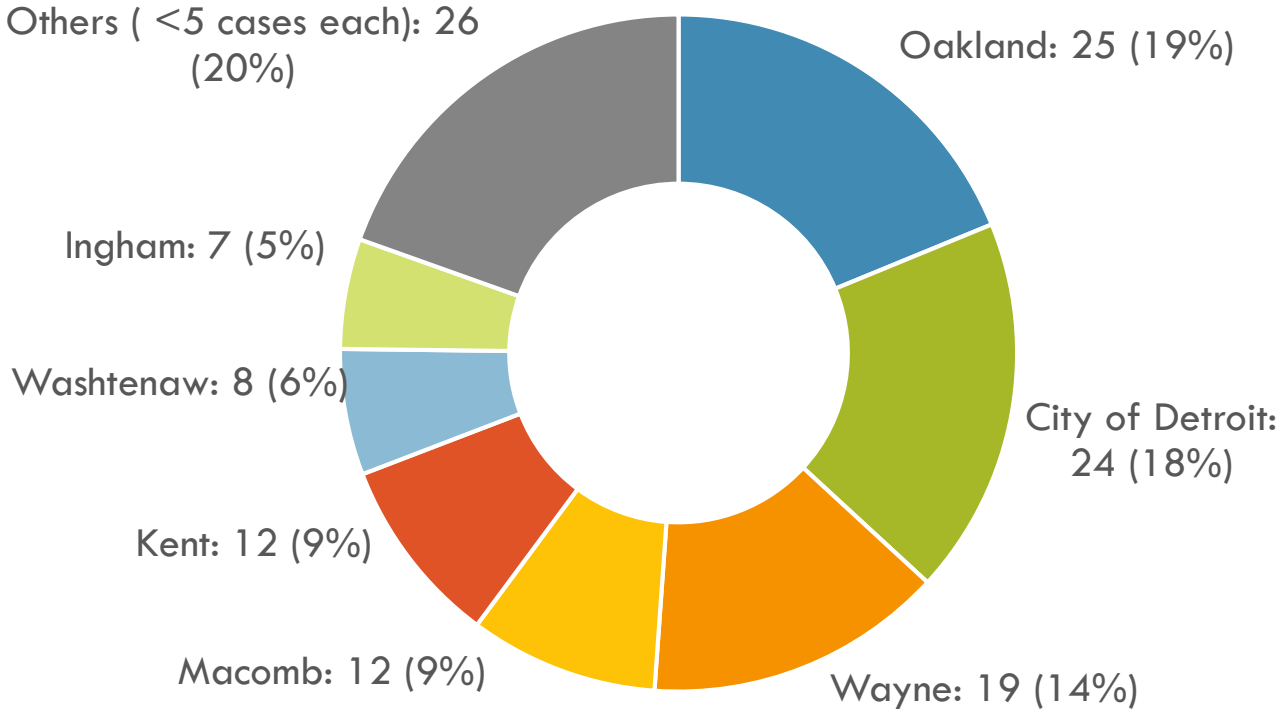
Case Presentations

TB Cases by Local Health Jurisdiction

Michigan, 2017



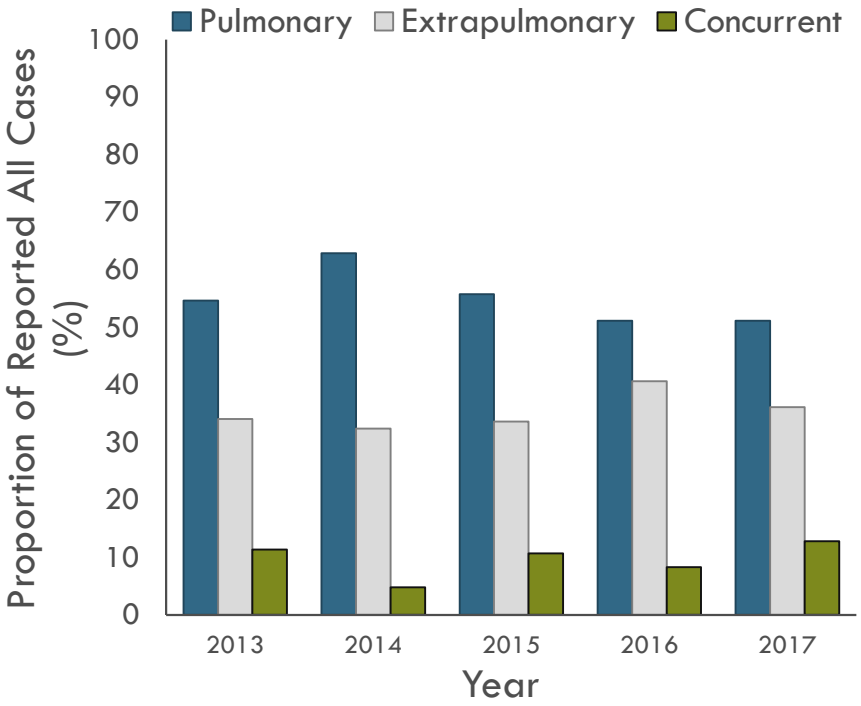
Classification of TB Cases

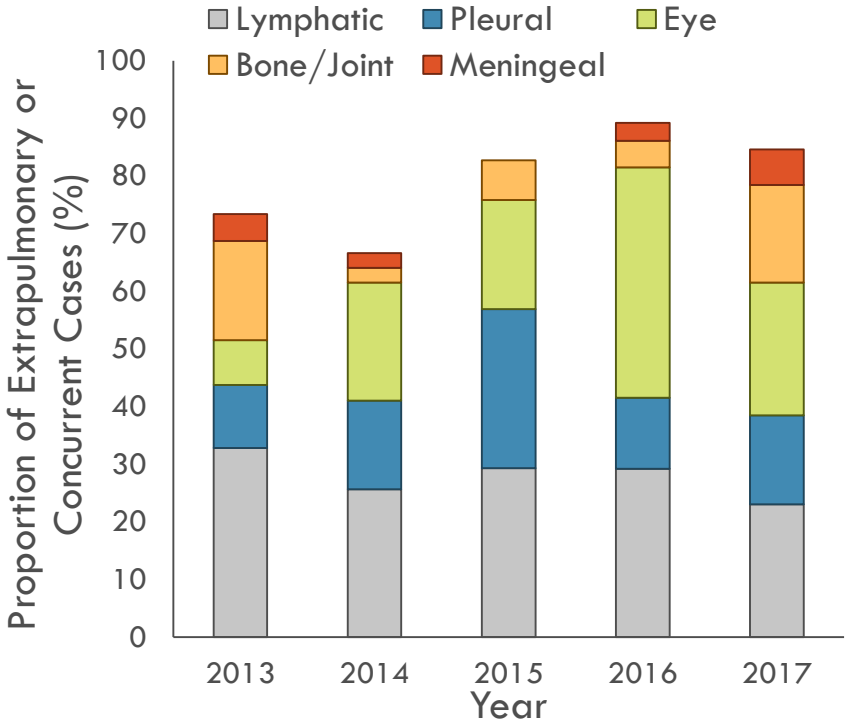
Michigan, 2017

- Verification Criteria
  - 67% Culture
  - 1% Pathology
  - 29% Clinical
  - 4% Provider Diagnosed
- 100% of culture positive cases were genotyped
- 18% in a genotype cluster

Tuberculosis Cases by Site of Disease

Michigan, 2013-2017





Tuberculosis Cases with Risk Factors Identified as Case Management Barriers

Michigan, 2010-2017

17% Unemployment

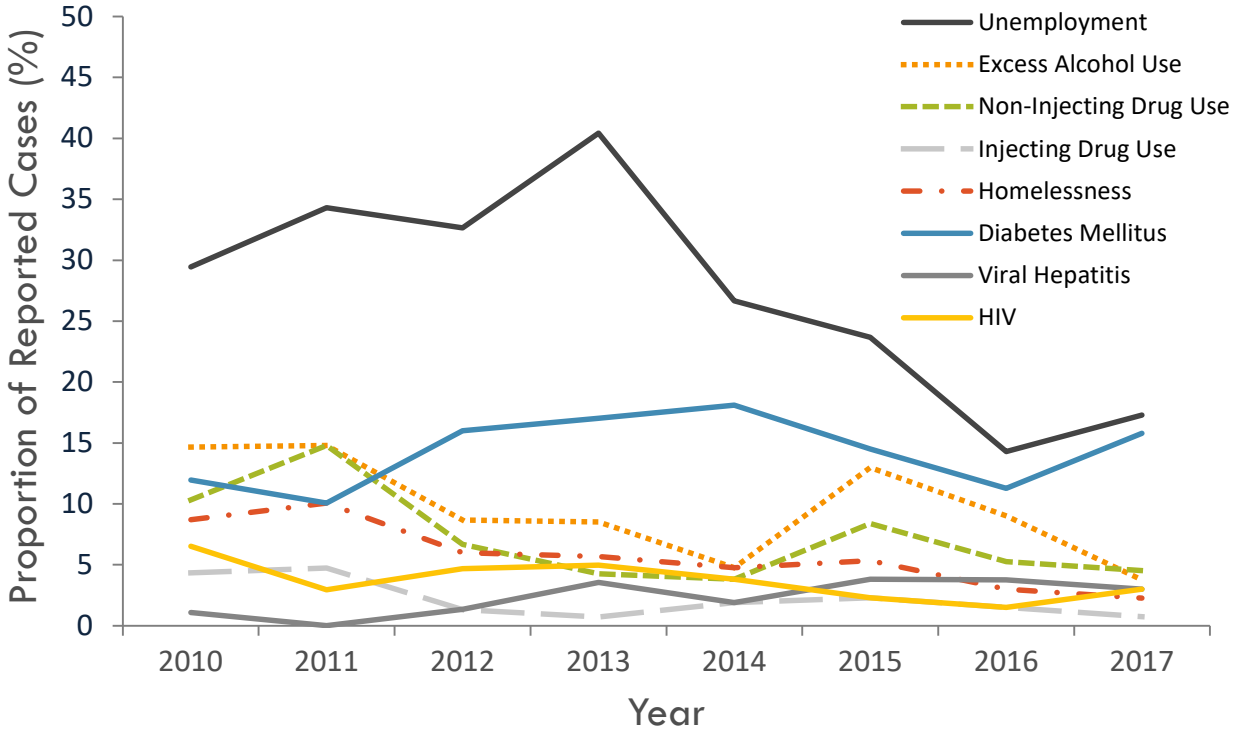
16% Diabetes

8% Substance Abuse

3% Viral Hepatitis

3% HIV Infection

2% Homelessness



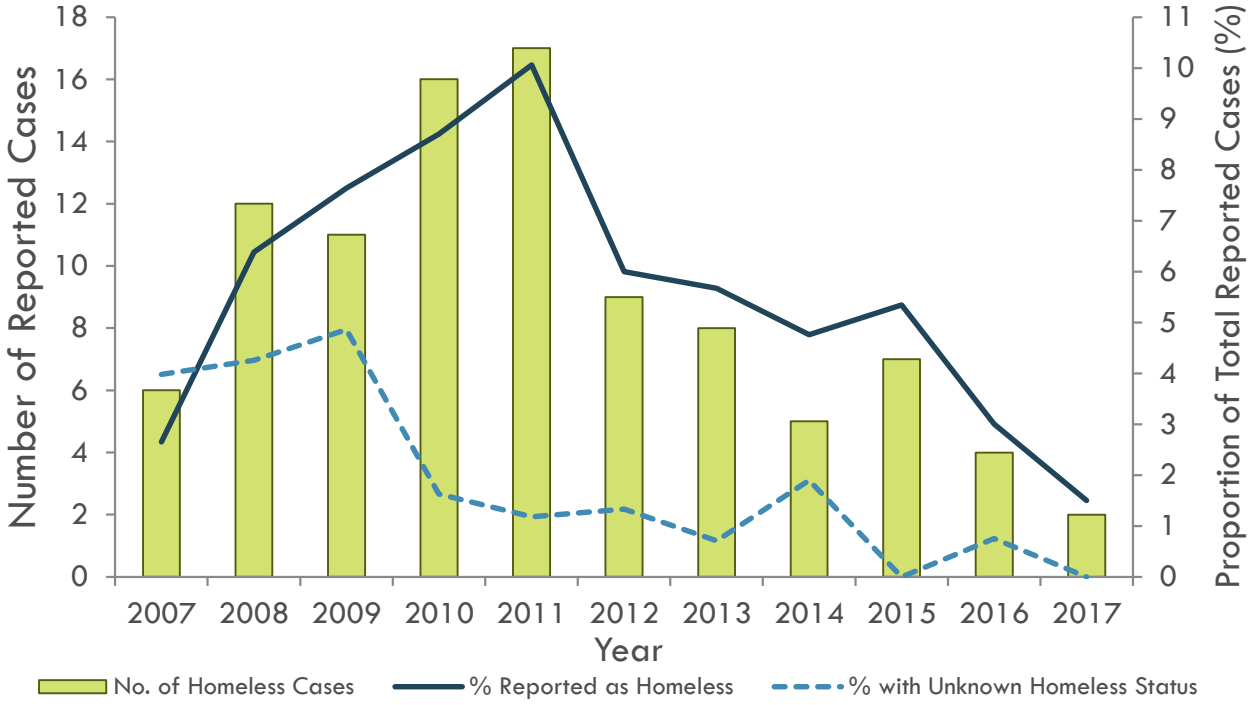
TB Cases Reported as Homeless in the 12 Months Prior to Diagnosis

Michigan, 2007-2017

1.5% reported as having experienced homelessness

67% decrease since 2007

88% decrease since 2011



Philippines

Tuberculosis profile

Population 2016 **103 million**

Estimates of TB burden*, 2016	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	22 (22–22)	21 (21–22)
Mortality (HIV+TB only)	0.3 (0–2.6)	0.29 (0–2.5)
Incidence (includes HIV+TB)	573 (321–895)	554 (311–866)
Incidence (HIV+TB only)	6 (2.5–11)	5.9 (2.4–11)
Incidence (MDR/RR-TB)**	30 (21–40)	30 (20–39)

Estimated TB incidence by age and sex (thousands)*, 2016	0-14 years	> 14 years	Total
Females	33 (16–60)	136 (68–205)	169 (84–255)
Males	37 (18–56)	366 (182–550)	403 (200–606)
Total	70 (35–106)	502 (249–755)	573 (321–895)

TB case notifications, 2016	
Total cases notified	345 144
Total new and relapse	332 941
- % *tested with rapid diagnostics at time of diagnosis*	*13%*
- % *with known HIV status*	*19%*
- % *pulmonary*	*98%*
- % *bacteriologically confirmed among pulmonary*	*37%*

Universal health coverage and social protection	
TB treatment coverage (notified/estimated incidence), 2016	58% (37–100)
TB patients facing catastrophic total costs, 2017	35%
TB case fatality ratio (estimated mortality/estimated incidence), 2016	0.04 (0.02–0.06)

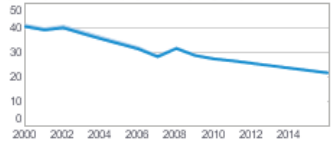
TB/HIV care in new and relapse TB patients, 2016	Number	(%)
Patients with known HIV-status who are HIV-positive	1 009	2%
- *on antiretroviral therapy*	*820*	*81%*

Drug-resistant TB care, 2016	New cases	Previously treated cases	Total number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			20 000 (15 000–24 000)
Estimated % of TB cases with MDR/RR-TB	2.6% (1.8–3.3)	29% (20–38)	
% notified tested for rifampicin resistance	7%	67%	50 752
MDR/RR-TB cases tested for resistance to second-line drugs			432
Laboratory-confirmed cases		MDR/RR-TB: 5 233, XDR-TB: 5	
Patients started on treatment ****		MDR/RR-TB: 5 253, XDR-TB: 5	

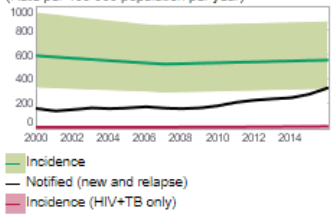
Treatment success rate and cohort size	Success	Cohort
New and relapse cases registered in 2015	91%	263 481
Previously treated cases, excluding relapse, registered in 2015	82%	7 925
HIV-positive TB cases registered in 2015	65%	277
MDR/RR-TB cases started on second-line treatment in 2014	46%	2 490
XDR-TB cases started on second-line treatment in 2014	0%	7

TB preventive treatment, 2016	
% of HIV-positive people (newly enrolled in care) on preventive treatment	49%
% of children (aged < 5) household contacts of bacteriologically-confirmed TB cases on preventive treatment	5% (4.6–5.5)

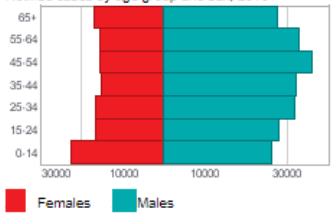
(Rate per 100 000 population per year)



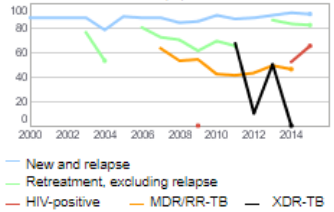
(Rate per 100 000 population per year)



Notified cases by age group and sex, 2016



Treatment success rate (%)



United States of America

Tuberculosis profile

Population 2016 322 million

Estimates of TB burden*, 2016	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	0.53 (0.52–0.53)	0.16 (0.16–0.17)
Mortality (HIV+TB only)	0.086 (0.057–0.12)	0.03 (0.02–0.04)
Incidence (includes HIV+TB)	10 (8.7–12)	3.1 (2.7–3.6)
Incidence (HIV+TB only)	0.56 (0.47–0.65)	0.17 (0.15–0.2)
Incidence (MDR/RR-TB)**	0.18 (0.13–0.22)	0.05 (0.04–0.07)

Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	> 14 years	Total
Females	0.41 (0.35–0.47)	3.6 (3.1–4.1)	4 (3.4–4.6)
Males	0.46 (0.39–0.53)	5.7 (4.8–6.5)	6.1 (5.2–7.1)
Total	0.88 (0.74–1)	9.3 (7.9–11)	10 (8.7–12)

TB case notifications, 2016	
Total cases notified	9 257
Total new and relapse	8 814
- % tested with rapid diagnostics at time of diagnosis	
- % with known HIV status	93%
- % pulmonary	79%
- % bacteriologically confirmed among pulmonary	84%

Universal health coverage and social protection	
TB treatment coverage (notified/estimated incidence), 2016	87% (75–100)
TB patients facing catastrophic total costs	
TB case fatality ratio (estimated mortality/estimated incidence), 2016	0.06 (0.05–0.07)

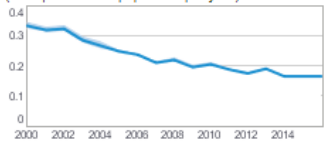
TB/HIV care in new and relapse TB patients, 2016	Number	(%)
Patients with known HIV-status who are HIV-positive	466	6%
- on antiretroviral therapy		

Drug-resistant TB care, 2016	New cases	Previously treated cases	Total number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			130 (100–150)
Estimated % of TB cases with MDR/RR-TB	1.5% (1.2–1.8)	5.6% (3.2–9.1)	
% notified tested for rifampicin resistance	75%	67%	6 949
MDR/RR-TB cases tested for resistance to second-line drugs			94
Laboratory-confirmed cases			MDR/RR-TB: 113, XDR-TB: 1
Patients started on treatment ****			MDR/RR-TB: 113, XDR-TB: 1

Treatment success rate and cohort size	Success	Cohort
New and relapse cases registered in 2015	83%	8 953
Previously treated cases, excluding relapse, registered in 2015	77%	465
HIV-positive TB cases registered in 2015	77%	429
MDR/RR-TB cases started on second-line treatment in 2014	78%	108
XDR-TB cases started on second-line treatment in 2014	0%	2

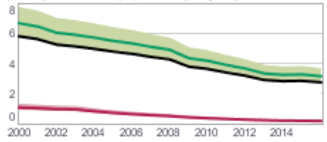
TB preventive treatment, 2016
% of HIV-positive people (newly enrolled in care) on preventive treatment
% of children (aged < 5) household contacts of bacteriologically-confirmed TB cases on preventive treatment

(Rate per 100 000 population per year)



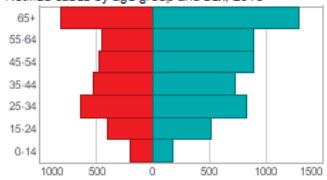
Mortality (excludes HIV+TB)

(Rate per 100 000 population per year)



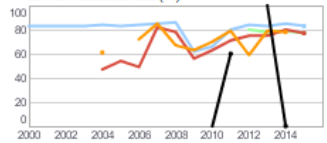
Incidence
Notified (new and relapse)
Incidence (HIV+TB only)

Notified cases by age group and sex, 2016



Females Males

Treatment success rate (%)



New and relapse
Retreatment, excluding relapse
HIV-positive MDR/RR-TB XDR-TB

Ethiopia

Tuberculosis profile

Population 2016 **102 million**

Estimates of TB burden*, 2016	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	26 (16–37)	25 (16–36)
Mortality (HIV+TB only)	4 (2.7–5.4)	3.9 (2.6–5.3)
Incidence (includes HIV+TB)	182 (128–245)	177 (125–239)
Incidence (HIV+TB only)	14 (9.6–19)	13 (9.4–18)
Incidence (MDR/RR-TB)**	5.8 (3.1–8.5)	5.7 (3–8.3)

Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	> 14 years	Total
Females	11 (7.5–15)	70 (48–93)	81 (55–108)
Males	12 (8.5–17)	88 (60–116)	100 (68–133)
Total	24 (16–31)	158 (107–209)	182 (128–245)

TB case notifications, 2016	
Total cases notified	127 407
Total new and relapse	125 836
- % tested with rapid diagnostics at time of diagnosis	
- % with known HIV status	*81%*
- % pulmonary	*68%*
- % bacteriologically confirmed among pulmonary	*55%*

Universal health coverage and social protection	
TB treatment coverage (notified/estimated incidence), 2016	69% (51–98)
TB patients facing catastrophic total costs	
TB case fatality ratio (estimated mortality/estimated incidence), 2016	0.17 (0.1–0.25)

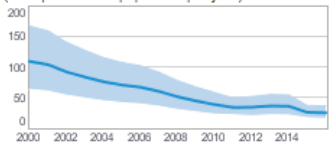
TB/HIV care in new and relapse TB patients, 2016	Number	(%)
Patients with known HIV-status who are HIV-positive	7 843	8%
- on antiretroviral therapy	*6 929*	*88%*

Drug-resistant TB care, 2016	New cases	Previously treated cases	Total number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			2 900 (1 800–4 000)
Estimated % of TB cases with MDR/RR-TB	2.7% (1.5–4)	14% (3.6–25)	
% notified tested for rifampicin resistance	42%	100%	56 509
MDR/RR-TB cases tested for resistance to second-line drugs			28
Laboratory-confirmed cases		MDR/RR-TB: 700, XDR-TB: 2	
Patients started on treatment ****		MDR/RR-TB: 700, XDR-TB: 2	

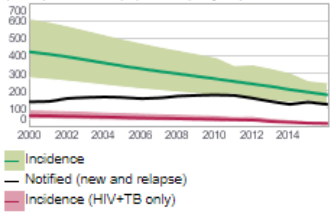
Treatment success rate and cohort size	Success	Cohort
New cases registered in 2015	84%	132 296
Previously treated cases registered in 2015		
HIV-positive TB cases registered in 2015		
MDR/RR-TB cases started on second-line treatment in 2014	70%	557
XDR-TB cases started on second-line treatment in 2014		

TB preventive treatment, 2016	
% of HIV-positive people (newly enrolled in care) on preventive treatment	52%
% of children (aged < 5) household contacts of bacteriologically-confirmed TB cases on preventive treatment	

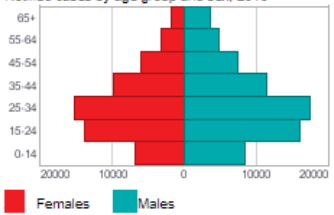
(Rate per 100 000 population per year)



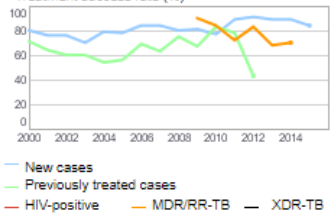
(Rate per 100 000 population per year)



Notified cases by age group and sex, 2016



Treatment success rate (%)



Contact Investigation

Wreaks Havoc in the Kingdom

October 13, 2017-Index Admitted to Hospital From ED

October 19, 2017--CT of Chest

October 21, 2017--Sputum Collected, + for AFB

October 22,2017--Confirmed MTB by State Lab (Sunday)

October 23,2017--

Monday Morning-***Numerous*** Phone Messages
Called the Senior Center Director
Index was a Private Caregiver in Senior Center

-174 Senior Apartments (38 Locked Memory Care)
-Numerous workers,Nursing,Cleaning,Food Workers
-Numerous Visitors, Families With Children
-Numerous ‘Field Trips Outside the Facility’
-Numerous Activities Inside the Facility

Called Hospital Infection Preventionist

Dx: Gallbladder Mass (Cancer), metastatic to Liver, Neuroendocrine stage IV, Septic secondary to Cholangitis (tx with IV Zosyn), new onset DM Poorly controlled. During staging for CA, found To have cavitary lesions leading to DX of active Pulmonary Tuberculosis. Not a candidate for Chemo per hemoc/onc due to TB DX

CT of the Chest 10/19/2017-

3.6cm x 2.0cm cavitary lesion in the right lung apex with Surrounding consolidation and peribronchial thickening Extending to the right suprahilar region. Extensive tree-in Bud opacities affecting right upper and middle lobes,super-Imposed on multiple nodules measuring up to 10mm. Add-Itional cavitary lesion is seen in the superior segment of the Right lower lobe measuring up to 1.8cm. There are also a few Ground glass nodules scattered in the lower lobes bilaterally, Measuring up to 1.3cm in the medial right lower lobe. In the Left upper lobes there is a 3.1cm x 1.8cm cavitary lesion.

With mild adjacent consolidative changes. Two sub-centimeter spiculated nodules are also seen in the left upper lobe posteriorly. There are small bilateral plural effusions, slightly larger on the left. Note is made of plural thickening. There are numerous mildly enlarged para-tracheal, subcarinal, and right hilar lymph nodes.Incidental note is made of a 2.5cm thyroid nodule. There is partial visualization of a large heterogeneous mass in the region of the gallbladder with numerous hypodense lesions throughout the liver and extensive periportal adenopathy. Compression of the main portal vein posteriorly by an enlarg-ed lymph node resulting in moderate narrowing.

Visit to Senior facility-Huge Facility with Independant and Assisted Living

-Movie Theatre, General Store,Chapel,Spa Library, Beauty and Barber Shops

-Two Restaurants and a Bistro

-Guest Suites, Playrooms for Visiting Child en

-Busses to Local Shopping, Appoint-Ments, and Restaurants

-Many in House Parties and Seasonal Events

-Director is Fairly New to the Position

-DON- First Day on the Job

-

Called….The ***Queen*** :

The Queen: Allowed the Index to Live With Her
Active in the Filipino Church
Worked Days Off in Senior Living Homes
Cleaned Houses for Extra Money
Matriarch of the Filipino Community
Unsure if Index Had a Recent CXR or TST
Helps People Meet Needs

Advised the Queen to Get a Skin Test

Tested Senior Living Center

November 1,2017--Quest Made to Interview the Index
--Met With Infection Preventionist, Charge nurse, and Social Work.

November 8,2017--Queen Came to My Office
(With the Indexes Sister)

Whats a Nurse To Do ???????

Call PETER !!!!

Reminded Me That ***I*** am Public Health

Department of Licensing and Regulatory Affairs (LARA)

LARA is responsible for the State’s regulatory environment and makes the delivery of services more efficient for consumers and business customers.

Arranged for Roiah, to Call Me, Set up an Investigation Day

November 14,2018

Visited *Six* ‘Adult Foster Care Homes’

November 13,2017 -- Index Condition Worsens

November 18,2017--Index Expires

December 4,2017- The Prince Brings in a Second sister with a Positive TST

Lessons Learned:

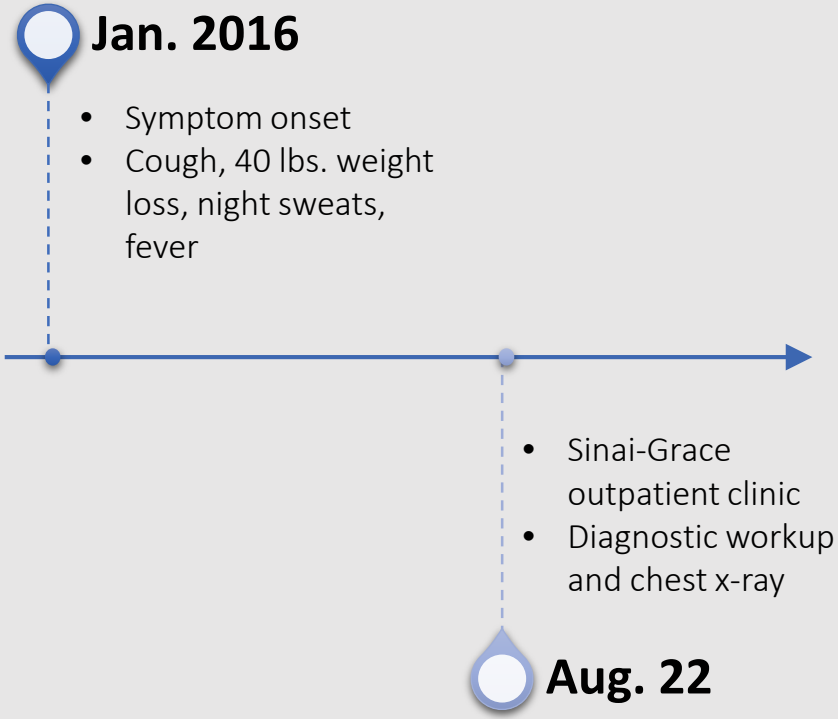
1. I ***am*** Public Health.
2. We are ***NOT*** Alone
3. Sometimes You Need a Pitbull
4. A peaceful Kingdom is a Happy Kingdom

"The secret of success is constancy to purpose."
-Benjamin Disraeli

"Constancy to Purpose":
Collaboration Among Health Departments

Tammy Cooper, BSN, RN – Wayne State University Physician Group

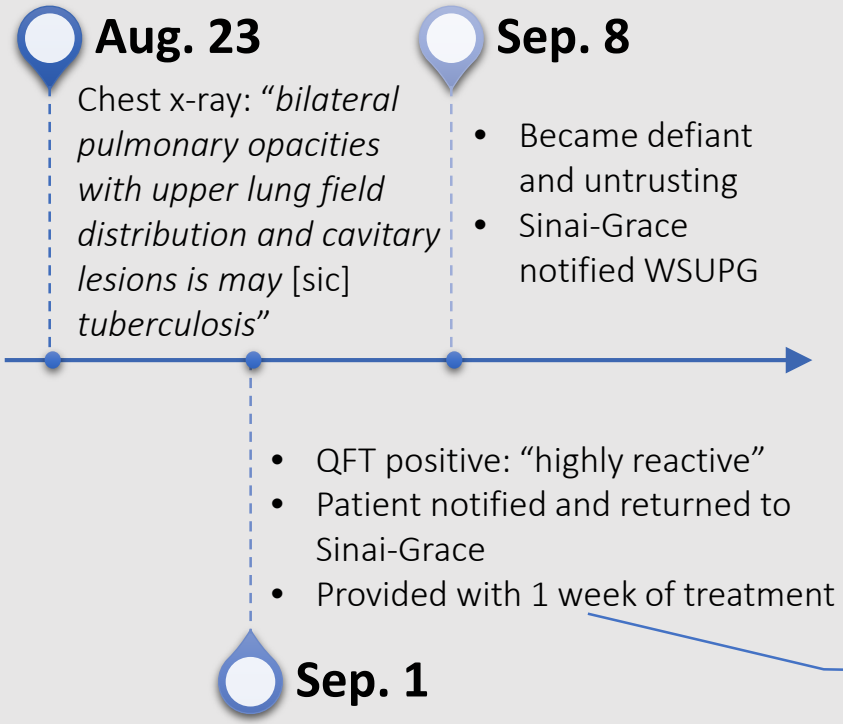
Janice Taylor, BSN, RN – Oakland County Health Division



Background

- 55 y/o AA male
- History of homelessness, incarceration, alcoholism, malnutrition, smoking
- Over 7 months between symptom onset and initial presentation

Diagnosis



Rifater: (120 mg Rifampin/50mg Isoniazid/300 mg Pyrazinamide) + 400 mg Ethambutol

Letter

Sep. 14

- Perceived public health and flight risk
- Wrote legal letter to city of Detroit; included x-ray

“Showed extensive bilateral cavitary disease highly suspicious for most contagious type of TB”

-Dr. Kissner

Dr. Kissner's Letter

University
Physician Group

Dana Kissner, MD
Associate Professor
Wayne State University School of Medicine
Department of Internal Medicine
Pulmonary/Critical Care and Sleep Medicine
Harper University Hospital
3990 John R., 3 Hudson
Detroit, MI 48201
Phone (313) 745-0895
Fax (313) 993-0562

September 14, 2016

To Whom It May Concern:

Re: [redacted]

This is a 55 year old man with a long history of alcoholism, multiple episodes of acute pancreatitis, 40 pack year smoking history, hypertension, and homelessness. His current history started around January, 2016 when he developed progressive symptoms consisting of cough, weight loss of 42 pounds, anorexia, fevers, and night sweats. He presented to the Sinai Grace Primary Care Clinic on August 22 where TB was suspected on the basis of the history and physical exam. He was sent for a chest x-ray on August 23, which showed extensive bilateral cavitary disease highly suspicious for the most contagious type of tuberculosis (TB). A phone call was made to the patient on 9829 (313-978-0961) to return. No mention was made then or on subsequent notes of efforts to prevent transmission of disease.

The patient returned on 9/1/16 and prescriptions were written for TB medications. It is not clear where or whether he filled these prescriptions. He had laboratory work done that day which showed severe malnutrition (albumin 1.7) and electrolyte abnormality (potassium 3.1). He refused HIV testing. A QuantiFERON Gold-In-Tube (QFT) test was highly positive at 2.52, which indicates TB infection. He returned on 9/2. The following is a quote from the visit note that day:

"Homelessness

pt is currently living in car, trying to figure out home situation, has been laid off recently, but now working as a mechanic
pt has been given resources on homeless shelters and AFC homes, f/u on his living situation Tuesday"

On 9/7/16 he returned to the clinic saying he had taken the medication he was given and felt better. The following are 2 quotes from the visit note that day:
"He returns to clinic and he states that he doesn't believe he has TB. He states that his symptoms have resolved and no longer complains of cough, SOB, f/c or night sweats. He states that he has been taking his medications regularly but he was not able to provide a sputum sample… The Detroit TB program was notified and have agreed to take the case. Unfortunately, the patient became increasingly upset and left the clinic before obtaining his medications. A voicemail message was left for him."

" Attestation

pt was counselled extensively about need for compliance with meds, need for obtaining sputum samples; as stated above, pt states feeling better and wants second opinion.

Offered f/u with local health department; while contacting the health dept and making arrangements for f/u care, pt had left without f/u instructions or his medications;

voice messages left. Info provided to local health dept - available pt contact info, pt records including cxr, labs."

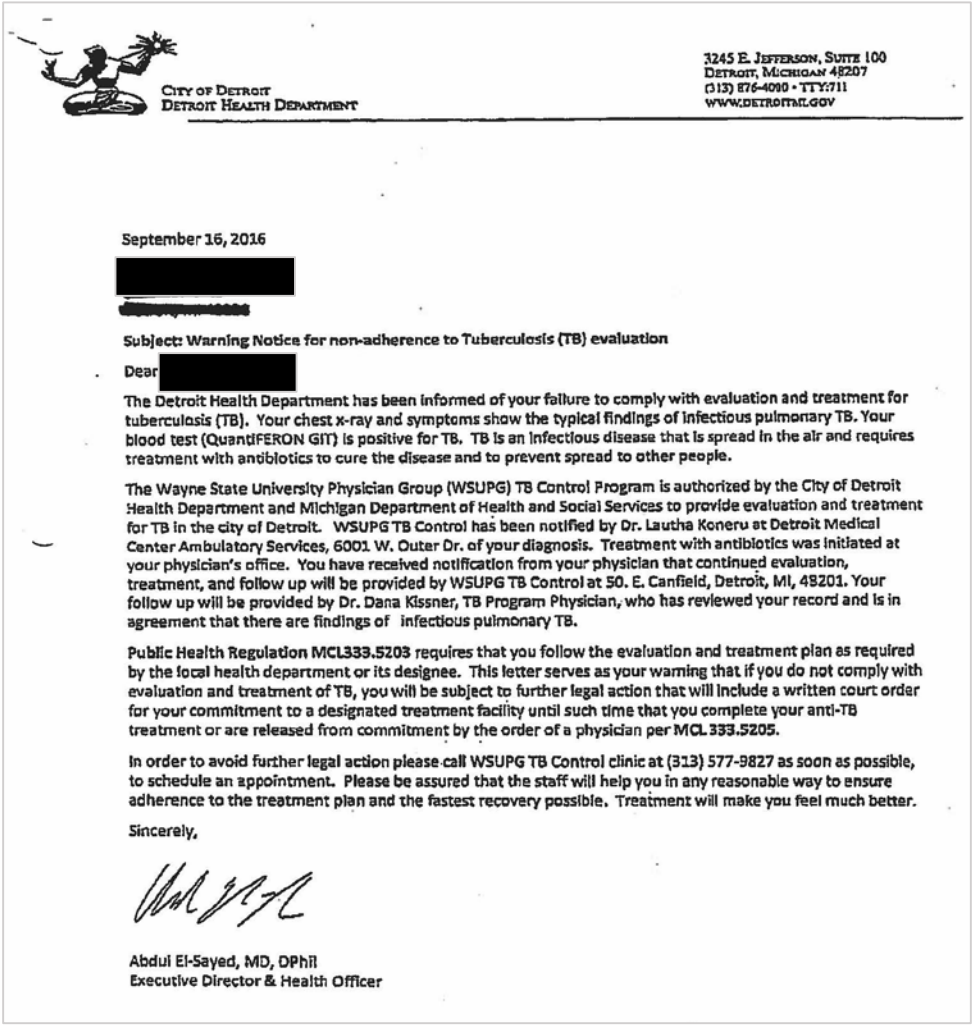
Since then the WSUPG Tuberculosis Program, performing TB functions on behalf of the Detroit Department of Health and Wellbeing, has been trying to contact the patient. Multiple phone calls to him have been unanswered. Several house visits were made to the address listed in his medical records. People there denied they knew him.

It is almost certain that this individual has active highly contagious pulmonary tuberculosis that has not been adequately evaluated; sputum cultures must be obtained to determine efficacy of particular anti-tuberculosis antibiotics. He has clearly stated that he does not believe he has TB and he was uncooperative in the clinic. He has probably exposed many people, including those at Sinai Grace, to tuberculosis for a long period of time. We have not been able to give him a letter of warning of consequences because he has made himself unavailable. We feel that for the safety of this community he must be found and placed in respiratory isolation until he complies with therapy or completes therapy.

Sincerely,

Dana G. Kissner, M.D.
Associate Professor of Medicine
Medical Director WSUPG TB Program

Detroit Health Officer Letter



CITY OF DETROIT
DETROIT HEALTH DEPARTMENT

3245 E. JEFFERSON, SUITE 100
DETROIT, MICHIGAN 48207
(313) 876-4000 • TTY:711
WWW.DETROITMI.GOV

September 16, 2016

[redacted]

Subject: Warning Notice for non-adherence to Tuberculosis (TB) evaluation

Dear [redacted]

The Detroit Health Department has been informed of your failure to comply with evaluation and treatment for tuberculosis (TB). Your chest x-ray and symptoms show the typical findings of infectious pulmonary TB. Your blood test (QuantiFERON GIT) is positive for TB. TB is an infectious disease that is spread in the air and requires treatment with antibiotics to cure the disease and to prevent spread to other people.

The Wayne State University Physician Group (WSUPG) TB Control Program is authorized by the City of Detroit Health Department and Michigan Department of Health and Social Services to provide evaluation and treatment for TB in the city of Detroit. WSUPG TB Control has been notified by Dr. Lautha Koneru at Detroit Medical Center Ambulatory Services, 6001 W. Outer Dr. of your diagnosis. Treatment with antibiotics was initiated at your physician's office. You have received notification from your physician that continued evaluation, treatment, and follow up will be provided by WSUPG TB Control at 50. E. Canfield, Detroit, MI, 48201. Your follow up will be provided by Dr. Dana Kissner, TB Program Physician, who has reviewed your record and is in agreement that there are findings of infectious pulmonary TB.

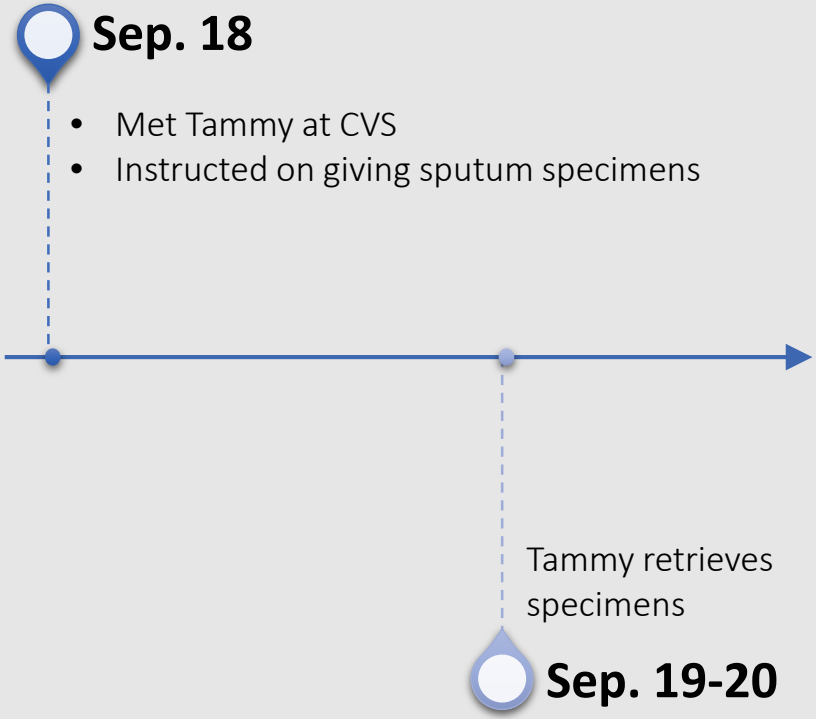
Public Health Regulation MCL333.5203 requires that you follow the evaluation and treatment plan as required by the local health department or its designee. This letter serves as your warning that if you do not comply with evaluation and treatment of TB, you will be subject to further legal action that will include a written court order for your commitment to a designated treatment facility until such time that you complete your anti-TB treatment or are released from commitment by the order of a physician per MCL 333.5205.

In order to avoid further legal action please call WSUPG TB Control clinic at (313) 577-9827 as soon as possible, to schedule an appointment. Please be assured that the staff will help you in any reasonable way to ensure adherence to the treatment plan and the fastest recovery possible. Treatment will make you feel much better.

Sincerely,

Abdul El-Sayed, MD, DPhil
Executive Director & Health Officer

First Meeting



- Evicted and homeless
- Client not disclose where worked or lived
- Afraid of losing job
- Trust issues
- Several warrants for arrest

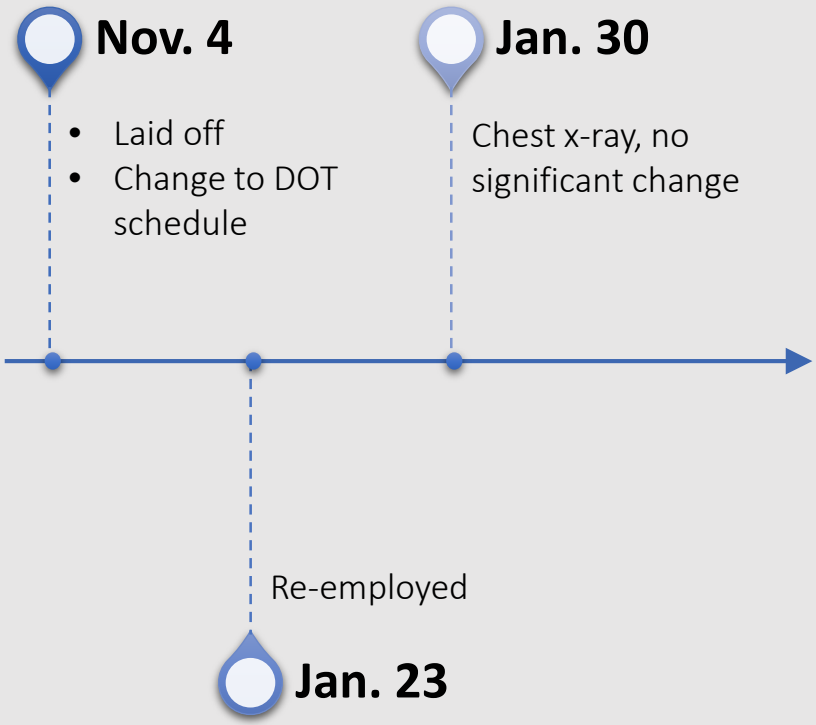
Transfer

- Began working in Oakland Co.
- Truck (source of shelter) impounded, no money to reclaim
- Employment agency helped to find hotel close to job and loaned money for rent

Trust and Cooperation

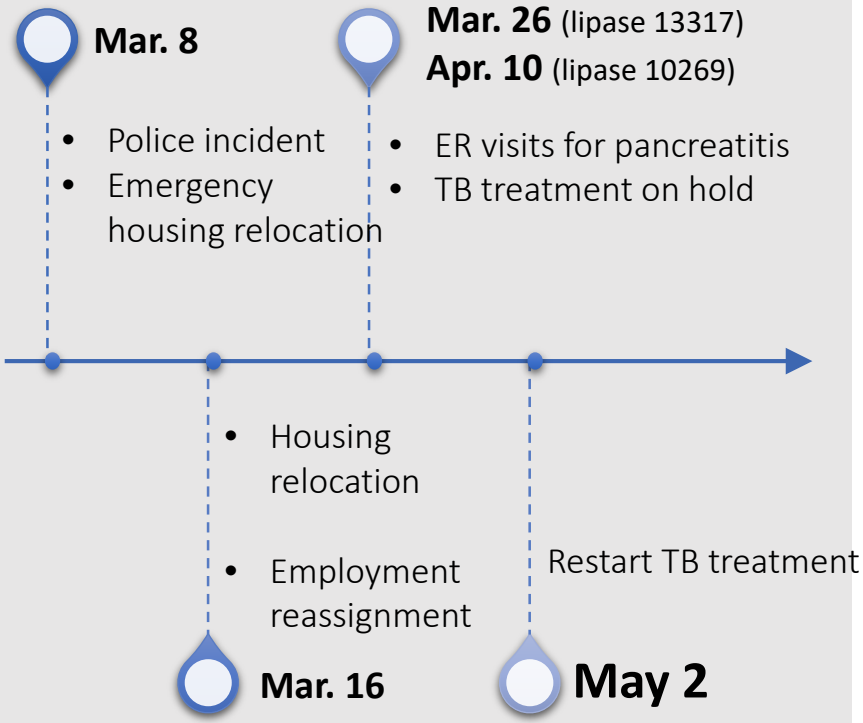
- Respected client's privacy for work
- Contacts identified
- Client admitted to drinking alcohol on weekends
- Reliable and cooperative with 5 days/week DOT, packets on weekend, and monthly LFTs
- TB incentive and enabler funds for housing and food; explored alternate resources
- Provided 1 month anti-hypertensives
- Local PCP resources provided

Stress Complicates Treatment (1)



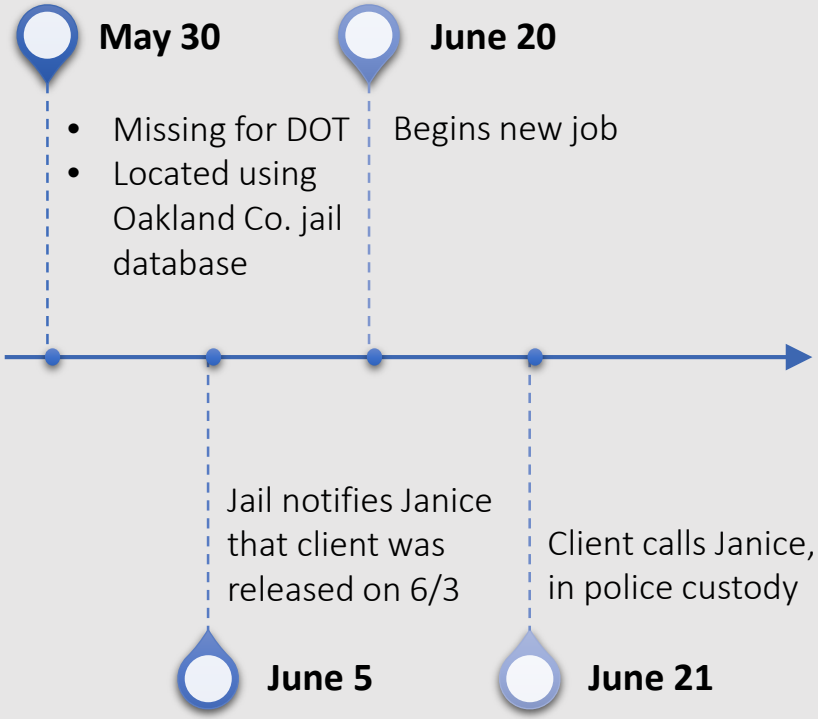
- Anxious to work – Oakland Co. sent letters to employment agency, clearance to return to work
- Oakland Co. intermittently paid for housing to enable patient to continue working
- Worked with MDHHS to use incentive & enabler $

Stress Complicates Treatment (2)



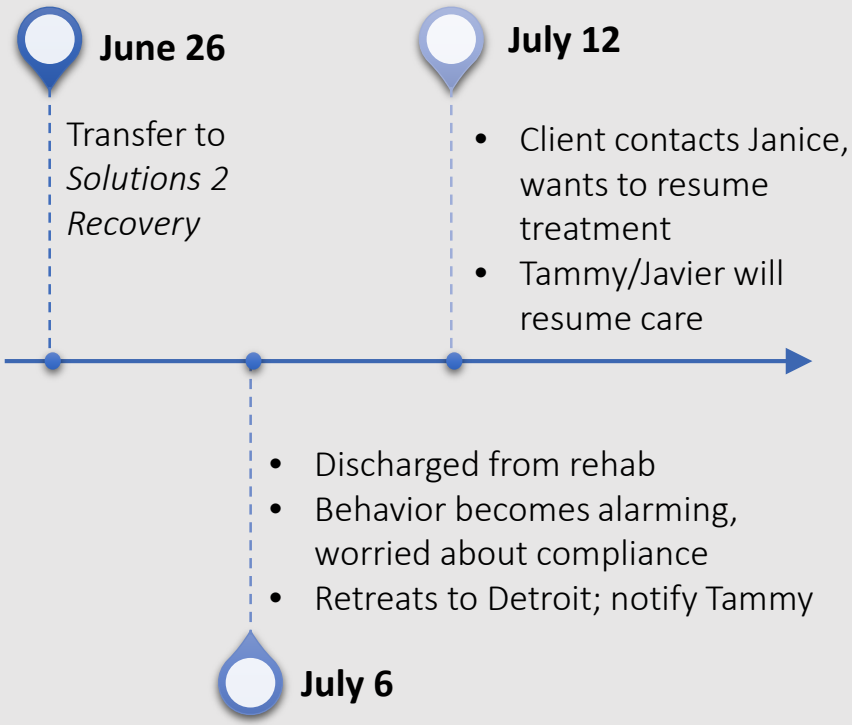
- Excess alcohol use
- Parole officer motivated client to call Janice
- Dr. Hackert provided alcohol counseling, resources
- Client was overwhelmed: court dates, probation, active warrants, anger management classes community service time, AA

Lost & Found (1)



- Uncharacteristically missing
- Poor communication with jail

Lost & Found (2)



- TB case and social issues discussed in multidisciplinary call to coordinate treatment completion
- MDHHS, Oakland Co., Legal and WSUPG

Final Barriers

- At first, unsure of Javier
- Client would disappear for a week or two, then calls Tammy or Janice, wants to finish treatment
  - Janice repeatedly refer to Tammy
- Slow sputum conversion, extended treatment to 9 months
- Chest x-ray slow to improve
- Homeless

Collaboration

- Oakland County HD and Wayne State Physicians Group
- MDHHS – TB Unit
- Knights Inn
  - Farmington Hills & Madison Heights
- Employment agency
- Police Departments
  - Farmington Hills & Royal Oak
- Probation officers
  - Farmington Hills & Royal Oak
- Oakland County Jail
- MDOC (Detroit)
- Solutions 2 Recovery Rehab

TB CASE – EATON COUNTY

Jennifer Casarez, RN

CD/HIV/STI Coordinator, Barry Eaton District Health Department

Meghan Weinberg, PhD, MPH

Region 1 Epidemiologist, MDHHS

PATIENT HISTORY

- 35 yo female born in Ethiopia
- Living in the US for >10 years
- Visits Ethiopia annually, most recent trip in April 2017
- HIV+, not on anti-retrovirals

JUNE 2017

- Admitted to Hospital A for pneumonia and empyema
- Barry-Eaton District Health Department (BEDHD) notified of suspected TB
- Quantiferon negative
- Sputum acid fast bacilli (AFB) smear negative

June | July | Aug | Sep | Oct | Nov | Dec

AUGUST 3-5, 2017

- 2 visits to Hospital A ED
- Fever, headaches, neck pain, pelvic/lower back pain, 20 lb weight loss over six months
- No respiratory symptoms

June | July | Aug | Sep | Oct | Nov | Dec

AUGUST 5-17, 2017

- Admitted to Hospital A
- CT
  - Enlarged lymph nodes in neck and mediastinum
  - Mild focal infiltrates in lung
- Lymph node biopsy revealed non-necrotizing granuloma
  - AFB smear negative, culture negative
- New onset of dizziness, vertigo, double vision, mental status changes

AUGUST 17, 2017

- Lumbar puncture
  - Meningitis with low glucose, high protein
  - Suspected TB given travel history
- Bronchoscopy for sputum collection
- Quantiferon indeterminate
- Started on rifampin, isoniazid, pyrazinamide, ethambutol
- Notified BEDHD, who notified MDHHS Regional Epi

June | July | Aug | Sep | Oct | Nov | Dec

EARLY SEPTEMBER, 2017

- Sputum and lumbar puncture AFB negative, culture negative
- Transferred from Hospital A to Hospital B rehab
  - Patient ambulatory but in extreme pain and with indwelling catheter

June | July | Aug | **Sep** | Oct | Nov | Dec

SEPTEMBER 18, 2017

- Discharged home
- BEDHD began DOT 5x/week
- Patient appeared very sickly (weak, unstable, pale)

SEPTEMBER 25, 2017

- Presented to Hospital B ED with back and sternal pain
- MRI: severe intraspinal intradural extramedullary infiltrative mass
- Emergent T3-T6 laminectomy to remove mass

June | July | Aug | Sep | Oct | Nov | Dec

OCTOBER 2017

- Spinal biopsy
  - AFB positive
  - *M. tuberculosis* culture positive
- Isolate susceptible to isoniazid, pyrazinamide, rifampin, ethambutol
- Transferred to Hospital B inpatient rehab

June | July | Aug | Sep | **Oct** | Nov | Dec

TB GENOTYPE

- In the last 10 years, this genotype was identified in:
  - 1 additional case in Michigan with no epi-link to this case
  - 14 additional cases in 11 other states

NOVEMBER, 2017

- Transferred from Hospital B rehab to long term care facility
- Day before Thanksgiving
  - BEDHD called facility for DOT logs, patient no longer there
  - Discharged with a bag of pills
    - No follow-up appointments
    - No prescription refills
    - No notice to BEDHD

June | July | Aug | Sep | Oct | **Nov** | Dec

DECEMBER 2017

- BEDHD performing DOT 3x/week
- Difficult to identify physician for TB follow-up
  - Differences in TB treatment between facilities – who's right?
- Patient was wheelchair bound with indwelling catheter
  - Missed multiple appointments
  - Refused medical transport assistance

SUMMARY

- Extra pulmonary, meningeal TB case in an HIV-infected individual
- Risk factors:
  - Immunocompromised
  - Foreign-born
  - Frequent travel to Ethiopia
    - TB high burden country (Incidence 224 per 100,000 persons)
- No history of TB disease
- No close contacts with TB

OBSTACLES

- Atypical presentation – unclear if TB
- Cultural sensitivities
  - Patient's husband is the primary decision-maker.
  - Patient made emergency laminectomy decision without him present, which made her uncomfortable and remorseful.
- No electronic access to hospital medical records
  - Takes time and repeated requests

WISH LIST

- Improved continuity of care
  - Between hospitals, rehab, long term care, and BEDHD
  - Between TB vs HIV care teams
- Increased TB education and the role of public health
  - Why DOT is important
  - Why BEDHD needs to be looped in
  - Confusion about respiratory isolation – when is it appropriate
- Improved communication between public health and long term care
  - Public health isn't high priority
  - High employee turn-over
  - How can we build and maintain partnerships?

PATIENT UPDATE

- Still undergoing DOT, will be on treatment for 1 year
- Improving clinically
- Good relationship with BEDHD
  - Very appreciative of assistance

THANK YOU

- BEDHD
  - Dr. J. Daniel Woodall
  - Jill Sambaer
  - Rikki Nevins
  - Jenny Smith, RN
- Community Healthcare Partners
- MDHHS TB Program
  - Peter Davidson
  - Shona Smith
  - Helen McGuirk
  - Dr. Jim Sunstrum
- MDHHS Bureau of Laboratories