RAMSEY COUNTY

Tuberculosis Update

Community Health Services Advisory Committee

Gina Pistulka, Clinical Division Manager

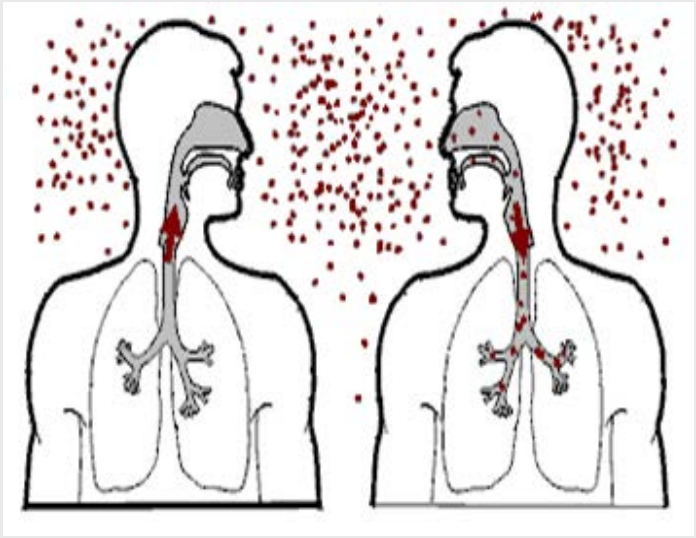
April 4, 2018

Overview of Presentation

- What is TB?
- How did we get here?
- Current outbreak overview
- St. Paul-Ramsey County response and current efforts
- Next steps

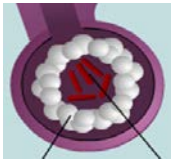
TB 101: Transmission & Pathogenesis

- Bacteria, caused by *Mycobacterium* tuberculosis
- Spread by airborne “droplet nuclei” generated by:
  - Talking, yelling, singing, coughing, sneezing
  - Family members and close contacts
- Two phases:
  - Latent TB infection (LTBI)
  - Active TB
- Most commonly found in the lungs, but can be anywhere in the body
- Treatable with antibiotics
  - LTBI: 3-9 months, 1-2 medications
  - Active TB: 6-24 months (multiple medications)



Slide courtesy of Victoria Hall, DVM, MS, MN Department of Health

LTBI and Active TB Overview

 Phase 1: LTBI	 Phase 2: Active TB
Small amount of TB bacteria in the body. Bacteria are alive but not active.	Large amount of TB bacteria in the body. Bacteria multiply and can spread throughout the body.
Do not have any TB symptoms. TB skin test or TB blood test is positive. Chest x-ray is usually normal.	Usually have one or more symptoms. May have positive TB skin test or TB blood test. Chest x-ray may be abnormal.
Cannot spread TB to others but are at risk for developing active TB. Isolation not necessary.	May be able to spread TB to others. May require respiratory isolation.

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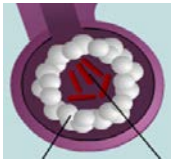 Phase 1: LTBI	 Phase 2: Active TB
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Risk Factors for Progressing from Latent to Active TB

- HIV
- New TB infection (< 2 years)
- Age < 5 years
- Immune suppression (certain cancers and medications)
- Diabetes
- End stage kidney disease
- Undernutrition
- Substance abuse
- Scarring/fibrosis on chest x-ray

Slide courtesy of Victoria Hall, DVM, MS, MN Department of Health

How Did We Get Here?

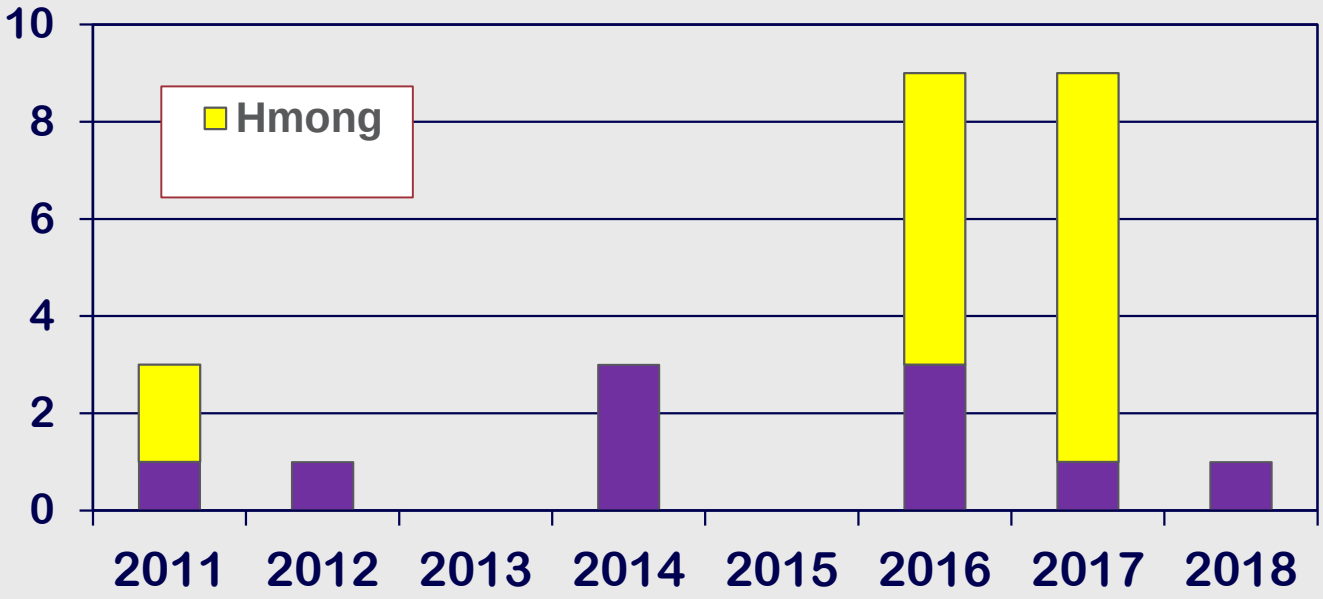
- In summer/fall 2016, MDH noticed ↑ in # of Hmong TB cases
- MDH began noticing ↑ in # of MDR TB cases in Hmong community
- Ramsey Co. investigations discovered possible link in a single setting for a few Hmong MDR cases
- CDC involved; additional genetic testing performed to see if recent transmission may have occurred among cluster of Hmong MDR cases
  - Also considered: timing and similar demographics of MDR cases
- CDC Epi Aid came to MN in March of 2017 to aid in data analysis, defining exposure, establishing infectious periods, and identifying contacts

Slide courtesy of Victoria Hall, DVM, MS, MN Department of Health

Characteristics of the Population

- All TB cases in Hmong community in MN, 2011-2016: 68% in Ramsey County; 8% of all cases in MN
  - 88% born outside of US
    - 77% were diagnosed with TB >10 years after arrival
    - 15% history of LTBI treatment
- MDR outbreak in Wat refugee camp in Thailand
- Elders – average age 71 years
- Medical risk factors

Update as of 3/7/18: Multidrug-Resistant TB (MDR TB) Cases in MN*



Since 2016….

- 19 total MDR cases
  - 14 in Hmong community
    - 10 in outbreak

* Includes burden cases: patients treated for MDR TB but not included in official CDC statistics (e.g. clinical case with exposure to MDR TB, non-countable case, and patient for which initial susceptibilities could not be done)

Epi summary of MDR TB cases in MN, 2016-present as of 3.7.18

	2016	2017	2018 cases to date	Total from 2016-2018 to date
Total MDR TB cases	9	9	1	19
Total Hmong MDR TB cases	6	8	0	14
Ramsey County Washington County	5 1	8 0		13 1
Link to senior center	3	6		9
Died – all causes Died from TB*	3 1	3 2		6 3
*Outbreak cases = related cluster of Hmong MDR TB (based on WGS, epidemiology, and clinical information)***	*4*	*6***	*0*	*10***
Ramsey County	4	6		10
Link to senior center	3	5		8
Died – all causes Died from TB*	2 0	2 1		4 1

**Most recent patient who died (patient #13) is currently not noted as having died from TB-related causes.*
***One Hmong MDR case in 2017 (patient #12) with link to senior center was excluded from these outbreak numbers due to different mutations for drug resistance, distance from other outbreak cases on WGS map, and possible MDR TB exposure in Wat refugee camp; patient is still included in "Total MDR TB cases" and "Total Hmong MDR TB cases" totals at the top of the table.*

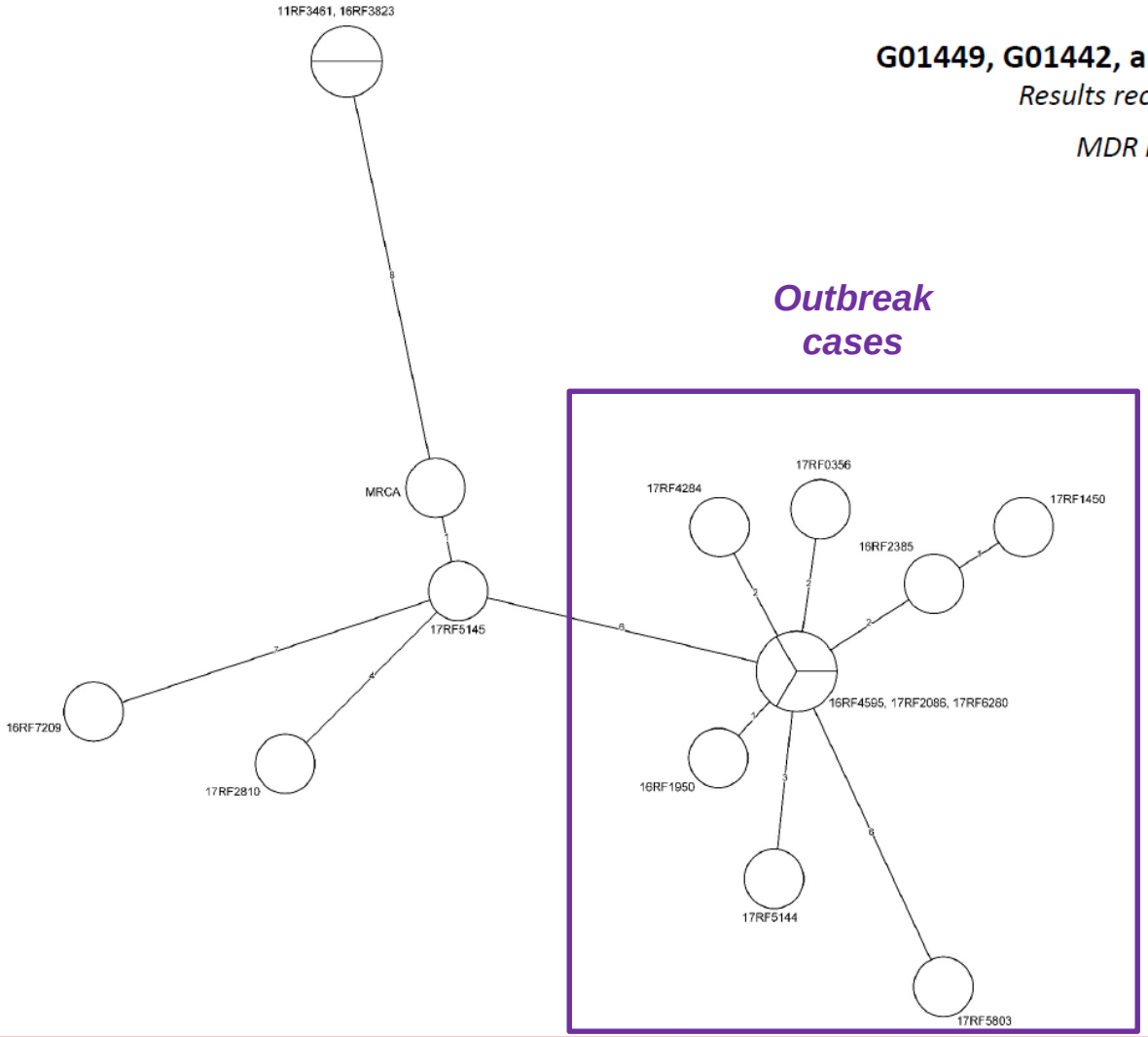
Whole Genome Sequencing

G01449, G01442, and G01039 in Minnesota

Results received 10/5/2017

MDR isolates only

Outbreak cases



Saint Paul-Ramsey County Public Health

- TB Clinic
  - Provide TB diagnostic screenings and treatment for patients with active and LTBI
  - Adults and children
  - Provide medical oversight, nurse case management, directly observed therapy (DOT)
- Contact Investigations
  - Collaborates with clinical staff to conduct interviews with case
  - Determines household and community exposures
  - Follows up with contacts to ensure contacts with highest risk are screened (symptoms, blood/skin test, may include chest x-ray)

St. Paul – Ramsey County Response

- March 2017 – Incident Command Structure
- April 2017 – Co-command ICS with Minnesota Department of Health
- May 2017 – Community Screening Event at Hmong Senior Center
- September 2017 – Follow up Community Screening Event at Hmong Senior Center
- In-home TSTs and IGRAs with PHN, lab tech and contact investigators
- Collaborative effort with MDH to reach community providers, Hmong18 Clan Council, Hmong Healthcare Coalition, community at-large

Clinical Services and Health Protection Staffing Timeline – County Investment

- County Investment: 2017 total: $358,024.45; So far in 2018 $81,384
- May 2017 – Transfer of 1 CHW from Family Health Division
- Activated PHNs in Family Health and Healthy Communities to support screening events and ongoing media outreach
- June 2017 – Retirement of Dr. Neal Holton; Dec 2017 – Hire Dr. Joel McCullough, Medical Director
- September 2017 –Transfer of 2 more CHWs for DOT
- October 2017 – Board of Commissioners approves 3.5 FTEs for Clinical and Health Protection Divisions
- December 2017 – present: Hire 1 PHN, 2 contact investigators
- Collaboration with Social Services for mental health services

Center for Disease Control

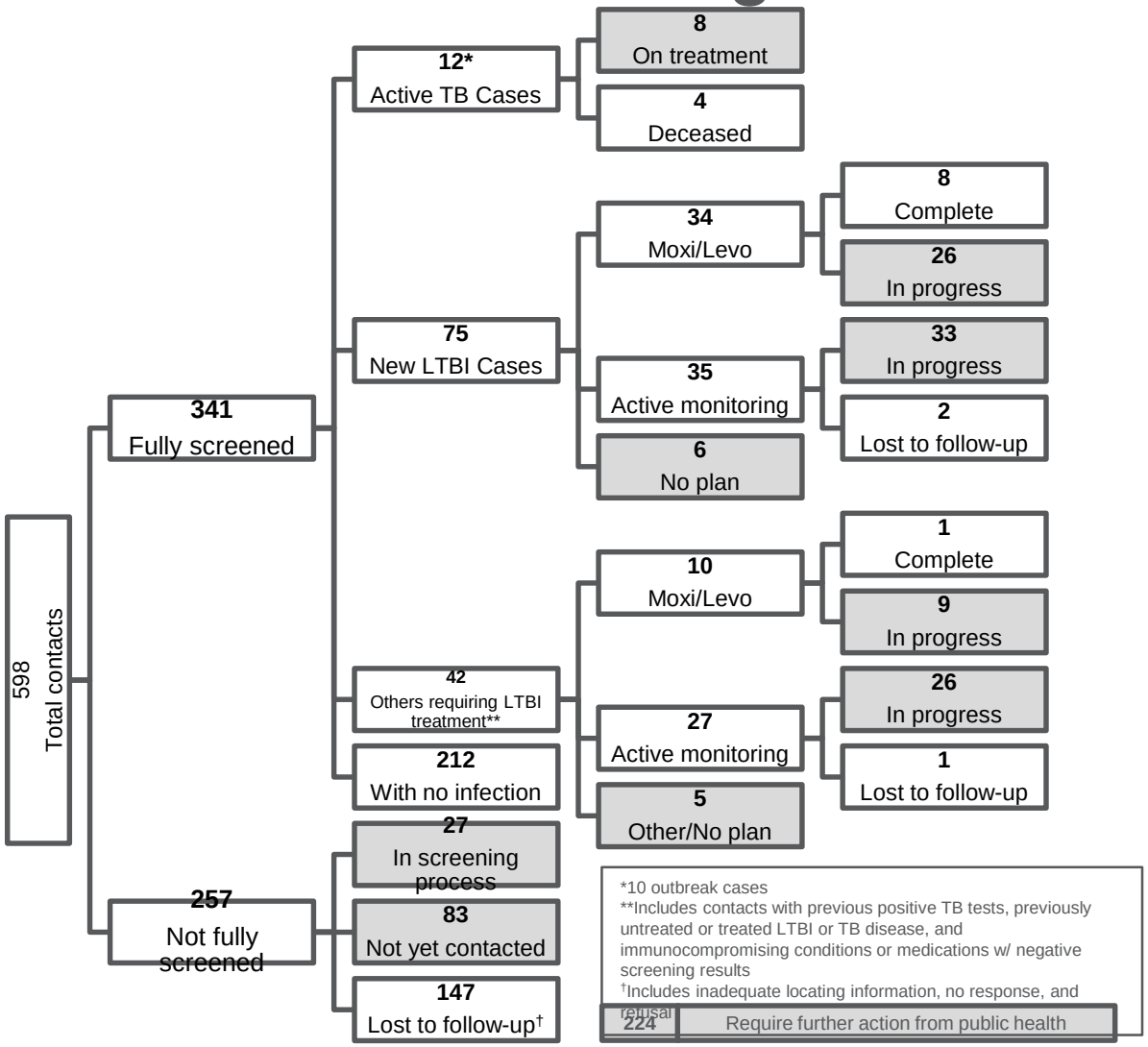
- Technical Assistance in January and February 2018 (3 weeks total)
- Recommendations included medical protocols, staffing, policies and procedures, infection control/engineering changes, and training.
- Public Health Advisor (PHA) – June 2018

Current Efforts

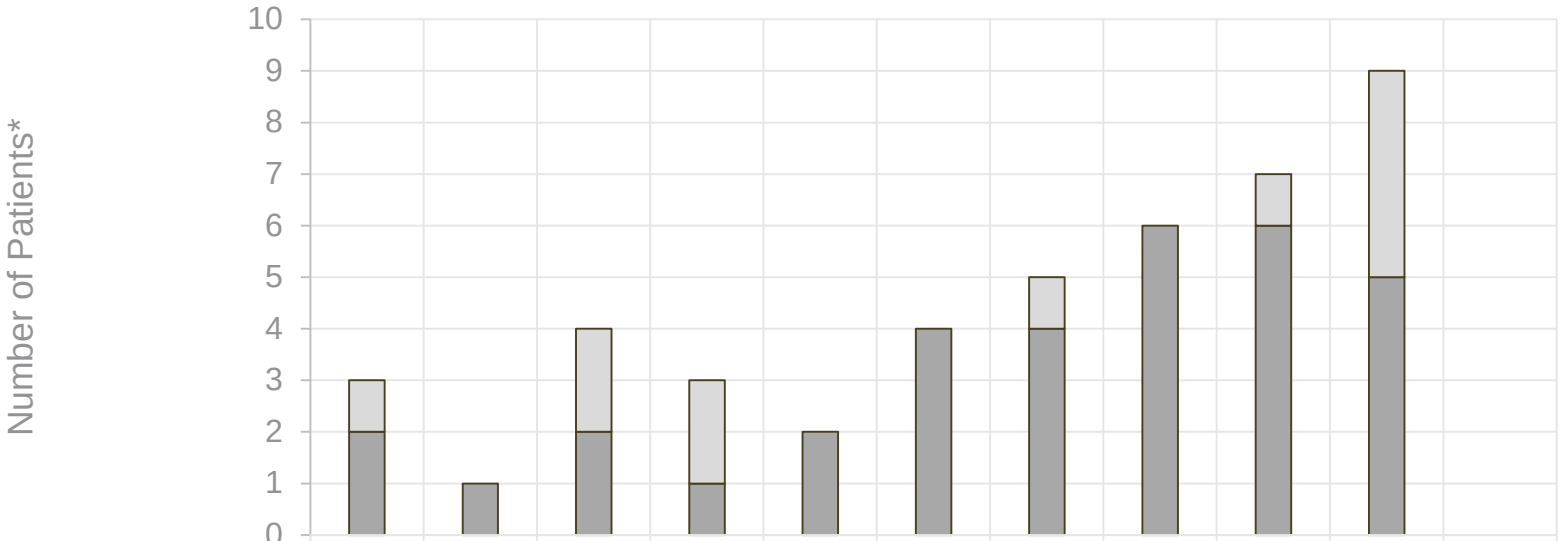
- Changes to workforce structure
- Training
- Environmental upgrades
- Development and updating policies and procedures
- Continued focus and efforts in ongoing contact investigations (Hmong and Karen) and patient follow-up
- Continued medical and case management
- Tracking all contacts from outbreak (see graphs)
- Follow up to any new cases

RAMSEY COUNTY

Contact Investigation

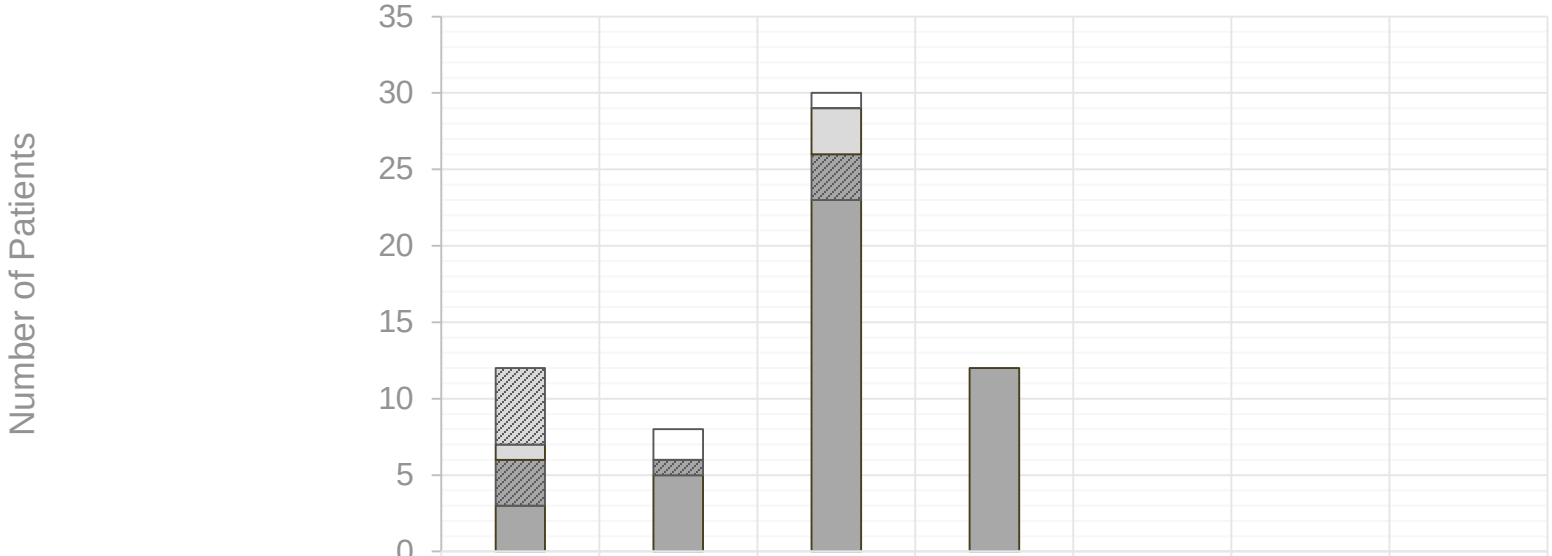


Months of Moxi/Levo Completed by Follow-Up Provider 4/2/18



	0/Not Started	1	2	3	4	5	6	7	8	9	Total
Lost To Follow-Up	0	0	0	0	0	0	0	0	0	0	0
PCP/Other LPH	1	0	2	2	0	0	1	0	1	4	11
SPRC Clinic	2	1	2	1	2	4	4	6	6	5	33
Total	3	1	4	3	2	4	5	6	7	9	44

Active Monitoring Exams Completed by Follow-Up Provider 4/2/18



	None	3 Month	6 Month	12 Month	18 Month	2 Year	Total
Lost To Follow-Up	0	2	1	0	0	0	3
PCP/Other LPH - Overdue*	5	0	0	0	0	0	5
PCP/Other LPH	1	0	3	0	0	0	4
SPRC Clinic - Overdue*	3	1	3	0	0	0	7
SPRC Clinic	3	5	23	12	0	0	43
Total	12	8	30	12	0	0	62

*Overdue for next exam with no future exams scheduled. Contacts who are overdue for next exam but have a future exam scheduled are included in their respective follow-up provider category.

Next Steps

- Awaiting formal written recommendations from the CDC
- Workshop and further request to the Board of Commissioners for needed positions
- Work with PHA to further implementation of recommendations
- Enhanced community outreach to elder centers and community-at-large