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Disparities in Tuberculosis Treatment Completion by Incarceration Status, U.S., 1999–2011

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Abstract

Introduction: Treatment completion is the cornerstone of tuberculosis (TB) control strategy globally. Although the majority of reported TB cases in the U.S. have documented treatment completion, individuals diagnosed while incarcerated are less likely to have documentation of whether or not they completed treatment. This study assessed trends and correlates of no documented treatment completion among individuals incarcerated at diagnosis.

Methods: U.S. National TB Surveillance System (1999–2011) data on cases eligible for treatment completion were analyzed during 2014–2015. Treatment outcomes and trends in no documented completion were assessed by incarceration status. Multivariable logistic regression identified correlates of no documented completion among people incarcerated at diagnosis.

Results: A lower proportion of individuals incarcerated at diagnosis had documented TB treatment completion than non-incarcerated individuals (75.6% vs 93.7%), and a higher proportion were lost to follow-up (10.7% vs 2.2%) or moved (9.4% vs 2.3%) during treatment ($p<0.001$). The 1999–2011 trend in no documented completion significantly increased among those incarcerated at diagnosis and declined among non-incarcerated individuals. Being foreign born was the strongest correlate of no documented completion among people incarcerated at diagnosis (AOR = 2.86, 95% CI 2.35, 3.49). Social risk factors for TB (e.g., homelessness, substance abuse), although common among incarcerated individuals, did not emerge as correlates of no documented completion.

Conclusions: People diagnosed with TB disease at U.S. correctional facilities, especially the foreign born, require enhanced strategies for documenting TB treatment completion. Strengthened collaboration between correctional and public health agencies could improve continuity of care among released inmates.

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SUPPLEMENTAL MATERIAL

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INTRODUCTION

Early tuberculosis (TB) case detection and treatment completion are the cornerstones of TB control efforts.[1] Although more than 90% of U.S. reported TB cases have documented TB treatment completion, individuals incarcerated when their TB disease is diagnosed are disproportionately less likely to have documented treatment completion.[2–6] Most forms of TB require at least 6 months of treatment, necessitating continuity of care for inmates released before treatment completion.[7,8] However, socioeconomic challenges, high mobility, and behavioral factors can increase the risk of loss to follow-up of inmates,[8,9] challenging U.S. local public health programs in documenting whether or not they completed their TB treatment. Incomplete treatment can lead not only to the emergence of drug resistance, but also relapsed active disease, when TB might be transmitted to others, presenting a public health risk.[1,7]

The problem of not documenting treatment completion among incarcerated people is exacerbated by the fact that jails and prisons can be settings for TB outbreaks. Overcrowded and poorly ventilated living conditions combined with the prevalence of TB risk factors (e.g., substance abuse, HIV infection, homelessness) among incarcerated individuals make correctional facilities high-risk settings for TB transmission.[8,10–16] Lapses in TB prevention and control measures, including incomplete TB treatment, have further contributed to TB outbreaks at facilities, resulting in TB transmission to the surrounding communities in some instances.[10–12,14,15,17,18] An estimated 9%–43% of TB cases in the community have been shown to be associated with incarceration.[10,19,20] One review of source cases that started TB outbreaks in the U.S. showed that 50% of source cases were among people with a history of incarceration at some point in the past.[21] Thus, correctional facilities represent a key opportunity to promote TB control efforts by promptly diagnosing TB and ensuring that continuity of care is established for inmates released before treatment completion.

The authors analyzed TB cases reported to the U.S. National TB Surveillance System (NTSS) to understand trends and correlates of no documented treatment completion among individuals incarcerated at TB diagnosis, and identify opportunities for interventions to reduce disparities in documented treatment completion.

METHODS

In 1993, NTSS began to collect data on treatment outcomes and whether patients resided in a correctional facility at the time of TB diagnosis. Data on TB cases reported by 50 U.S. states and the District of Columbia to NTSS during January 1, 1999–December 31, 2011 were analyzed in 2014–2015. Only cases among individuals eligible for treatment completion were included in the analysis; eligibility for completion was defined by being alive at diagnosis, initiating treatment with at least one anti-TB medication, and not permanently stopping treatment because of death or an adverse event. Excluded from the analysis were cases among people who did not have treatment initiated, or had an unknown incarceration status at TB diagnosis.

Approval by an IRB was not required because data were collected and analyzed as part of routine national TB surveillance.

Measures

Standard NTSS definitions were used in this analysis.[22,23] Incarcerated was defined as being an inmate of a correctional facility when the TB diagnostic evaluation was performed or initiated. The types of correctional facilities consisted of federal prison, state prison, local jail, juvenile correctional facility, and other (i.e., Immigration and Customs Enforcement [ICE] detention centers, Indian reservation facilities, military stockade, federal park police facilities, police lockups, and other facilities not included in the choices).[22]

Treatment outcomes reported by public health departments as reason therapy stopped were as follows: completion of treatment, lost to follow-up, moved, uncooperative or refused, unknown reasons, and other reasons (i.e., not captured by listed reasons). All cases with treatment outcomes other than “completion” were categorized as “no documented completion” for this analysis. Cases with outcomes of death or adverse event associated with permanently stopping treatment were excluded.

For origin, U.S. born was defined as individuals born in the U.S. or a U.S.-affiliated area or those born abroad to a parent who was a U.S. citizen; all other people were categorized as foreign born.

Initial drug susceptibility test results of *Mycobacterium tuberculosis* culture–positive cases were categorized as drug susceptible if isolates were susceptible to isoniazid (INH), rifampin (RIF), pyrazinamide, and ethambutol. Cases with resistance to INH or RIF (with ethambutol susceptible and pyrazinamide susceptible or missing) were categorized as INH monoresistant or RIF mono-resistant, respectively; cases with resistance to at least INH and RIF were categorized as multidrug resistant.

Statistical Analysis

Treatment outcomes among incarcerated and non-incarcerated individuals were compared using the Pearson chi-square or two-tailed Fisher’s exact test. To understand disparity in treatment completion over time, trends (1999–2011) in the proportion of eligible people with no documented completion were examined by incarceration status and by origin. Statistically significant changes in trends were determined using the Cochran–Armitage test. Correlates of no documented treatment completion among incarcerated individuals were assessed by comparing demographic (sex, age, origin, race/ethnicity), clinical (site of disease, cavitary disease, acid-fast bacilli [AFB] sputum smear and *M. tuberculosis* culture result, drug susceptibility test result, HIV infection), and social risk (homeless, illicit drug use, excessive alcohol use) characteristics of individuals with and without documented treatment completion. Unadjusted ORs and 95% CIs were calculated using bivariate logistic regression, and all variables with a p-value ≤0.20 were included in a multivariable logistic regression model. Automatic backward elimination of independent variables was performed using the Wald statistic and a significance value of ≤0.05 to determine the final model. Model fit was determined by the Hosmer–Lemeshow statistic. Collinearity of independent

variables was assessed using the variance/covariance matrix and a matrix of variance decomposition proportions. Data were analyzed using SAS, version 9.3.

To identify subgroups at highest risk of no documented completion, the authors assessed the frequency of no completion by top birth countries of foreign-born incarcerated individuals and by the type of correctional facility where TB was diagnosed among incarcerated individuals.

RESULTS

Of 186,339 reported TB cases during 1999–2011, a total of 163,150 (87.6%) were among people eligible to complete TB treatment; of those, 6,093 (3.7%) were incarcerated at TB diagnosis, 156,770 (96.1%) were not incarcerated, and 287 (0.2%) had missing or unknown incarceration status. Among 6,093 incarcerated individuals, 4,605 (75.6%) completed treatment; 653 (10.7%) were lost to follow-up; 573 (9.4%) moved; 54 (0.9%) refused; and 208 (3.4%) had other or unknown reasons for stopping treatment. Among 156,770 nonincarcerated people, 146,823 (93.7%) completed treatment, 3,461 (2.2%) were lost to follow-up, 3,599 (2.3%) moved, 1,046 (0.7%) refused, and 1,841 (1.2%) had other or unknown reasons for stopping treatment. These differences in treatment outcomes by incarceration status were statistically significant ($p<0.001$).

The (1999–2011) trend in proportion of cases with no documented treatment completion significantly increased for incarcerated individuals and decreased for nonincarcerated individuals (test for trend, $p<0.001$; Figure 1). Incarcerated people had a consistently higher proportion (by 9%–26%) of cases with no documented completion than non-incarcerated people. Further stratification of cases by incarceration status and origin showed that among incarcerated cases, foreign-born individuals had neither an upward nor downward trend in no documented completion ($p=0.23$), whereas this trend significantly decreased among U.S.-born people ($p<0.01$; Figure 2). Notably, among non-incarcerated individuals, a decreasing trend was observed for both U.S.-born and foreign-born people ($p = 0.01$). Foreign-born incarcerated people had a consistently higher proportion (by 13%–38%) of cases with no documented completion than did their U.S.-born counterparts. However, a similar proportion of U.S.-born and foreign-born non-incarcerated individuals had no documented completion.

All demographic, clinical, and social characteristics assessed in the bivariate analysis were included in the multivariable model with the exception of cavitary TB (Table 1). Sex, age, site of disease, drug susceptibility, homelessness, and excess alcohol use were no longer statistically significant and were dropped from the final model. Being foreign born was the strongest correlate of no documented completion (AOR = 2.86, 95% CI = 2.35, 3.49). Weaker correlates were as follows: *M. tuberculosis* culture positive but negative AFB sputum smear result (AOR=1.56, 95% CI=1.30, 1.87); Hispanic ethnicity (AOR = 1.52, 95% CI=1.18, 1.96); unknown HIV infection (AOR = 1.41, 95% CI=1.22, 1.63); and unknown illicit drug use (AOR = 1.43, 95% CI = 1.08, 1.88).

Among both 3,598 U.S.-born and=2,470 foreign-born incarcerated individuals, the highest proportion of TB cases were diagnosed at local jails (U.S. born, 55.1%; foreign born, 45.0%;

Table 2). However, the highest proportion of cases with no documented completion was among those diagnosed in federal prisons (U.S. born, 18.6%; foreign born, 50.1%) and "other" facilities (U.S. born, 14.8%; foreign born, 48.1%). Overall, in all facility types, the proportion of foreign-born individuals with no documented treatment completion was approximately three times that of U.S.-born people.

The top five countries of birth for incarcerated foreign-born (total=2,470) individuals were Mexico (*n*= 1,445); Honduras (*n*=253); El Salvador (*n* = 122); Guatemala (*n*=138); and Vietnam (*n*=53) (Appendix Table 1, available online). The proportion of cases with no documented completion was 44.7% among people born in Mexico, and 36.0%, 36.1%, 48.6%, and 18.9% among those born in Honduras, El Salvador, Guatemala, and Vietnam, respectively.

DISCUSSION

This analysis of the U.S. TB surveillance system investigating the disparity in documented TB treatment completion and incarceration status at TB diagnosis showed an increasing trend in the proportion of incarcerated individuals with no documented treatment completion during 1999–2011. By contrast, the trend in no documented completion decreased among nonincarcerated individuals. Although social TB risk factors (e.g., homelessness and substance abuse) are common among incarcerated people,[2,9,19] these factors were not associated with their lack of documented TB treatment completion. Rather, being foreign born was the strongest correlate, after adjustment for demographic and clinical factors. A consistently higher proportion (by 13%–38%) of foreign-born versus U.S.-born incarcerated individuals had no documented completion during 1999–2011. This disparity in treatment completion based on origin was not evident for non-incarcerated people, among whom similar proportions of U.S.-born and foreign-born individuals had no documented completion. Thus, interventions are strongly needed to ensure that continuity of TB care is established for all inmates, especially the foreign born, diagnosed with TB disease while incarcerated.[8,24,25]

Local public health TB programs in the U.S. have the responsibility of following up treatment outcomes of TB cases, including those among individuals incarcerated at TB diagnosis. Treatment outcomes should be documented within 2 years of the initial report.[22] In circumstances where a person with TB disease moves out of the state or country, the local TB program (that initially reported the case) is responsible for notifying the public health authorities in the new place of residence, either domestic or overseas. This analysis reflects the challenges that TB programs have faced over the last decade in following up and documenting treatment completion for people incarcerated at TB diagnosis. Cases in foreign-born people in particular require strong collaboration among correctional facilities, local public health programs, and foreign governments to ensure continuity of TB care, [5,8,17,26–28] which would facilitate documentation of treatment completion.

Following release, inmates can face economic and social challenges that might become a priority over continuation of TB care.[8] Foreign-born people might face additional barriers, such as geographic mobility, lack of access to medical care and TB medications, language,

cultural norms and beliefs that minimize the need for TB care, and reluctance to interact with government authorities.[9,17,29] To address these challenges, the U.S. national guidelines and protocols for prevention, control, and management of TB at correctional facilities recommend comprehensive discharge planning, which includes establishing collaboration with local public health officials, providing education on treatment completion, and making provisions for case management before inmates are released.[8,30] Correctional facilities' health staff are to facilitate communication between public health and healthcare professionals and assist inmates in securing the basic life necessities after release. However, evidence is limited regarding the extent to which correctional facilities conduct such comprehensive discharge planning, including notifying public health staff to facilitate establishing continuity of TB care, especially in an era of declining resources.

One assessment of 20 large jail systems conducted during 2000–2001 found inadequate and incomplete medical information systems and less than half of evaluated jails had information about TB treatment completion.[31] Another study found that only seven of 20 jails and their respective health departments had effective collaboration for TB prevention and control activities.[24] Insufficient advance notification of the health department before inmate release was identified as the greatest barrier to discharge planning.[24] Initiating discharge planning as soon as TB is suspected could ensure that health departments receive sufficient notification. Such early planning is particularly important in circumstances involving local jails, which diagnosed the highest number of TB cases among correctional facilities in this analysis and can have rapid inmate turnaround. Local jails can also potentially house inmates in federal custody, and situations involving deportations require additional coordination with the appropriate federal law enforcement agency, such as ICE, to facilitate continuity of care with the receiving foreign governments.

Foreign-born individuals at all types of correctional facilities in this analysis were almost three times as likely as U.S.-born people to have no documented completion. However, the highest proportion of incarcerated individuals with no documented completion were residents at federal facilities and "other" types of facilities, which includes ICE facilities. Foreign-born individuals unauthorized to reside in the U.S. are detained by ICE while undergoing administrative processes for potential deportation. Based on immigration laws, ICE has limited time to carry out a judge's order once it is issued, resulting in deportation (or release) of detainees diagnosed with TB while in ICE custody even if their TB treatment is incomplete.[32] In such cases, establishing continuity of care and documenting treatment completion is critical, as instances of re-importation and spread of TB in U.S. communities, including a drug-resistant strain, have been previously documented.[17,26]

Latin American countries neighboring the U.S. were among the top birth countries of foreign-born incarcerated people in this analysis. Mexicans represented the highest number of incarcerated individuals and had the highest proportion of those with no documented TB treatment completion. Thus, U.S.-based transnational referral programs and binational projects (e.g., CureTB and TB Net)[33–35] that assist people mobile across the U.S.–Mexico border or between the U.S. and other countries in continuing TB treatment should be notified as part of release planning.[8,28] In circumstances where loss to follow-up or

nonadherence is highly likely, a “meet and greet” can be considered so that the national TB program staff meet the released inmate at a border or airport.[27]

Other than being foreign born, this analysis identified having *M. tuberculosis* culture positive but negative AFB sputum smear result, unknown HIV infection status, unknown illicit drug use, and Hispanic ethnicity to be other weaker correlates of no documented treatment completion among incarcerated people; the potential reasons for these findings require further investigation at local TB programs and correctional facilities. Cases being excused from a full course of TB treatment of at least 6 months based on negative sputum AFB smear results should be ruled out. Because a few states had not reported the HIV status of their TB cases during the period of the analysis, the category of unknown HIV infection could consist of HIV-negative and -positive cases, making it difficult to interpret its association with no documented completion. Likewise, the sample size of unknown drug use category was too small in the final model to draw any conclusions. Among people of Hispanic ethnicity, the role of socioeconomic factors, knowledge and perception of TB disease, and mobility should be explored. Further, as Mexico and Central American countries were the top birth countries of foreign-born individuals in this analysis, measures to prevent interruption of care during travel to these neighboring countries should be considered.

Limitations

The findings of this analysis are subject to several limitations. First, people without documentation of treatment completion could have completed treatment after movement or loss to follow-up. However, a previous study has demonstrated that people who moved during TB treatment were six times more likely to default from treatment compared with those who did not move.[4] Second, because the U.S. TB surveillance system does not capture release dates from correctional facilities among individuals incarcerated at TB diagnosis, this analysis could not differentiate treatment outcomes between those incarcerated throughout their treatment versus those released during treatment; the former group would likely have higher completion rates. Third, as the surveillance system only captures incarceration status at a single point in time (i.e., at TB diagnosis), this analysis could not assess the influence of a history of incarceration on documented TB treatment completion. Fourth, during the period of the analysis, the surveillance system did not completely capture whether people housed in local facilities were in ICE custody, making it difficult to quantify those awaiting potential deportation. Finally, health departments could have different interpretations for reasons treatment stopped other than completion (e.g., moved versus lost to follow-up). In 2009, the Centers for Disease Control and Prevention revised the treatment outcome variable to clarify definitions and added a variable for ICE custody. However, the period of this analysis ended in 2011 when data were incomplete for newly added or revised variables.

CONCLUSIONS

This is the first comprehensive analysis of the national TB surveillance data to understand trends and correlates of no documented TB treatment completion among individuals

diagnosed with TB disease while incarcerated. The increasing trend of no documented TB treatment completion among incarcerated individuals emphasizes the need for strengthening collaboration between correctional facilities and public health programs to ensure that continuity of care is established for released inmates. Among incarcerated people, the foreign born, and likely individuals under consideration for deportation, are at the greatest risk of not achieving documented treatment completion. An assessment of compliance with federal guidelines in prevention and control of TB in incarceration and detention facilities could help to identify gaps in discharge planning and improve continuity of care. All types of correctional facilities and public health agencies require strategies to reduce loss to follow-up and document treatment completion, especially among foreign-born individuals who move before treatment completion.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Kiren Mitruka conceived and designed the evaluation, analyzed and interpreted the data, and drafted and finalized the manuscript. Robert Pratt, Tyson Volkmann, and J. Steve Kammerer assisted in data analysis, interpretation, and revising the manuscript. J. Steve Kammerer also provided substantial input to the design of this evaluation.

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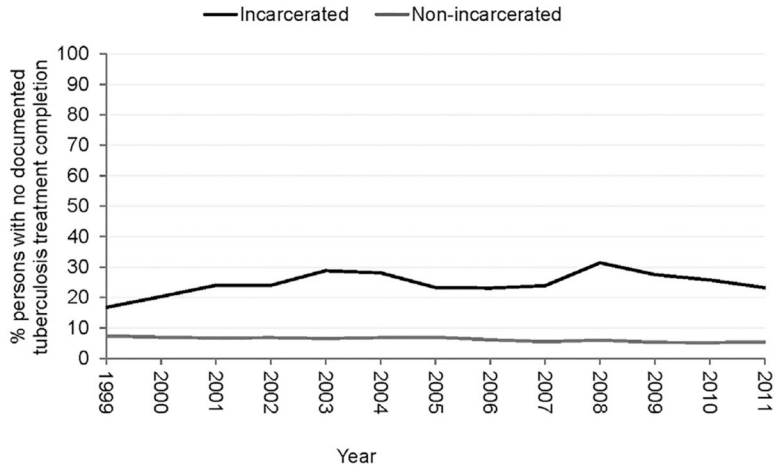

Figure 1.

Trends in no documented treatment completion among eligible[a] individuals by incarceration status at TB diagnosis, National TB Surveillance System, U.S. 1999–2011.

[a]Individuals eligible for TB treatment completion were defined by being alive at diagnosis, initiating TB treatment, and not permanently stopping treatment because of an adverse event or death.

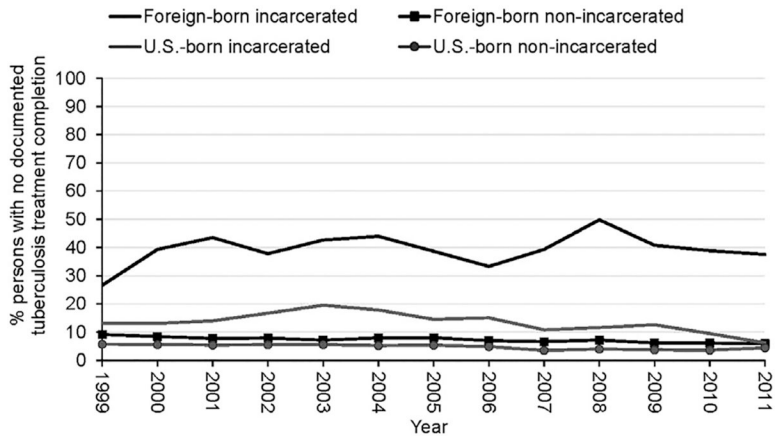

Figure 2.

Trends in no documented TB treatment completion among eligible[a] individuals by incarceration status at TB diagnosis and origin, National TB Surveillance System, U.S. 1999–2011.

[a]Individuals eligible for TB treatment completion were defined by being alive at diagnosis, initiating TB treatment, and not permanently stopping treatment because of an adverse event or death.

Table 1.

Correlates of No Documented TB Treatment Completion Among Eligible Individuals Incarcerated at Diagnosis[a]

Characteristics	Total	Individuals with no documented completion, *n* (%)	Crude OR (95% CI)	AOR[b] (95% CI)
Overall	6,093[c]	1,488[c] (24.4)		
Sex				
Female	563	85 (15.1)	1.00 (ref)	–
Male	5,530	1,403 (25.4)	1.91 (1.51, 2.43)	–
Age, years				
0–14	6	1 (16.7)	0.59 (0.07, 5.02)	–
15–24	897	269 (30.0)	1.26 (1.07, 1.48)	–
25–44	3,503	891 (25.4)	1.00 (ref)	–
45–64	1,602	319 (19.9)	0.73 (0.63, 0.84)	–
≥ 65	84	7 (8.3)	0.27 (0.12, 0.58)	–
Origin				
U.S.-born	3,598	495 (13.8)	1.00 (ref)	1.00 (ref)
Foreign-born	2,470	983 (39.8)	4.14 (3.66, 4.69)	2.86 (2.35, 3.48)
Race/ethnicity				
Hispanic	2,668	982 (36.8)	3.41 (2.80, 4.15)	1.52 (1.18, 1.96)
Asian	206	57 (27.7)	2.24 (1.57, 3.19)	0.79 (0.52, 1.20)
Non-Hispanic black	2,183	293 (13.4)	0.91 (0.73, 1.13)	0.96 (0.77, 1.21)
Non-Hispanic white	938	137 (14.6)	1.00 (ref)	1.00 (ref)
Other[d]	82	15 (18.3)	1.31 (0.73, 2.36)	1.15 (0.61, 2.17)
Site of disease				
Pulmonary	5,179	1,317 (25.4)	1.00 (ref)	–
Extrapulmonary	566	106 (18.7)	0.68 (0.54, 0.84)	–
Both sites	346	65 (18.8)	0.68 (0.51, 0.90)	–
Cavitary				
No	3,976	970 (24.4)	1.00 (ref)	–
Yes	1,357	323 (23.8)	0.97 (0.84, 1.12)	–
Unknown	760	195 (25.7)	1.07 (0.90, 1.28)	–

Characteristics	Total	Individuals with no documented completion, *n* (%)	Crude OR (95% CI)	AOR[b] (95% CI)
Sputum AFB smear/culture				
Smear-/culture −	1,338	281 (21.0)	1.00 (ref)	1.00 (ref)
Smear+/culture+	2,150	481 (22.4)	1.08 (0.92, 1.28)	1.08 (0.90, 1.30)
Smear-/culture +	2,029	592 (29.2)	1.55 (1.32, 1.82)	1.56 (1.30, 1.87)
Smear+/culture −	80	15 (18.8)	0.87 (0.49, 1.55)	0.84 (0.44, 1.60)
Other combinations	459	108 (23.5)	1.19 (0.93, 1.52)	1.46 (1.12, 1.92)
Drug susceptibility				
Susceptible to 4-first line	4,214	1,058 (25.1)	1.00 (ref)	–
INH-monoresistant	326	82 (25.2)	1.00 (0.77, 1.30)	–
RIF-monoresistant	12	1 (8.3)	0.27 (0.04, 2.10)	–
MDR	37	13 (35.1)	1.62 (0.82, 3.19)	–
Other resistant	65	19 (29.2)	1.23 (0.72, 2.11)	–
Unknown result	1,439	315 (21.9)	0.84 (0.73, 0.97)	–
HIV				
HIV negative	3,634	810 (22.3)	1.00 (ref)	1.00 (ref)
HIV positive	816	152 (18.6)	0.80 (0.66, 0.97)	1.12 (0.91, 1.39)
HIV unknown[e]	1,643	526 (32.0)	1.64 (1.44, 1.87)	1.41 (1.22, 1.63)
Homeless[f]				
No	4,936	1,173 (23.8)	1.00 (ref)	–
Yes	877	184 (21.0)	0.85 (0.72, 1.02)	–
Illicit drug use[f]				
No	3,664	917 (25.0)	1.00 (ref)	1.00 (ref)
Yes	1,968	392 (19.9)	0.75 (0.65, 0.85)	0.85 (0.74, 0.99)
Unknown	461	179 (38.8)	1.90 (1.55, 2.33)	1.43 (1.08, 1.88)
Excess alcohol use[f]				
No	3,828	927 (24.2)	1.00 (ref)	–
Yes	1,827	385 (21.1)	0.83 (0.73, 0.96)	–
Unknown	438	176 (40.2)	2.10 (1.71, 2.58)	–

[a]Data source: U.S. National TB Surveillance System during 1999–2011. Individuals eligible for TB treatment completion were defined by being alive at diagnosis, initiating TB treatment, and not permanently stopping treatment because of an adverse event or death.

[b] The multivariable analysis included a total of 5,785 cases. Because of small sample size or uncertain clinical significance, 308 case were excluded: 237 unknown/missing results ≤5% of total; 6 children aged <15 years; and 65 other combinations of drug resistance patterns.

[c] The total for some variables might not add up to the overall total because unknown/missing results ≤5% of overall total are not shown.

[d] Other = American Indian/Alaska Native, Native Hawaiian, Pacific Islander, or multiple race.

[e] Unknown HIV status includes indeterminate, refused, not offered, and test done results unknown. Includes cases reported by California as not HIV positive during 1999–2004 and all cases during 2005–2010, and by Vermont during 2007–2011 because HIV status was not reported.

[f] Within 12 months of TB diagnosis.

AFB, acid-fast bacilli; INH, isoniazid; MDR, multidrug resistant; RIF, rifampin; TB, tuberculosis.

Table 2.

No Documented TB Treatment Completion by Origin and Correctional Facility of Individuals Incarcerated at Diagnosis[a]

	U.S.-born		Foreign-born	
Correctional facility type	**Total N**	**No documented completion *n* (%)**	**Total N**	**No documented completion *n* (%)**
All	3,598	495 (13.8)	2,470	983 (39.8)
Federal prison	145	27 (18.6)	413	207 (50.1)
State prison	1,269	132 (10.4)	184	54 (29.3)
Local jail	1,981	303 (15.3)	1,112	371 (33.4)
Juvenile corrections	31	3 (9.7)	20	3 (15.0)
Other[b]	88	13 (14.8)	698	336 (48.1)
Unknown	84	17 (20.2)	43	12 (28.0)

[a]Data source: U.S. National TB Surveillance System during 1999–2011. Individuals eligible for TB treatment completion were defined by being alive at diagnosis, initiating TB treatment, and not permanently stopping treatment because of an adverse event or death.

[b]Other = Immigration and Customs Enforcement (ICE) detention centers, Indian reservation facilities (e.g., tribal jails), military stockades and jails, federal park police facilities, police lockups (temporary holding facilities for people who have not been formally charged in court), or other correctional facilities that are not included in the other specific choices.

TB, tuberculosis.