

Louisiana Department of Health, Office of Public Health, Tuberculosis
Control Program

Louisiana Annual Tuberculosis Report 2021

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Summary

This report breaks down demographic, diagnostic, and outcome trends for Tuberculosis (TB) in Louisiana over the past decade. Demographic trends include sex, race, ethnicity, nativity, age, and common risk factors for TB. Diagnostic trends include reason for evaluation, site of disease, diagnostic confirmation type, genotype surveillance. Outcome trends include sputum culture conversion, treatment completion, and mortality. Case rates were calculated using ACS Demographic and Housing Estimates¹ and outcome trends utilize data from the CDC National Tuberculosis Indicator Project (NTIP) database².

Louisiana has consistently ranked in the top 25 in the nation for TB case rates.³ In 2019 Louisiana reported fewer than 100 incident cases of TB disease, for the first time since reporting was mandated in 1958. In 2021, 86 incident cases of TB disease were counted in Louisiana, representing a case rate of 1.9 cases per 100,000 population.

During the 2012-2021 period, case rates among patients identifying as male were higher than case rates among patients identifying as female. Case rates among patients identifying as Asian were higher than case rates among patients identifying as Black/African American or White, and case rates were higher among patients identifying as Black/African American than those among patients identifying as White.

The majority of TB cases in Louisiana were among U.S.-born persons. Among non-U.S.-born persons, Vietnam and Honduras were the most common countries of origin, and most non-U.S.-born patients arrived to the United States 1-5 years or ≥ 15 years prior to TB diagnosis.

TB case rates were consistently lowest among those age 5-14 years old and highest among those 45-64 years old and 65+ years old. Risk factors were analyzed in four categories: History of TB, Medical Conditions, Substance Use, and Congregate Settings. The most common risk factors among TB cases in Louisiana were history of TB infection/exposure, Diabetes co-infection, smoking, and excess alcohol consumption.

The lowest percentage of extrapulmonary cases occurred in 2013 (11.5%) and the highest percent of cases with both pulmonary and extrapulmonary involvement was in 2020 (10.1%). The most common extrapulmonary sites of disease were pleural, lymphatic cervical, and other sites. The majority of TB cases in Louisiana were evaluated for TB disease because they were experiencing TB symptoms and diagnosis was confirmed by culture identification.

While Louisiana had been below the national average for sputum culture conversion, treatment completion, and genotype surveillance coverage, rates have been steadily improving. Mortality rates among TB cases have been steadily, but not significantly, increasing since 2015. However, until 2020 most of the deaths reported among TB cases were not attributed to TB disease.

¹ US Census Bureau: [ACS Demographic and Housing Estimates](#)

² Centers for Disease Prevention and Control: [National TB Indicators Project](#)

³ Centers for Disease Prevention and Control: [Reported TB in the United States, 2020](#)

Tuberculosis Incidence

The number of cases in Louisiana dropped from 331 in 2000 to 200 in 2010, and 86 in 2021. This represents a 74.0% net decrease and an average decrease of 5.5% per year from 2010 to 2021.

The number of incident cases in Louisiana is decreasing at a faster rate than the United States, which had an average decrease of 3.3% over the same period.

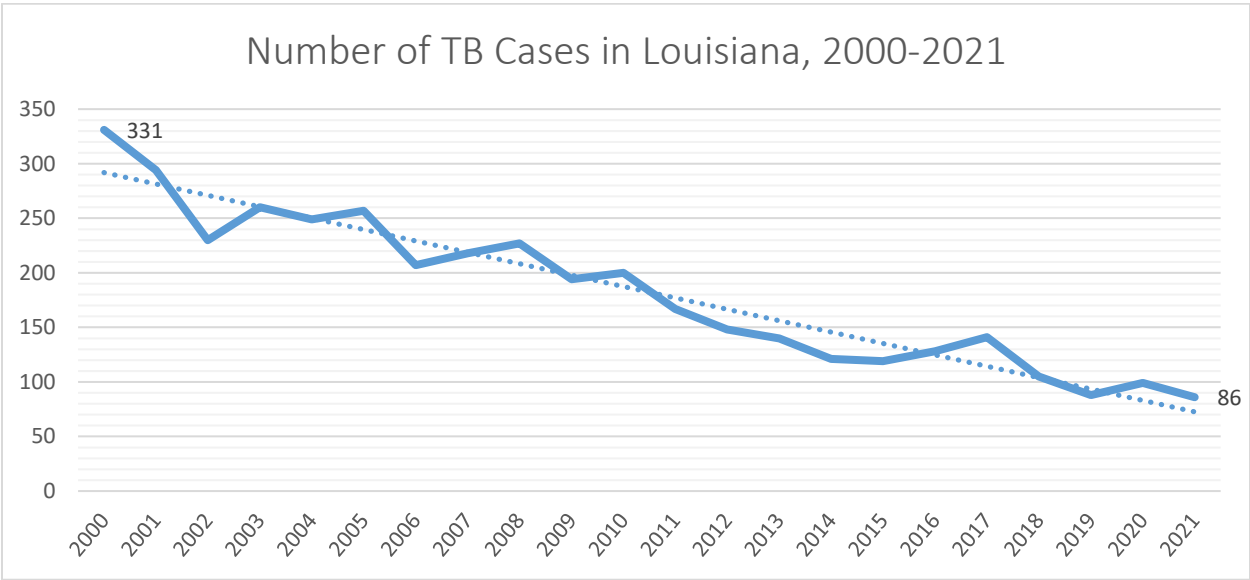


Figure 1. Number of incident TB cases per year in Louisiana from 2000-2021.

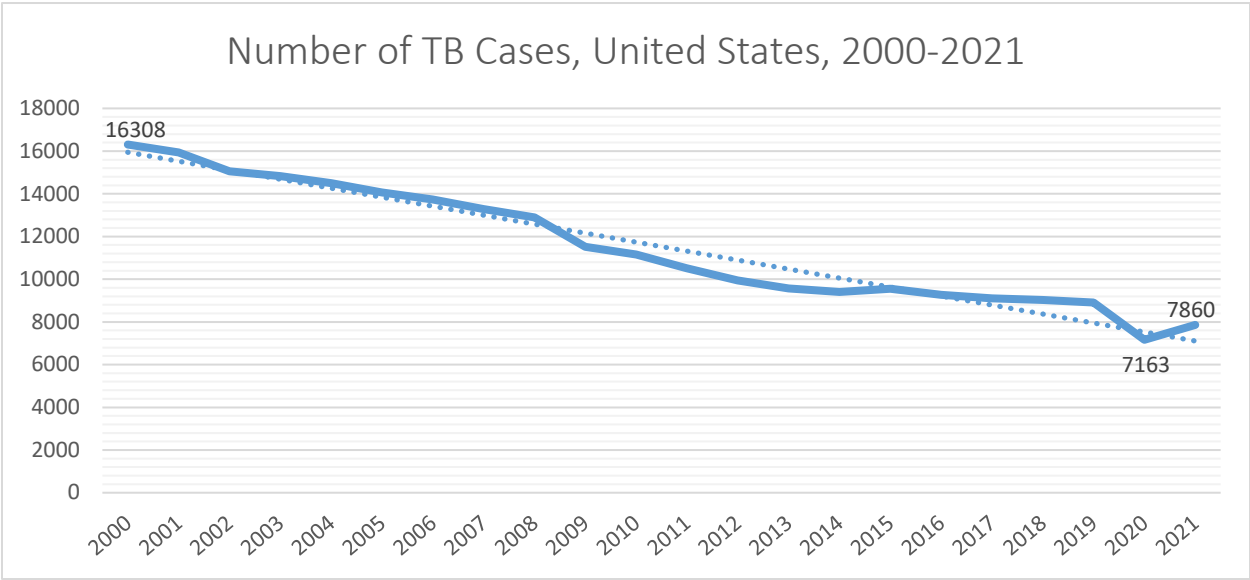


Figure 2. Number of incident TB cases per year in the United States from 2000-2020.

The TB case rate in Louisiana dropped 47.6% from 3.6 cases per 100,000 population in 2012 to 1.9 cases per 100,000 population in 2021. The case rate decreased an average of 7.2% per year, but increased 10.1% from 2016 to 2017 and 9.9% from 2019 to 2020.

The case rate in Louisiana is decreasing at a faster rate than that of the United States, which had an average decrease of 3.2% over the same period.

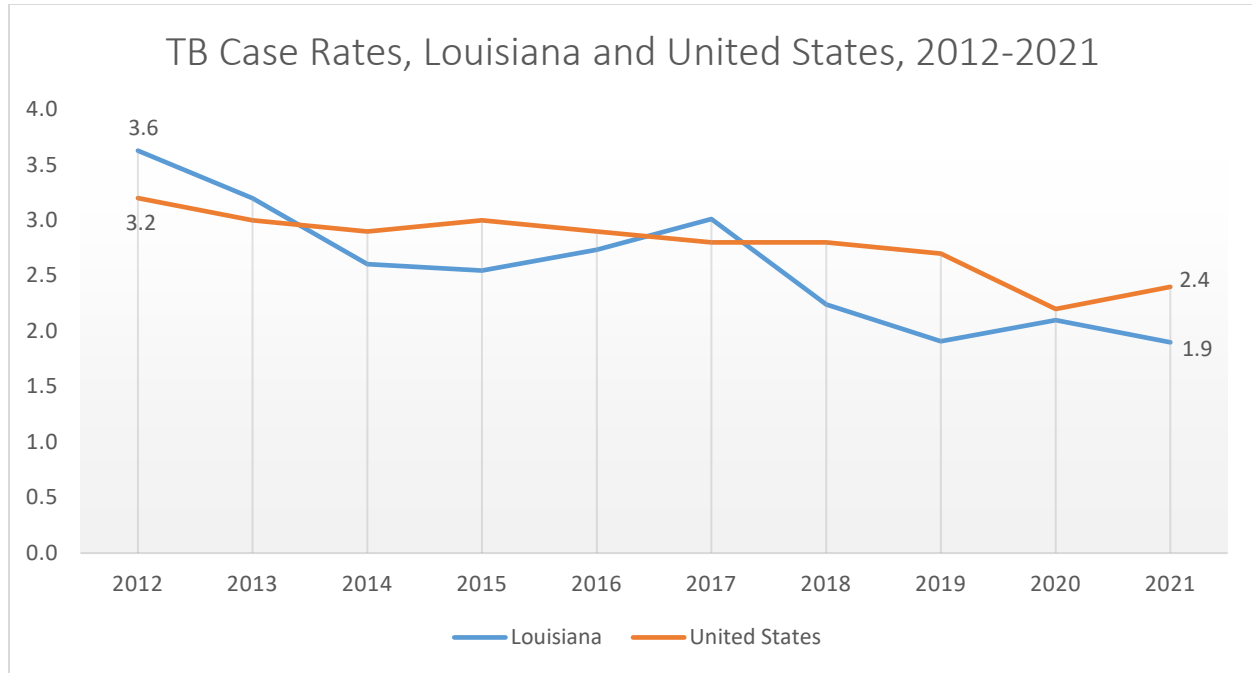


Figure 3. TB case rate, number of cases per 100,000 population, for Louisiana and the United States from 2010 to 2021.

Table 1. Louisiana state ranking for TB case rates, 2011-2020. *Rankings for 2021 were not available at the time this report was published.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Louisiana Case Rate	4.4	3.6	3.2	2.6	2.5	2.7	3.0	2.2	1.9	2.1
Louisiana Rank	10	11	10	17	19	17	11	20	21	9

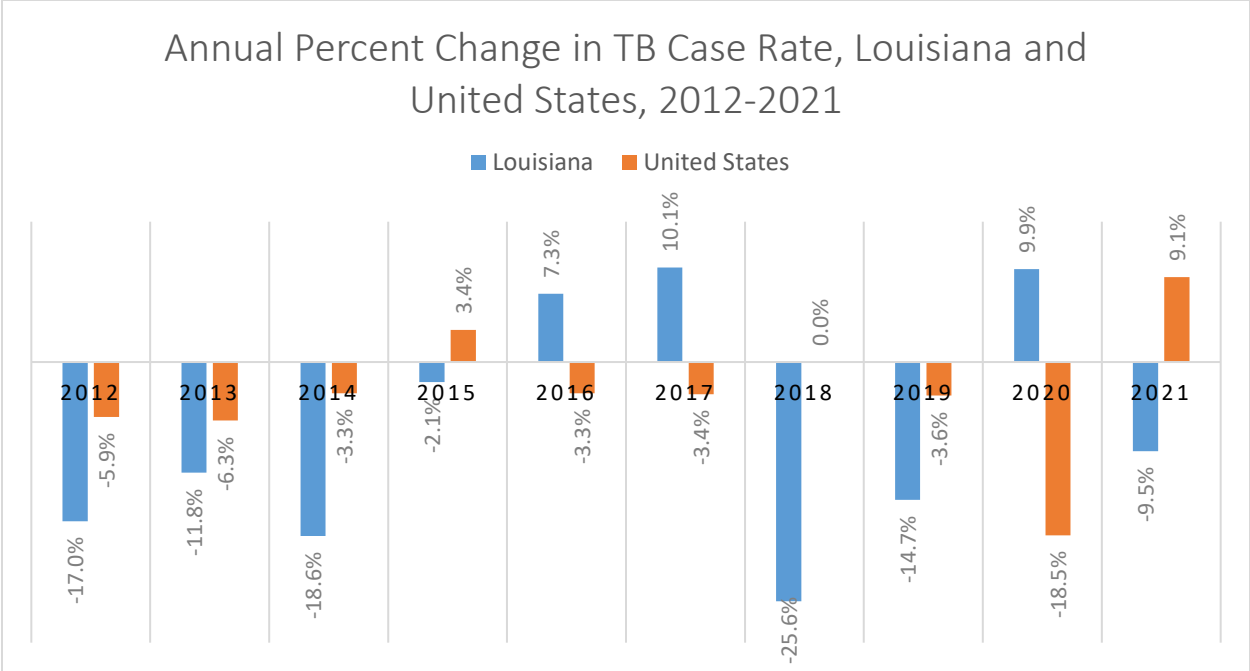


Figure 4. Annual percent change in TB case rate in Louisiana and the U.S., 2012-2021.

The Louisiana Office of Public Health is a centralized health department with nine administrative regions. The highest rates of TB are observed in Region 1, Greater New Orleans Area, and Region 8, Greater Monroe Area.

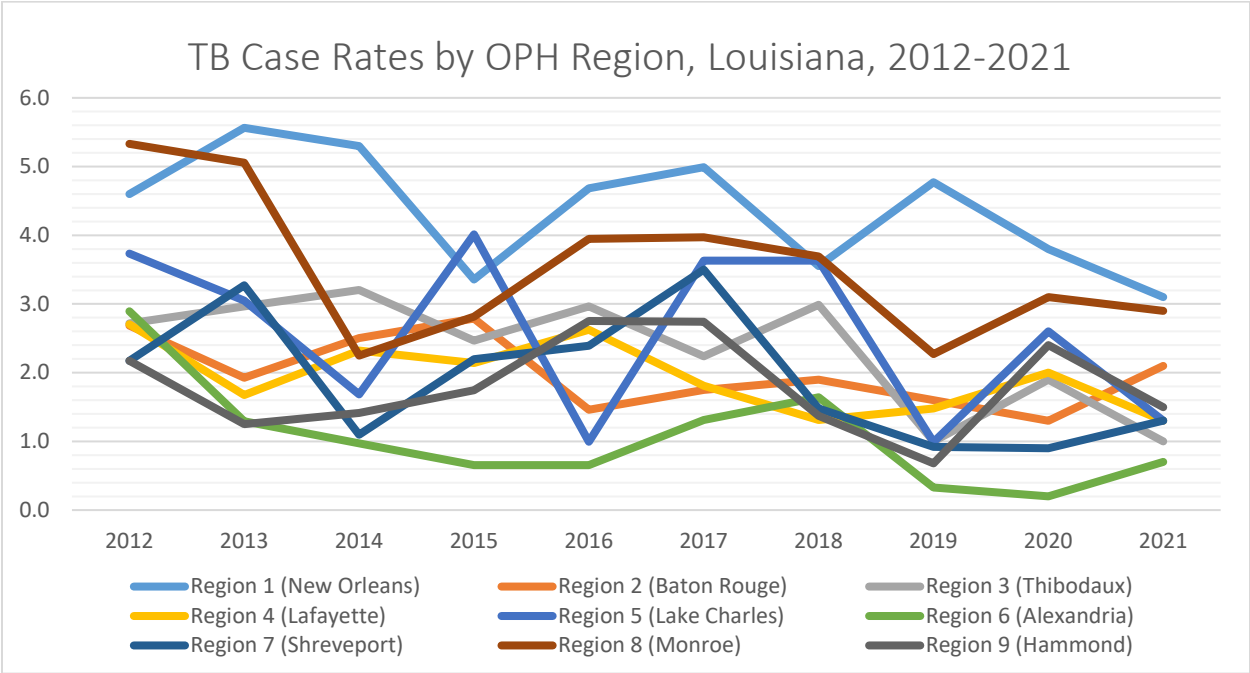


Figure 5. Louisiana TB case rates, number of cases per 100,000 population, by OPH region, 2012-2021.

Tuberculosis Case Demographics

Sex, Race, and Ethnicity

Tuberculosis (TB) case rates were consistently higher among patients identifying as male than among patients identifying as female in Louisiana.

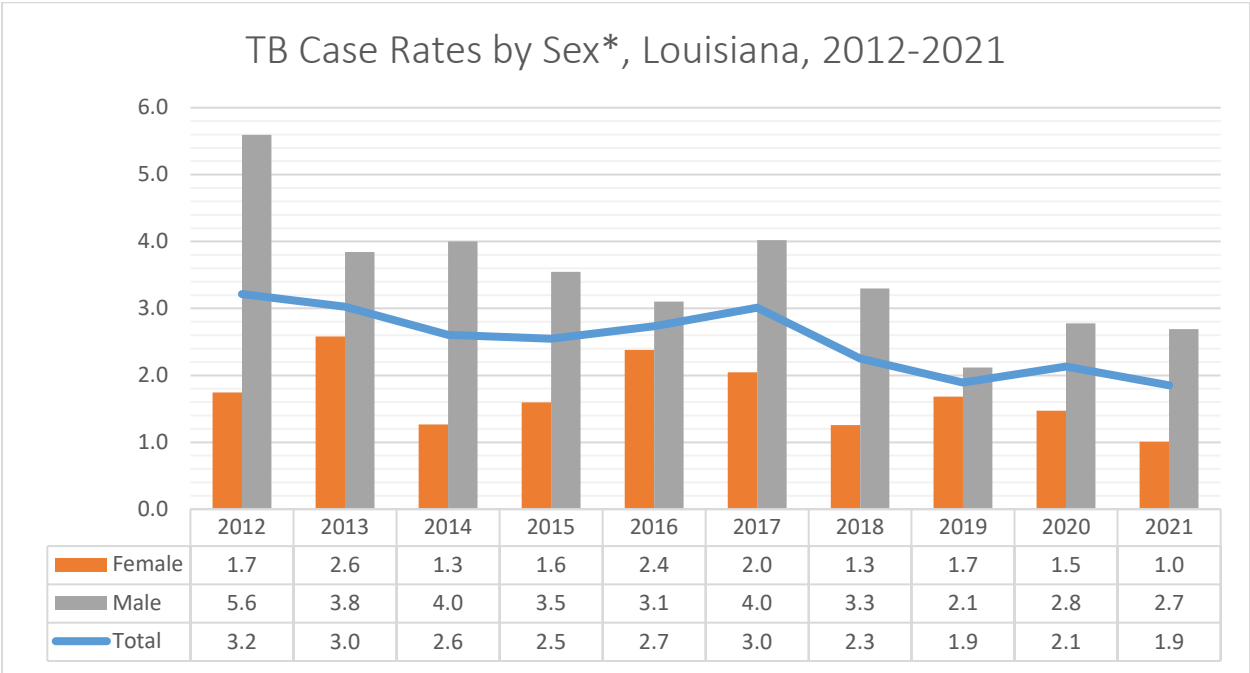


Figure 6. Total, male, and female case rates, number of cases per 100,000 population, Louisiana from 2010-2021. *In 2021, the state reporting system was updated to allow patients to report based on gender identity, in addition to “sex at birth” and “current sex” variables reported to CDC. Census data is still only available based on sex as male and female, but one patient in Louisiana in 2021 identified as non-binary, other, or chose not to gender identify.

TB case rates were significantly higher among patients identifying as Asian compared to case rates among patients identifying as Black/African American or White in Louisiana. When cases were subdivided by race and sex, the same patterns were observed.

Two cases were reported among patients identifying as Hawaiian/Pacific Islander (2012 and 2013). Two cases were reported with race as Other (2016 and 2018), and one case was reported with race as Unknown (2015).

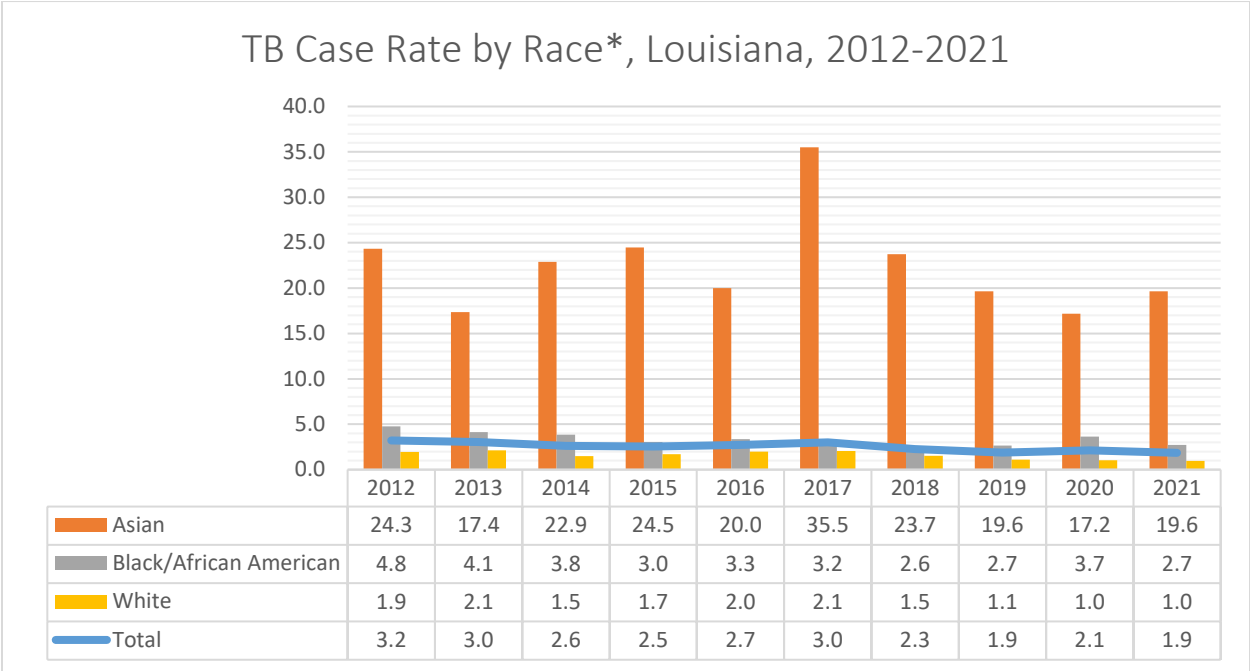


Figure 7. White, Black/African American, and Asian case rates, number of cases per 100,000 population, for Louisiana from 2012-2021. Consistent training and/or methodology was not historically provided for reporting persons identifying as two or more races; this is being addressed in upcoming reporting system updates.

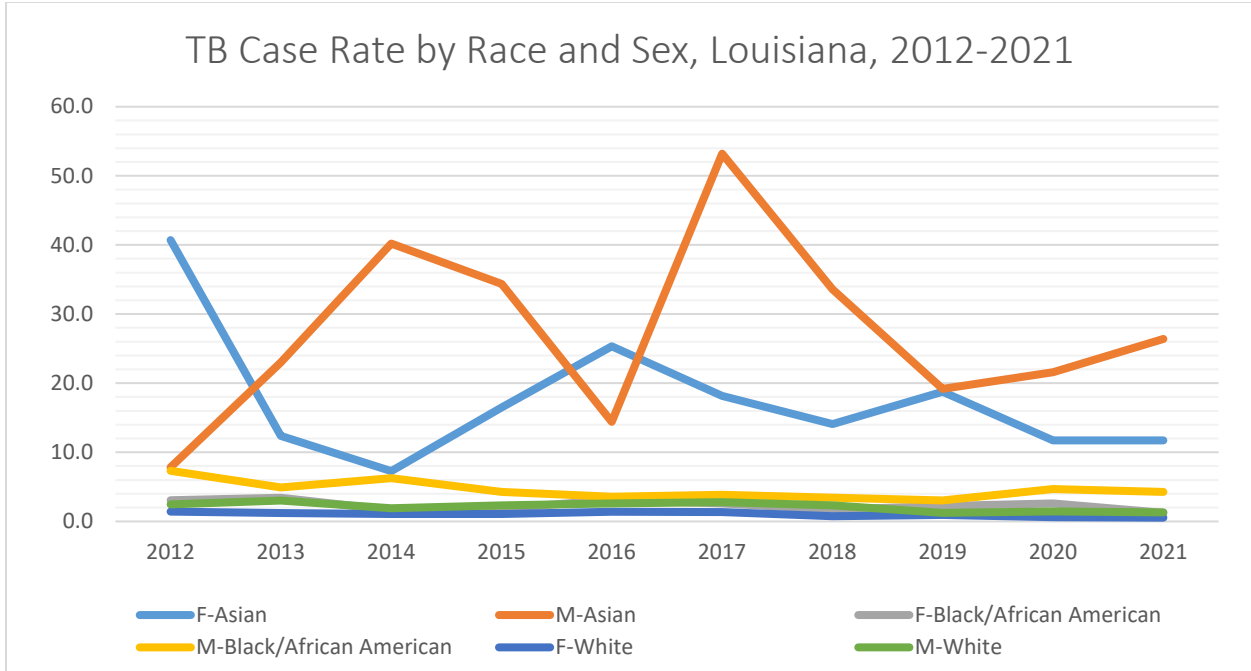


Figure 8. TB case rates, number of cases per 100,000 population, by sex (M-male, F-female) and race for Louisiana from 2012-2021.

Table 1. TB case rates, number of cases per 100,000 population, by sex (M-male, F-female) and race for Louisiana from 2012-2021.

Year	TB Case Rates by Race and Sex					
	F-Asian	M-Asian	F-Black/African American	M-Black/African American	F-White	M-White
2012	40.7	7.8	3.1	7.3	1.4	2.5
2013	12.4	23.0	3.4	4.9	1.2	3.0
2014	7.3	40.2	1.6	6.3	1.1	1.9
2015	16.5	34.3	1.9	4.3	1.1	2.3
2016	25.3	14.4	3.1	3.6	1.4	2.6
2017	18.2	53.2	2.6	3.9	1.3	2.8
2018	14.1	33.6	1.7	3.5	0.7	2.3
2019	18.8	19.2	2.2	3.0	0.9	1.2
2020	11.7	21.6	2.6	4.7	0.6	1.4
2021	11.7	26.4	1.2	4.3	0.5	1.3

TB case rates were significantly higher among patients identifying as Hispanic/Latinx compared to patients identifying as non-Hispanic/Non-Latinx in Louisiana. A total of 19 patients did not identify an ethnicity during this period. When cases were subdivided by ethnicity and sex, the same patterns were observed.

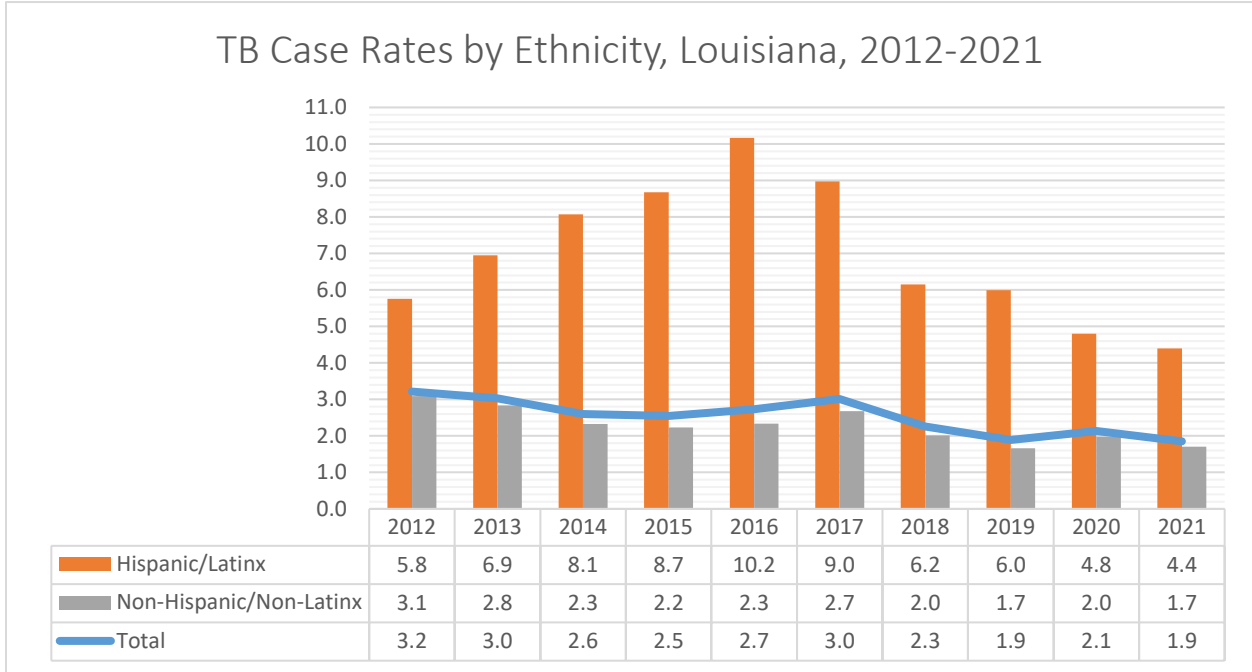


Figure 9. TB case rates, number of cases per 100,000 population, by ethnicity for Louisiana from 2012-2021.

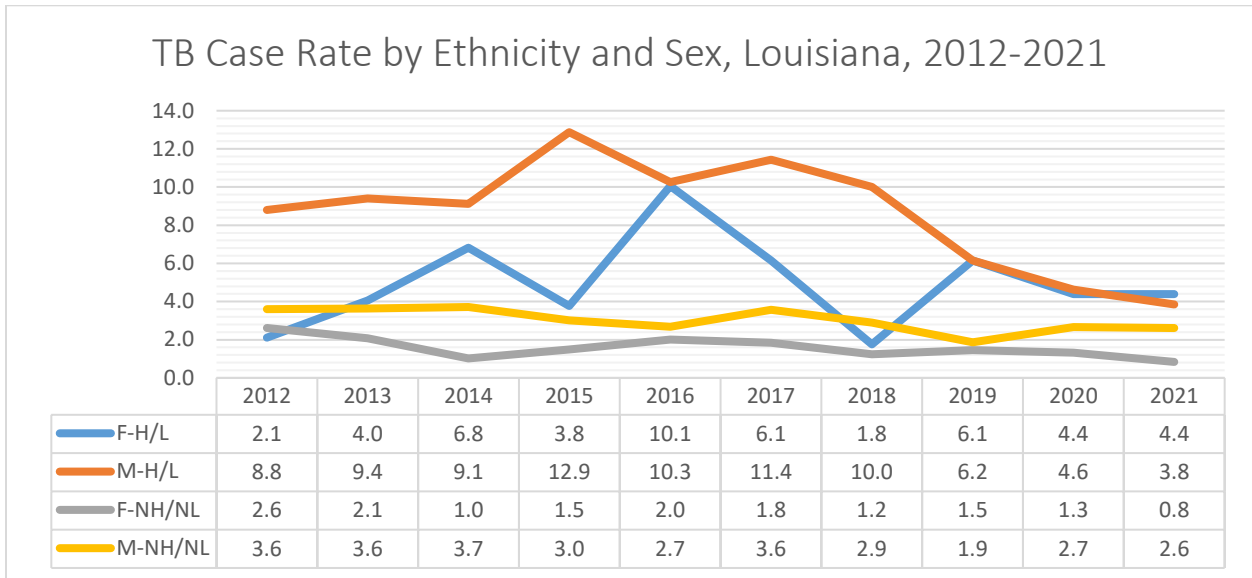


Figure 10. TB case rates, number of cases per 100,000 population, by sex (M-male, F-female) and ethnicity (H/L-Hispanic/Latinx, NH/NL-Non-Hispanic/Non-Latinx) for Louisiana from 2012-2021.

Louisiana had higher case rates among persons identifying as Asian or White each year from 2012-2020 compared to national rates, with the exception of a lower case rate among Asians in Louisiana in 2013. Case rates among persons identifying as Black/African American in Louisiana were lower than national rates during this period.

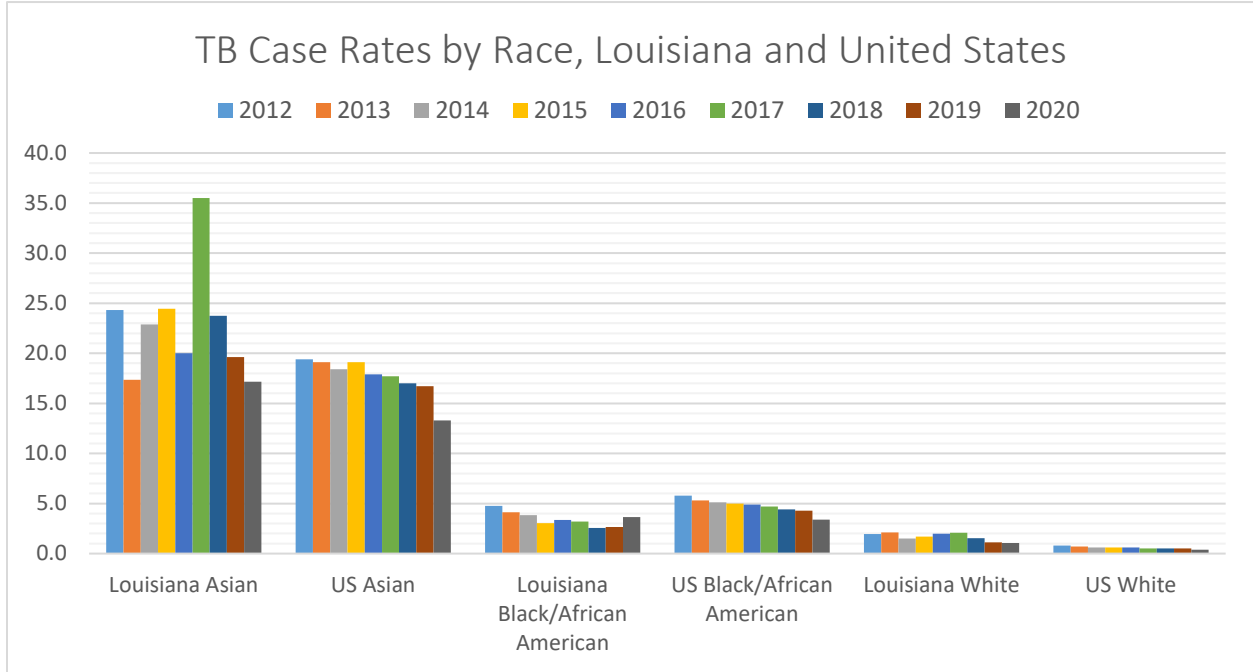


Figure 11. TB case rates, number of cases per 100,000 population, by race for Louisiana and the United States (US) from 2012-2020. National 2021 data were not published at the time of this report.

Age

TB case rates were consistently lowest among those age 5-14 years during the 2012 to 2021 period. However, in 2020 the case rate among this group was above 1.0 cases per 100,000 for the first time. Case rates were highest among persons age 45-64 years old and 65+ years old.

When age was subdivided by sex as a percentage of total cases, there were no significant differences.

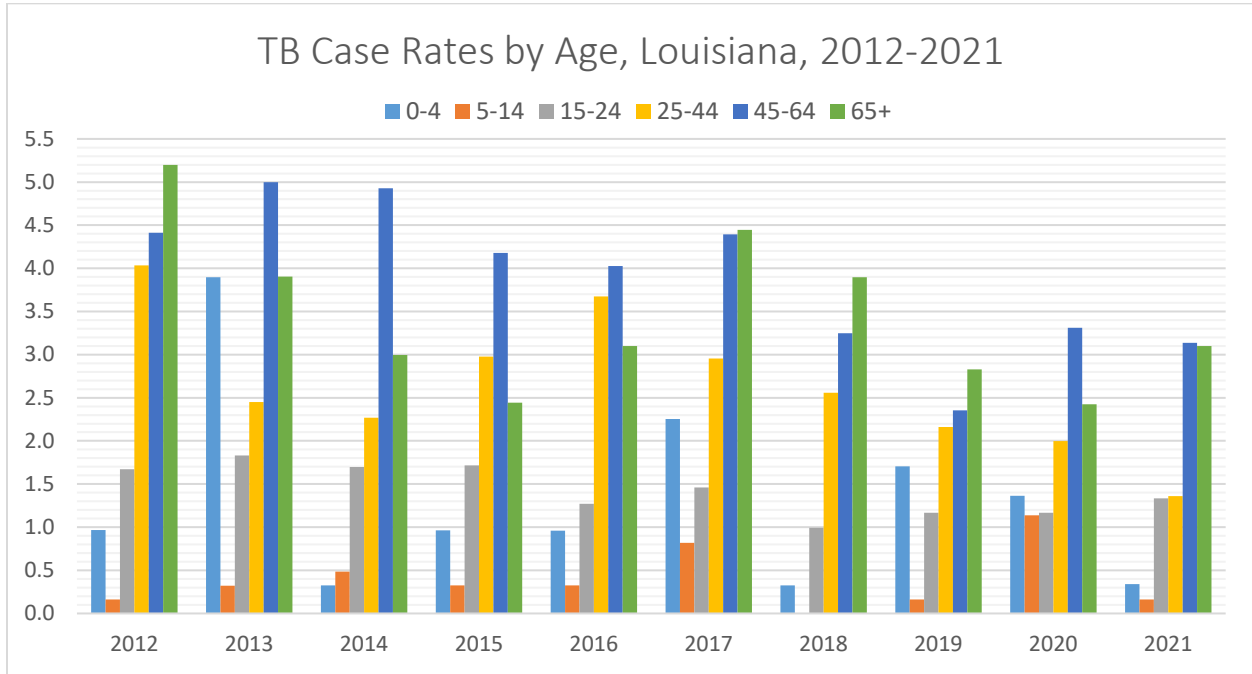


Figure 12. TB case rates, number of cases per 100,000 population, by age group for Louisiana from 2012-2021.

Table 3. TB case rates, number of cases per 100,000 population, by age group for Louisiana from 2012-2021.

TB Case Rates by Age						
Year	0-4	5-14	15-24	25-44	45-64	65+
2012	1.0	0.2	1.7	4.0	4.4	5.2
2013	3.9	0.3	1.8	2.5	5.0	3.9
2014	0.3	0.5	1.7	2.3	4.9	3.0
2015	1.0	0.3	1.7	3.0	4.2	2.4
2016	1.0	0.3	1.3	3.7	4.0	3.1
2017	2.3	0.8	1.5	3.0	4.4	4.4
2018	0.3	0.0	1.0	2.6	3.2	3.9
2019	1.7	0.2	1.2	2.2	2.4	2.8
2020	1.4	1.1	1.2	2.0	3.3	2.4
2021	0.3	0.2	1.3	1.4	3.1	3.1

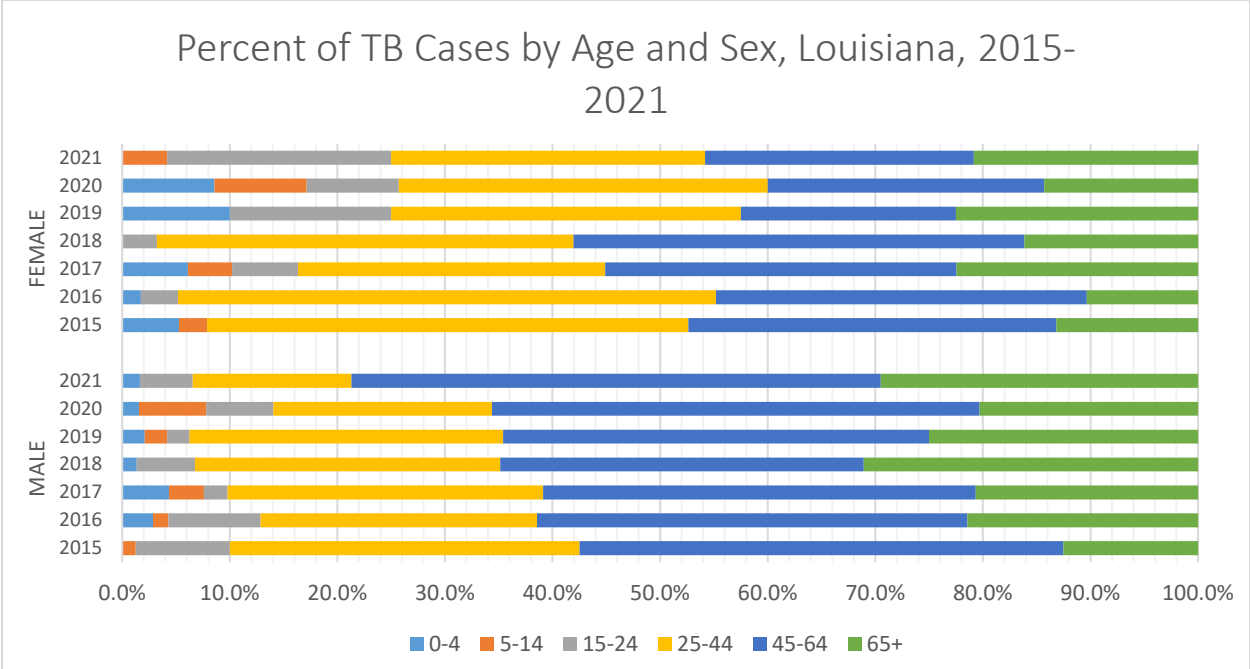


Figure 13. Percent of TB cases by sex and age group for Louisiana from 2015-2021.

Nativity and Country of Origin

The majority of TB cases in Louisiana from 2012-2021 were among U.S.-born persons. Similar to national statistics, the percentage of non-U.S.-born cases in Louisiana has been increasing over the past decade. However, there was a significant decrease in the percentage of non-U.S.-born cases from 2019 to 2020.

The percentage of non-U.S.-born cases in Louisiana was lower than the national percentage each year from 2012-2020, but the rate of increase was higher for Louisiana (2.4%) than the United States (1.5%).

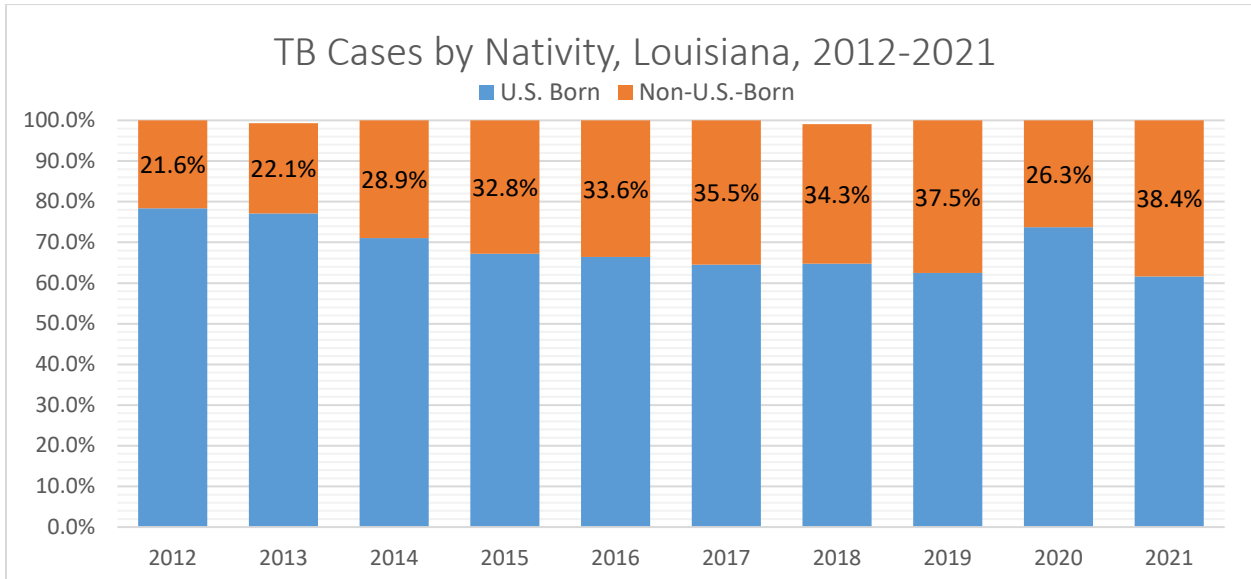


Figure 14. Percent of TB cases by nativity, U.S. or Non-U.S. born, for Louisiana from 2012-2021.

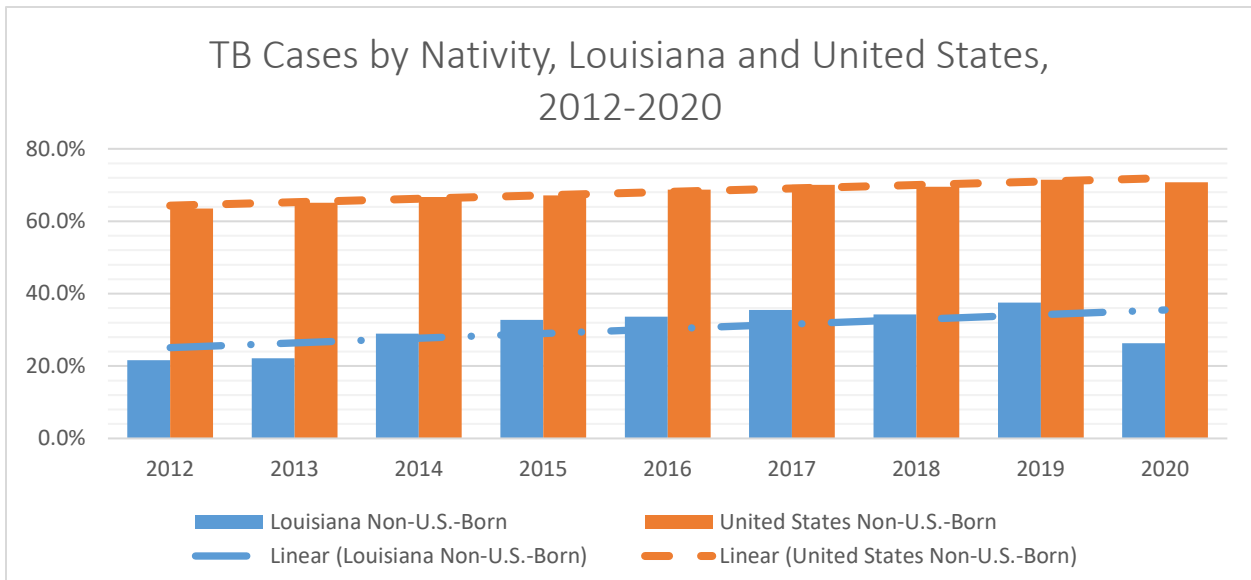


Figure 15. Percent of non-U.S.-born TB cases in Louisiana and the United States, and associated trend lines, from 2012-2020. *2021 national data were not available at the time this report was published.

The most common countries of origin among non-U.S.-born cases in Louisiana were Vietnam and Honduras. From 2015 through 2021, the largest percentage of non-U.S.-born cases had arrived more than 15 years prior to diagnosis (average 38.6%), followed by persons arriving 1-5 years prior to diagnosis (average 21.4%).

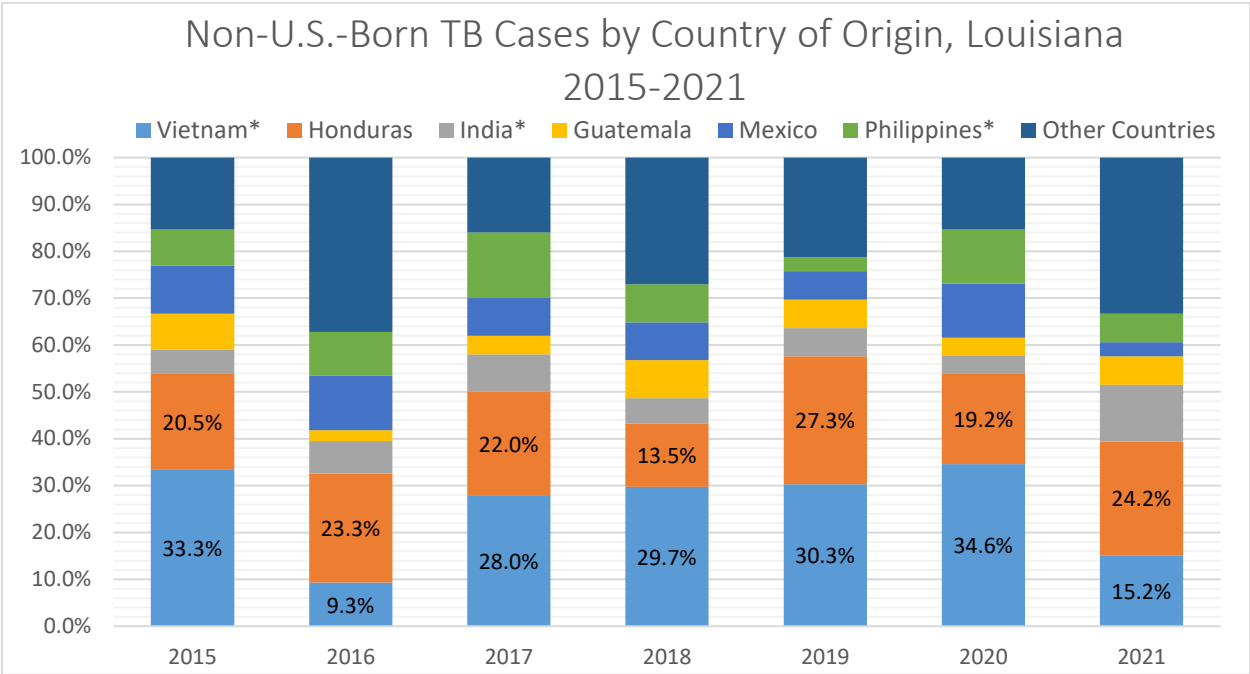


Figure 16. Percent of Non-U.S.-born TB cases by country of origin (birth) for Louisiana from 2010-2020. *Denotes on of the 30 high burden TB countries according to the STOP TB Partnership.⁴

⁴ STOP TB: [High Burden Countries](#)

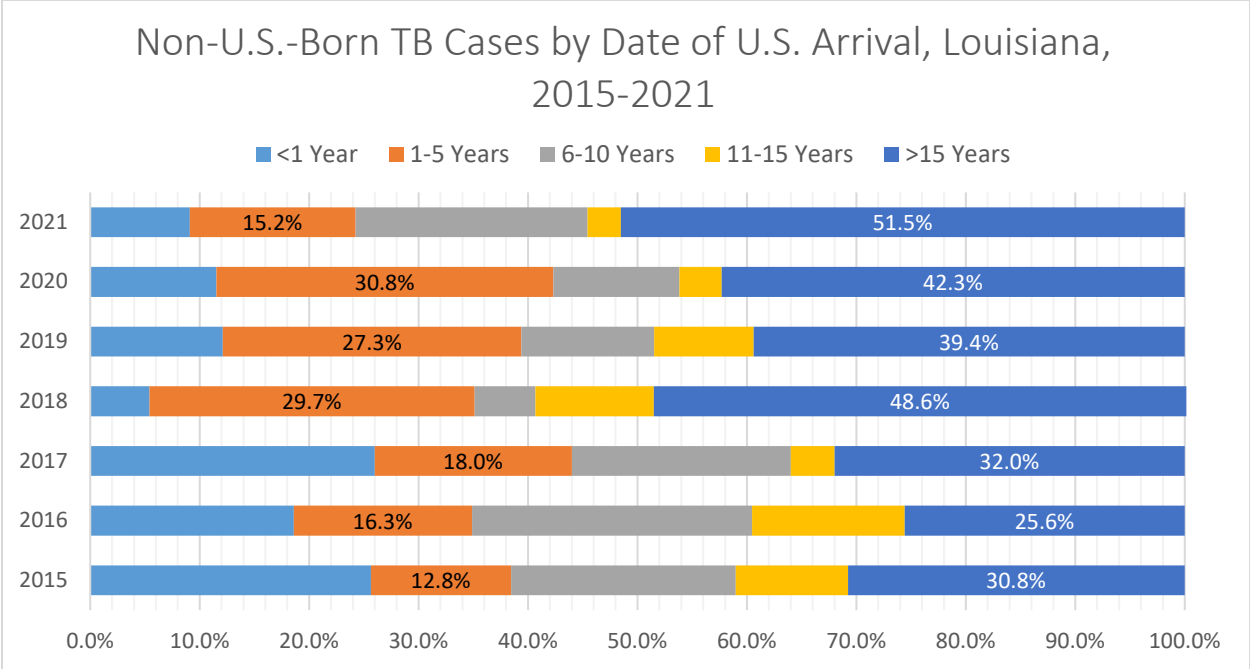


Figure 17. Percent of Non-U.S.-born TB cases by date of arrival to the United States prior to diagnosis for Louisiana from 2015-2021.

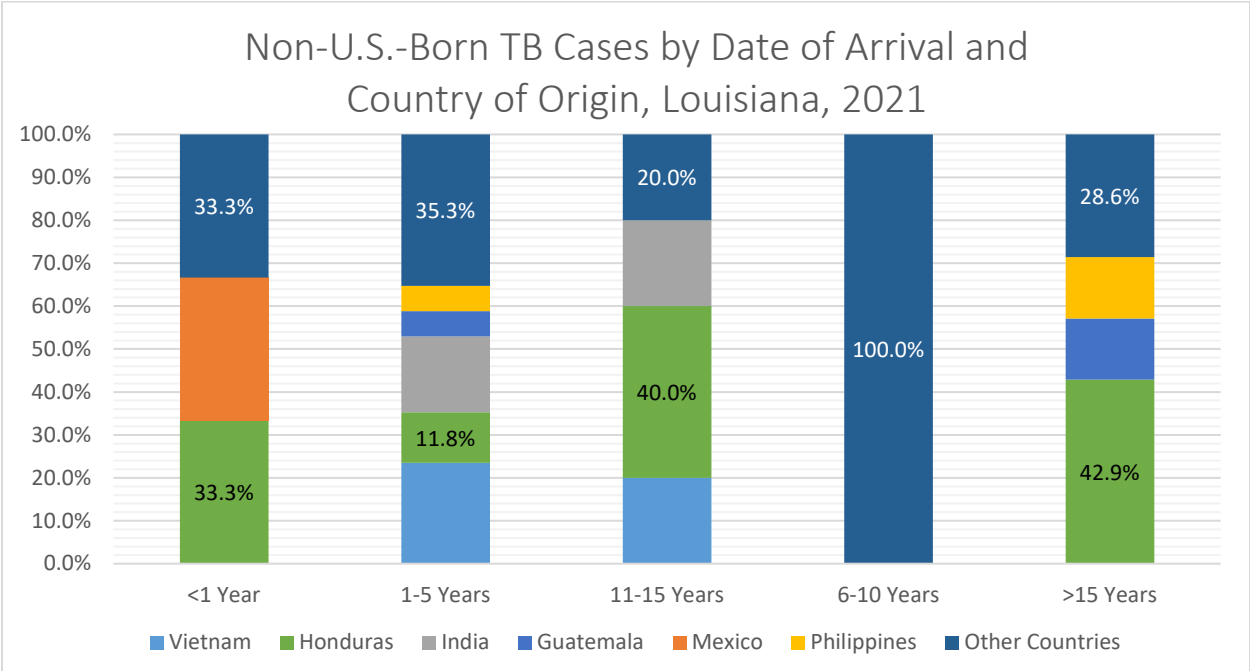


Figure 18. Non-U.S.-born TB cases by country of origin and date of arrival to the United States for Louisiana in 2021.

When nativity was subdivided by race and ethnicity, nearly all persons who identified as Asian or Hispanic/Latinx were also non-U.S.-born, and nearly all persons who identified as Black/African American were also U.S.-born.

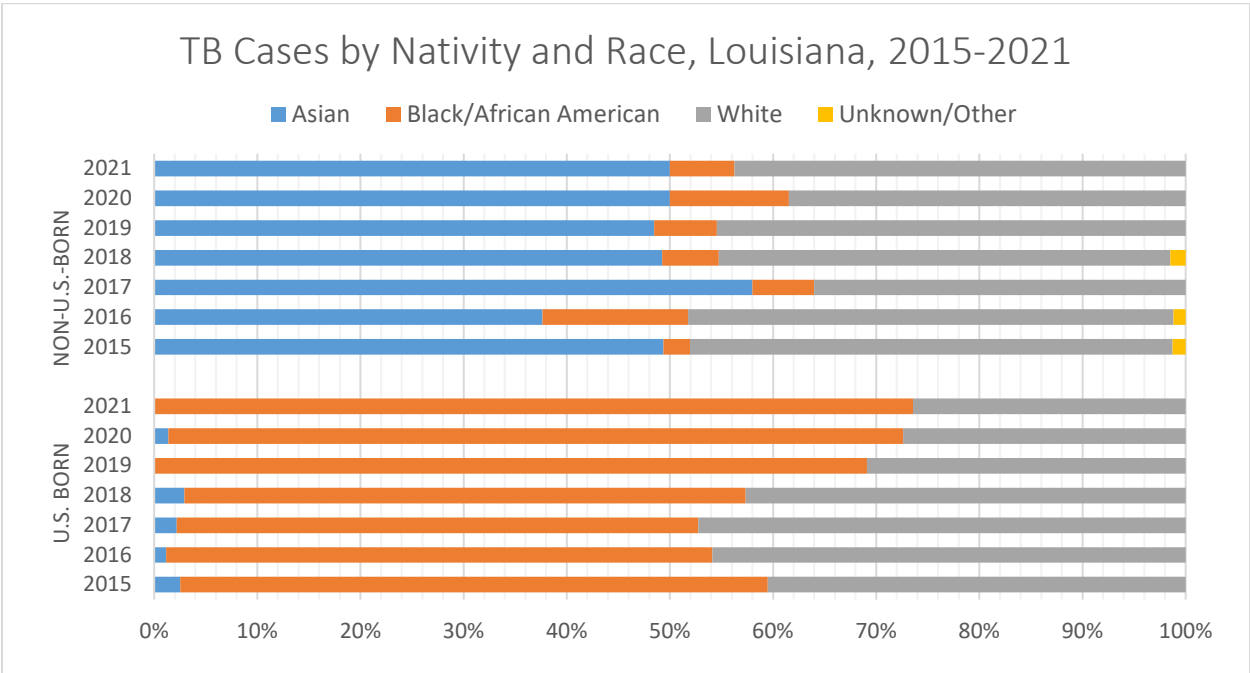


Figure 19. Percentage of TB cases by nativity and race in Louisiana from 2015-2021.

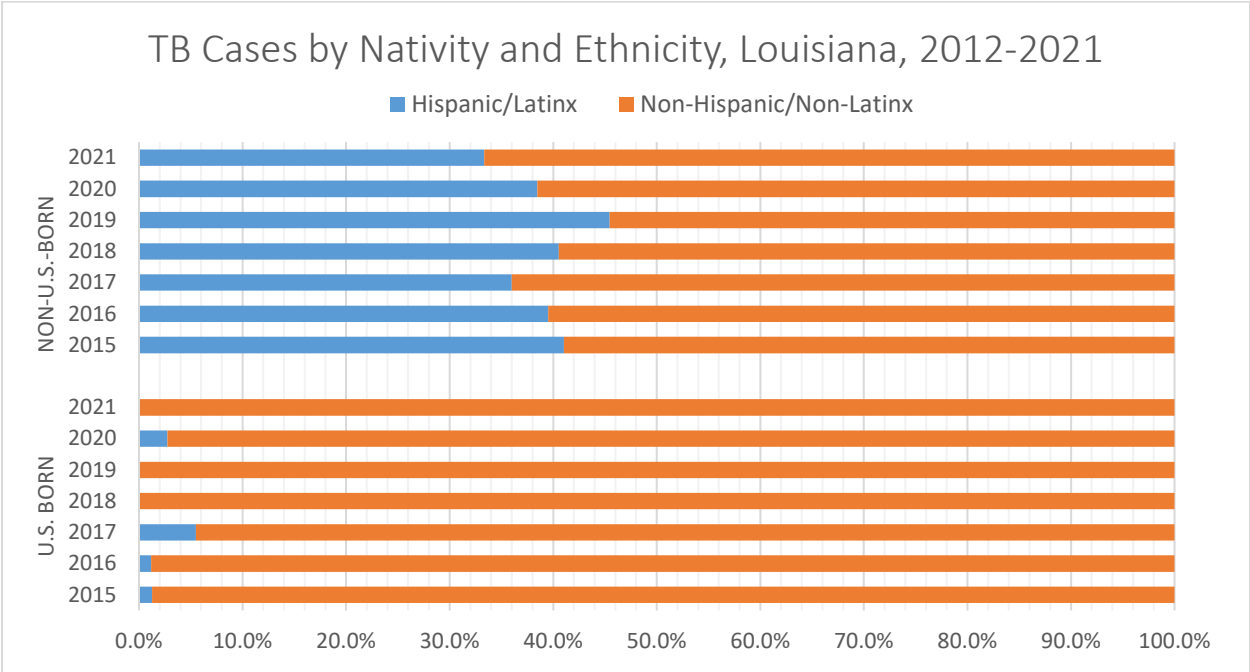


Figure 20. Percent of TB cases by nativity and ethnicity in Louisiana from 2015-2021.

Tuberculosis Risk Factors

Risk factors were analyzed in four main groups based on commonly recognized TB risk factors reported by the Centers for Disease Prevention and Control (CDC) and local epidemiologic trends. Risk factor definitions are based on the CDC Report of Verified Cases of Tuberculosis Manual definitions⁵.

There was a decrease in reported TB history in 2020, which rebounded in 2021. Diabetes co-infection (average 15.7%) was the most common medical condition risk factor among TB cases in Louisiana. Smoking (average 26.1%) was the most common substance use risk factor reported and experiencing homelessness (average 4.8%), within one year prior to diagnosis, was the most common congregate setting risk factor among Louisiana TB cases.

The percentage of TB cases for all substance use risk factors was higher in Louisiana than the United States in 2020, while the percentage of HIV and Diabetes co-infection were lower.

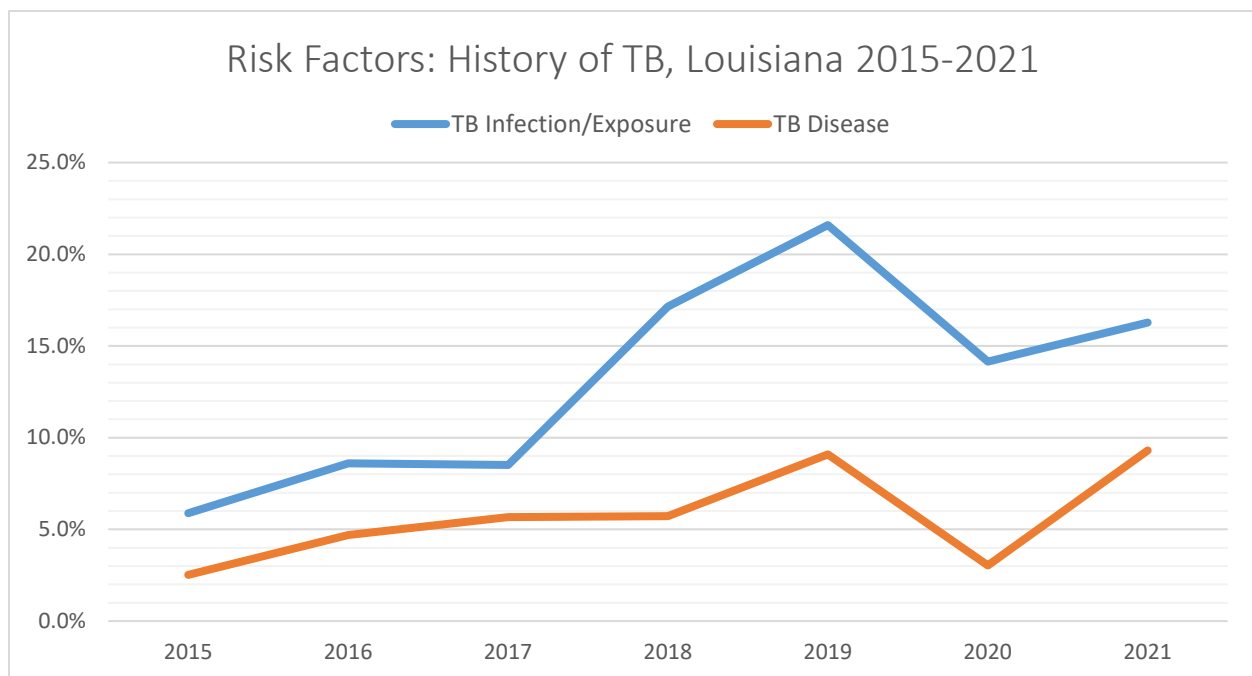


Figure 21. Percent of TB cases with reported history of TB infection or exposure or history of TB disease in Louisiana from 2015-2021.

⁵ Report of Verified Cases of Tuberculosis: [Manual](#)

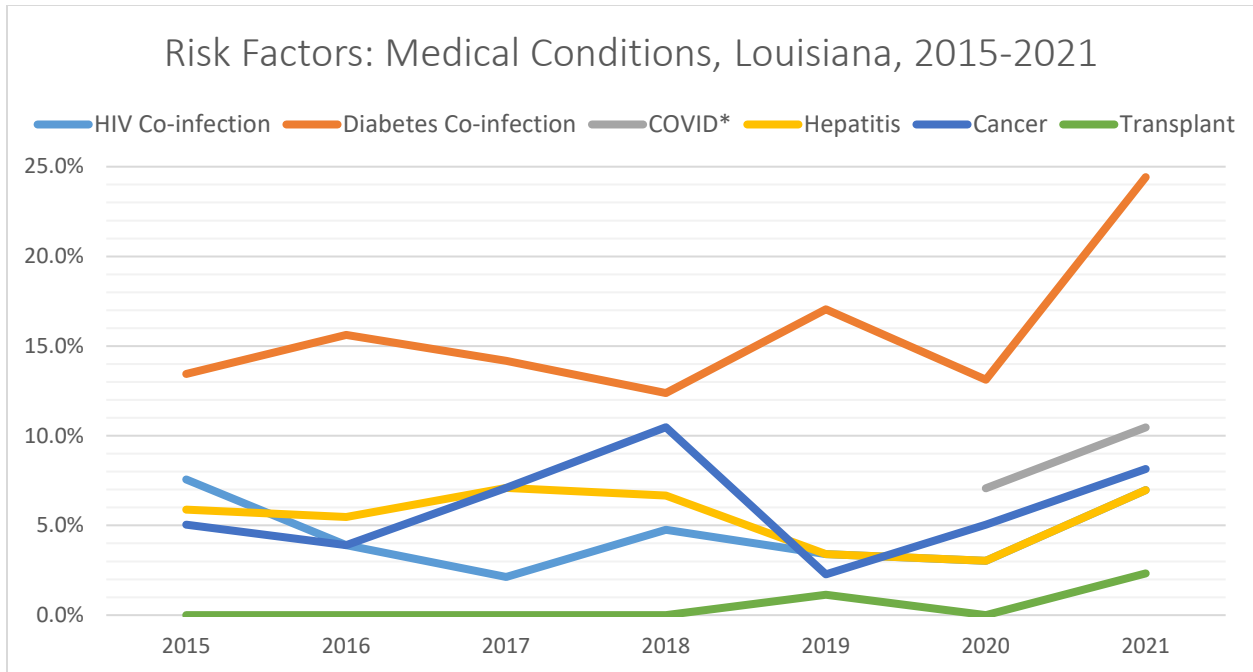


Figure 22. Percent of TB cases with reported medical conditions known to be risk factors for TB disease in Louisiana from 2015-2021. COVID co-infection is reported based on reported diagnosis one year prior to TB diagnosis and one-year post-TB treatment completion.

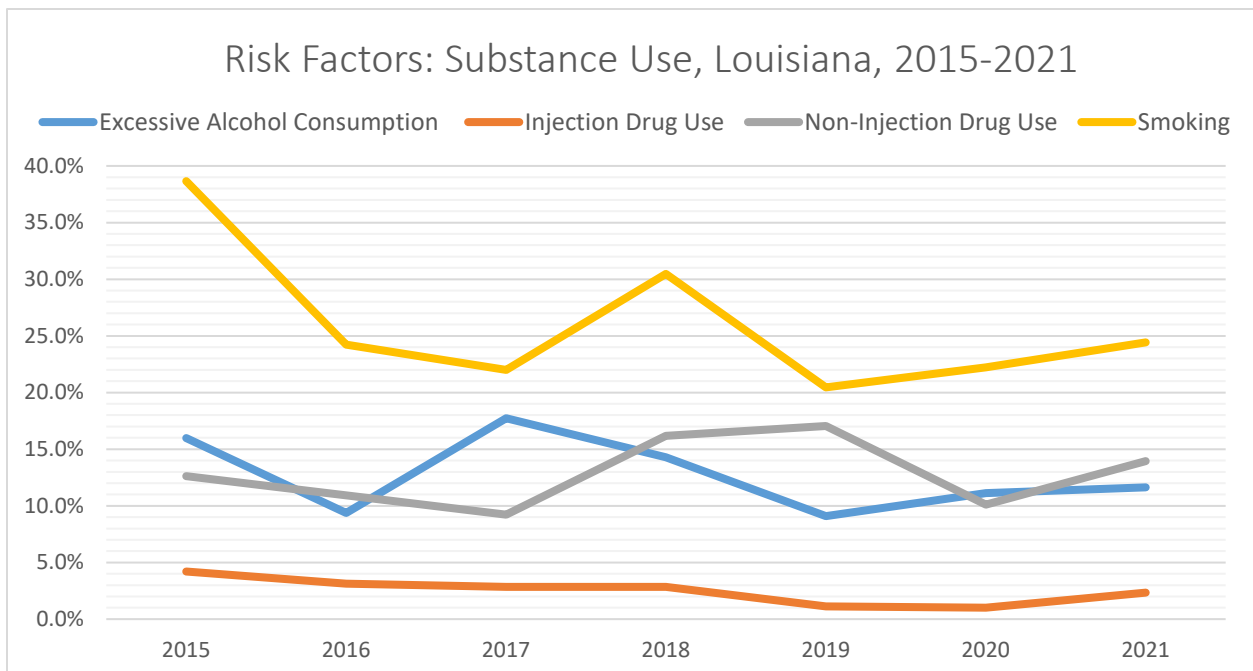


Figure 23. Percent of TB cases with reported substance use, which are known risk factors for TB disease, in Louisiana from 2015-2021. Excessive alcohol consumption, injection drug use, and non-injection drug use occurred within 12 months prior to TB diagnosis. There was no standard period for smoking; time framed categories for smoking are being added for future data collection.

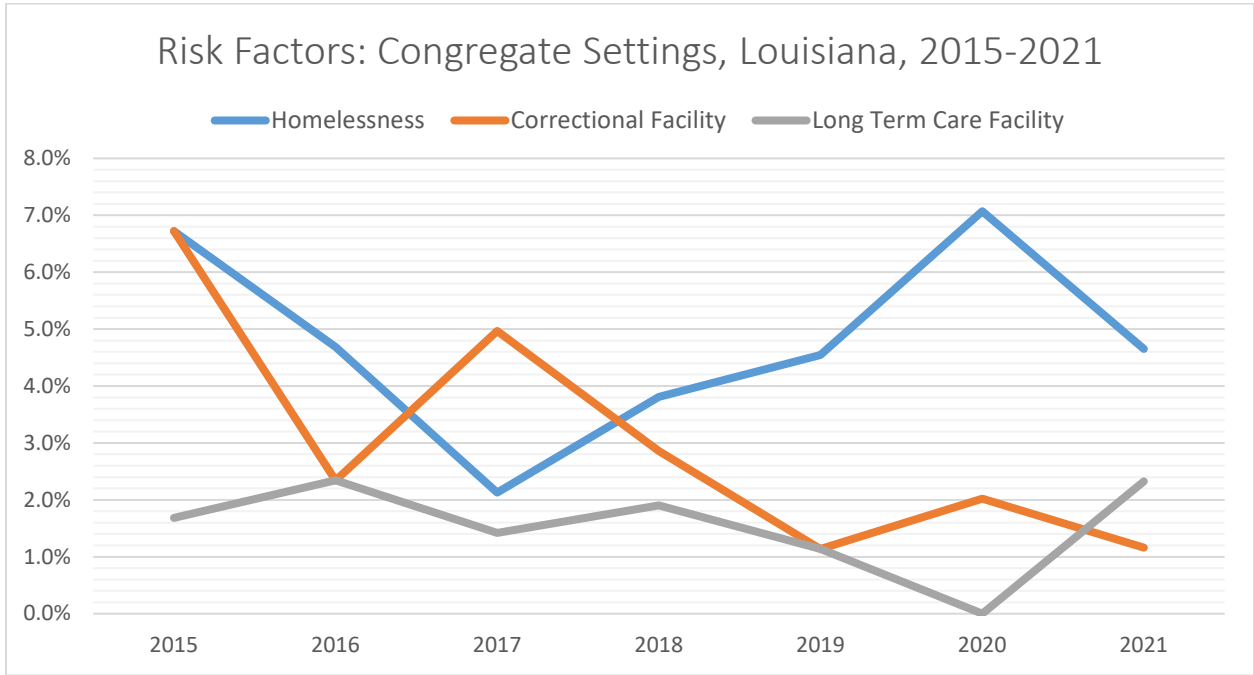


Figure 24. Percent of TB cases with congregate setting associations known to be risk factors for TB disease in Louisiana from 2015-2021. Experiencing homelessness occurred within 12 months of TB diagnosis, while residing in a correctional or long-term care facility occurred at the time of diagnosis. System updates are being made to allow data collection of current and previous residence status.

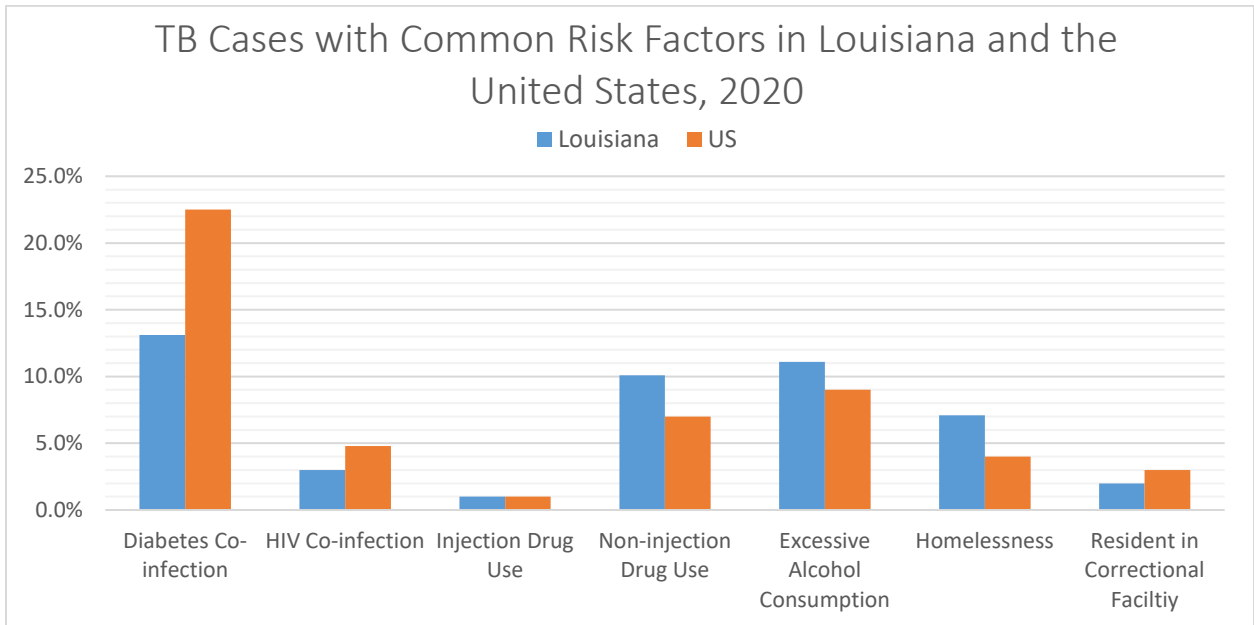


Figure 25. Percent of TB cases with common risk factors in Louisiana and the United States in 2020. National data for 2021 was not published at the time of this report.

Tuberculosis Diagnostic Trends

Site of Disease

While TB can occur at any site in the body, the majority of TB disease occurs in the lungs (pulmonary TB). Louisiana saw the lowest percentage of pulmonary only TB in 2021. The most common extrapulmonary sites were eye and ear appendages, lymphatic, pleural, and spinal TB disease.

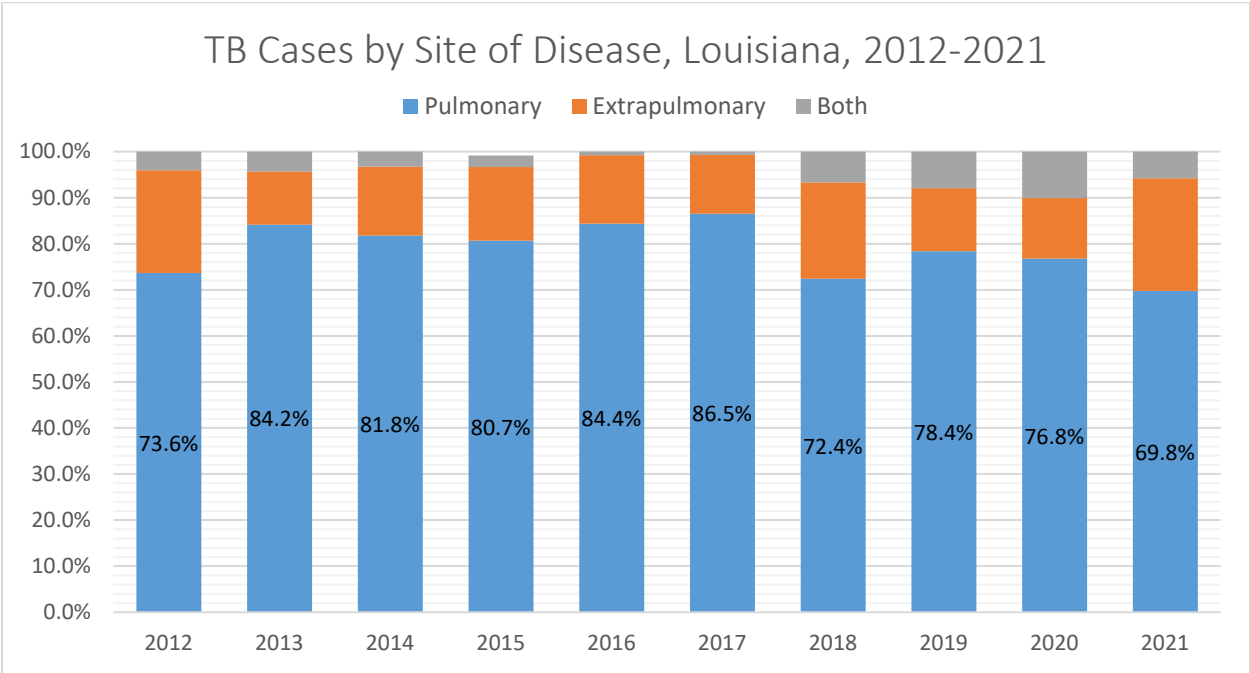


Figure 26. Percent of TB cases by pulmonary only, extrapulmonary only, and both (pulmonary and extrapulmonary) for Louisiana from 2012-2021.

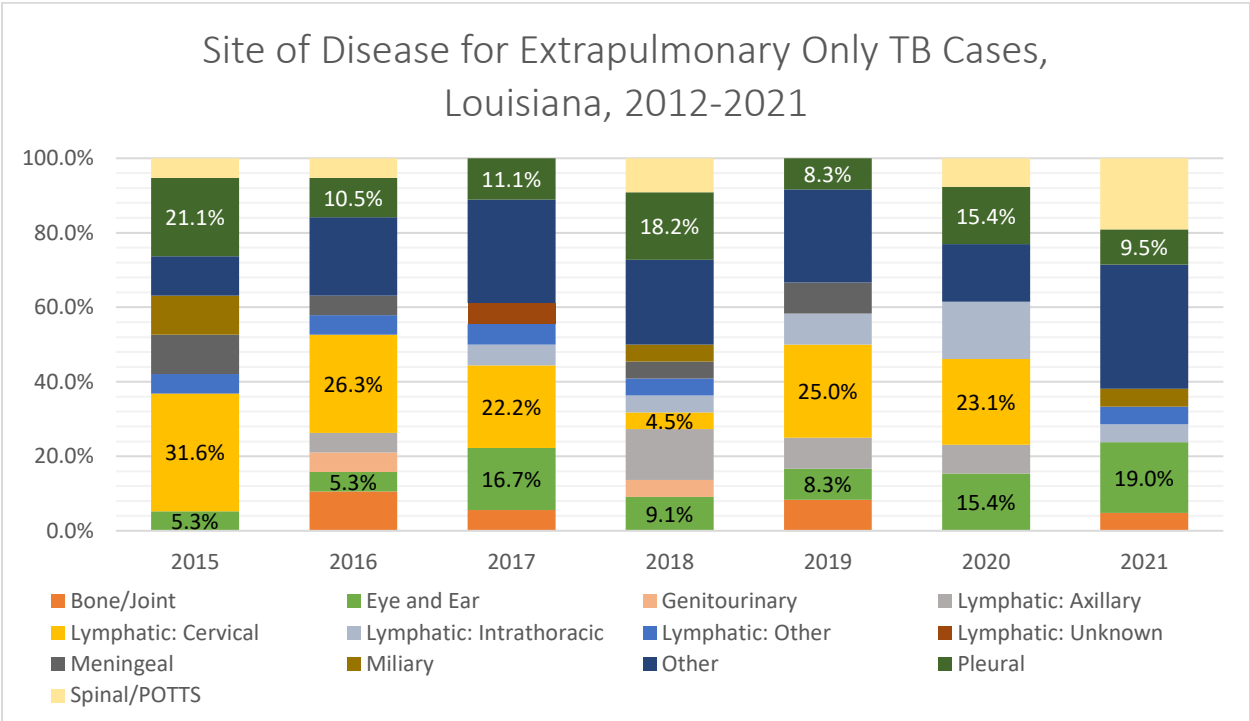


Figure 27. Percent of extrapulmonary only TB cases by site of disease for Louisiana from 2015-2021.

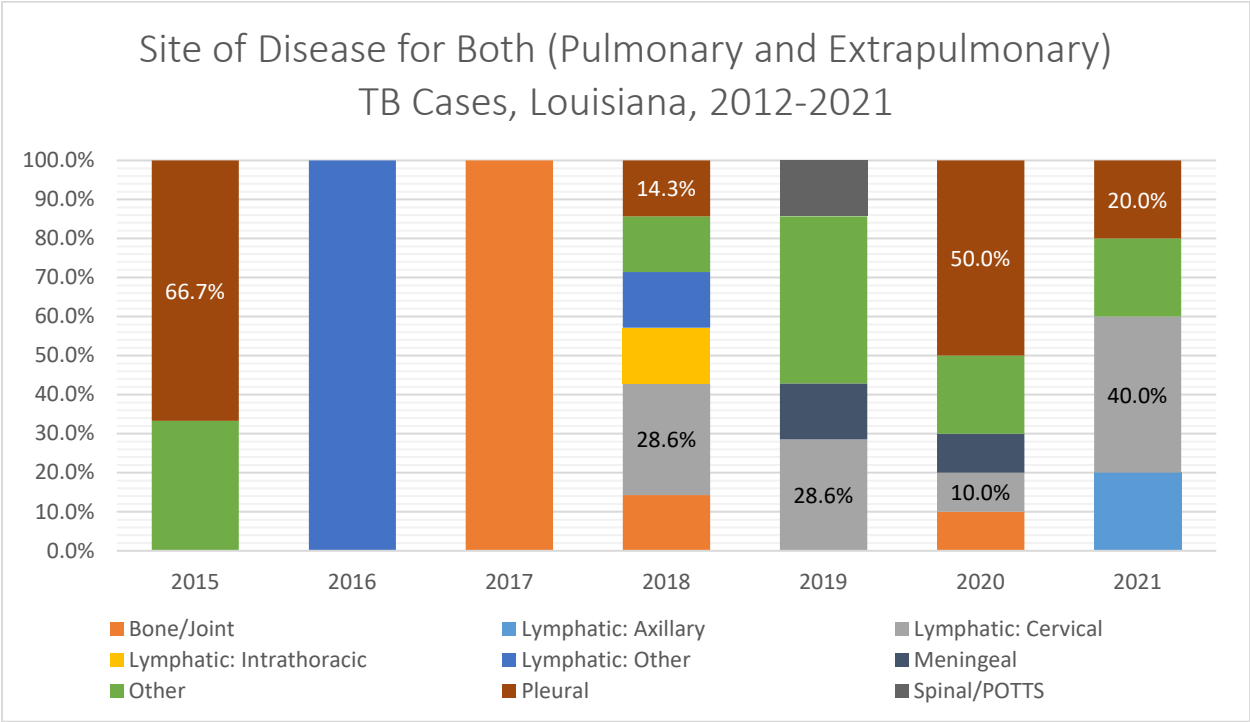


Figure 28. Percent of both pulmonary and extrapulmonary TB cases by site of disease for Louisiana from 2015-2021.

Reason for Evaluation

The majority of persons in Louisiana diagnosed with TB disease were initially evaluated because they were experiencing TB symptoms, followed by persons having an abnormal chest x-ray (CXR) result. In 2021, the highest percentage (15.1%) of persons evaluated as the result of an incidental lab result was reported.

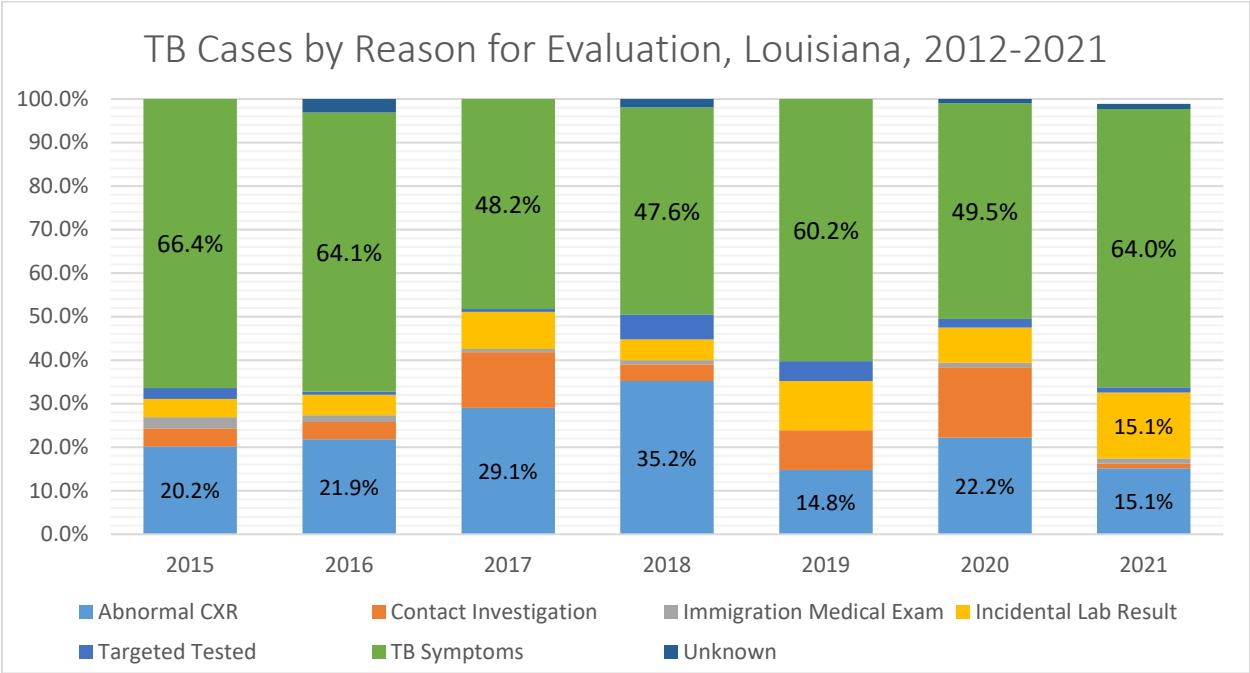


Figure 29. Percent of TB cases by reason for evaluation for Louisiana from 2015-2021.

Diagnostic Confirmation Type

Culture identification of *Mycobacterium tuberculosis* is the gold standard for TB disease diagnosis. The majority of cases in Louisiana are diagnosed by culture confirmation, followed by persons meeting the clinical case definition⁶ for TB disease.

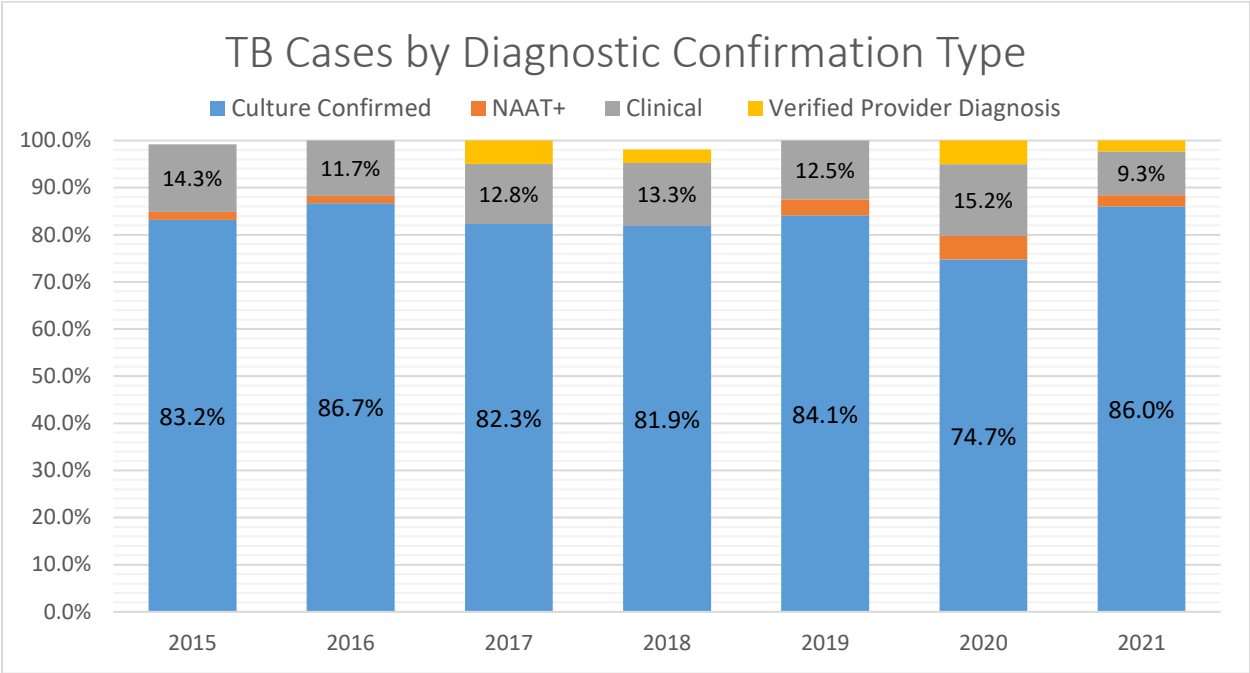


Figure 30. Percent of TB cases by type of diagnostic confirmation type for Louisiana from 2015-2021.

⁶ Report of Verified TB Cases: [Manual](#)

Genotype Surveillance Coverage

TB genotyping is conducted on *Mtb* culture positive specimens. Genotype results are used in combination with epidemiologic data to identify recent transmission of TB disease.

While Louisiana has been significantly below the national average, there has been an average 3.2% increase since 2015, driven by a significant increase from 2018 to 2019 (17.6%).

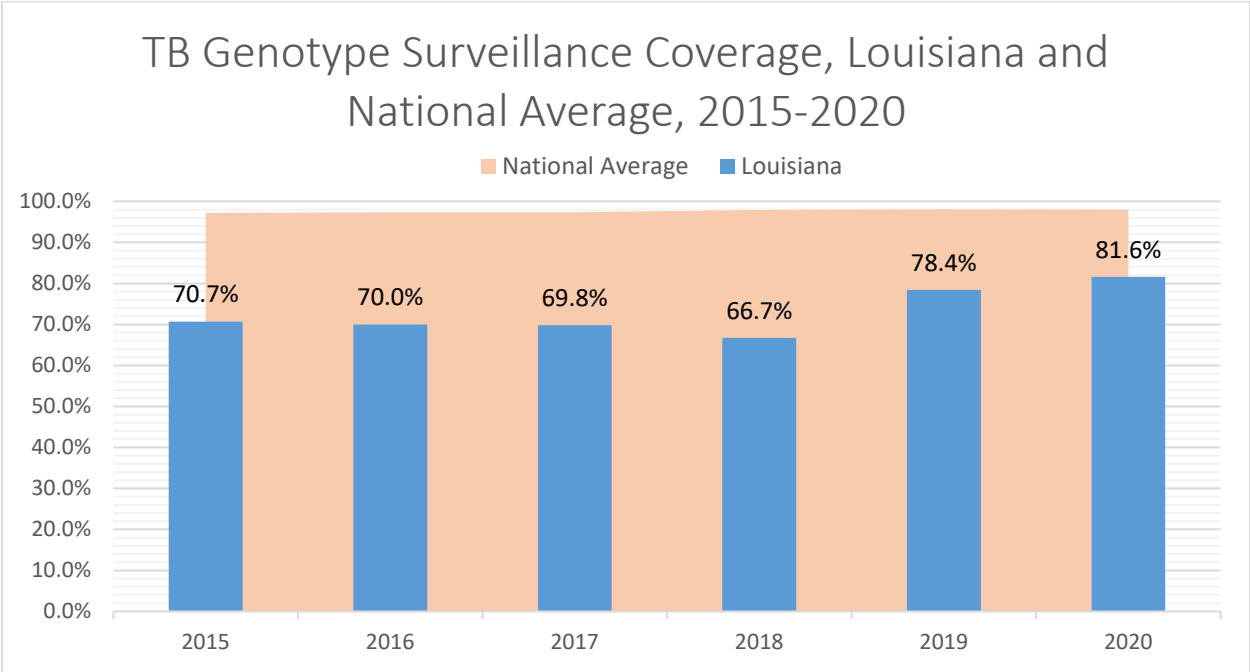


Figure 31. Percent of culture positive TB cases with genotype results in Louisiana and the national average from 2015-2020.

Tuberculosis Outcomes

Culture Conversion

Sputum culture conversion is a standard benchmark for treatment progress in TB cases. Successful sputum culture conversion is defined as the percentage of sputum culture positive cases converting to sputum culture negative within 60 days of treatment initiation⁷.

While Louisiana has been below the national average, the percent of cases successfully converting sputum culture has increased an average of 3.7% over the last three years.

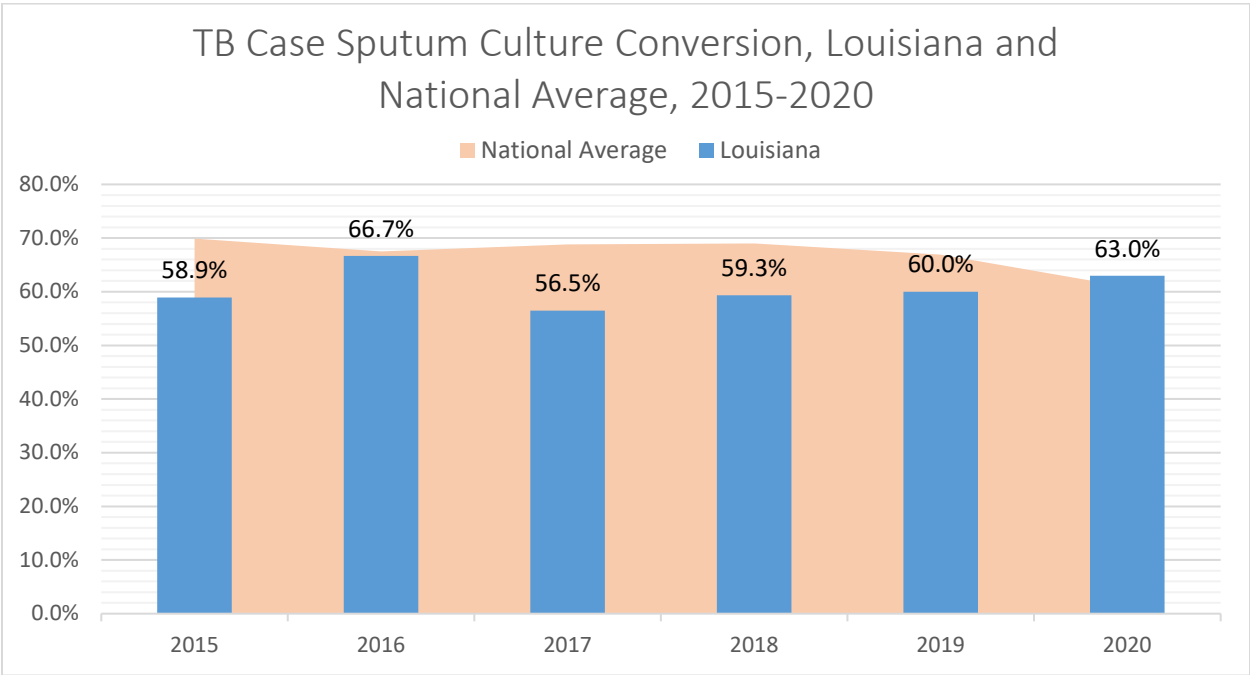


Figure 32. Percent of TB cases converting sputum culture in 60 days in Louisiana and the national average from 2015-2020.

⁷ The full indicator definition is available on the National Tuberculosis Indicators Project [website](#).

Treatment Completion

Sputum culture conversion is also used to help determine treatment length for pulmonary TB cases. Successful treatment completion is measured as the percent of cases for whom 12 months of therapy is recommended, who complete therapy within that time frame⁸.

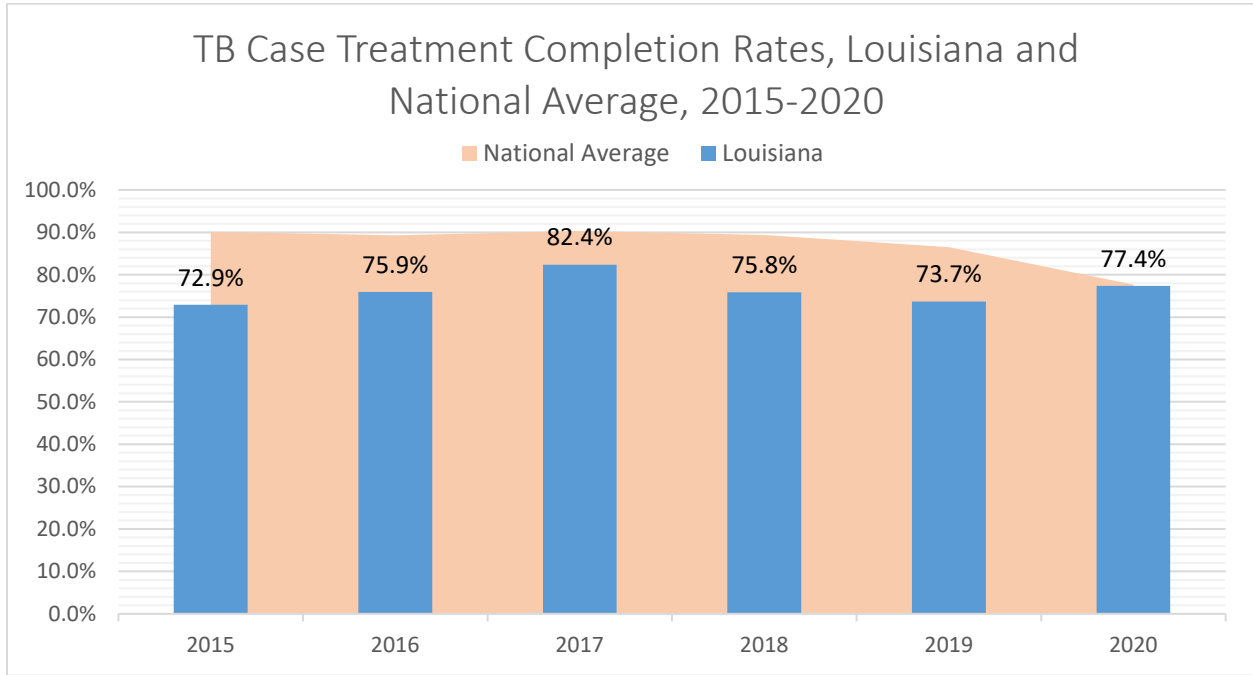


Figure 33. Percent of cases meeting the criteria for treatment completion within 12 months in Louisiana and the national average for 2015-2020.

⁸ The full indicator definition is available on the National Tuberculosis Indicators Project [website](#).

Mortality

Mortality among TB cases has slowly increased, but remained below 10.0% since 2015. Less than one third of cases were deceased at diagnosis, i.e. diagnosed based on autopsy results. The majority of mortality reported among TB cases occurred after initiating treatment. TB attributed mortality was decreasing an average of 30.9% per year, until a spike in 2020.

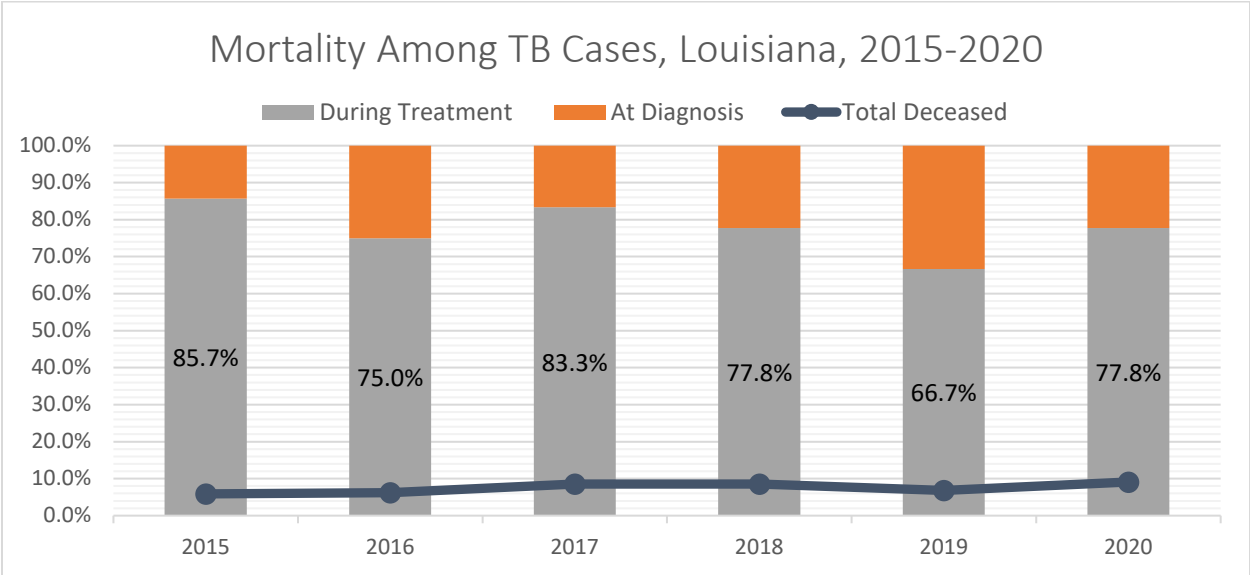


Figure 34. Total number of deaths among TB cases and percent of deceased cases by time of death, at diagnosis or during TB treatment in Louisiana from 2015-2020.

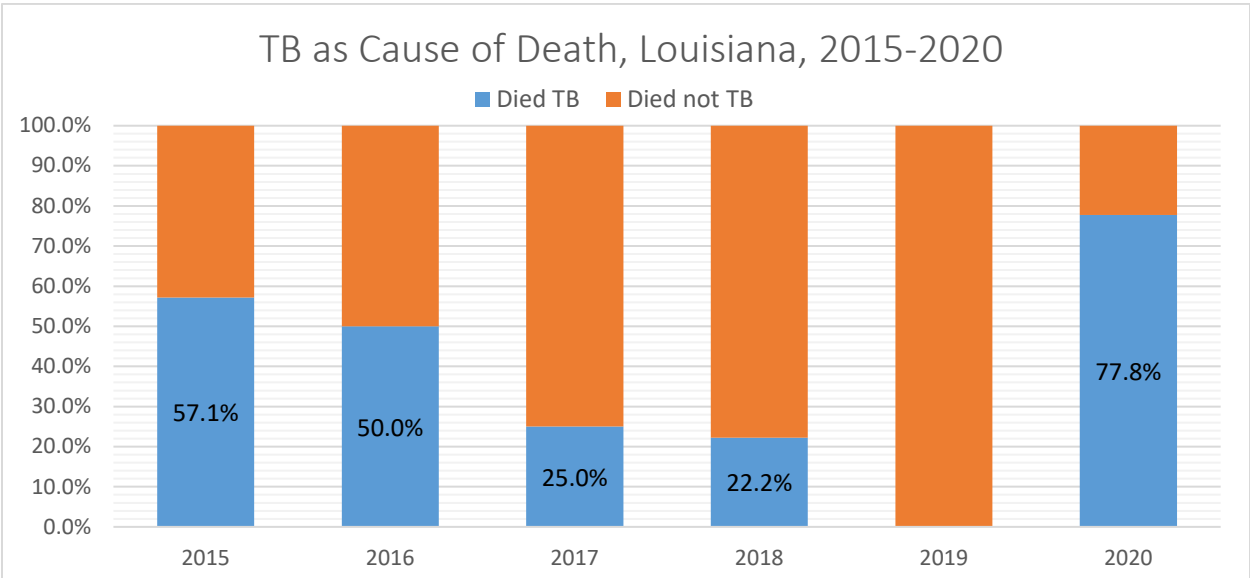


Figure 35. Percent of TB case deaths attributed to TB disease in Louisiana from 2015-2020.

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