Sorting TB Risk in CNMI

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Disclosures

Nothing to disclose

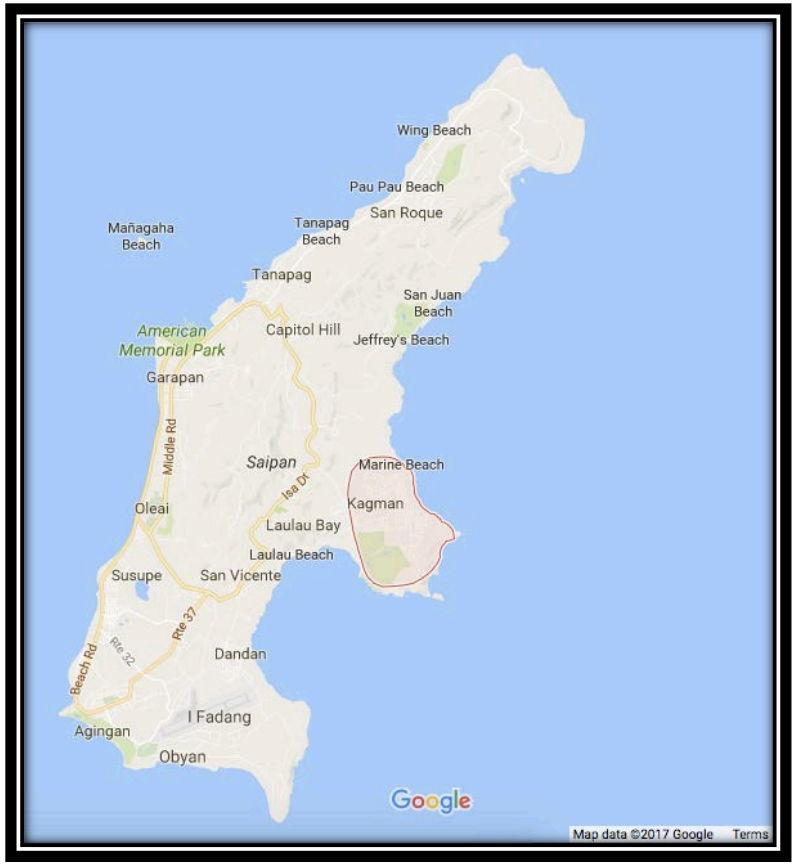
Learning Objectives

- Determine highest risk populations within your jurisdiction for TB control
- Develop a strategy for targeted latent TB screening
- Develop a cost-effective LTBI treatment regimen

What we know…

- CDC estimates that there are 13 million in the US with latent TB
  - 5-10% will develop active TB if not treated (650K to 1.3 million people)
- 2014 – 66% of active TB cases in US were in foreign-born individuals
- Majority of US active TB cases come from:
  - Mexico, **Philippines,** Vietnam, India, **China,** Haiti, and Guatemala

CNMI



- ~53,000 people per 2010 US Census
- Ethnicities
  - 40% Filipino
  - 32.7% Chamorro/Carolinian
  - 16.8% Other Asian (Chinese, Japanese, Korean)
  - 7.3% Other Pacific Islanders (FSM, Palauan)

https://www.cdc.gov/tb/statistics/surv/surv2015/default.htm. Accessed: August 27, 2017

Pacific Standards for Management of TB and DM

Standard 2: Every high-risk person with DM should be periodically screened for TB disease and TB infection

- Program may choose to screen all patients with DM for TB, or may choose to screen highest risk patients only
  - People with DM under age 50
  - People with poorly controlled DM (HgbA1c >/= 8.0%)

Pacific Standards for Management of TB and DM

- Persons with TB symptoms or TB disease should be referred to the TB Program for TB management
- A test for TB infection should be done at the time of DM diagnosis
- Screening should be repeated as often as the local TB epidemiology may warrant. Annual symptom screening for TB disease is reasonable. Screening for TB infection every 2-5 years is reasonable.

Burden of DM in CNMI

- 2016 NCD Hybrid Survey estimates that 18.7% adults in CNMI have a diagnosis of DM, using RBS 140 as the cut-off
- Heavily concentrated among Chamorro, Carolinian, other Pacific Islanders, and Filipino populations
- Among the 2017 active TB cases thus far:
  - 12 out of 27 (44%) have DM
  - Average HgbA1c 8.5%

2016 CNMI LTBI Cases

- 239 cases
  - 10 with listed full completion of the 9 months of isoniazid (4%)
  - Falsely low?
    - Not in database?
    - Lack of case management?
    - Too long duration?

2017 CNMI LTBI Cases

- January-March 2017
  - 24 cases
  - 3 out of the 24 (12.5%) noted full completion by August 2017
- April 2017-present
  - In early April, changed from INH x 9 months to RIF x 4 months, unless otherwise contraindicated for RIF
  - Instituted a case management system in which one Chest Clinic staff is assigned an LTBI case to follow-up and remind for monthly refills
  - 27 out of the 35 cases (77%) have been compliant with monthly refills

Estimated CNMI LTBI Incidence Rate

- 2016 – 239 cases
- Population per 2010 US Census of 53,000
- Incidence rate of LTBI (estimated): 450 per 100,000

LTBI Screening Strategies

- Program may choose to screen all patients with DM for TB
  - **6,732** adults in CNMI with DM with 18.7% as estimated DM prevalence – *not feasible*
- People with DM under age 50 – 30% of population – 15,900
  - **2,973** adults in CNMI age 50 and under with DM – *not feasible*
- People with poorly controlled DM (HgbA1c >/= 8.0%)
  - Assuming 50% of the 6,732 have HgbA1c >8%, then **3,366** have poorly controlled DM – *not feasible*

LTBI Screening Strategies (continue)

- People with DM under age 50 and with poorly controlled DM (HgbA1c >/= 8.0%)
  - Assuming 18.7% DM prevalence
  - 2,973 is the DM population of those age 50 and under
  - Assuming 50% of have poorly controlled DM
    - Grand total: **1,486**

CNMI Current Reality

- Staffing available for case management
  - 1 RN
  - 2 nurse assistants
  - 1 program manager
- All staff already also assigned for case management to the current 27 cases of active TB
- We already do DM screening for all active TB patients
- How much of the 1,486 can the Chest Clinic staff handle?
- How much can CHCC handle in terms of drug, labs, and imaging costs?

Cost Effectiveness

- INH vs. RIF
  - INH costs $0.84 per 300 mg pill
  - RIF costs $0.15 per 600 mg pill
- INH x 9 months - $40
- RIF x 4 months - $100

CNMI LTBI Screening Proposal

- Screen patients who have a diagnosis of DM and is 50 years or younger who are seen at Kagman Community Health Clinic from now until December 31, 2017
  - Kagman has estimated 300 patients with DM, so assuming 50% have poor control, then approximately **150** patients qualify for TB screening
  - The above is in addition to contacts screening and screening of correctional facilities inmates
- Estimated cost: $15,000 direct drug costs for treating 150 patients with RIF x 4 months
  - Vs. $17,000 - direct cost to treat a case of drug-susceptible TB
  - Does not include costs of PPD testing, CXR imaging, or staffing costs

CNMI LTBI Screening Proposal

- In 2018
  - We will begin to screen patients with DM age 50 years and younger at Family Care Clinic (FCC)
  - Estimating at least 3000 patients at FCC with DM
  - 30% of 3000 is 900 patients age 50 and younger
  - 50% of 900 is **450 patients** with poorly controlled DM and 50 years and younger who qualifies for TB screening
- Estimated cost: $45,000 direct drug costs for treating 450 patients with RIF x 4 months

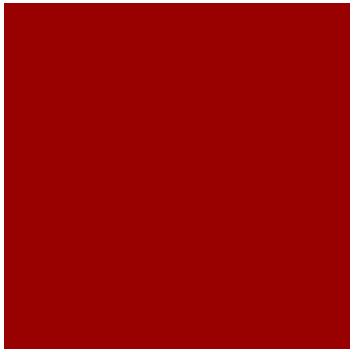
CNMI LTBI Screening Proposal

- In 2019
  - Broaden to private clinics on Saipan (4 clinics)
- In 2020
  - Broaden to screen patients with DM on Tinian and Rota

CNMI LTBI Screening Proposal

- All patients with LTBI will be offered RIF x 4 months unless contraindicated
- Any patients with high risk factors will first be seen and evaluated by a physician
- All patients with LTBI will be assigned to a Chest Clinic staff for monthly renewal follow-up

Thoughts?



Si Yu’us Ma’asi!

References

- CIA. *The World Factbook – Northern Mariana Islands.* https://www.cia.gov/library/publications/the-world-factbook/geos/print_cq.html. Accessed: August, 27, 2017.
- Centers for Disease Control and Prevention. *LTBI – Targeted Testing.* https://www.cdc.gov/tb/publications/ltbi/targetedtesting.htm#identifyingTBDisease. Accessed: August 27, 2017
- Dela Cruz, R. & Cash, H. (2016) *CNMI: Non-Communicable Disease & Risk Factor Hybrid Survey Report.* http://i2io42u7ucg3bwn5b3l0fquc.wpengine.netdna-cdn.com/wp-content/uploads/2017/04/CNMI-NCD-Survey-Report-FINAL-2017.pdf. Accessed: August 27, 2017.
- TB Facts.Org. *TB in the United States – Elimination & Drug Resistance*. https://www.tbfacts.org/tb-united-states/. Accessed: August 27, 2017.