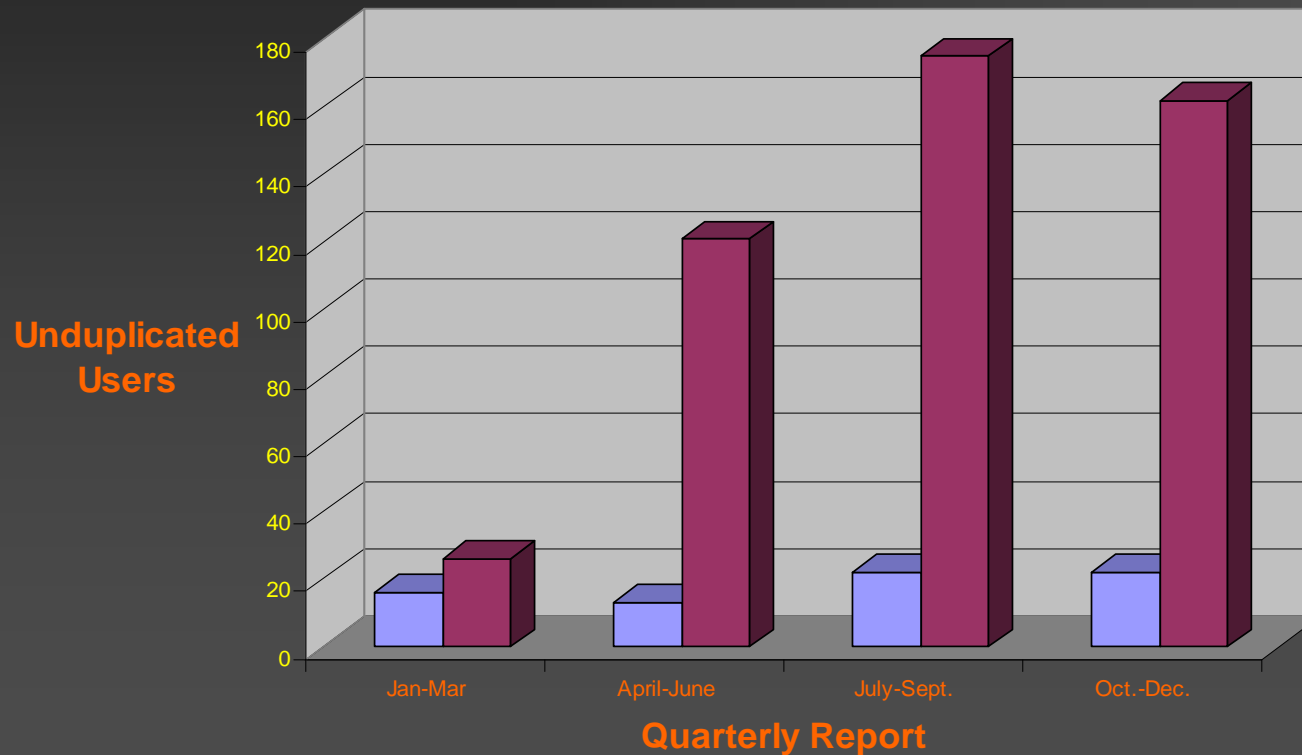


Sudden Impact and the Community Response

Refugees and Tuberculosis
A Case Study

Lyon County, Kansas

Latent TB 2005 Compared to 2006 YTD



2005 2006

Health Department Overview

- 1 RN Supervisor
 - 4 Full-time Staff Nurses (RN)
 - Walk-in Clinic
 - Services Provided:
 - Immunizations, STI testing and TX, Communicable Disease Investigation, TB Screening and TX, Paternity Testing, HIV screening and counseling, Fluoride varnish application, Birth control refills, school nursing, Immigration lab work, Refugee Assessments, Bioterrorism, health screenings such as cholesterol, hearing/vision, pregnancy, lead
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The First Wave.....

- February 28, 2006
 - Tyson Information Meeting
 - 70 Somalia Employee Transfers from Nebraska
 - One week later they arrived and were working at Tyson Fresh Meats.
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Health Department Impact

- Word spreads regarding Tyson job opportunities in Emporia
 - Tyson Health Nurse Pre-employment Physicals increase
 - Direct referrals to Health Department for immunizations and PPDs
 - Tyson does not require TB Skin tests
 - Nurse: completed verbal screening and referred to health department
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Health Department Impact

- Interpreter Needs
 - Language Lines
 - Front Desk
 - 20 show at time
 - Language barriers
 - Financial issues
 - Appointments/Understanding of time
 - Registration
-

Health Department Impact

- Longer wait times
 - Longer Office Visits
 - Slammed into new role
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Health Department Impact

- Public Health Staff
 - Complexity of Office Visit
 - New Staff not familiar with Refugee Health Assessments/State process
 - Deciding if we are the Refugee Police?
 - Case Management Issues and Non-compliance
 - Turning patients away
-

Community Impact

NURSE: TUBERCULOSIS RUMORS UNTRUE

By SCOTT ROCHAT
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Renee Hively wants to make one thing clear: There is no active tuberculosis among the new Somalian workers at the Tyson Foods plant in Emporia. According to Hively, who is a registered nurse and director of public health for the Lyon County Health Department, there are 185 employees at the plant who were found to have latent tuberculosis during routine screenings this year. That means the person has a germ that could potentially cause the disease, but does not carry the disease itself and is not contagious.

"I think people get really scared when they hear 'positive skin test' because all they hear is 'positive for tuberculosis' and they don't understand the terminology," Hively said. All of the 185 workers are taking medicine to fight the germ.

Rumors of several active cases among the Somalians are untrue, Hively said. "We only have one active tuberculosis disease and that is currently not in a Somalian," Hively said. "That person is on directly observed therapy." A majority of the workers who tested positive for the la-

tent form were Somalian, Hively said, but that's not unusual. Exposure to tuberculosis is common in Third World countries.

Tyson spokesman Gary Mickelson said the company screens a number of its workers each year for tuberculosis, including nurses and translators. He referred other comments to the health department. Typically, Hively said, only about 5 percent of latent cases become active ones. That's most likely in somebody with a weakened immune system, whose body has difficulty sealing off the germ. A healthy person could carry it their whole life without knowing.

"Several years back, we had an active TB case, a woman who lived with her husband," Hively said. "He never tested positive. It is really hard to get."

Anyone who tests positive for the latent form during screening is sent to Newman hospital for a chest X-ray to see whether there is any active TB in the lungs. If not, the person is put on daily anti-TB medications for nine months. Active cases are treated and directly monitored.

According to the Centers for Disease Control, symptoms of active TB in the lungs can include a cough that lasts three

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Tuberculosis

IS A BACTERIAL illness that usually attacks the lungs, but can attack the kidneys, spine and brain.

THE DISEASE is spread through the air when a person with the active form coughs or sneezes.

Latent TB cases are being infected in the disease cannot be spread. About 5 percent of latent cases become active.

RUMORS

HIV

Rape

Spreading Disease

Dining Facilities

Government Kick-backs

New Game Plan

- October, 2006 Emporia Refugee Resettlement Alliance (ERRA) formed



Game Plan

- Interpreters
 - Appointments vs Walk-in
 - Assigned one nurse to Case manage TB Program
 - Added 1 day of RN time
 - Recently add Certified Medication Aid
 - Utilizing Access Data Base vs Excel and white board
 - Built a TB network with other Primary Resettlement Cities (Health Departments)
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Grand Slam January 5, 2007

■ Tyson Accident



■ Coroner Phone Call

- Cavitory Lesion

■ Index Case

- Non-compliant
- Foreign born
- 2 years in USA
- Normal chest x-ray x 2
- Initially No signs and symptoms
- Symptomatic 4 weeks prior to death

Grand Slam

- Began Preliminary Contact List
 - Waiting for green light
 - Contacted State
 - Set up Tuberculosis Education Session at Tyson (Jan. 18th) and Environment inspection
 - Notified Jan. 17th – POSITIVE for Cavitory TB
 - Jan. 19th official investigation began
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Grand Slam

- Phone Call after Phone Call
 - Blogs in Gazette
 - TB In-service for school district and nurses and Wal-Mart Managers
 - Car loads of people for chest x-rays
 - 35-40 Contact interviews
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Grand Slam

- Dedicated 120 hours to investigation
 - Does not include hours supplemental staff used
 - Answering questions from Community
 - Correspondence with Tyson during investigational period
 - Phone interviews regarding case
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Game Plan

- Increased Tuberculosis Training
 - Formal meeting end of March
 - Corporate Nurse for Tyson, Health Department TB Manager and Staff and State TB Controller
 - Fact Sheets now in Somali
 - Minnesota State Health Department
 - Translated other documents
 - Reminder post cards
 - Letters
 - Medication Instructions ect.
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