

Improving Tuberculosis Continuity of Care Among Non-U.S.-Born Persons

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Introduction

The ease with which tuberculosis disease (TB) can be transmitted, underscores the importance of allocating efficient public health resources to control TB infections. TB disease burden continues to be greatest among non-U.S.-born compared to U.S.-born residents (14.6 vs. 1.0 per 100,000 population in 2017) (Stewart et al., 2018). From 1994 to 2016, the relative rate (RR) of TB infection increased among most minority populations compared to whites, especially Asians (Khan et al., 2018). The annual percentage increase for Asians was 3.7%, Hispanics at 1.6%, and among American Indian/Alaska Native (AIAN) it was 2.3% over this period (Khan et al., 2018).

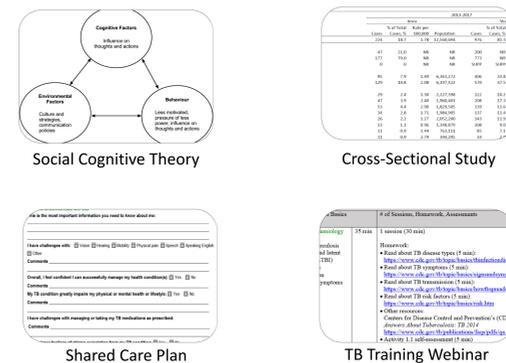
Reactivation is one of the continuing problems the Public Health Seattle & King County (PHSKC) encounters often. Another major problem is lack of surveillance for treatment outcomes. Due to resource constraints, PHSKC (and possibly other main public health offices) only directly treat confirmed individuals with complex diagnoses. Other diagnosed individuals are left to seek out treatment within the community. This transition in care sometimes facilitate gaps in treatment. Local providers unfamiliar with complex TB cases may not adequately treat them. Also, stigma, fear, and confusion may make individuals hesitant to seek out providers, especially if they are unfamiliar with the health system or have limited insurance.

The aim of this study was to find solutions to reduce the gap in treatment. Using the Social Cognitive Theory framework as a starting point, several interventions incorporated constructs such as self-efficacy, knowledge, and social support. The interventions include designing and offering a TB training webinar for community health workers (CHW) that aimed to support their professional career growth and improve knowledge and self-efficacy as the information is passed down to TB patients; a shared care plan designed as a shared activity between TB patients and CHWs, and lastly a cross-sectional analysis will be conducted to better understand health utilization characteristics.

Methods

APPLYING THEORY AND INTERVENTIONS

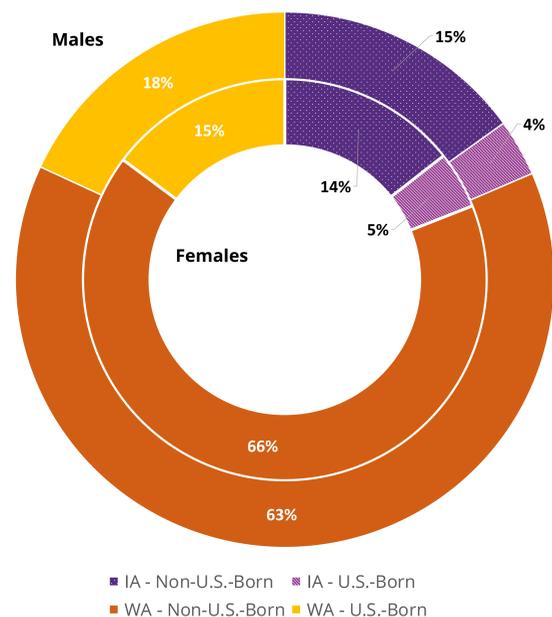
- **Social Cognitive Theory:**
 - Understand and identify reasons for delay in care
 - Target reciprocal determinism constructs to influence intent
 - Self-efficacy - TB training for CHWs that work with TB patients
 - Behavioral - SMART goal setting and commitments – located in the Shared Care Plan
- **Cross-sectional Study:**
 - Identify and describe health utilization characteristics
 - CDC Wonder Online TB Information System (OTIS) - 2013-2017
 - Measures: cases completed therapy, directly observed Therapy, risk factors
- **Community Health Workers Program:**
 - Shared Care Plan – includes goals and commitments activities
 - TB Training Webinar – increase TB knowledge and self-efficacy



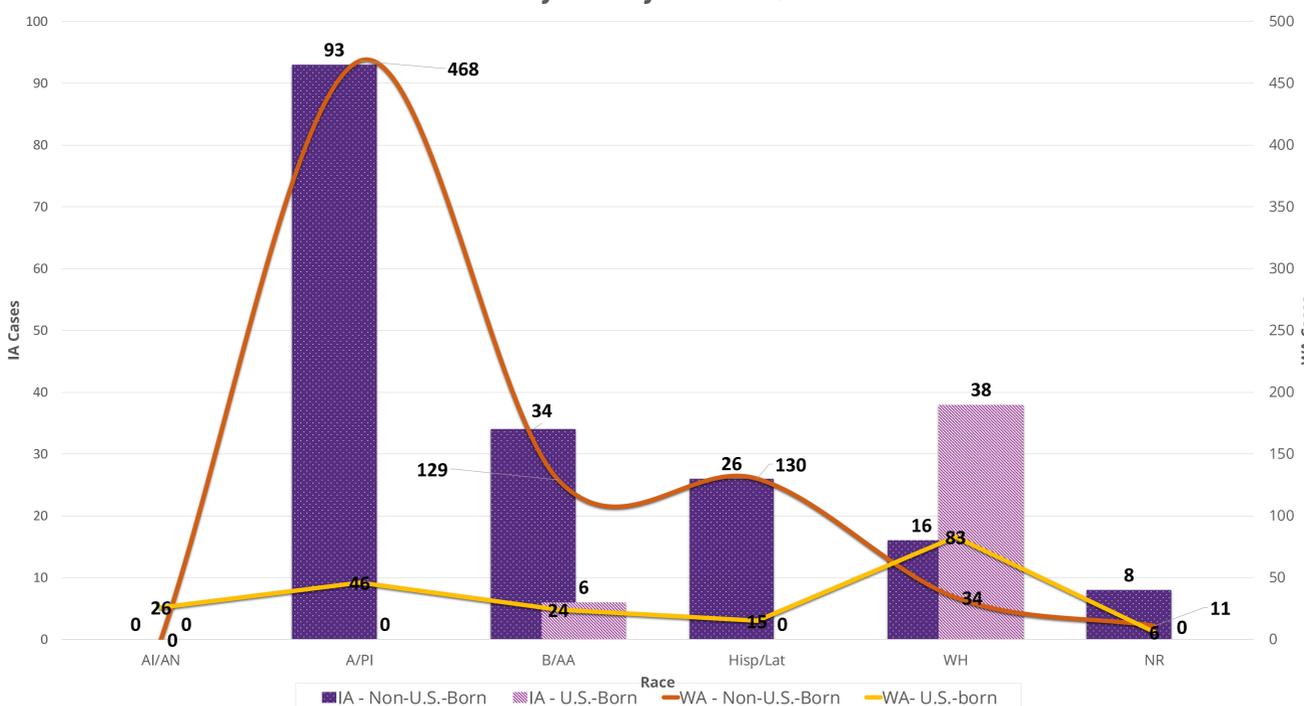
Results

- **TB Characteristics**
 - Washington had more than five times as many A/PI TB cases than did Iowa (n = 514, 18.2 vs. n = 93, 29.74)
 - TB cases were more prevalent among individuals ages 25-34 years (n = 208) in WA, while individuals ages 35-44 years (n = 53) were more common in Iowa
 - Race characteristics that were common among both states were B/AA, H/L, and WH, of which WH was more common among the U.S.-born population
 - Only 4.7% of WA residents with TB reported their homeless status as Yes, while the majority had stable housing (93.3%)
- **U.S.-Born vs. Non-U.S.-Born**
 - Non-U.S.-born individuals in both states had a higher prevalence of TB diagnosis than did U.S.-born individuals (IA: n = 177 vs. 47; WA: n = 773 vs. 200, cases)
 - Non-U.S.-born individuals in WA: rate of therapy completion within one year was higher among ages 25-34 years (88.6%), of A/PI heritage (84.7%), and received directly observed treatment (89.4%)
 - Non-U.S.-born individuals from IA: higher COT rates among ages 35-44 years (92.6%), WH (100%) and A/PI (87.8%) and individuals receiving direct therapy (92.5%)
 - Among individuals that received direct only therapy in Iowa, data shows there was more than a 90% treatment completion rate
- **Factors associated with COT**
 - Unadjusted OR at 95% CI:
 - U.S.-born females compared to U.S.-born males: 1.8 [0.6-5.8]; non-U.S.-born females compared to non-U.S.-born males: 0.9 [0.5-1.7]
 - Non-U.S.-born A/PI vs. non-U.S.-born WH: 2.0 [0.7-5.9]
 - Non-U.S.-born individuals receiving direct only treatment vs. combined treatment: 5.4 [2.0-14.7]; statistically significant

TB Cases by Nativity and Sex, 2013-2017



TB Cases by Nativity and Race, 2013-2017



Conclusion

- Aim of this study was to better understand patient characteristics among U.S.-born and non-U.S.-born TB cases, and how those factors are associated with treatment completion
- Direct only treatment therapy was most common among U.S.-born and non-U.S.-born persons across states, and resulted in strong completion rates
- Unadjusted OR for this measure also indicated a likely association between direct only therapy and treatment completion. The direct observation only method plays a critical role in ensuring patients stay on track throughout the six or nine months of treatment. However, this is a time and resource intensive process
- Among elders 85+ years, COT rates were at or below 80%. Lower treatment completion rates may be explained by the difficulty in identifying and treating TB among this age group. Older patients with TB are often carriers of hard to treat conditions, such as TB meningitis and extrapulmonary TB, which can be difficult to diagnose due to varying sensitivities of sputum smear results, and possible requirements for invasive screening procedures (Lee, 2015)
- Since individuals in this age group are at an increased risk of contracting TB from crowded settings such as aged-care facilities, improved emphasis on diagnosis and treatment outcomes are needed
- Clinical settings may be able to offset case management loads by utilizing CHWs in situations where community connections are vital to the patient's treatment success, such as among non-U.S.-born communities
- CHWs can connect patients to vital health and community services to reduce the likelihood patients will lapse in treatment
- The OTIS database contained suppressed values (counts are too low, and thus are hidden to protect certain groups) which limits the extent of the analysis

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