Thank you

- TBCP
  - Alicia Chang
  - Stuart McMullen (CDC)
  - April King-Todd
  - Cherry Tam
  - Monica Rosales
  - Sandra Bible
- UCLA
  - Sanghyuk Shin
  - Tiffany Hsu
  - Zora Cheever
  - Qingqing Wen
  - Saanchi Shah
- LA County Productivity Investment Fund
- LAC DPH
  - Catherine Mak
- CA TB Branch
  - Jenny Flood
  - Phil Lowenthal
  - Pennan Barry
  - Neha Shah (CDC)
- Curry
  - Kelly Musoke
  - James Sederberg
  - Ann Rafferty

PROJECT: Partnership for TB Elimination

- Partners
  - LAC DPH TB Control Program
  - UCLA Fielding School of Public Health
  - California Department of Public Health
  - Curry International TB Center
  - Los Angeles County Civil Surgeons
- Goal
  - Prevent future TB cases among permanent residency applicants
- Funding Source
  - LA County Productivity Investment Fund (Jan 2016 - June 2018)
Civil Surgeon Status Adjustments – US Major Cities

USCIS Field Office or Service Center Location (Oct-Dec 2016)

Applications

<table>
<thead>
<tr>
<th>State</th>
<th>Received</th>
<th>Approved</th>
<th>Denied</th>
<th>Pending</th>
</tr>
</thead>
<tbody>
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<td>109,272</td>
<td>12,280</td>
<td>340,633</td>
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<td>California</td>
<td>6,000</td>
<td>5,072</td>
<td>660</td>
<td>17,834</td>
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<tr>
<td>Los Angeles</td>
<td>3,717</td>
<td>3,762</td>
<td>149</td>
<td>4,614</td>
</tr>
<tr>
<td>San Francisco</td>
<td>2,574</td>
<td>2,650</td>
<td>144</td>
<td>7,532</td>
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<tr>
<td>San Jose</td>
<td>3,353</td>
<td>3,482</td>
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<tr>
<td>Santa Ana</td>
<td>1,996</td>
<td>1,973</td>
<td>213</td>
<td>5,136</td>
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<tr>
<td>Florida</td>
<td>5,080</td>
<td>1,546</td>
<td>196</td>
<td>9,015</td>
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<td>Miami</td>
<td>4,079</td>
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<td>355</td>
<td>11,767</td>
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<tr>
<td>Illinois</td>
<td>2,654</td>
<td>1,966</td>
<td>190</td>
<td>7,735</td>
</tr>
<tr>
<td>Chicago</td>
<td>6,368</td>
<td>4,478</td>
<td>745</td>
<td>23,058</td>
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<tr>
<td>New York</td>
<td>2,253</td>
<td>1,655</td>
<td>232</td>
<td>7,735</td>
</tr>
<tr>
<td>Queens</td>
<td>2,253</td>
<td>1,655</td>
<td>232</td>
<td>7,735</td>
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</table>


Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
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<td>Quarter</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Phase 1.1: Civil Surgeon survey</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Phase 1.2: TB CME training</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1.3: Pilot site recruitment, Prevalence data, Applicant survey</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Phase 2: Pilot intervention</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Phase 3: Evaluation and expansion planning</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Phase 1.1: Civil Surgeon Mapping and Survey

Listed civil surgeon offices in LAC on USCIS website
N=406

Active civil surgeon offices after telephone outreach
N=372

Telephone survey conducted
N=93

https://my.uscis.gov/findadoctor

2017 National TB Conference, Atlanta, Georgia National TB Controllers Association www.tbcontrollers.org
Survey questions
- Volume of applicants per month
- Whether their applicants had insurance
- Testing methods for tuberculosis
- Whether they treated LTBI themselves or referred out
- If they knew about short course treatment

Summary of Civil Surgeon Mapping Survey
- TB screening knowledge
  - Lots of confusion
  - Lack of support and resources for questions
  - Familiar with “blood tests” – but few use them (<2%)
    - Concern about higher cost of IGRA
    - Turnaround time too long
- LTBI treatment
  - Few offer INH therapy to applicants
  - No knowledge of shorter regimens
  - Varying commitment to patients beyond medical exam
- High level of interest in educational workshop

Civil Surgeon Clinics

2017 National TB Conference, Atlanta,
Georgia National TB Controllers Association
www.tbcontrollers.org
Phase 1.2: Civil Surgeon Education

- CME Training (4.5 CMEs)
- Partnership with Curry International TB Center, California Dept. of Public Health, CDC, USCIS
- Training topics
  - General TB knowledge
  - TB screening
  - LTBI Treatment
  - TB and LTBI referral, reporting
  - Also added immunization technical instructions to increase interest

Results of Training: Knowledge scores improved

- Average Score of Civil Surgeons before and after Training
- Pre-Test: 68%
- Post-Test: 85%
- P value < 0.0001
Results of Training: improvement and plan to change practice

Phase 1.3: Selection of Pilot Civil Surgeon Sites

- Recruitment of 6 pilot sites
  - Identified from mapping survey and workshop attendance
- Expectations
  - Distribute TB education material to applicants with LTBI
  - Fax all TB screening forms (positive and negative tests for TB infection)
  - During the baseline survey period
    - Inform LTBI+ applicants that they will be contacted for survey
  - During the pilot intervention period
    - Offer short course LTBI treatment or refer applicants

Pilot Civil Surgeon Sites
Breakout Sessions B1 and C1 - Julie Higashi April 20 and 21, 2017

Phase 1.3: Baseline Assessment at Pilot Sites

- Pre-intervention estimates of
  - % TB infection (I-693 Form)
  - % Treatment initiation (applicant interview)
  - % Treatment completion (applicant interview)
- Determine whether TB education provided
- Determine medical insurance status

Continents of Origin of Green Card Applicants in LAC Civil Surgeon Clinics (N=379)

Note: North America includes only Canada and Mexico. High TB Burden Country includes all countries except Canada, Australia, New Zealand and Western Europe.

Prevalence of LTBI by Pilot Civil Surgeon Clinic (N = 269)

2017 National TB Conference, Atlanta,
Georgia National TB Controllers Association
www.tbcontrollers.org
Breakout Sessions B1 and C1 - Julie Higashi

April 20 and 21, 2017

Household income among baseline applicant survey participants in LAC pilot sites (n=32)

Years spent in the U.S. since arrival among baseline applicant survey participants in LAC pilot sites (n=32)

Insurance and Medical Care

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance status</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>14(44)</td>
</tr>
<tr>
<td>Medicaid/Medicare</td>
<td>4(13)</td>
</tr>
<tr>
<td>Private</td>
<td>14(44)</td>
</tr>
<tr>
<td>Where do you normally get your medical care?</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3(10)</td>
</tr>
<tr>
<td>Public clinic/hospital</td>
<td>7(23)</td>
</tr>
<tr>
<td>Private clinic, non-HMO/EPO</td>
<td>7(23)</td>
</tr>
<tr>
<td>Private clinic, HMO/EPO</td>
<td>6(19)</td>
</tr>
<tr>
<td>ER</td>
<td>2(6)</td>
</tr>
<tr>
<td>Other</td>
<td>2(6)</td>
</tr>
<tr>
<td>Don’t know</td>
<td>4(13)</td>
</tr>
</tbody>
</table>
LTBI treatment preference among baseline applicant survey participants (n=17)

Note: 17 participants said they would take LTBI treatment if they were recommended to do so.

<table>
<thead>
<tr>
<th>LTBI treatment regimen</th>
<th>Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>INH</td>
<td>5%</td>
</tr>
<tr>
<td>RIF</td>
<td>17%</td>
</tr>
<tr>
<td>INH+RIF</td>
<td>58%</td>
</tr>
<tr>
<td>Unsure</td>
<td>21%</td>
</tr>
</tbody>
</table>

Treatment location preference among baseline applicant survey participants (n=17)

Note: 17 participants said they would take LTBI treatment if they were recommended to do so. Total percentage exceeds 100 because two participants responded affirmatively to two locations of the three location choices provided.

<table>
<thead>
<tr>
<th>Type of clinic</th>
<th>Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH clinic</td>
<td>59%</td>
</tr>
<tr>
<td>CS clinic</td>
<td>24%</td>
</tr>
<tr>
<td>Doctor’s office</td>
<td>35%</td>
</tr>
</tbody>
</table>

Introduction of IGRA at Pilot Sites

- Objective
  - To determine acceptability among CS’s and applicants
- Arrangement made with Oxford Immunotec (OI)
  - Reduced pricing ($46.50 per test) for applicants with no insurance
  - OI will handle billing for applicants with insurance
- All sites enthusiastic about using IGRA in the beginning
- Poor adoption at sites when T.Spot made available
  - Only one site regularly using T.Spot-TB
- Resistant to change current work flow
Next Steps

- Establish referral process for civil surgeons who do not want to provide TB infection treatment (0-1 years)
  - Community Health Service Chest Clinics
  - Patient PMD
- Educate public/private MDs about status adjustment process and high priority of civil status adjustors for TB infection treatment
  - New EHR to go live in 2018 for county TB clinics
- Consider annual civil surgeon training with immunization and communicable disease programs (0-1 years)
- Include TB infection registry in new Los Angeles County integrated disease control database (2-5 year timeline)
- Consider local health officer order to report/refer TB infection for treatment

Thank you!

Program Phases

- Phase 1: Pre-Intervention
  - Assessment: mapping, surveys, baseline data
  - Education
  - Recruitment of pilot sites
- Phase 2: Pilot Intervention
  - Increase use of IGRA
  - 3HP
  - Referral to care
- Phase 3: Post-Intervention
  - Program evaluation
  - Expansion plan
Phase 1.3: Selection of Pilot Civil Surgeon Sites

- Recruitment of 6 pilot sites
  - Identified from mapping survey and workshop attendance
- Expectations
  - Distribute TB education material to applicants with LTBI
  - Fax all TB screening forms (positive and negative tests for TB infection)
  - During the baseline survey period
    - Inform LTBI applicants that they will be contacted for survey
  - During the pilot intervention period
    - Offer short-course LTBI treatment or refer applicants

### 1. Communicable Diseases of Public Health Significance

#### A. Tuberculosis (TB):

An initial screening test, either a Tuberculin Skin Test (TST) or an Interferon Gamma Release Assay (IGRA), is required for all applicants 2 years of age and older; for children under 2 years of age, see Technical Instructions. The civil surgeon should perform one type of initial screening test only, followed by further evaluation, if needed (chest X-ray).

1. **Tuberculin Skin Test (TST):**

   - **Not administered** (TST exception applies; please explain in Remarks section below)
   - **Date TST Applied** (mm/dd/yyyy)
   - **Size of Reaction** (mm)
   - **Date TST Read** (mm/dd/yyyy)
   - **Negative** (4mm or less of induration)
   - **Not administered** (IGRA exception applies; please explain in Remarks section below)
   - **Positive** (> 5mm; chest X-ray required)

2. **Interferon Gamma Release Assay (IGRA):**

   For acceptable IGRA results, the Technical Instructions and any updates posted on CDC's Web site are consulted.

3. **Initial Screening Test Result and Chest X-Ray Determination:**

   - **Chest X-ray not required** (medically cleared for TB for USCIS)
   - **Chest X-ray required due to TST or IGRA exception** (The civil surgeon must clearly specify the TST or IGRA exception in the Remarks section below.)
   - **Chest X-ray required due to TB signs or symptoms, or due to immunosuppression** (e.g., HIV)
   - **Chest X-ray required due to initial screening test results**

4. **Chest X-Ray:**

   Required based on TST or IGRA result, or if specific TST or IGRA exceptions apply, or for an applicant with TB signs or symptoms or immunosuppression (e.g., HIV).

   - **Date Chest X-Ray Taken** (mm/dd/yyyy)
   - **Date Chest X-Ray Read** (mm/dd/yyyy)

#### B. Tuberculosis Classification:

- **Class A Pulmonary TB Disease**
- **Class B1 Pulmonary TB**
- **Class B1 Extra Pulmonary TB**
- **Class B, Other Chest Condition (non-TB)**
- **Class B2 Pulmonary TB**
- **Class B, Latent TB Infection**

#### C. Total Reported TB test results by Month, 2016 (N = 269)

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>10</td>
</tr>
<tr>
<td>February</td>
<td>9</td>
</tr>
<tr>
<td>March</td>
<td>9</td>
</tr>
<tr>
<td>April</td>
<td>14</td>
</tr>
<tr>
<td>May</td>
<td>9</td>
</tr>
<tr>
<td>June</td>
<td>26</td>
</tr>
<tr>
<td>July</td>
<td>34</td>
</tr>
<tr>
<td>August</td>
<td>28</td>
</tr>
<tr>
<td>September</td>
<td>10</td>
</tr>
<tr>
<td>October</td>
<td>21</td>
</tr>
<tr>
<td>November</td>
<td>9</td>
</tr>
<tr>
<td>December</td>
<td>10</td>
</tr>
</tbody>
</table>
Age of Green Card Applicants in LAC Civil Surgeon Clinics, 2016 (N = 269)

LTBI Prevalence among Green Card Applicants in LAC Civil Surgeon Clinics, 2016 (n = 269)

Baseline Survey of Applicants

• Objective
  – To determine LTBI treatment acceptability and preferences
  – To explore insurance status and possible medical care pathway for LTBI treatment

• Methods
  – Study interviews administered via telephone
  – Online option in process
  – Maximum of 8 attempts were made
  – Interviews in English, Spanish, and Mandarin
Baseline Applicant Survey Preliminary Findings (N = 32)

Total Enrollment over Time

Applicant Survey Response Rate

Demographics of baseline applicant survey participants in LAC pilot sites (n=32)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>16(50)</td>
</tr>
<tr>
<td>Female</td>
<td>16(50)</td>
</tr>
<tr>
<td>Age in years, median (IQR)</td>
<td>37.5(15)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>6(19)</td>
</tr>
<tr>
<td>Black</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>7(22)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>7(22)</td>
</tr>
<tr>
<td>Other</td>
<td>2(6)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18(56)</td>
</tr>
<tr>
<td>No</td>
<td>14(44)</td>
</tr>
</tbody>
</table>
**LTBI awareness**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informed about LTBI status</td>
<td>12/32(38)</td>
</tr>
<tr>
<td>Aware of treatment for LTBI</td>
<td>5/26(19)</td>
</tr>
<tr>
<td>Recommended by clinician to get LTBI treatment</td>
<td>2/32(6)</td>
</tr>
<tr>
<td>Received LTBI treatment</td>
<td>1/32(3)</td>
</tr>
<tr>
<td>If recommended, would you take LTBI treatment?</td>
<td>17/31(55)</td>
</tr>
</tbody>
</table>

Notes:
- 26 participants responded to the "aware of treatment for LTBI" question.
- 1 participant responded to the "received LTBI treatment" question.
### Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Quarter</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
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<td>1 2 3 4</td>
<td>1 2</td>
<td></td>
</tr>
<tr>
<td>Phase 1.1: Civil Surgeon survey</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1.2: TB CME training</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1.3: Applicant survey</td>
<td>X X</td>
<td>X X</td>
<td>X X</td>
<td></td>
</tr>
<tr>
<td>Phase 2: Pilot intervention</td>
<td>X X X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 3: Evaluation and expansion planning</td>
<td></td>
<td>X X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Phase 2: Intervention

**Introduction of IGRA at Pilot Sites**

  - 45 T.Spot-TB tests done as of Feb 28, 2017
- 2 pilots sites refusing to use T.Spot-TB
  - One already using QFT (T.Spot-TB pricing not low enough to justify change)
  - Logistical issues in integrating into work flow
- 2 sites considering IGRA introduction

### T.Spot Tests to Date

![T.Spot Tests to Date Chart]

- 30 Khorsandi
- 5 Viglio
- 10 Farhadi
Breakout Sessions B1 and C1 - Julie Higashi

April 20 and 21, 2017

TSpot Test Payor Data

Self-Pay | Blue Cross Blue Shield | Cigna | Medicare

TSpot Combined Test Results

Positive | Negative | Borderline | Invalid

NEXT in Phase 2: Intervention

April 2017

- Encourage Civil Surgeons to prescribe 3HP
- Provide consultation support from DPH doctors for 3HP use by Civil Surgeons
- Make information accessible on our website
- Easy to follow fact sheets
- Educate on referral process to DPH for complicated patients, TB5s, LTBI with no insurance
- Establish monitoring and assess case management needs of applicants who are referred to treatment
Looking ahead to Phase 3: Expansion of work in County

• How to manage surge of TB testing data (I-693 forms)?
• How to incentivize Civil Surgeons to report TB tests and provide LTBI treatment and/or referral?
• How to track adherence to treatment in private sector?
• How to case manage LTBI patients with no increase in resources?

• Limitations
  – Low response rate for applicant survey (31%)
  – Pilot sites not representative of all Civil Surgeon sites