# Diagnosis and Treatment of Latent TB Infection: From Then to Now

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## The People We Treat

We provide tuberculosis (TB) treatment for a wide variety of clients:

- Refugees
- Individuals applying for immigration
- Health professionals
- Renal dialysis patients
- Individuals receiving biologic treatments
- Students
- Anyone with a positive TB test

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## Then: Before 2015

- Difficult for refugees and others to complete nine months of treatment
- Refugees would relocate during treatment and be lost to follow-up
- Only offered the Tuberculin Skin Test (TST) for TB testing
- Very few treatment options available for treatment of latent TB infection (LTBI)
- Over 200 patients at any given time on LTBI treatment with nine months of isoniazid (INH)
- LTBI completion rate was approximately 50 percent

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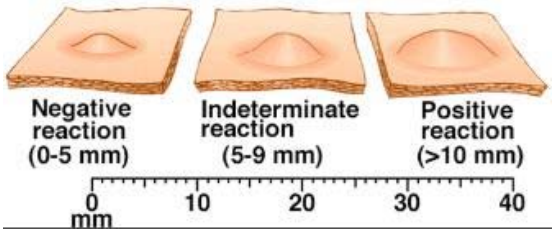
## Tuberculin Skin Test (TST)

- TST requires two visits by the patient
- Reading of the TST result is subjective and often creates confusion for the patient
- Prior bacille Calmette-Guerin (BCG) vaccination may cause a false positive result
  - Patients with prior BCG vaccination often question the TST result and decline treatment

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## Since 2015

- QuantiFERON GOLD is a blood test for TB
  - Requires just one visit
  - BCG vaccine does not affect results
  - Results are quantitative, not subjective
  - Client is less likely to dispute results
  - Client is more likely to accept and complete treatment
- More treatment options are available
  - 12 week Direct Observation Therapy (DOT)
  - 12 week Video DOT
  - Rifampin (RIF) for 4 months
  - INH for 9 months

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## Since 2015 (cont.)

- CDC recommends all patients with LTBI or TB disease be screened for the human immunodeficiency virus (HIV)

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## Now

QuantiFERON GOLD and more LTBI treatment options have resulted in:

- A decrease in the number of patients diagnosed with LTBI; and
- An increase in the treatment completion rate

*The Lancaster County State Health Center now has a LTBI treatment completion rate of about 80 percent*

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## Refugees Welcome

- Per capita, Lancaster City has resettled more refugees than any city in the country
- Over 3,000 refugees resettled in Lancaster County from January 2012 through April 2018

www.refugeesinpa.org/aboutus/demoandarrivalstats/index.htm

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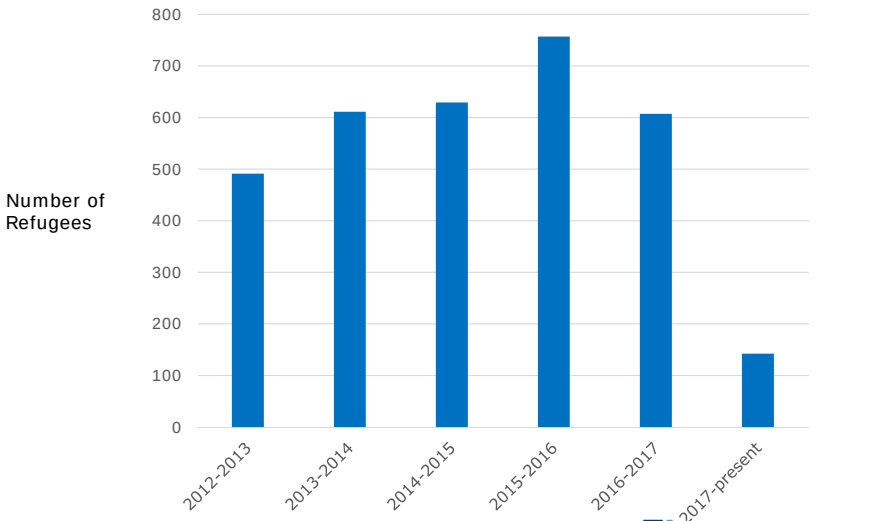
## Lancaster Refugees Resettled since 2012




**Note:** each year is October 1 through September 30

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## Working with Diverse Populations

- Our clients are adjusting to a new country and culture (i.e., a new job, doctor appointments, public transportation, and trying to maintain cultural traditions in a new society)
- Conveying the importance of therapy is complicated because of language barriers and the patients' education level
  - Some speak a language where no certified translator is available
- Patient education is key since many are receiving a medical diagnosis and taking pills for the first time in their life
- Many refugees lack transportation

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## Meeting Patient Needs

- Every refugee is tested for TB with QuantiFERON GOLD
- Translation services are used as needed
- Clinic staff communicate with refugee counselors to tailor a treatment regimen that best fits the individual patient
- The availability of more treatment and delivery options make it easier to tailor therapy, e.g. 12-week DOT at home
- Work with refugee agency counselors and volunteers to ensure transportation

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## Conclusions:

- More accurate TB testing
- Improved patient education about TB testing and the difference between LTBI and TB disease
- More treatment options are available
- Accommodations are made to help patients complete treatment

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# Video Directly Observed Therapy (VDOT)

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## Why VDOT?

- Transportation issues
- Difficult schedules
- Preserves program resources
- Convenient for both patients and staff
- FLEXIBILTY!!!

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## VDOT via Skype


"Work smarter, not harder"
Carl Banks

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## Eligibility Criteria

The patient…

- Does not have multi drug resistant or extensively drug resistant tuberculosis (TB)
- Has been on directly observed therapy (DOT) in person for at least two weeks with 100 percent compliance
- Accepts the diagnosis and understands the need for treatment
- Can accurately identify each medication to be taken
- Can communicate effectively with clinical staff

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## Eligibility Criteria (cont.)


- Has ability to properly use the VDOT application
- Has a smartphone or computer with a webcam
- Has a location where VDOT can be completed confidentially
- Signs the consent to participate form
- Has support from the TB physician for participation in VDOT

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## VDOT Basics

DOT worker:

- Creates a meeting using Skype for Business and emails link to the patient.
- Initiates call with the patient and confirms their identity.

**Note:** for privacy, tuberculosis is not mentioned.

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## VDOT Basics (cont.)

DOT worker:

- Assesses patient's treatment tolerance.
- Confirms next DOT date.
- Logs DOT session in patient chart.

Patient shows DOT worker the medication bottle or packet, takes the pills with water, and verifies ingestion.

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## VDOT for TB Disease

- While on VDOT, in-person sessions will occur to:
  - Gather contact information
  - Do face-to-face evaluations
  - Provide dose packets for VDOT sessions

- During the first month of VDOT, the patient will receive in-person DOT at least once per week
- After, in-person DOT can be reduced to once every other week with clinician approval

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## VDOT for TB Infection

- **DOT 1** — Patient receives first DOT during medical appointment and signs treatment paperwork. DOT worker schedules appointment for DOT 2.
- **DOT 2** — DOT worker confirms appointments for VDOT sessions 3, 4 and 5, verifies patient has enough dose packets, and informs patient that DOT 6 will be in-person for treatment assessment and to get more dose packets.
- **DOT 7-10** — DOT sessions 7-12 will all be done via Skype unless the patient stops meeting the eligibility criteria

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## What Our Patients Are Saying

"I could take my pills anywhere. Due to (work) training, I would have missed doses, had it not been for Skype."

"I have a half hour trip to the clinic, and taking my child to school, that would take the whole morning. This way is easy to do and doesn't interrupt my day."

"I like the convenience, and the ease of use. Great to be able to be treated in the comfort of my home. Very cool!"

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## And Finally…


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## Implementing Video DOT

For information about implementing a video DOT program, see the guide developed by the Centers for Disease Control and Prevention at: https://www.cdc.gov/tb/publications/guidestoolkits/tbedottoolkit.htm

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# Impact of Changes in the Treatment of Tuberculosis Infection (TBI)

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June 19, 2018

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## Objective

To review how the adoption of rifapentine plus isoniazid for TBI has impacted:

- Use of isoniazid and rifampin for TBI
- Completion rates by treatment type
- Number and percent of TBI patients lost to follow-up by treatment type

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## TB Infection Treatment Data: Lancaster, Pa.

| | Total | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| Unknown Treatment | 523 | 177 | 141 | 102 | 52 | 40 | 11 |
| Isoniazid (INH) | 391 | 129 | 174 | 70 | 15 | 2 | 1 |
| Rifampin (RIF) | 393 | 31 | 26 | 126 | 130 | 71 | 9 |
| Total 12 week R/I DOT | 145 | 0 | 0 | 4 | 63 | 64 | 14 |
| Total Treatments | 929 | 160 | 200 | 200 | 208 | 137 | 24 |
| | | | | | | | |
| Percent 12 week R/I DOT | 16% | 0% | 0% | 2% | 30% | 47% | 58% |
| Percent INH | 42% | 81% | 87% | 35% | 7% | 1% | 4% |
| Percent RIF | 42% | 19% | 13% | 63% | 63% | 52% | 38% |
| | | | | | | | |
| Completion rate INH | 63% | 73% | 59% | 60% | 40% | 50% | 0% |
| Completion rate RIF | 62% | 74% | 85% | 68% | 56% | 56% | 0% |
| Completion rate 12 week R/I DOT | 54% | n/a | n/a | 75% | 56% | 58% | 29% |
| | | | | | | | |
| Number Lost to follow-up (% of total) | 96 (10.3%) | 22 (13.8%) | 19 (9.5%) | 26 (13.0%) | 18 (8.7%) | 10 (7.3%) | 1 (4.2%) |
| Lost INH % | 13% | 14.0% | 10.3% | 18.6% | 20.0% | 0.0% | 0.0% |
| Lost RIF % | 8% | 6.5% | 3.8% | 9.5% | 7.7% | 8.5% | 0.0% |
| Lost 12 week R/I DOT % | 7% | 0.0% | 0.0% | 25.0% | 6.3% | 6.3% | 7.1% |

Notes: R/I = Rifapentine + isoniazid
DOT = Directly observed therapy

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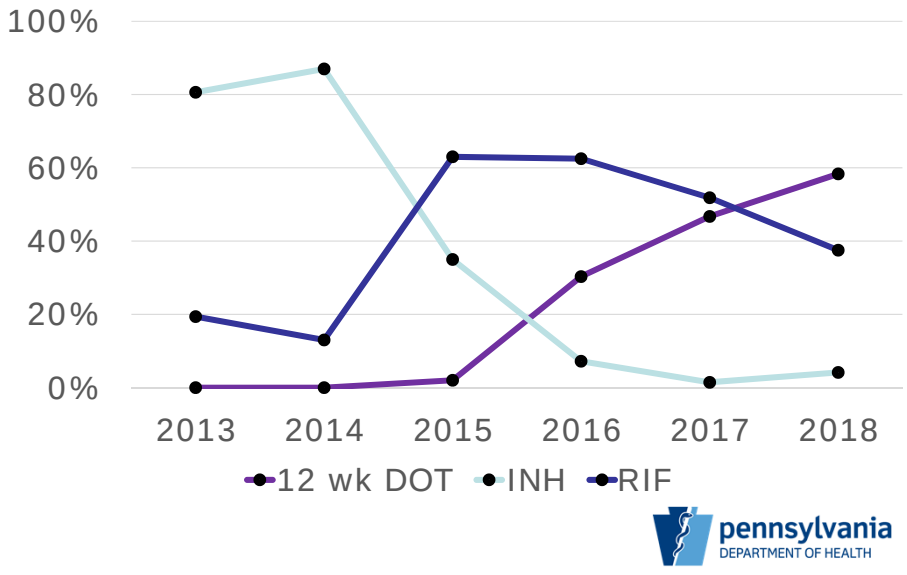
## Percent of TBI Cases by Treatment Type

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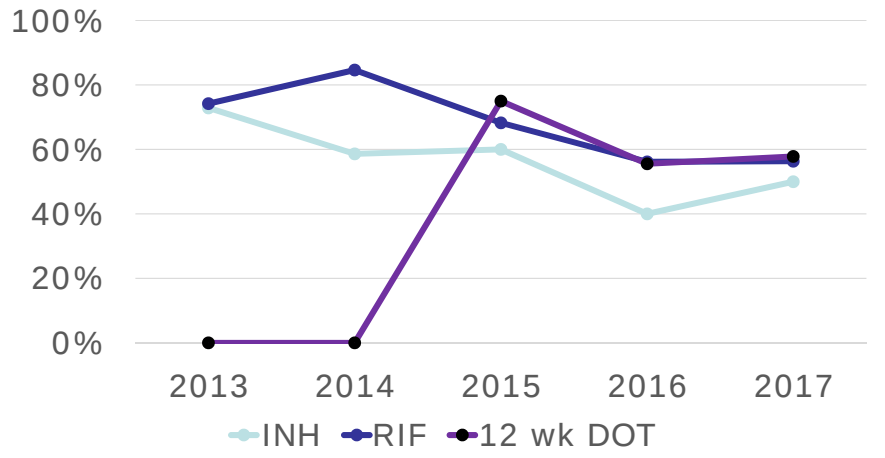
## Completion Rates by Treatment Type

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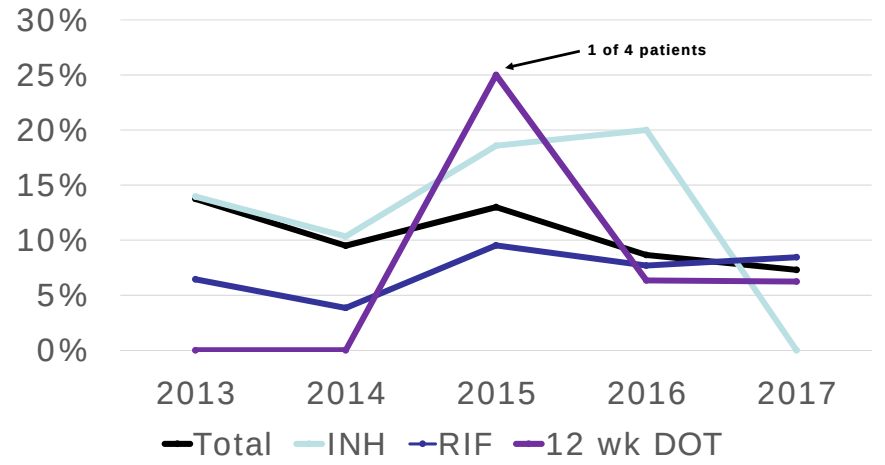
## Percent Lost to Follow Up by Treatment Type

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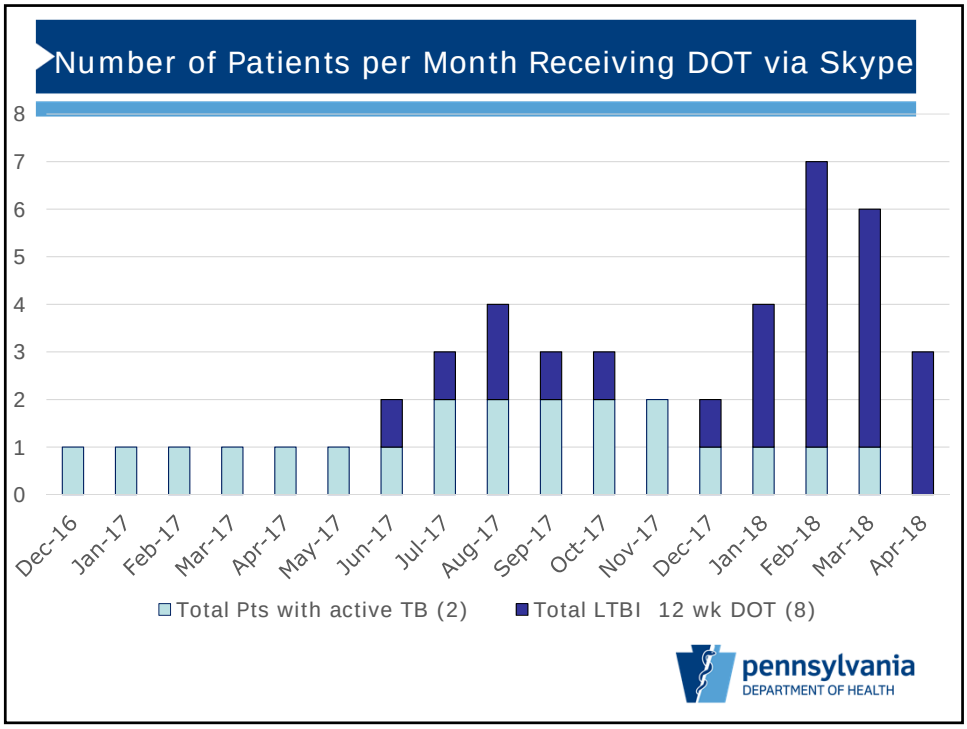
Number of Patients per Month Receiving DOT via Skype
8
7
6
5
4
3
2
1
0
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
Total Pts with active TB (2)
Total LTBI 12 wk DOT (8)
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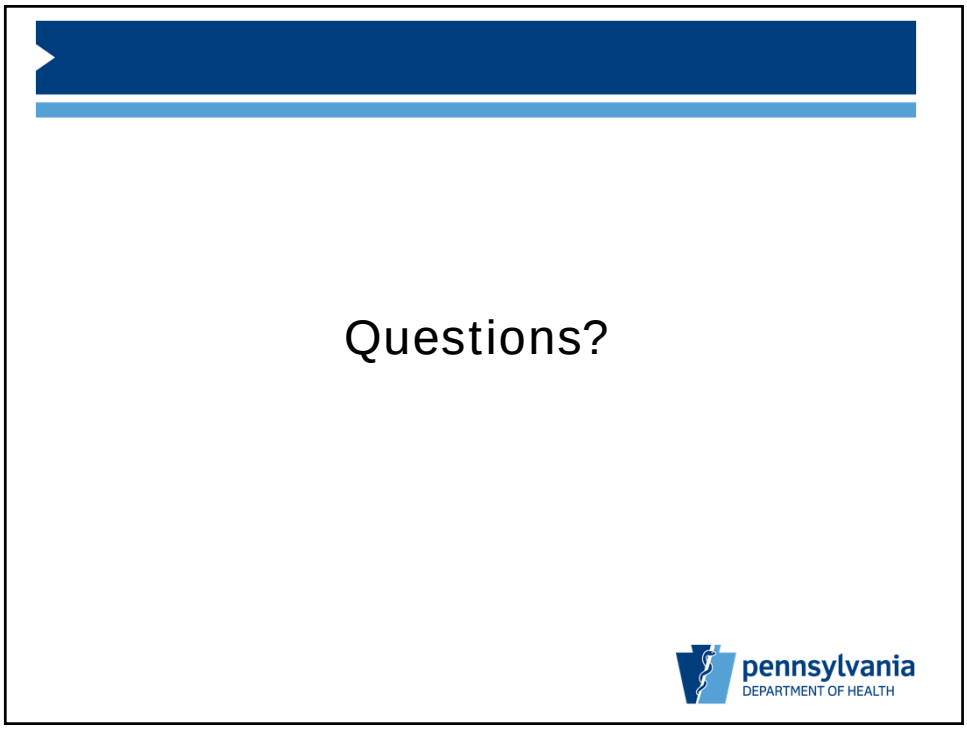
Questions?
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