

## Notes from the Field

### Cluster of Tuberculosis Cases Among Marshallese Persons Residing in Arkansas — 2014–2015

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During early September 2014, the Arkansas Department of Health identified an increased number of tuberculosis (TB) cases among a unique population in a well-circumscribed geographical area in northwest Arkansas. The Compact of Free Association Act of 1985 (Public Law 99-239, amended in 2003 by Public Law 108-188) established the Republic of the Marshall Islands (RMI) as an independent nation, and persons from the RMI can travel freely (with valid RMI passport) to and from the United States as nonimmigrants without visas (1). Marshallese started settling in northwest Arkansas during the early 1990s because of employment and educational opportunities (2). According to the 2010 Census, an estimated 4,300 Marshallese resided in Arkansas (2), mostly within one county which ranked 6th in the United States for counties with the highest percentage of Native Hawaiians and Other Pacific Islanders (3). It is estimated that this number has been growing steadily each year since the 2010 Census; however, obtaining an accurate count is difficult. The RMI is a TB high-incidence country, with a case-rate of 212.7 per 100,000 persons for 2014, whereas the case-rate was 3.1 per 100,000 persons in Arkansas and 2.9 per 100,000 persons in the United States (4,5). Screening for either active TB or latent TB infection (LTBI) is not required for Marshallese entry to the United States (1).

A total of 107 active TB cases have been identified among Marshallese persons residing in Arkansas from 1997 through 2013. Despite establishment of an outreach team during 2002 and a satellite clinic during 2011, TB control among Marshallese residing in Arkansas remains challenging because of the high LTBI burden in this population, resulting in the increased likelihood of the development of active cases and exposure to persons with active disease. Outbreaks were identified during 2004 and again during 2014. During 2014, a total of 23 cases were identified among Marshallese persons, substantially above the average of six cases per year reported during the preceding 9 years. The Arkansas Department of Health identified an additional 11 cases through March 31, 2015, for a total of 34 TB cases, from self-reporting and contact tracing with targeted screening (tuberculin skin test and interferon-gamma release assay [T-Spot.TB test, Oxford Diagnostic Laboratories, Memphis, Tennessee]) of 412 contacts, which identified 165 additional persons (40%) with LTBI. Two deaths were

reported, one of which occurred in a young child who died of TB meningitis after being symptomatic with cough for 3 months and altered mental status for 1 week, prompting an extensive review of contact investigations. Among 34 patients, 33 (97%) resided within two zip codes of a single county. TB incidence among the Marshallese community accounted for 25% of all TB cases in Arkansas for 2014 and 79% of all TB cases in the affected county (Table). Among the 23 patients born in the RMI, 50% developed TB within 2.4 years (95% confidence interval = 1.2–3.1) of arrival in Arkansas.

This cluster is characterized by a high number of cases in children aged ≤15 years (19/34; 55.9%), with 11 of 34 (32.4%) patients aged ≤4 years; 11 of 19 (57.9%) patients aged ≤15 years were born in the United States and had no history of travel outside of the United States. Eight of 14 (57.1%) culture-confirmed, genotyped cases had the G00017 genotype, which constitutes the majority of genotyped TB cases in the RMI (4) and has been found in Arkansas since 2006 (Table). Obtaining a *Mycobacterium tuberculosis* isolate is less common for pediatric TB cases because of the low bacterial load and difficulty in sputum collection, therefore, only two of 19 (10.5%) pediatric cases versus 12 of 15 (80.0%) adult cases were genotyped.

The TB burden in the Marshallese community in Arkansas is substantially higher than that in the rest of the state. During 2014–2015, there was a substantial increase in the number of TB cases reported among Marshallese persons in Arkansas. The majority of these cases occurred among children; cases among children are widely considered to be indicative of ongoing transmission in a community (6). Cases in adults likely resulted from reactivation of LTBI or local acquisition of disease within Arkansas. Efforts to investigate this cluster are ongoing with an emphasis on informing targeted methods to decrease TB-associated morbidity and *M. tuberculosis* transmission.

**TABLE. Demographic and clinical characteristics of reported tuberculosis (TB) cases among Marshallese in Arkansas — January 1, 2014–March 31, 2015 (N = 34)**

| Characteristic   | No. (%)   |
|--|-----------|
| Born in Republic of the Marshall Islands                 | 23 (67.6) |
| Male   | 16 (47.1) |
| Age (yrs)  |           |
| 0–4  | 11 (32.4) |
| 5–15   | 8 (23.5)  |
| ≥16  | 15 (44.1) |
| <i>Mycobacterium tuberculosis</i> culture positive       | 14 (41.2) |
| National TB genotype G00017 (n = 14)                     | 8 (57.1)  |
| Proportion of TB cases in Arkansas, 2014 (n = 93)        | 23 (24.7) |
| Proportion of TB cases in affected county, 2014 (n = 29) | 23 (79.3) |

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