



The Prevalence of *M. tuberculosis* among Acid Fast Cultures from Military Health System Beneficiaries from Hawaii and Pacific Islands, January 2002 - November 2019



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Background

- Tuberculosis (TB), caused by *Mycobacterium tuberculosis* (MTB), is the leading infectious cause of death worldwide
- Hawaii (HI) has the second highest case rate of TB among states in the United States
- Prevalence of MTB among acid fast cultures from military health system (MHS) beneficiaries from HI and the Pacific Islands has not been previously reported

Objective

- Evaluate the prevalence of MTB among acid fast cultures tested at Tripler Army Medical Center (TAMC) on Oahu, HI
- Describe demographic factors associated with positive AFC results

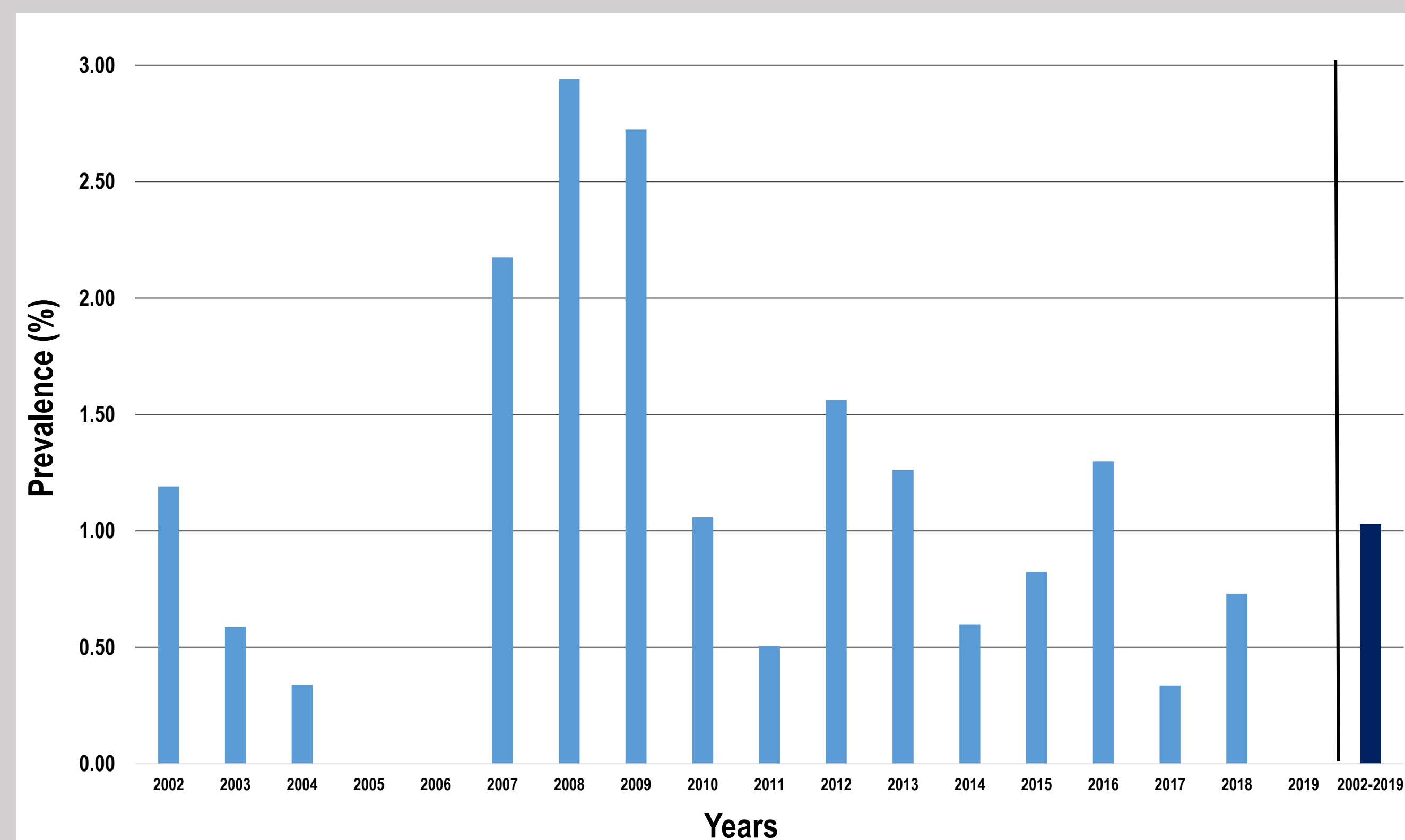
Methods

- We analyzed acid fast culture (AFC) results from samples processed at TAMC clinical diagnostic microbiology laboratory from January 2002 to November 2019
- MHS beneficiaries are individuals eligible for healthcare in the military health system from all branches of service and include active duty service members, retirees, dependents, civilians and eligible Pacific Island (PI) civilians
- The prevalence of MTB among AFCs was determined by the total number of MTB-positive AFC samples per total number of AFC evaluated over the study period
- Multivariable logistic regression models were used to estimate adjusted odds ratios for demographic factors associated with MTB-positive results and to estimate the odds of MTB-positive results by year

Results

- From January 2002 to November 2019 there were 4769 AFC samples resulted at TAMC with 49 positive for MTB yielding a period prevalence by sample of 1.03% (Figure 1)
- There were 4482 individuals with AFCs resulted at TAMC during the study period. After excluding duplicate positive samples, 44 individuals were found to be MTB-positive resulting in a period prevalence by individual of 0.98%
- Asian-Pacific Islanders had nearly 15 times higher odds of MTB-positive results than whites (OR=14.99, 95% CI 5.03, 44.63, p<0.001)
- The odds of having an MTB-positive AFC in this study was highest for the years 2007 to 2009 (OR=9.74, 95% CI 2.79, 33.96, p<0.001)

Figure 1. The Prevalence of *M. tuberculosis* (MTB) among Acid Fast Cultures (AFC) Processed at Tripler Army Medical Center, January 2002 - November 2019.



Prevalence	1.19	0.59	0.34	0	0	2.17	2.94	2.72	1.06	0.51	1.56	1.26	0.6	0.82	1.3	0.34	0.73	0	1.03
MTB-Positive	1	1	1	0	0	1	6	11	4	2	6	5	2	2	4	1	2	0	49
Total AFC	84	170	295	280	119	46	204	404	378	396	384	396	334	243	308	298	274	156	4769

Discussion

- Our results suggest a low prevalence of tuberculosis in the MHS beneficiary population on Oahu in contrast to the high rate of TB among the general population of Hawaii
- Persons with Asian-Pacific Islander ethnicity have higher odds of positive AFC which is consistent with results in published literature and state and national data
- The study did not find the expected higher odds of TB among the eligible PI civilians included in the study
- We did not attempt to further differentiate among individuals who classified themselves as Asian or Pacific Islander or include data on country of birth
- Active duty personnel had a low rate of positive results likely due to different sociodemographic factors and successful force health protection strategies
- There was no identifiable systemic change to account for the difference of annual prevalence across the years of the study

Conclusions

- This study provides good evidence to believe the prevalence of TB is low in MHS beneficiaries from Hawaii and the Pacific Islands who were tested at TAMC
- It is the first study on this subject in the MHS beneficiary population of Hawaii and the Pacific Islands
- Follow-up analysis is underway to describe the clinical course of the 44 persons with MTB-positive AFC from this study

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