Screening Immigrants and Refugees for TB

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Case 1

- 27 yo female Mexican immigrant presents with 3 mos nausea, vomiting, abd pain
- Increased abd girth but no weight gain
- Irregular menstrual cycles
Case 2

• 27 yo male Mexican immigrant presents with 4 mos right wrist and ankle swelling
• Initially struck hand on the hood of a car he was working on
• No systemic symptoms
What do these two have in common?
Queso fresco

http://www.dairysection.com/united_states/queso-fresco-cheese.html
The New Colossus

Not like the brazen giant of Greek fame,
With conquering limbs astride from land to land;
Here at our sea-washed, sunset gates shall stand
A mighty woman with a torch, whose flame
Is the imprisoned lightning, and her name
Mother of Exiles. From her beacon-hand
Glows world-wide welcome; her mild eyes command
The air-bridged harbor that twin cities frame.
"Keep ancient lands, your storied pomp!" cries she
With silent lips. "Give me your tired, your poor,
Your huddled masses yearning to breathe free,
The wretched refuse of your teeming shore.
Send these, the homeless, tempest-tost to me,
I lift my lamp beside the golden door!"

-Emma Lazarus
Migration and Immigration

• Between 1995-2000, 2.3 million persons per year migrated from the developing to the developed world
• In 2002, 1 million immigrants from over 200 countries came to the US
• 1 in 9 Americans are immigrants
• 1 in 5 are immigrants or children of immigrants
US Immigration by Year 1820–2011

Year

0 500 1000 1500

Immigrants (thousands)

1850 1900 1950 2000

NC Immigrants

• In July 2012, estimated NC population:
  – 9,752,073

• Estimated 7.4% of these were foreign-born
  – About 720,000

• 10.6% speak a language other than English at home

http://quickfacts.census.gov/qfd/states/37000.html
Figure 1. North Carolina Immigrants by Region of Origin, 2009

Source: U.S. Census Bureau, 2009 American Community Survey.
Hispanic influx changing Siler City, N.C., and America

By Sue Anne Pressley
The Washington Post

SILER CITY, N.C. — This small rural town in the center of the state has 25 churches, 18 police officers, 12 doctors, four dentists, two poultry-processing plants — and a population of 5,500 that has undergone dramatic change recently.

Longtime residents can scarcely grasp what has happened. A dramatic shift in the demographics of Siler City has brought their immediate families and then extended relatives. She estimates that about 10,000 Hispanics live in the county that a decade ago had 40,000 mostly black residents, according to the 1990 census. Most from local areas, some from other states, all now working in textile plants.

At first was that the Latinos were coming in and going to work. They were seen as migrants, said Dubester, a native of Brazil. "It took a little while for the older people here to realize they were not going to leave, they were going to stay. Everyone has to adapt to what the city looks like now, and it's different from what the older residents grew up in. And these new people are not white Anglo-Saxons, which makes it harder, because after all, this is still the South."

The problems quickly became evident — not enough housing, inadequate medical services, school crowding, traffic congestion — the same problems, critics say, produced by the nationwide Hispanic influx, that are the subject of 80 controversial billboards put up across the country by a New York-based group called ProjectUSA. Many of them have been erected in this region, said the group's founder, Craig Nelson, who also said he is "trying to excite debate on immigration in non-racial terms."

Here in Siler City, said longtime Police Chief Lewis Phillips, one of the most vexing problems had to do with the newcomers' lack of driver's licenses, vehicle registrations and auto insurance. A recent $5 million drug bust involving Mexican immigrants fanned the flames.

Duke said Siler City's problems are symbolic of the problems besetting many U.S. communities.

"The residents of the city, many of them, have family that goes all the way back to the 1700s here," he said. "In the blink of an eye, historically, they're seeing their entire city change. What's happening in Siler City is an 'American tragedy.'"

Givens, Phillips and Dubester want to prove him wrong. Local officials are holding meetings to coordinate assistance agencies and are considering ideas like English-immersion classes for Hispanic students and driving instruction for adults. It is a start in the right direction, Dubester said.

"Even the David Duke appearance is going to be a good thing for us," she said. "Because most people in Siler City were asking themselves, 'In the year 2000, do we really need the new faction of the KKK marching in town?' People who were silent, who didn't care much one way or the other, are now taking a stand."

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NC Demographics 1990-2011

Thousands

- Asian/Pacific Islander
- Native American
- Hispanic

www.census.gov
Immigration Definitions

Refugee:

• Person who is outside home country
• Unable or unwilling to return to that country because of persecution or a well-founded fear of persecution on account of race, religion, nationality, membership in a particular social group, or political opinion
Immigration Definitions

Asylee:

- Refugee who is physically in the US
- 44,927 refugees/asylees immigrated to the US in 2003 alone.

http://uscis.gov/graphics/shared/statistics/yearbook/YrBk03Im.htm
The Montagnards

- Indigenous Vietnamese, also known as Dega
- Live in central highlands of South Vietnam
- Speak distinct dialects, not Vietnamese
- Many are of evangelical Protestant faith
The Montagnards

- Longstanding persecution in Vietnam
- Fought with US troops in Vietnam war
- Estimated 200,000 (of 1 million!) died in that war
- First group of ~200 refugees arrived in US 1986, settled in NC
- 2nd wave in 1992, followed by trickle
The Montagnards

• As of 2001, about 3,000 Montagnards living in US
• Most live in Raleigh, Charlotte, or Greensboro

http://www.angelfire.com/dc/dega/
Montagnards and NC

• February 2001: Thousands of Montagnards hold demonstrations calling for independence, return of ancestral land, religious freedom
• Vietnamese government responds with massive show of force, hundreds of arrests
Montagnards and NC

- Frequent reports of torture used to elicit public confessions
- Over 1,000 Montagnards flee to Cambodia, where they were sheltered in 2 UN-managed refugee camps
“...authorities have systematically conducted "goat's blood ceremonies," in dozens of villages in the highlands starting in June 2001. Villagers who had participated in the February 2001 demonstrations were forced to stand up in front of their entire village and local authorities to admit their wrongdoing, pledge to cease any contacts with outside groups, and renounce their religion. To seal their loyalty, they were forced to drink rice wine mixed with goat's blood.

‘They asked us to drink goat's blood, but we never saw any goat,’ one traumatized young villager told Human Rights Watch. ‘We wondered where the blood was from. If we didn't drink it, they would beat us. We didn't know if it was from a chicken or a dog or what. I am afraid I will have health problems in the future.’”

Human Rights Watch
Montagnards and NC

• March 2002: Cambodia and US agree on resettlement agreement for over 900 Montagnards

• Cambodia subsequently shuts down refugee camps, seals borders, and announces that new arrivals will be deported
Montagnards and NC

• June 2002: NC begins to receive the first of ~907 Montagnard refugees

• Plan:
  – 290 to settle in Charlotte
  – 430 in Greensboro, High Point, Winston-Salem
  – 157 in Raleigh, Durham, Louisburg
  – 30 in New Bern

http://www.dhhs.state.nc.us/montagnard.htm#links
Why Is This Relevant to TB?

• TB knows no borders.
• The United States is a country of immigrants.
• Multinational understanding
TB Cases in U.S.-born vs. Foreign-born Persons
United States, 1993–2012*

- U.S.-born
- Foreign-born
Percent of Foreign-born with TB by Time of Residence in U.S. Prior to Diagnosis, 2011

*Foreign-born TB patients for whom information on length of residence in the U.S. prior to diagnosis is unknown or missing
Primary Isoniazid Resistance in U.S.-born vs. Foreign-born Persons
United States, 1993 – 2011*

*Updated as of June 25, 2012.

Note: Based on initial isolates from persons with no prior history of TB.
Conflict and TB

- TB in refugees is driven by what happens overseas
- Meta-analysis of TB rates and mortality in refugee camps
- Looked particularly at association between high-intensity conflict in an area and refugee TB rates
- Data are challenging to get and always questions about accuracy

Lancet Inf Dis 2012; 12: 950-965
Conflict and TB

• In general, TB incidence higher in high-intensity conflict settings
• Case fatality rates no different in high-intensity conflict settings
• Notification rates were all over the place

Lancet Inf Dis 2012; 12: 950-965
Figure 3: Estimated percent change in case reporting rate associated with high-intensity conflict years, by country, based on a model without lag effects. Whiskers indicate 95% CI. *High-intensity years versus low-intensity years.
Overseas Screening

• Procedure is driven by CDC “Technical Instructions”
• New version published in 2007
• Primary change is including cultures in routine overseas evaluation for TB, not just smears

For applicants ≥15 years of age

Medical history
Physical examination

Chest radiograph

Medical history, examination, or chest radiograph suggestive of tuberculosis or HIV infection

Three sputum smears and cultures for *Mycobacterium tuberculosis*

Drug susceptibility testing on positive culture

Countries with TB incidence <20/100,000
Countries with TB incidence ≥20/100,000

For applicants 2 – 14 years of age:
- Medical history
- Physical examination
- Tuberculin skin test or IGRA
  - TST ≥10 mm or IGRA positive

For applicants ≥15 years of age:
- Medical history
- Physical examination
- Chest radiograph
- Medical history, examination, or chest radiograph suggestive of tuberculosis or HIV infection
  - Three sputum smears and cultures for *Mycobacterium tuberculosis*
  - Drug susceptibility testing of positive cultures
TB Travel Clearance

• The evaluation is complete when all required aspects of the medical examination have been completed, **including a final report of culture results**, and the applicant can be assigned a Tuberculosis Classification.

• Travel clearances are valid for 6 months from the time the evaluation is complete for applicants who have no Tuberculosis Classification or only Class B2 TB or Class B3 TB and who do not have HIV infection.

• Travel clearances are valid for 3 months from the time the evaluation is complete for applicants who are Class B1 TB, Pulmonary or Class B1 TB, Extrapulmonary or who have HIV infection.
TB Travel Clearance

- Applicants who do not travel within the clearance period will need to restart the tuberculosis screening process.
- Any applicant diagnosed with pulmonary or laryngeal tuberculosis who needs treatment is not cleared for travel until completion of successful treatment, regardless of the diagnostic criteria.
TB rules delay adopted kids' move to U.S.

Marilyn Nixon and Luca Rigotti thought they had made a benevolent choice when they finalized their adoption of a 4-year-old girl from Ethiopia, plucking her from the impoverished orphanage where she had been abandoned.

Now, the U.S. government says the Chapel Hill couple's child may be a danger to public health and has forbidden her to enter the country until they can prove that she does not have tuberculosis.

The family is caught up in new rules designed to halt the spread of drug-resistant TB, a growing worldwide problem. TB is a bacterial infection in the lungs that can be fatal if left untreated.

"They're adopting these kids from orphanages, which is often the place where TB is spread," said Jason Stout, North Carolina's TB medical director. "Do we want to open ourselves to the, admittedly unlikely, but potential disaster of bringing a child over with multidrug-resistant TB?"
Lobbying Produces Results

- CDC amended the 2007 technical instructions Sept. 18, 2009
- Applicants 10 years of age or younger who require sputum cultures, regardless of HIV infection status, may travel to the United States immediately after sputum smear analysis (while culture results are pending) if none of the following conditions exist:
Lobbying Produces Results

- Sputum smears are positive for acid-fast bacilli (AFB). If the applicant could not provide sputum specimens and gastric aspirates were obtained, positive gastric aspirates for AFB do not prevent travel while culture results are pending.
- Chest radiograph findings include—
  - One or more cavities
  - Extensive disease (e.g., particularly if involving both upper lobes)
- Respiratory symptoms include forceful and productive cough
- Known contact with a person with multidrug-resistant tuberculosis (MDR TB) who was infectious at the time of contact
Panel physicians should not delay treatment of applicants 10 years of age or younger for whom there is high suspicion of tuberculosis disease and who would benefit from therapy being started prior to departure to the United States. Consistent with other applicants started on tuberculosis treatment prior to travel, if therapy is started for an applicant 10 years of age or younger, the applicant is Class A for tuberculosis. A Class A waiver petition can be filed so that the waiver petition could be reviewed and the applicant can travel to the United States before completion of therapy. CDC supports the filing of waiver requests for young children with tuberculosis disease so that the waiver application may be reviewed and adjudicated in a timely manner.
Practical Points

- IGRAs may be easier for new refugees
  - Have Medicaid for 8 months after arrival
  - T-SPOT will bill directly; other labs may also bill directly for QFT

- Short-course regimens for LTBI likely to increase completion rates
  - Ounce of prevention>>>pound of cure in this population
Conclusions

- Immigrant health is important in an immigrant country
- Most TB in US is imported, so these are important populations
- Understanding what is happening abroad helps to understand our patients