

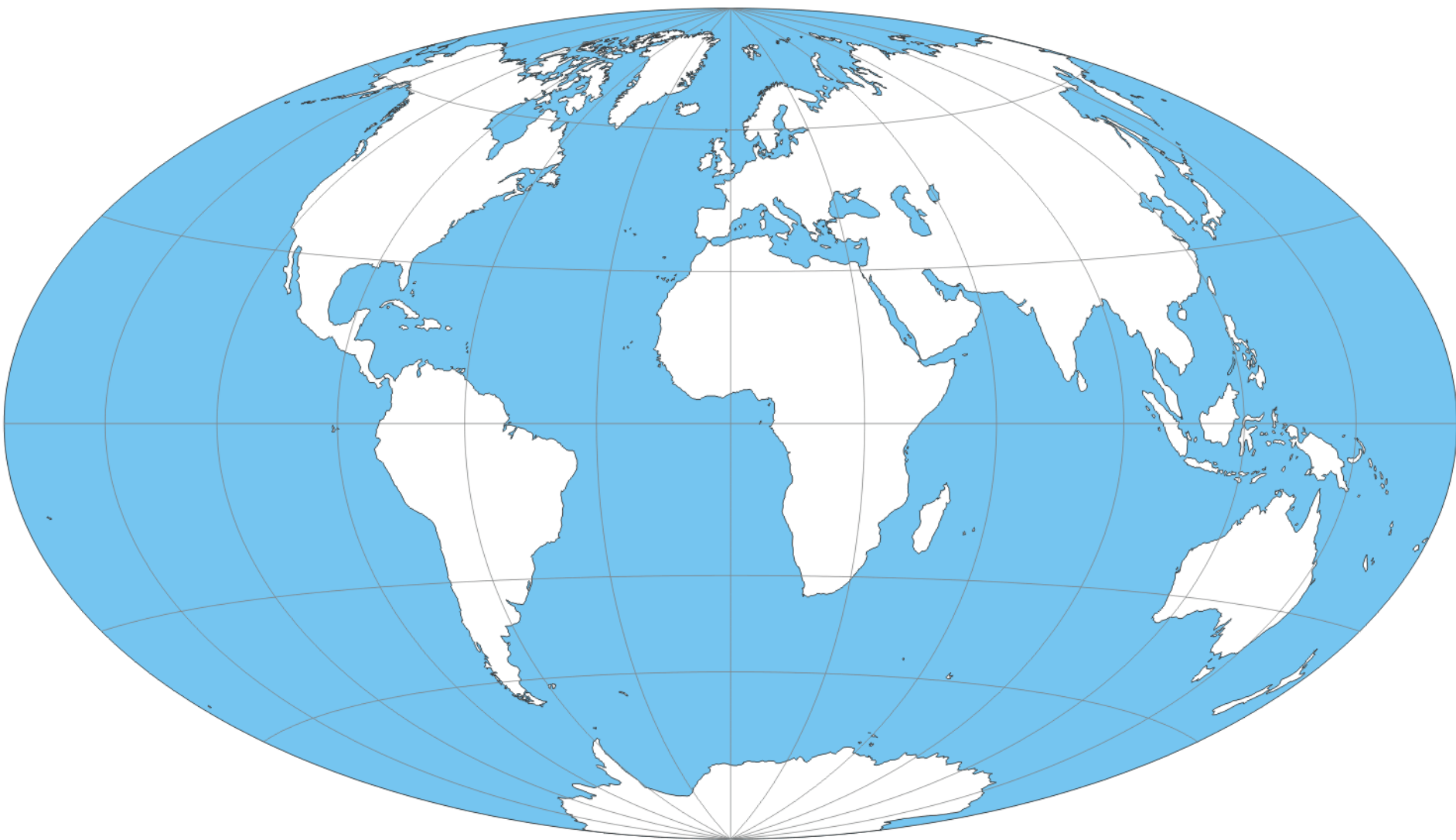
# TB EPIDEMIOLOGY

Philip Wegner RN, MPH

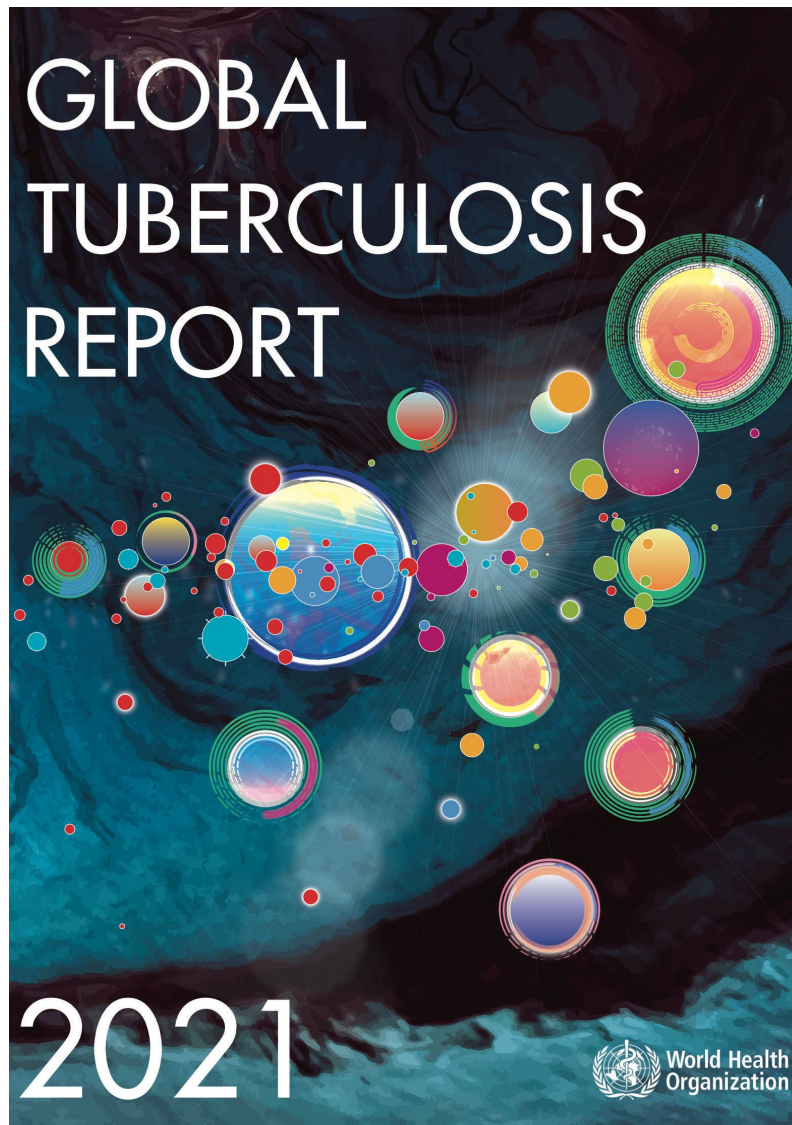
TB Nurse Consultant

March 22, 2022





## Global TB



[Global Tuberculosis Report 2021 \(who.int\)](https://www.who.int/tb/global-tuberculosis-report-2021)

# The Global Burden of TB 2020

	Estimated number of cases	Estimated number of deaths
All forms of TB	<b>9.9 million</b> 10.0 million last year	<b>1.5 million (15%)*</b> 1.4 million last year (14%)
HIV-associated TB	<b>787,000 (7.9%)</b> 820,000 last year (8.2%)	<b>214,000 (27%)</b> 208,000 last year (25%)
Multidrug-resistant TB & Rifampin resistance	<b>454,020 (4.6%)</b> 465,000 last year (4.6%)	<b>190,688 (42%)</b> 182,000 last year (39%)

Source: WHO Global Tuberculosis Report 2021

\* Including deaths attributed to both HIV/TB

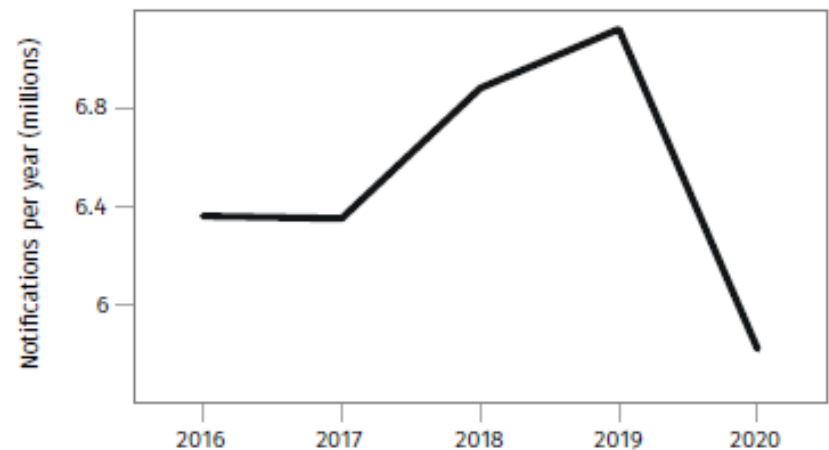
# The Global Burden of TB 2020

## Impact of Covid-19

- Reversed years of progress
- Large drop in diagnosis and reporting
- Increase in TB deaths
- Decline in reported TB incidence
- Reduction of treatment for drug-resistant TB

**FIG. 1**

**Global trend in case notifications of people newly diagnosed with TB, 2016–2020**

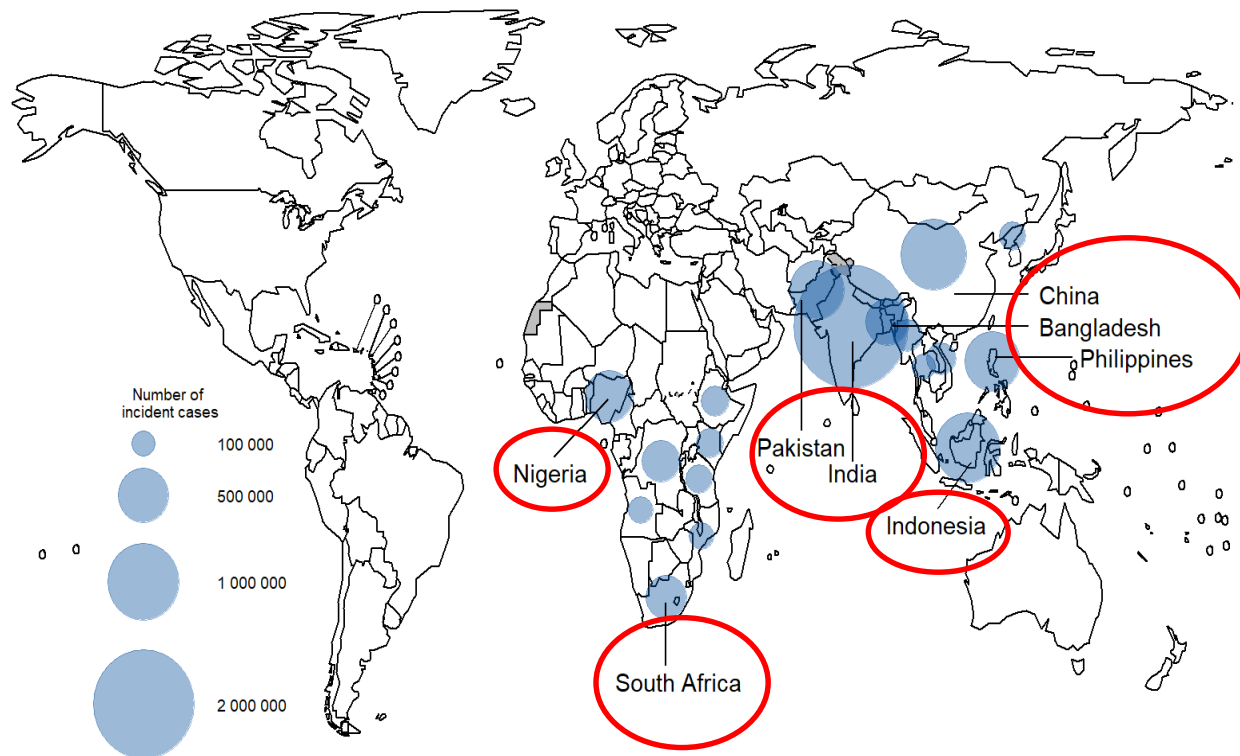


Source: WHO Global Tuberculosis Report 2021

# The Global Burden of TB 2020

**Fig.11** Estimated TB incidence in 2020, for countries with at least 100,000 incident case

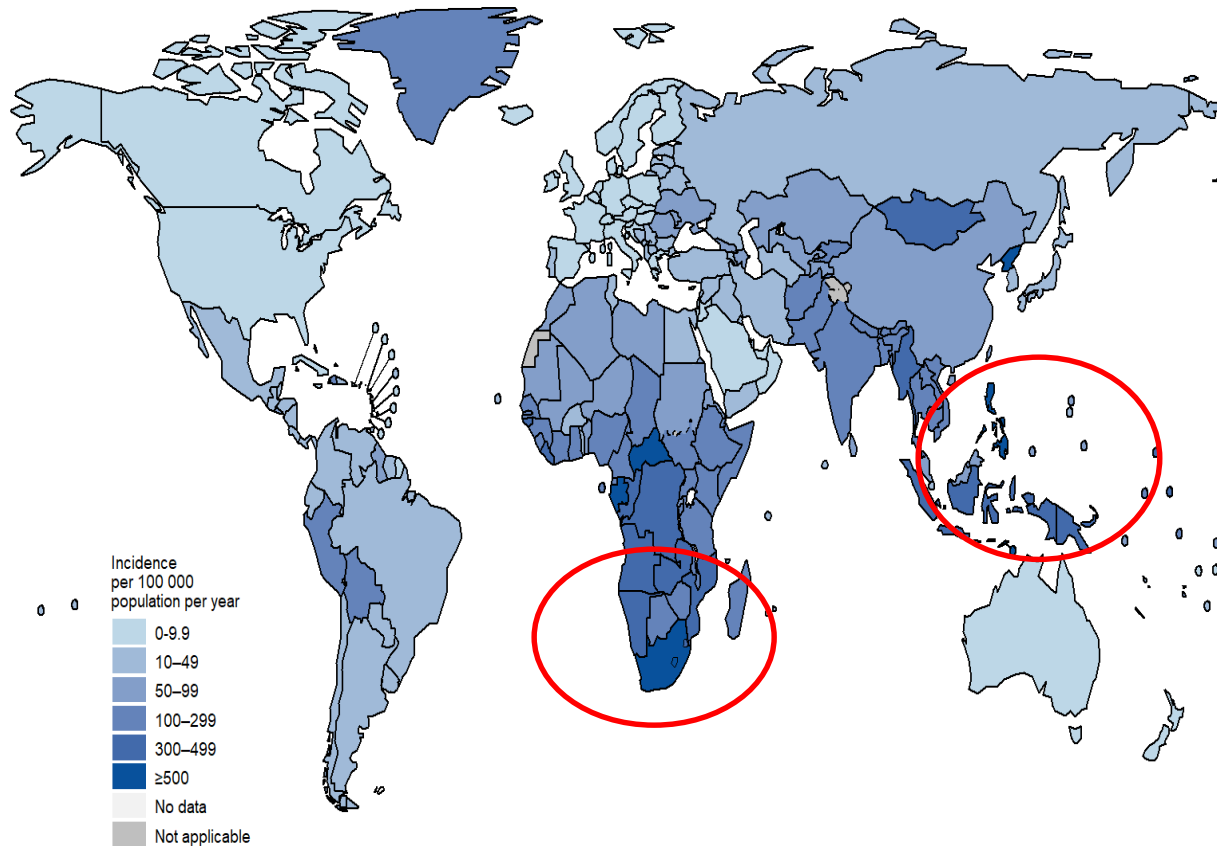
The eight countries that rank first to eighth in terms of numbers of cases, and that accounted for two thirds of global cases in 2020, are labelled.



Source: WHO Global Tuberculosis Report 2020

# The Global Burden of TB 2020

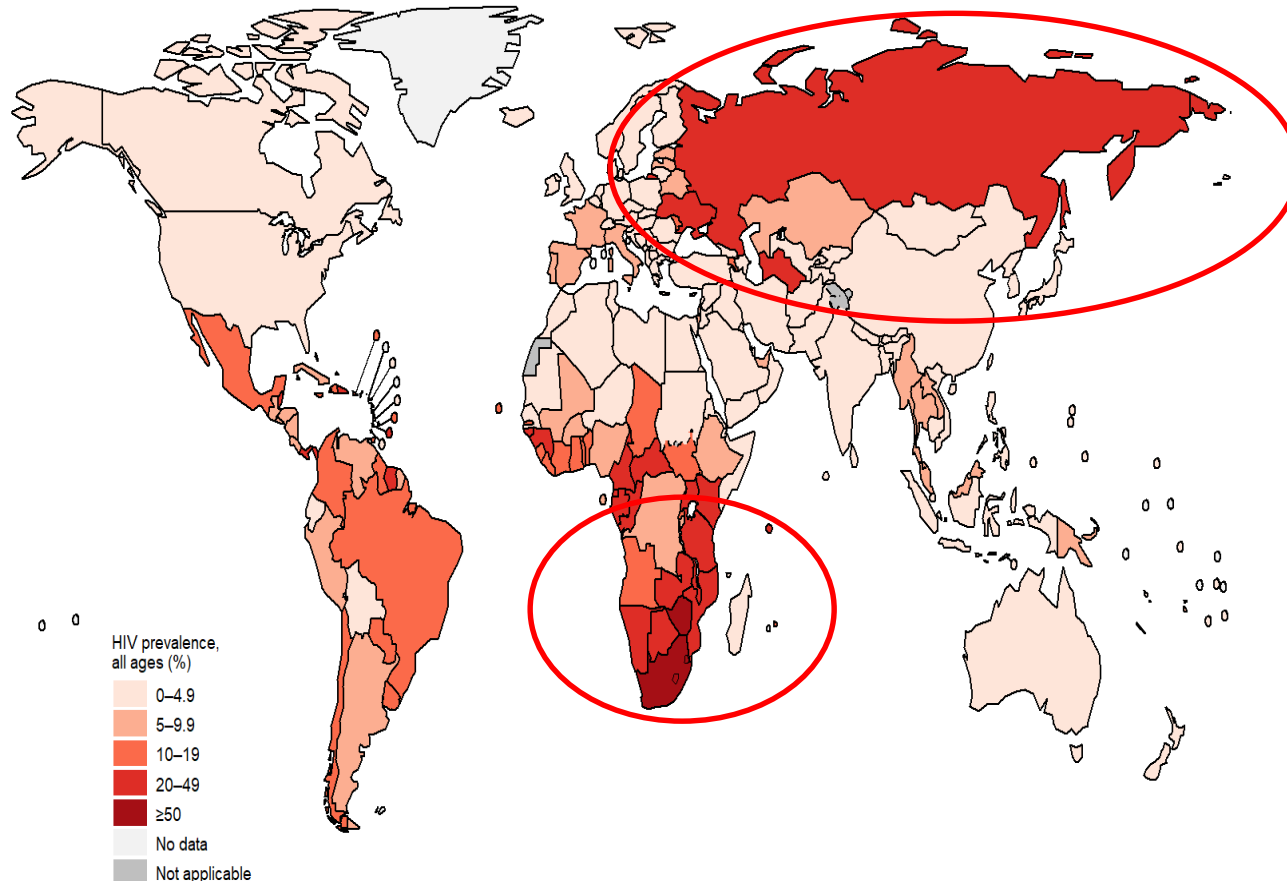
**Fig. 13** Estimated TB incidence rates, 2020



Source: WHO Global Tuberculosis Report 2021

# The Global Burden of TB 2020

**Fig. 2.1.6** Estimated HIV prevalence in new and relapse TB cases, 2020



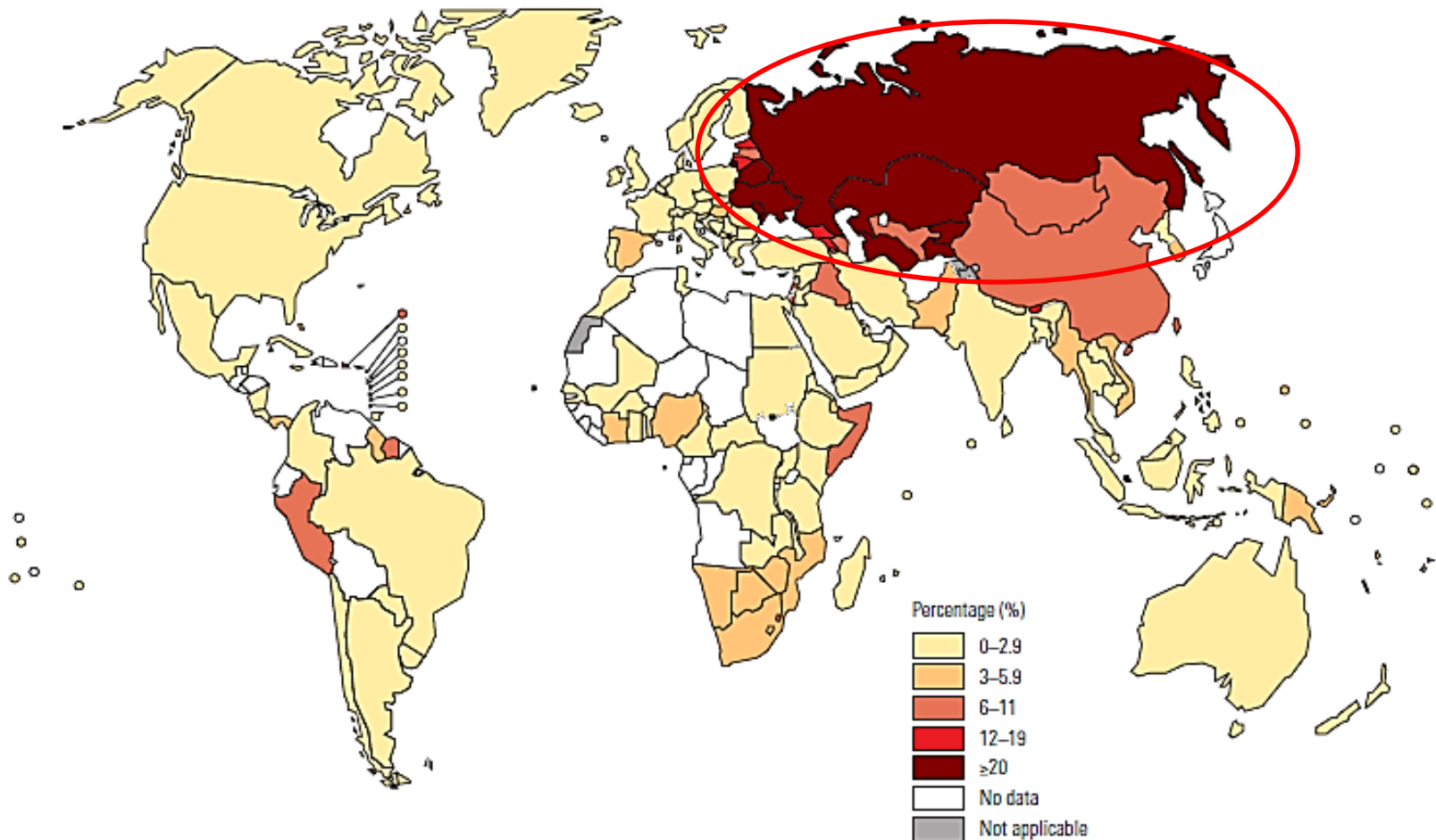
Source: WHO Global Tuberculosis Report 2021



# The Global Burden of TB 2019

**FIG. 4.30**

Percentage of new TB cases with MDR/RR-TB<sup>a</sup>

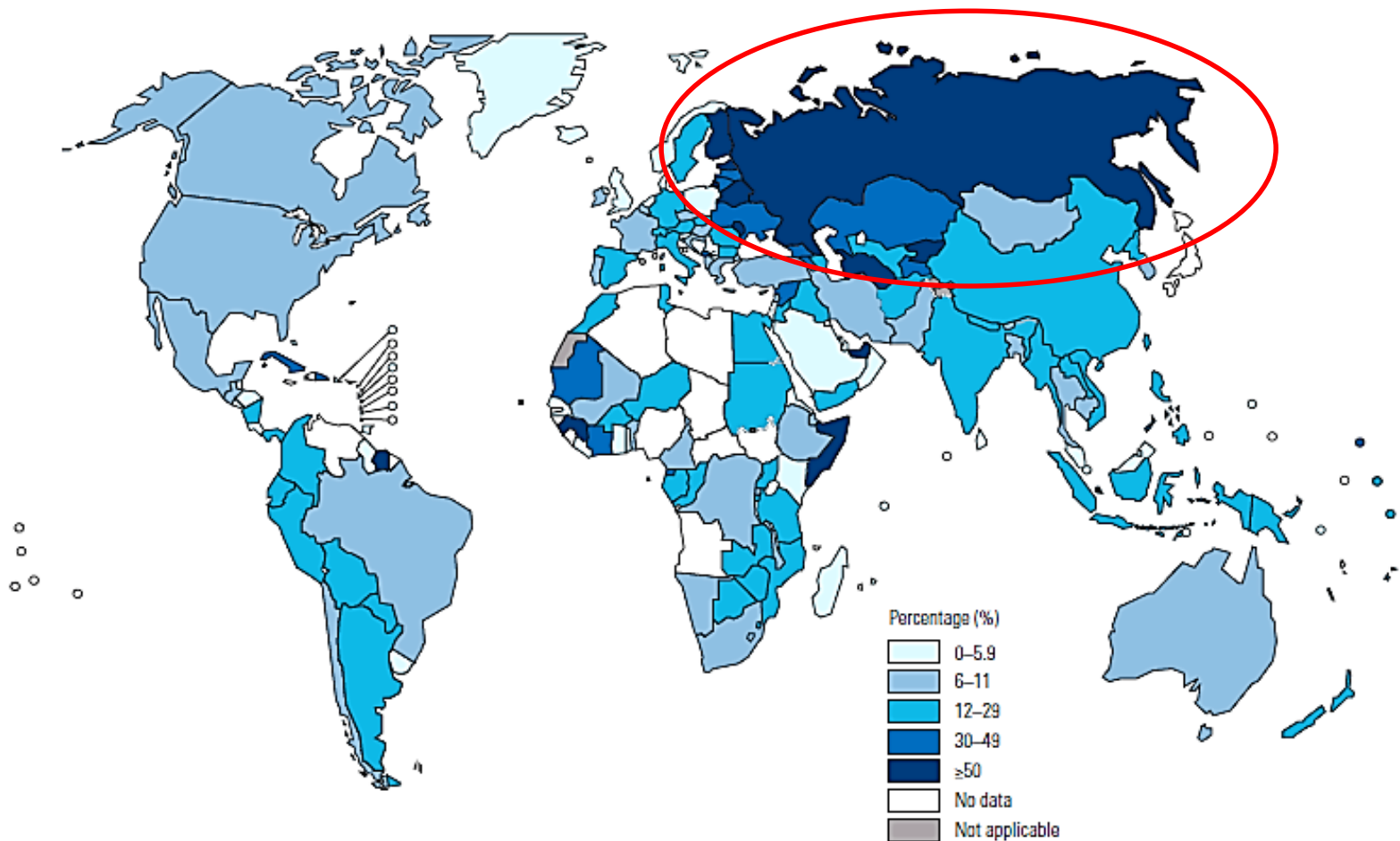


Source: WHO Global Tuberculosis Report 2020 (not reported in 2021 Report)

# The Global Burden of TB 2019

**FIG. 4.31**

Percentage of previously treated TB cases with MDR/RR-TB<sup>a</sup>



Source: WHO Global Tuberculosis Report 2020 (not reported in 2021 Report)

# The Global Burden of TB 2019

FIG. 4.32

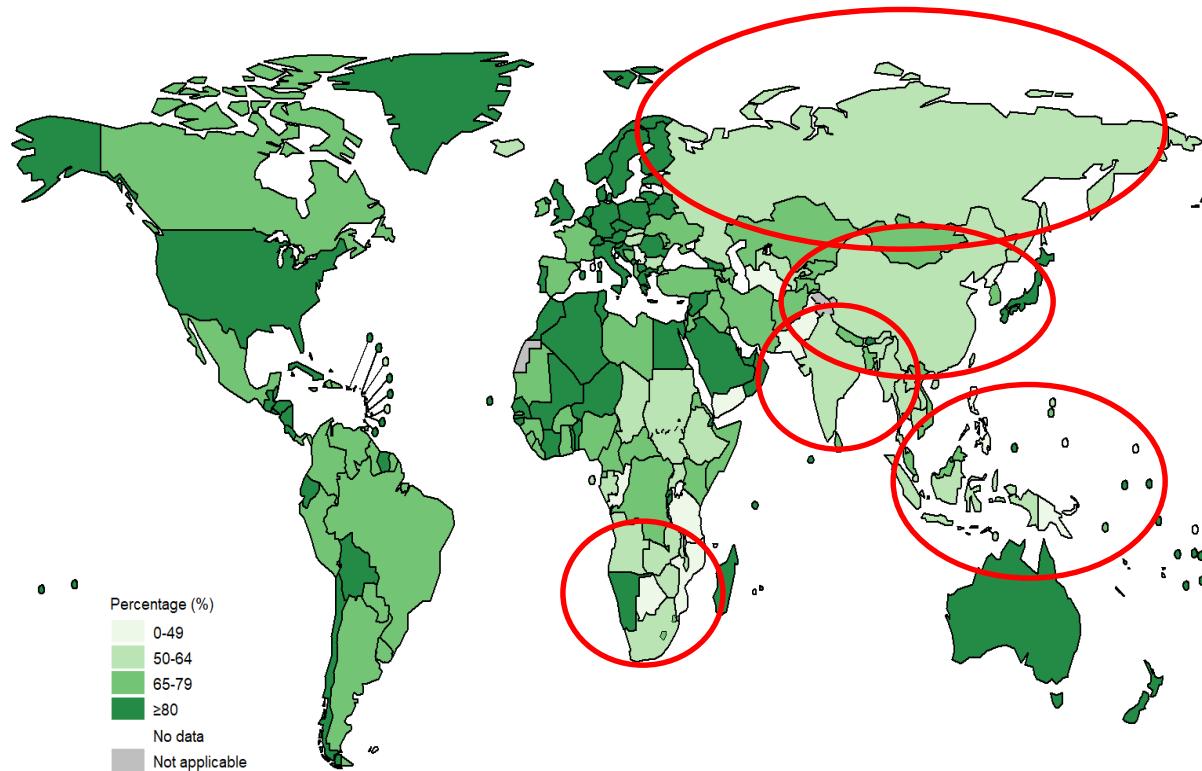
Estimated incidence of MDR/RR-TB<sup>a</sup> in 2019, for countries with at least 1000 incident cases



Source: WHO Global Tuberculosis Report 2020 (not reported in 2021 Report)

# The Global Burden of TB 2020

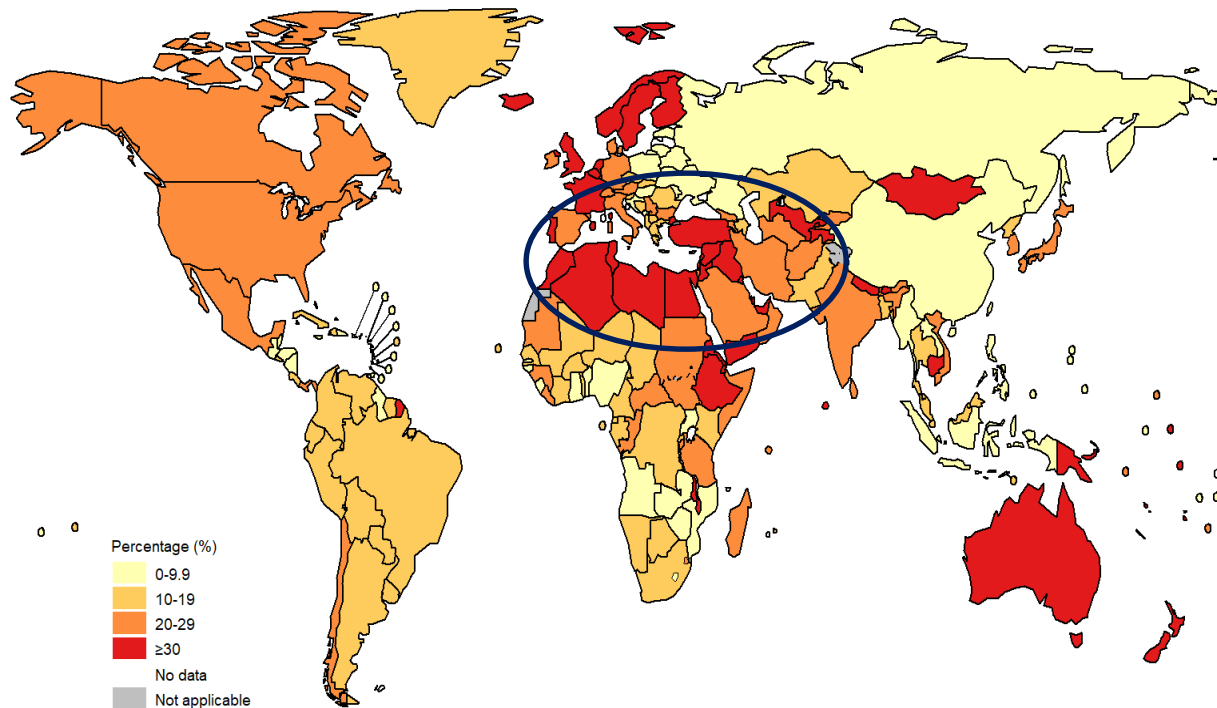
**Fig. 3.2.3** Percentage of new and relapse pulmonary TB cases with bacteriological confirmation, 2020



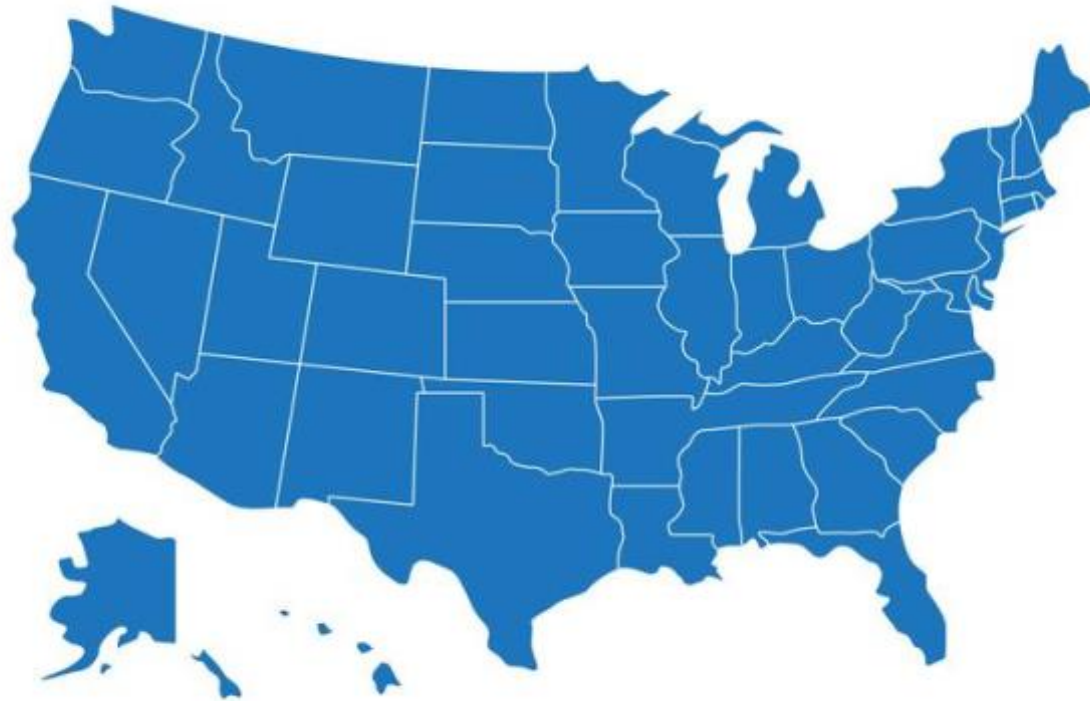
Source: WHO Global Tuberculosis Report 2021

# The Global Burden of TB 2020

**Fig. 3.1.7** Percentage of extrapulmonary cases among new and relapse TB cases, 2020



Source: WHO Global Tuberculosis Report 2021



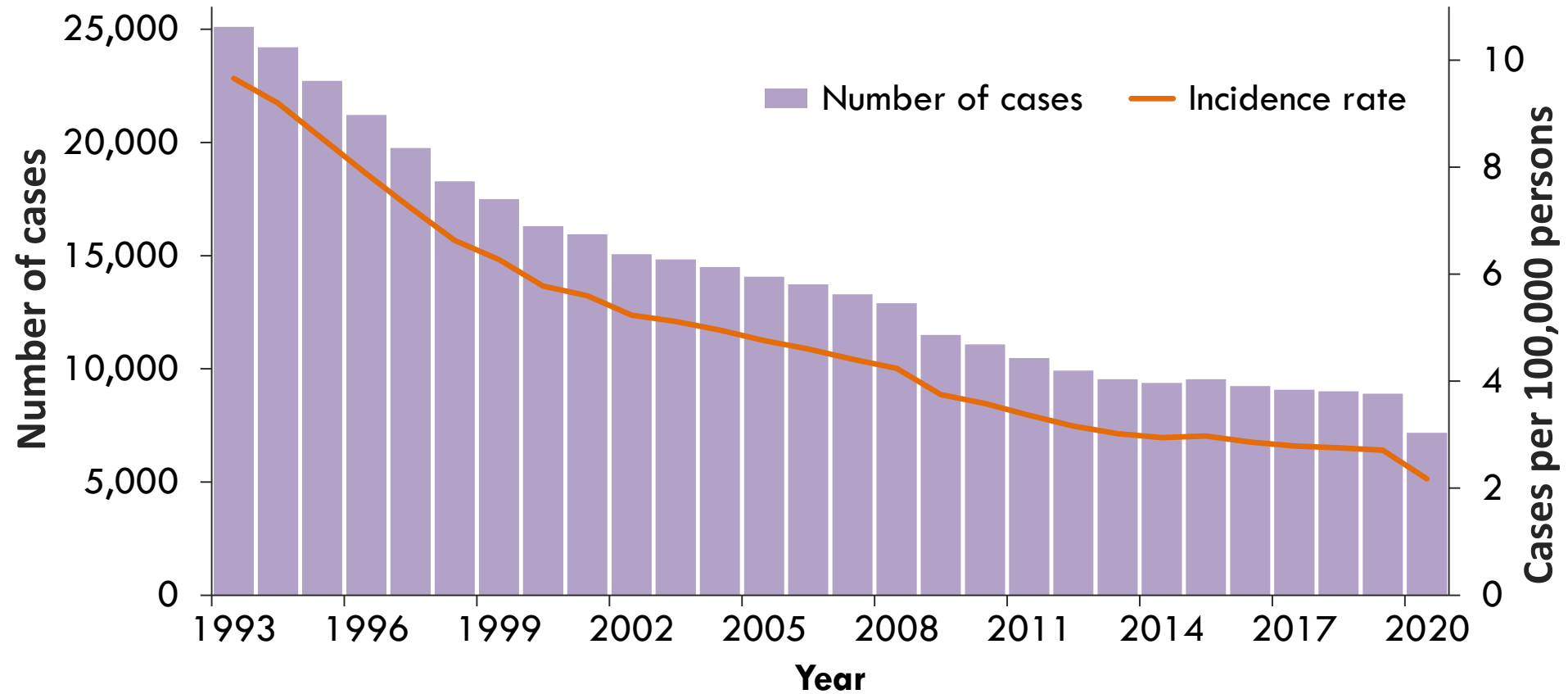
## TB in the United States

# **2020** Reported Tuberculosis in the United States



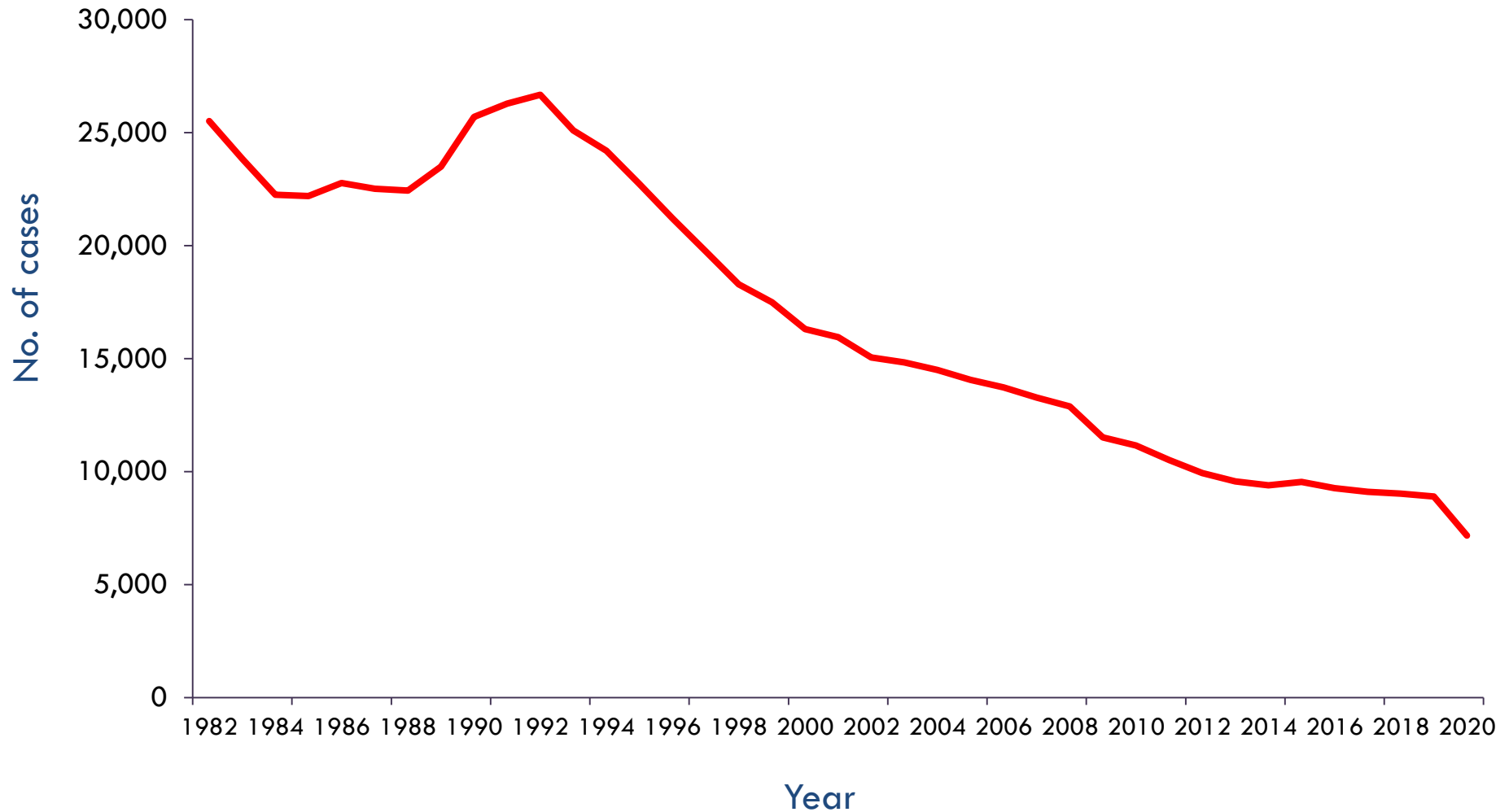
[Reported TB in the US 2020 | Data & Statistics | TB | CDC](#)

## TB Cases and Incidence Rates, United States, 1993–2020

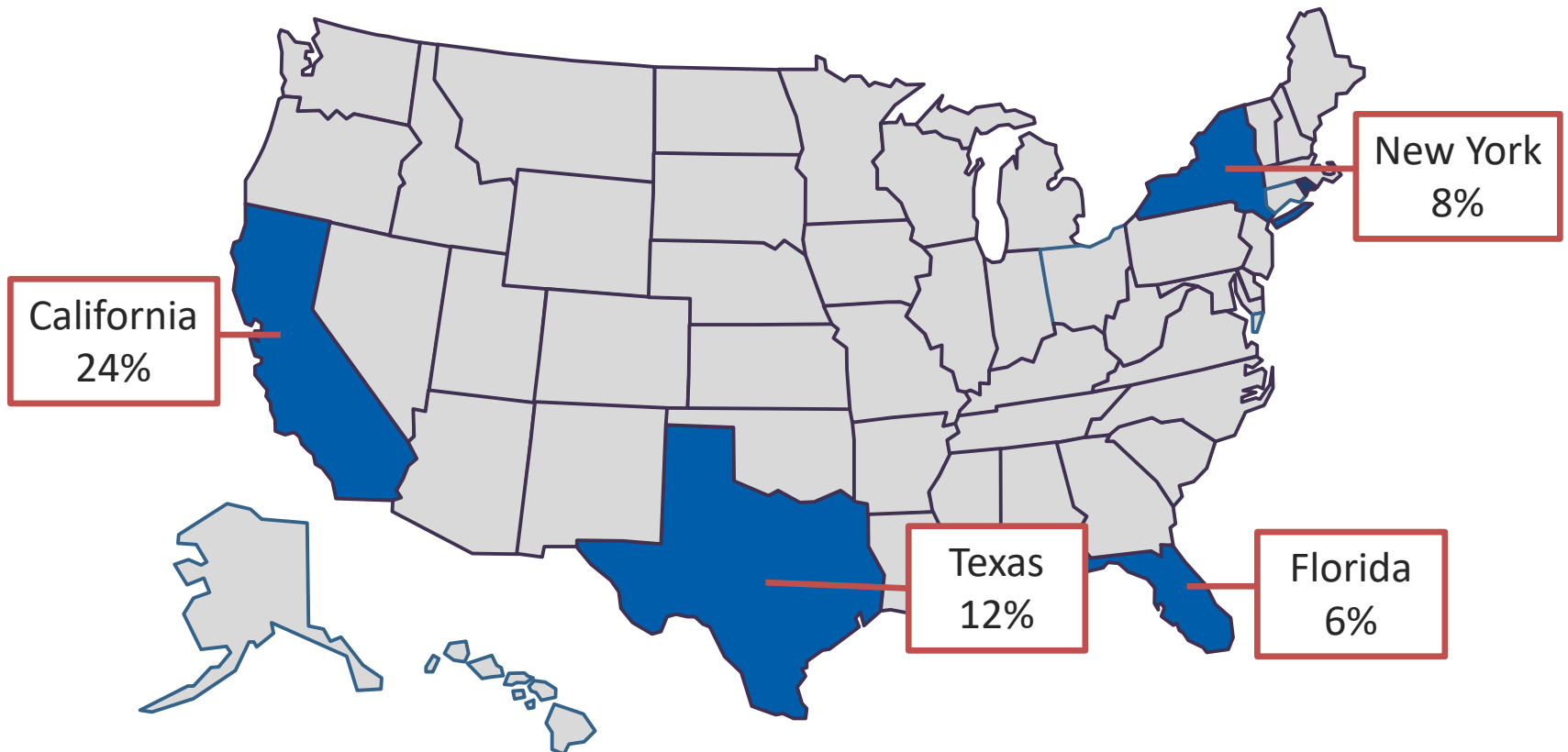




# Reported Tuberculosis (TB) Cases United States, 1982–2020

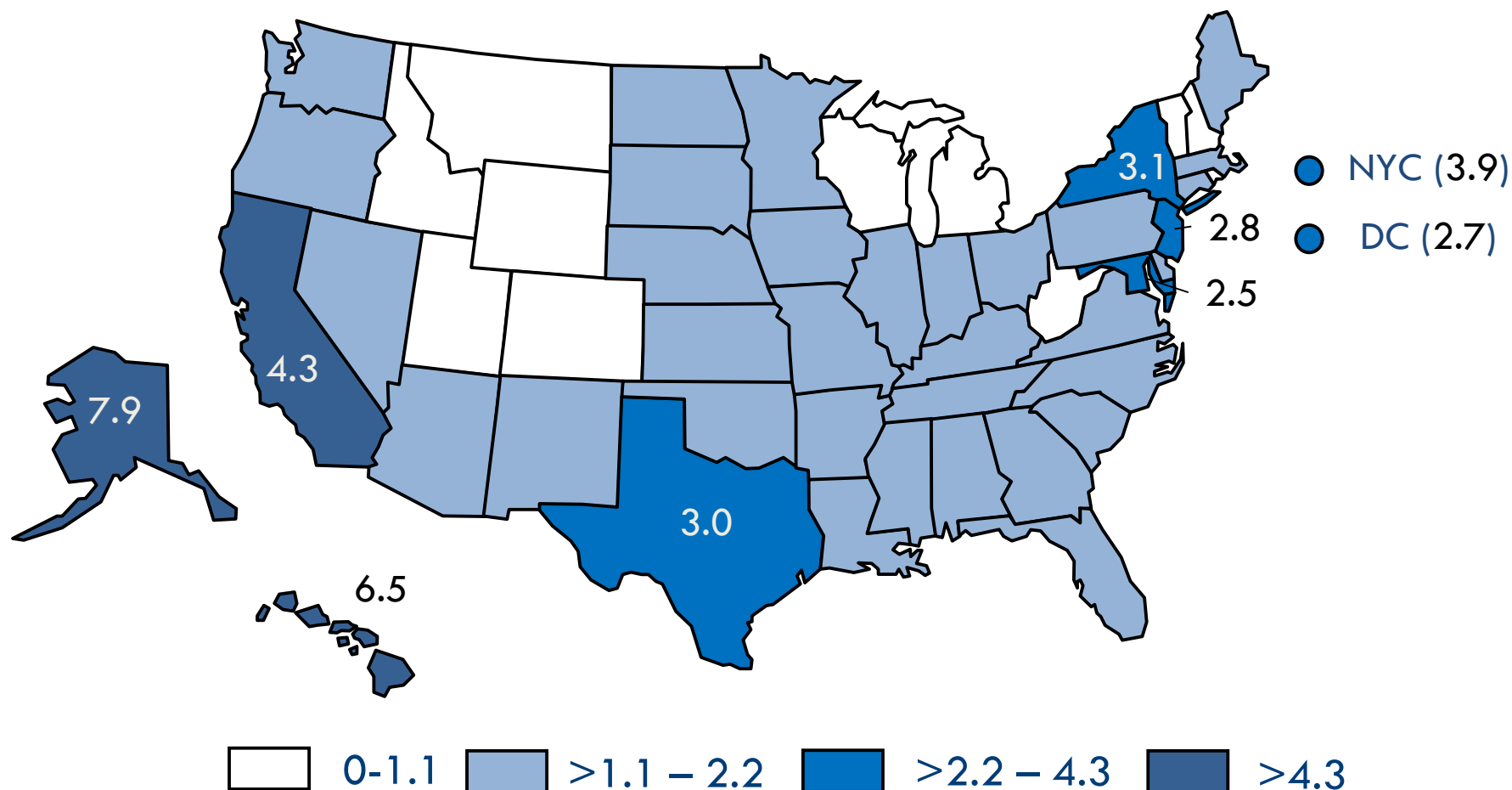


# Majority of TB Cases Occur in Four States, United States, 2020



# U.S. TB EPIDEMIOLOGY

TB Case Rates, United States, 2020 2.2/100,000

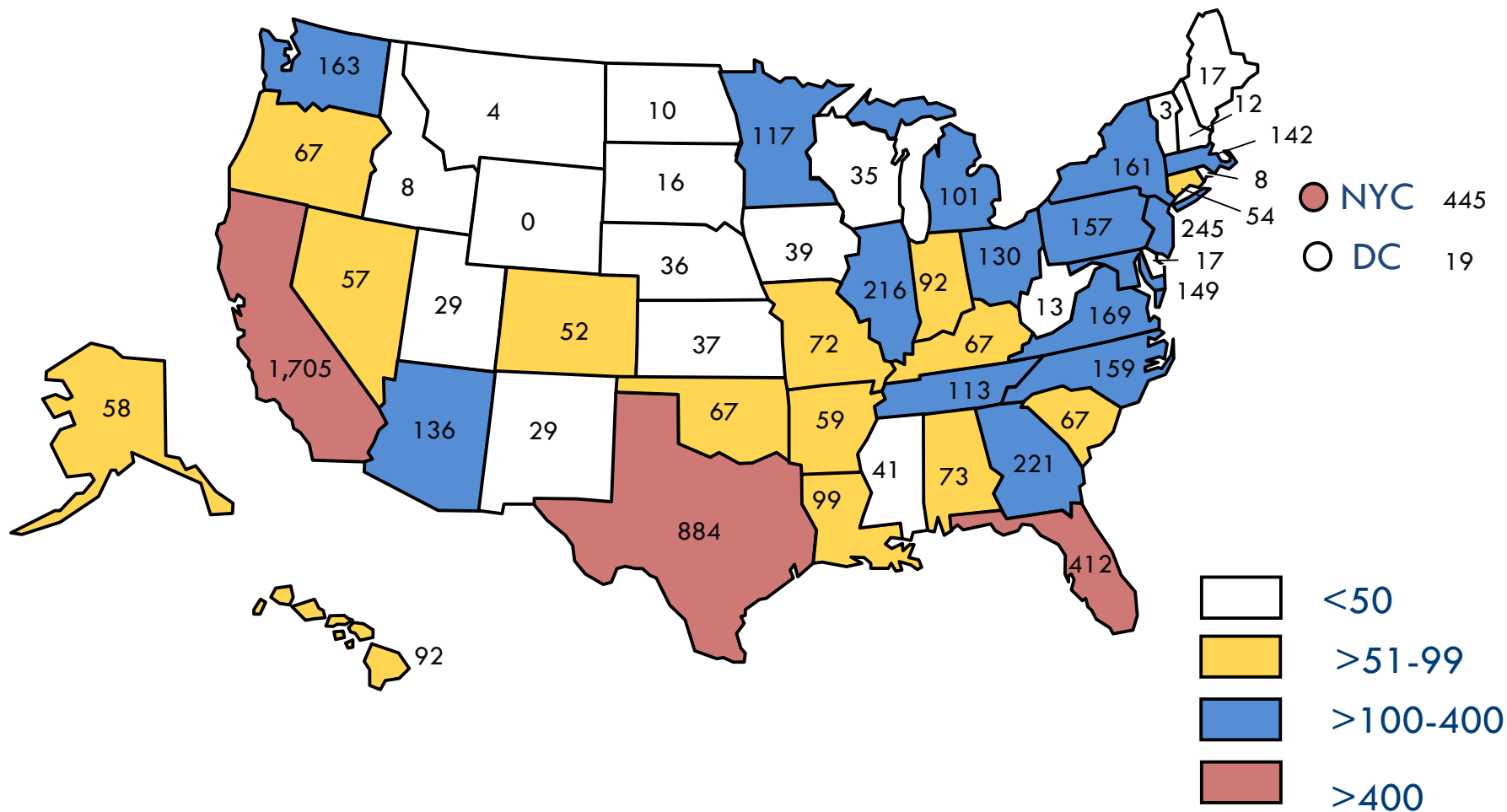


DC, District of Columbia; NYC, New York City (excluded from New York state)

# U.S. TB EPIDEMIOLOGY

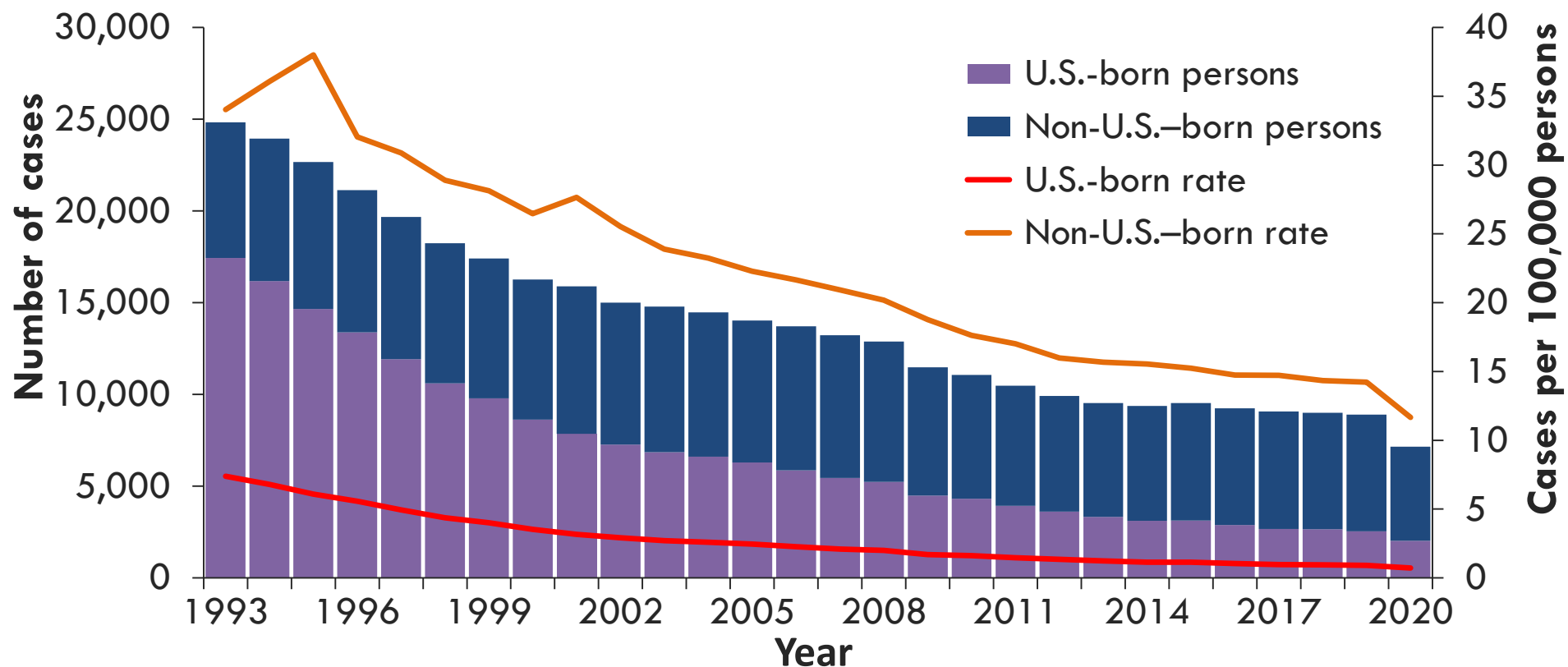
## TB Cases, United States, 2020

7,174

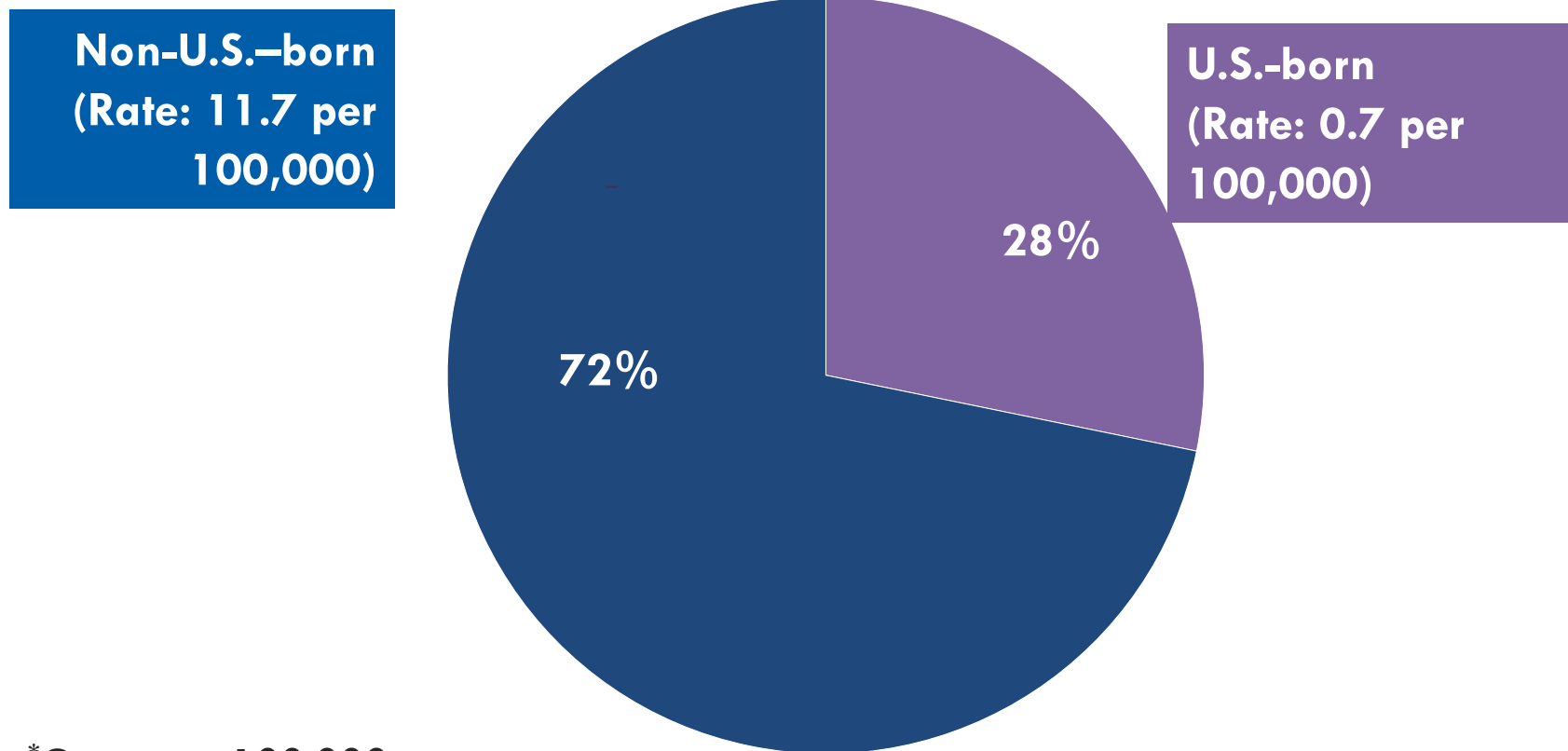


DC, District of Columbia; NYC, New York City (excluded from New York state)

# TB Cases and Incidence Rates by Origin of Birth, United States, 1993–2020

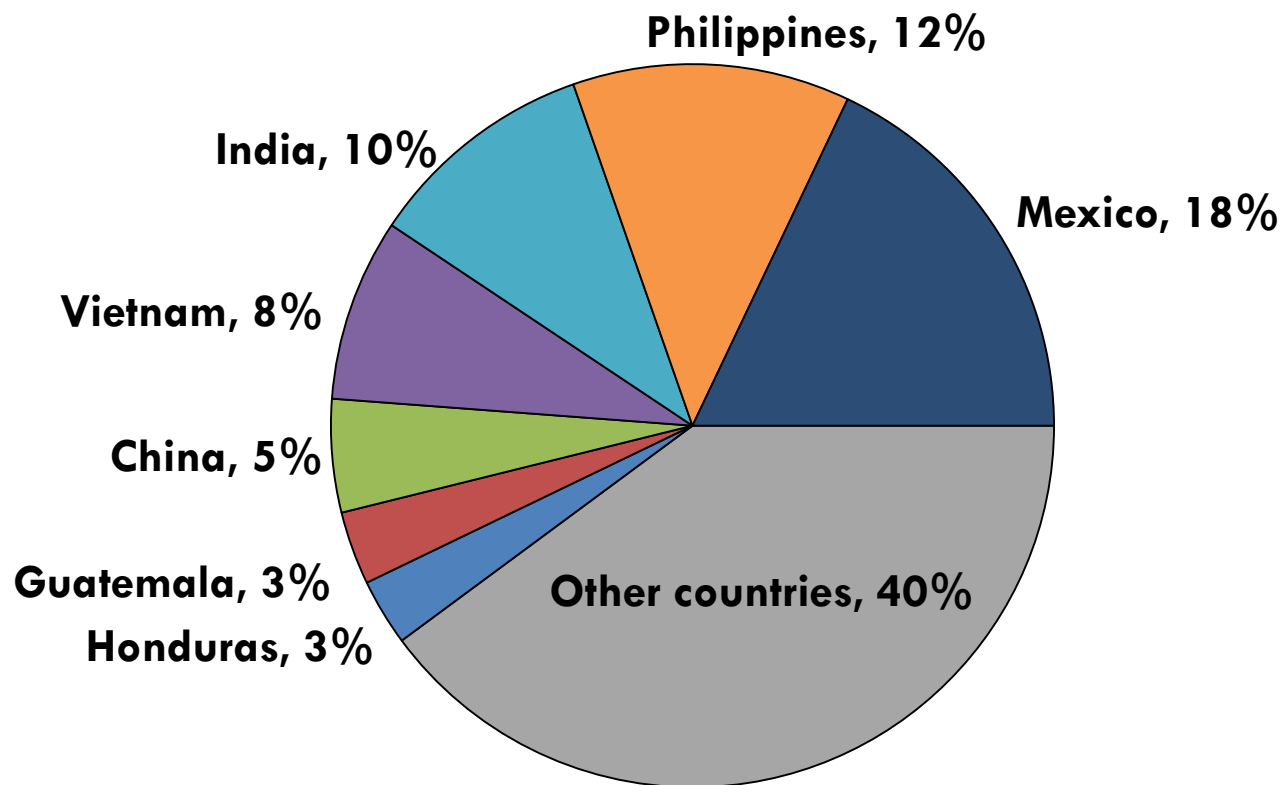


# TB Incidence Rates\* and Percentages by Origin of Birth, United States, 2020 (N=7,145)

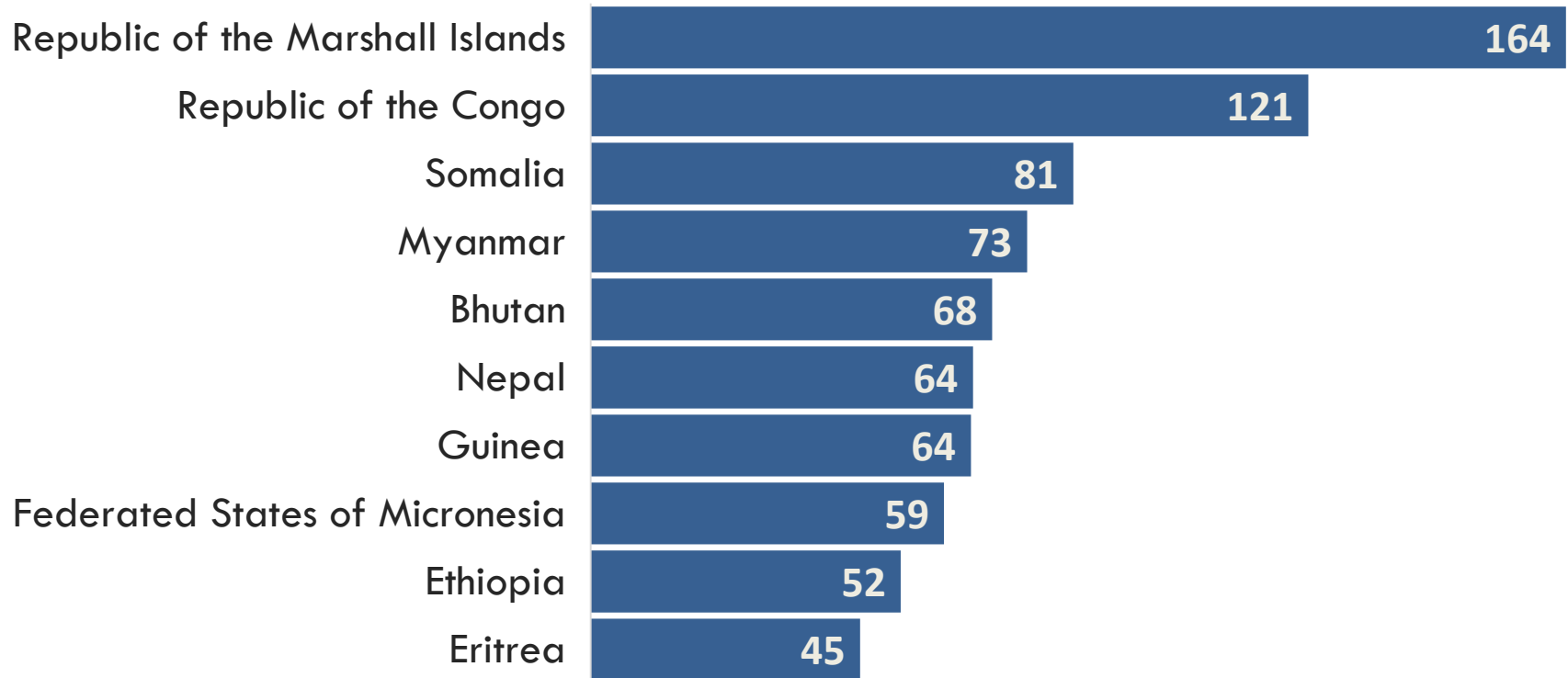


\*Cases per 100,000 persons

# Top Countries of Birth Among Non-U.S.-born Persons with TB, United States, 2020 (N=5,127)



# Top 10 TB Incidence Rates,\* by Country of Birth,† United States, 2016–2020

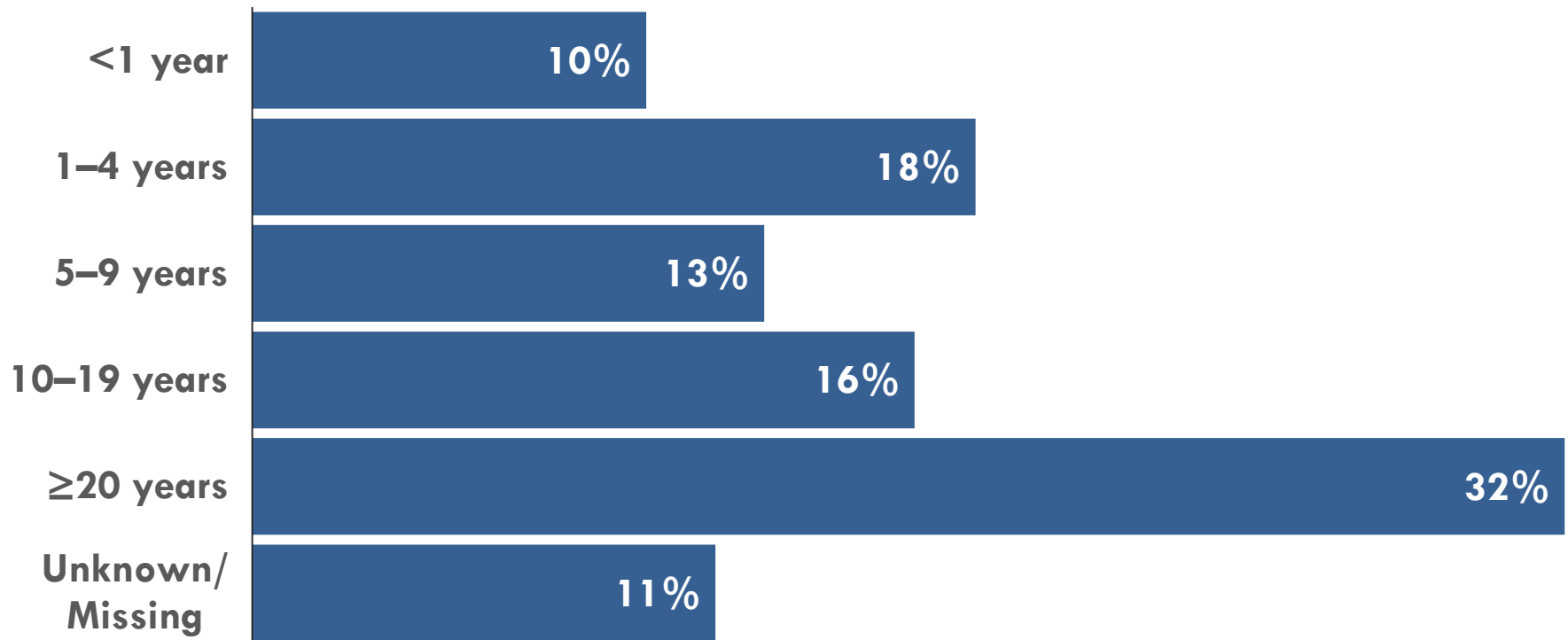


\* Cases per 100,000 persons

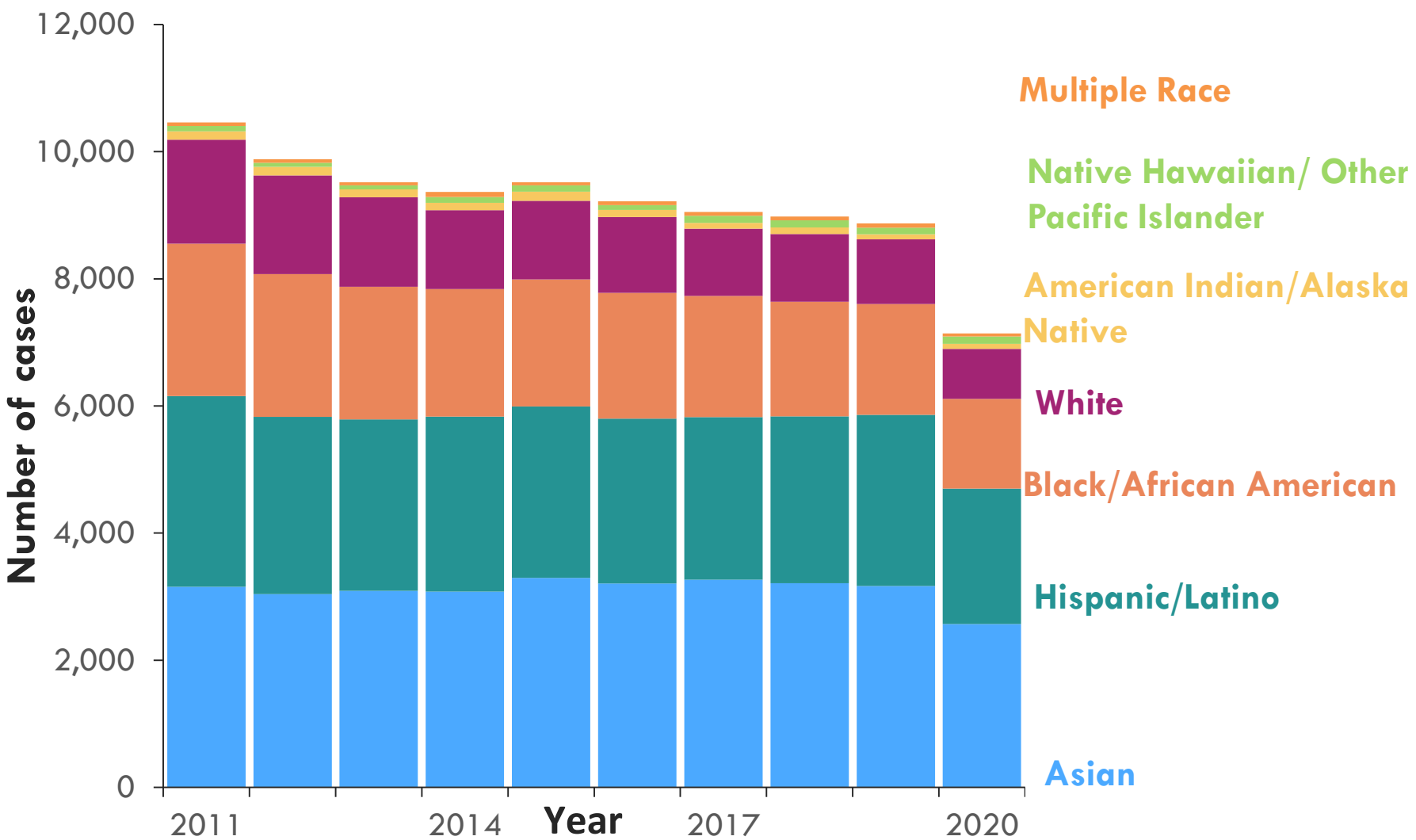
† Populations for the countries of birth shown were selected based on their ranked 5-year rate of TB cases by country of birth in the United States.



# Percentage of TB Cases Among Non-U.S.-born Persons by Years Since Initial Arrival in the United States at Diagnosis, 2020 (N=5,127)

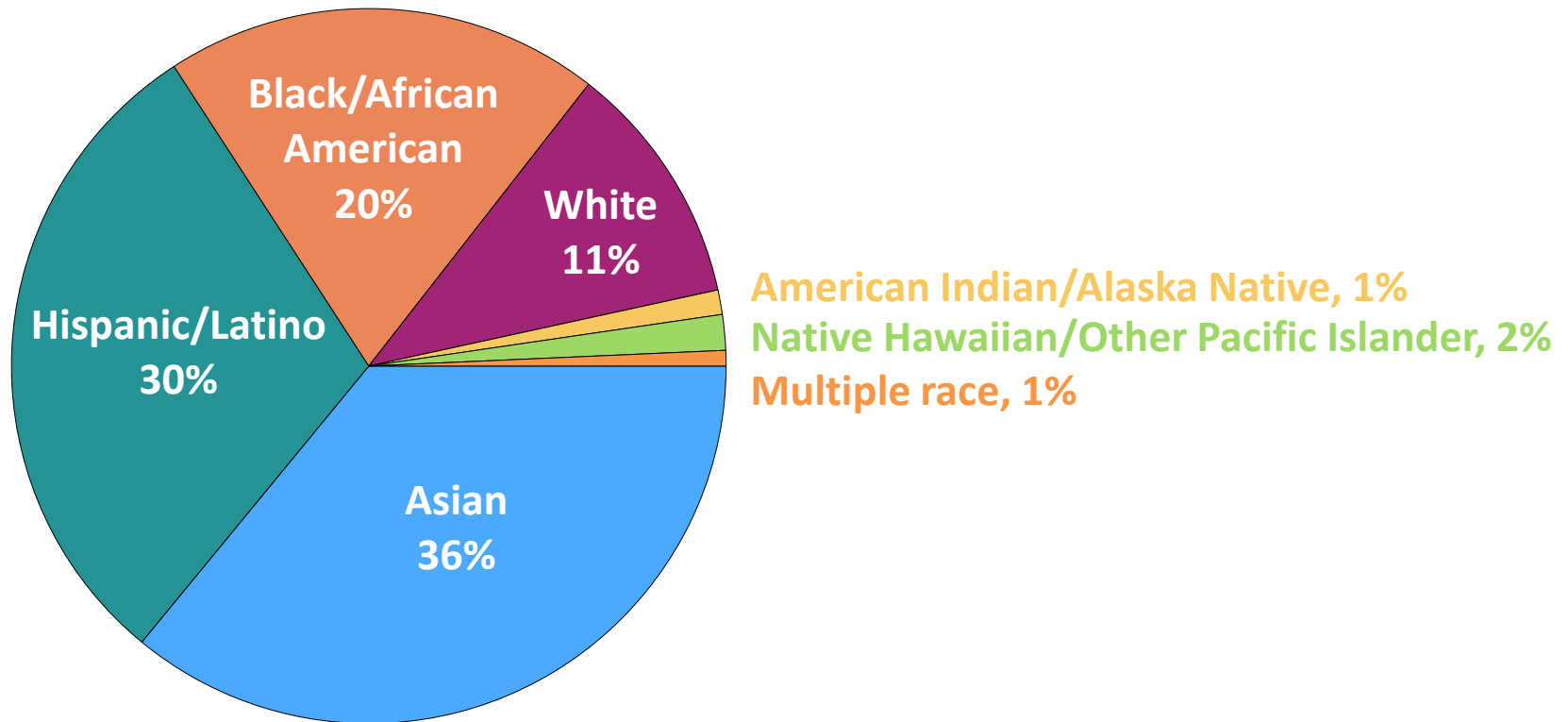


# TB Cases by Race/Ethnicity,\* United States, 2011–2020



\*All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.

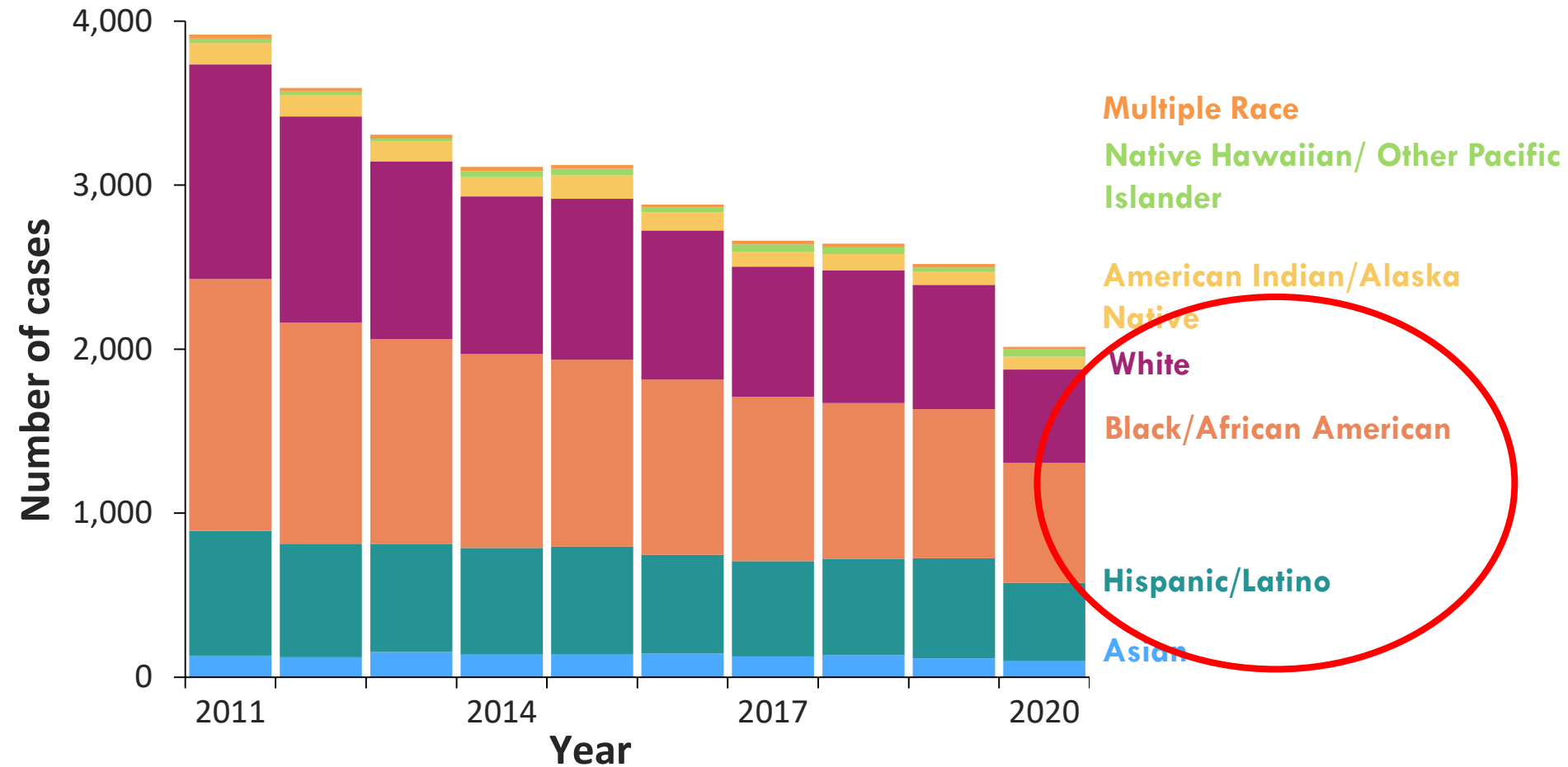
# Percentage of TB Cases by Race/Ethnicity,<sup>\*</sup> United States, 2020 (N=7,174)<sup>†</sup>



<sup>\*</sup>All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.

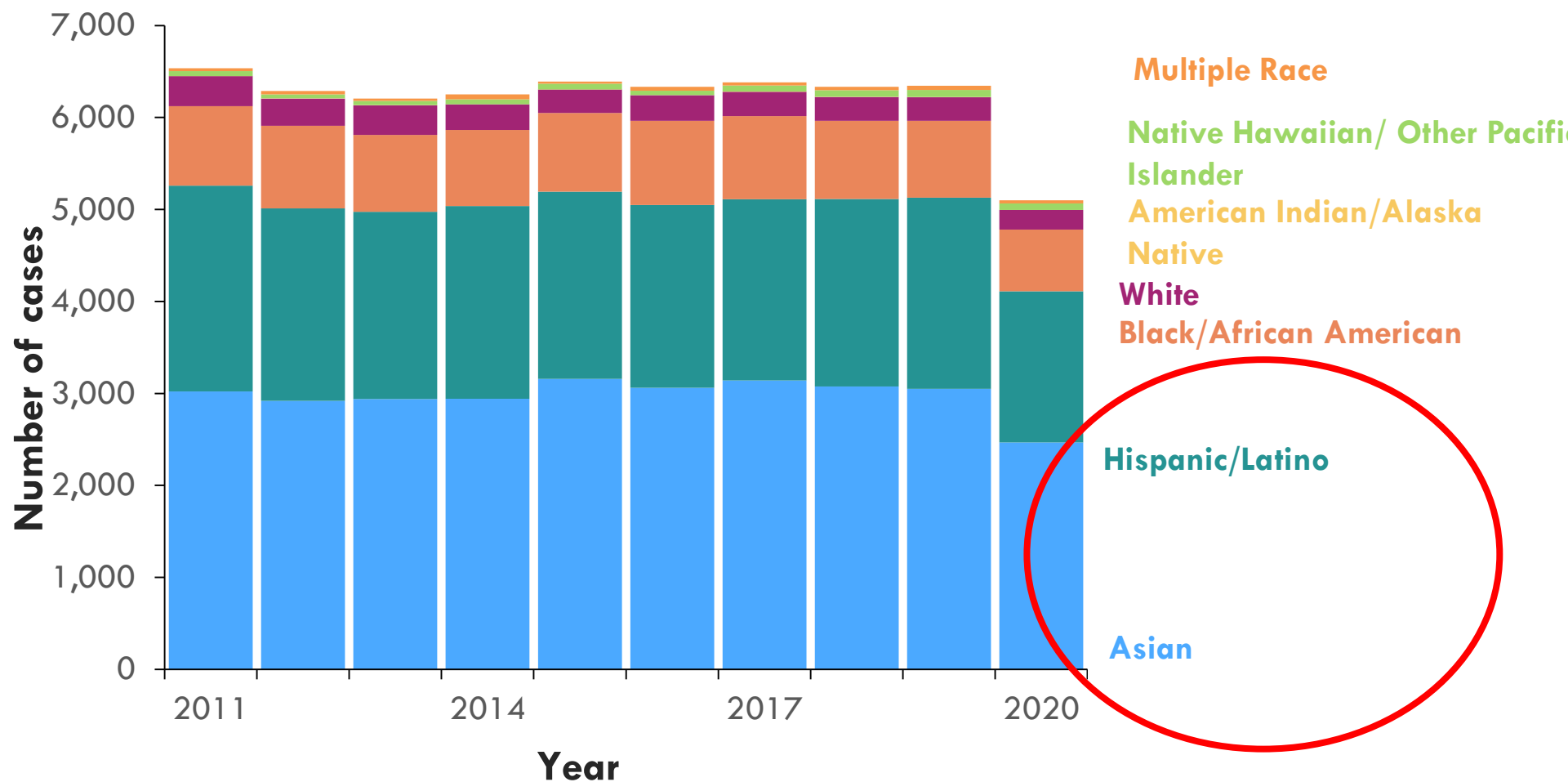
<sup>†</sup>Percentages are rounded. Percentages of unknowns/missing are <1% and are not displayed in graph.

# TB Cases Among U.S.-born Persons by Race/Ethnicity,\* United States, 2011–2020



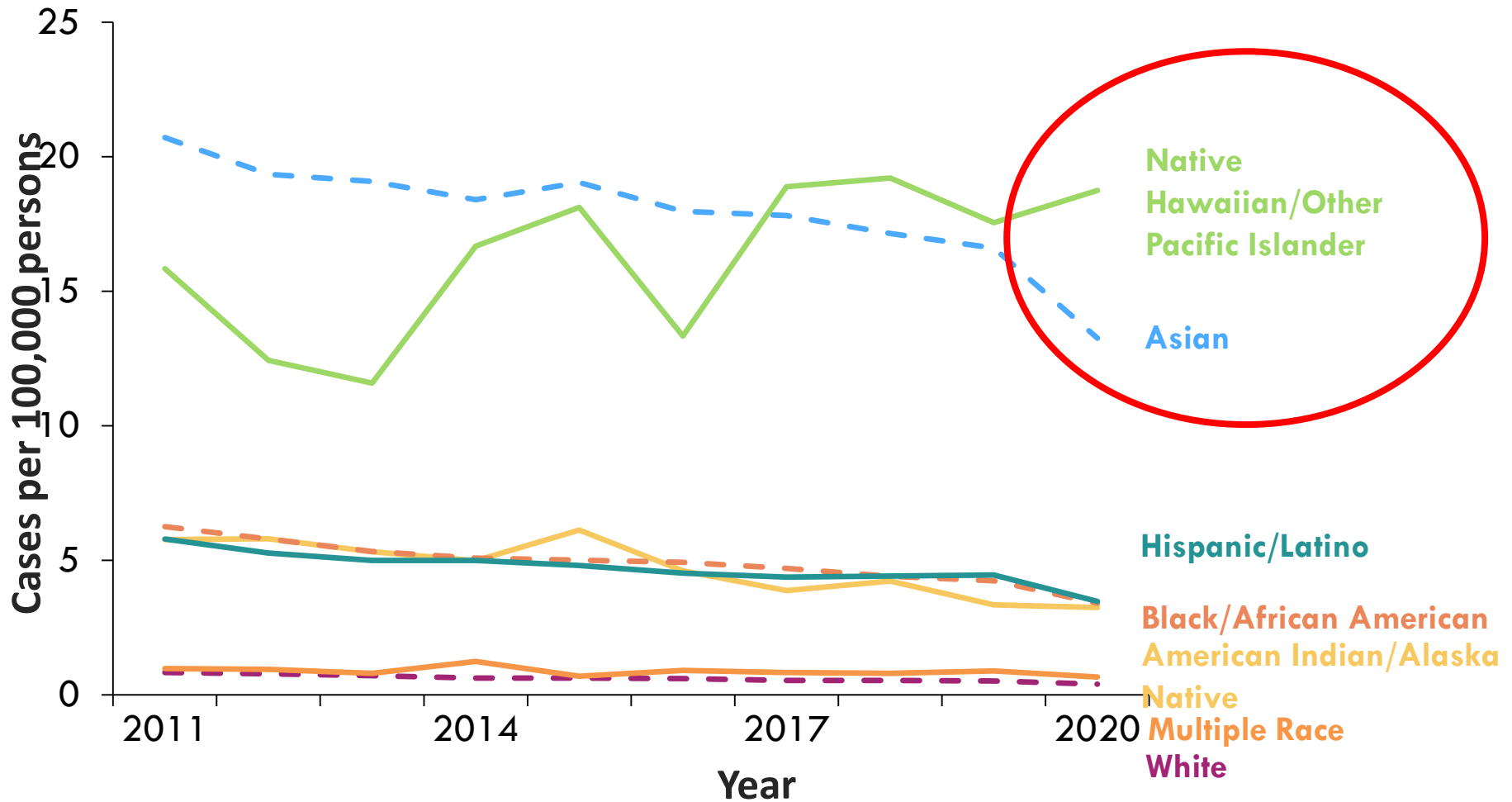
\* All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.

# TB Cases Among Non-U.S.-born Persons by Race/Ethnicity,\* United States, 2011–2020



\*All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.

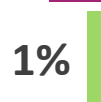
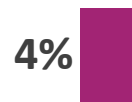
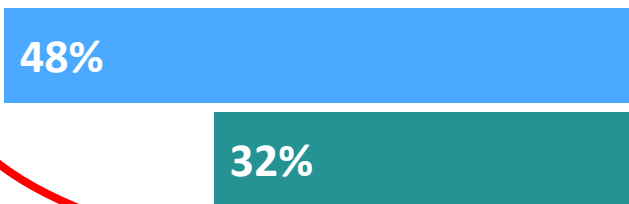
# TB Incidence Rates by Race/Ethnicity,\* United States, 2011–2020



\*All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.

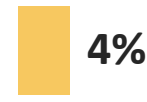
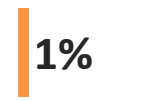
# Percentage of TB Cases by Origin and Race/Ethnicity,\* United States, 2020†

**Non-U.S.-born persons**  
(N=5,127)



Asian  
Hispanic/Latino  
Black/  
African American  
White  
Native Hawaiian/  
Other Pacific Islander  
Multiple Race  
American Indian/  
Alaska Native

**U.S.-born persons**  
(N=2,018)

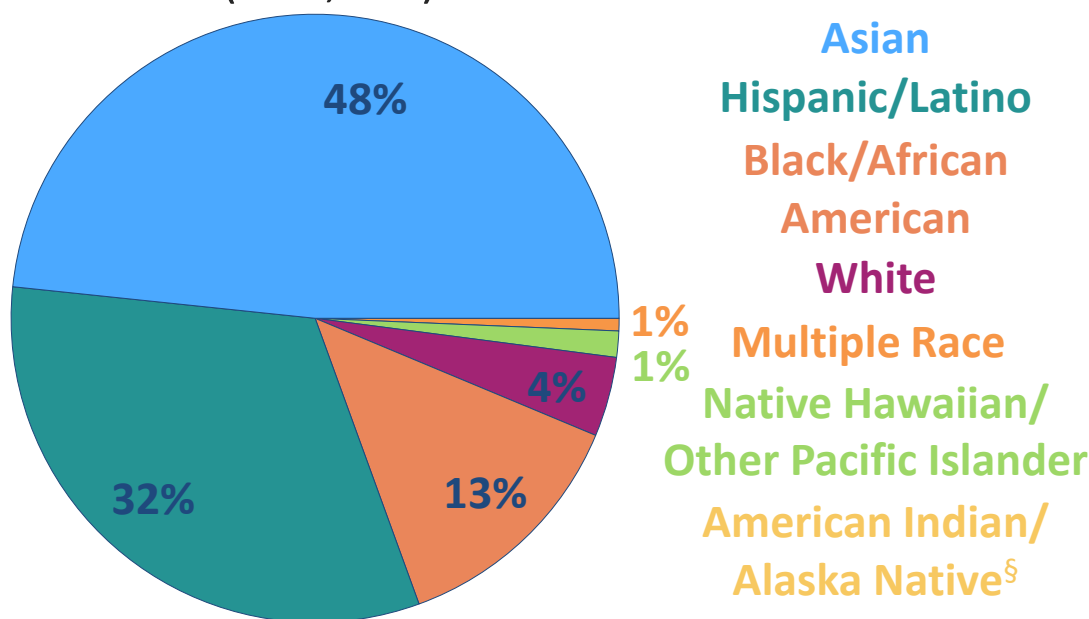


\* All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.

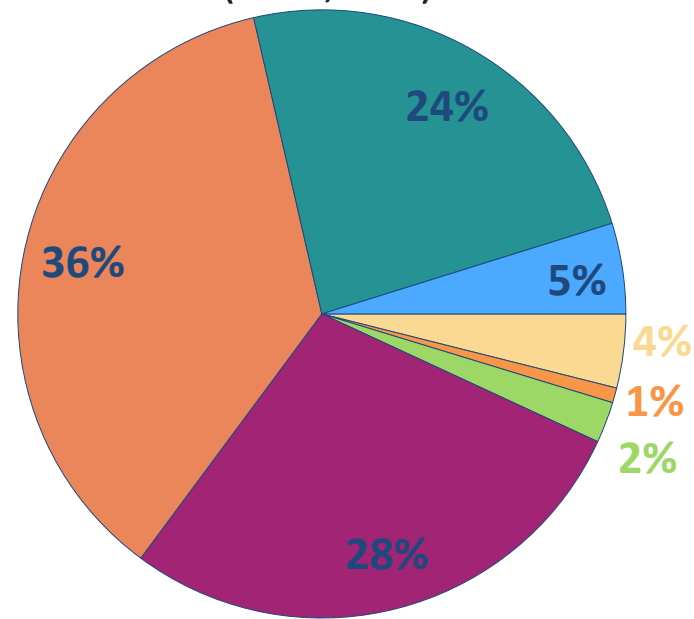
† Percentages are rounded. Percentages of unknowns/missing are <1% and are not displayed in graphs.

# Percentage of TB Cases by Origin and Race/Ethnicity,\* United States, 2020<sup>†</sup>

**Non-U.S.-born persons<sup>§</sup>**  
(N=5,127)



**U.S.-born persons**  
(N=2,018)



\* All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.

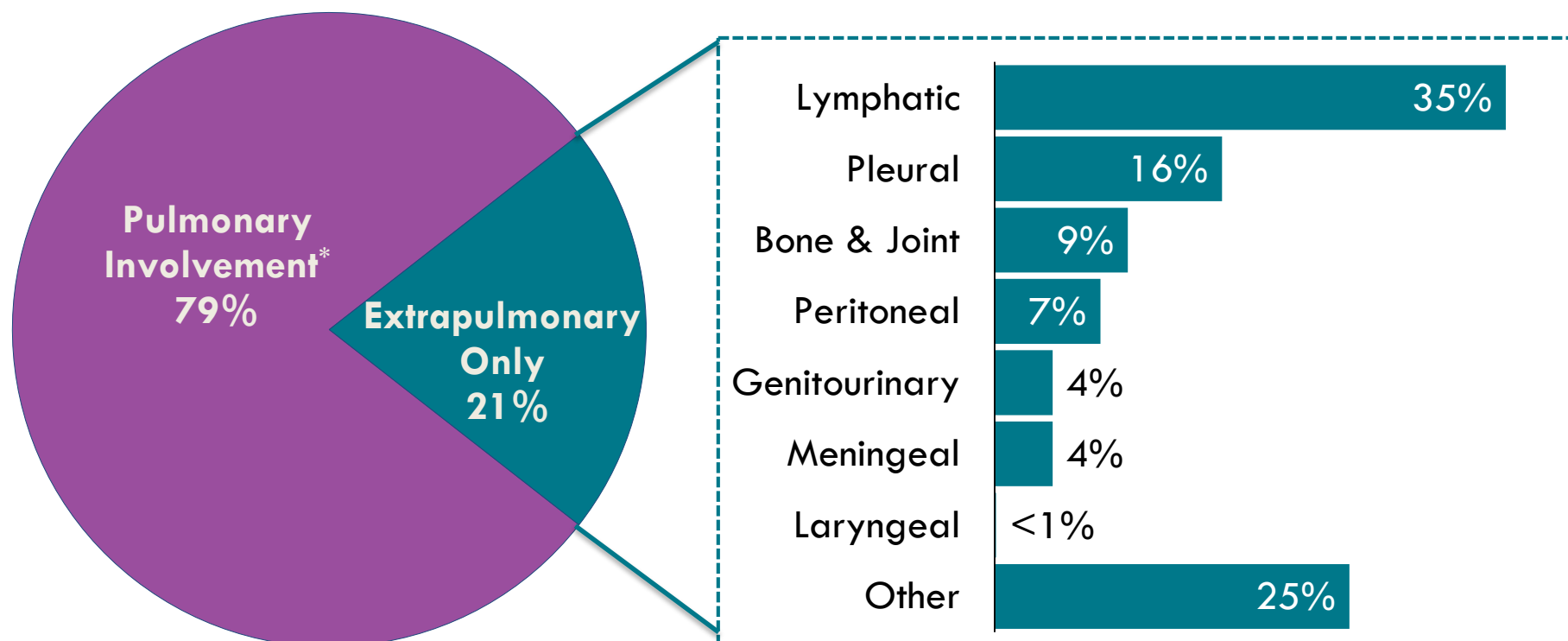
<sup>†</sup> Percentages are rounded. Percentages of unknowns/missing are <1% and are not displayed in graphs.

<sup>§</sup> American Indian/Alaska Native accounted for no cases among non-U.S.-born persons (not visible).



# Percentage of TB Cases by Site of Disease, United States, 2020

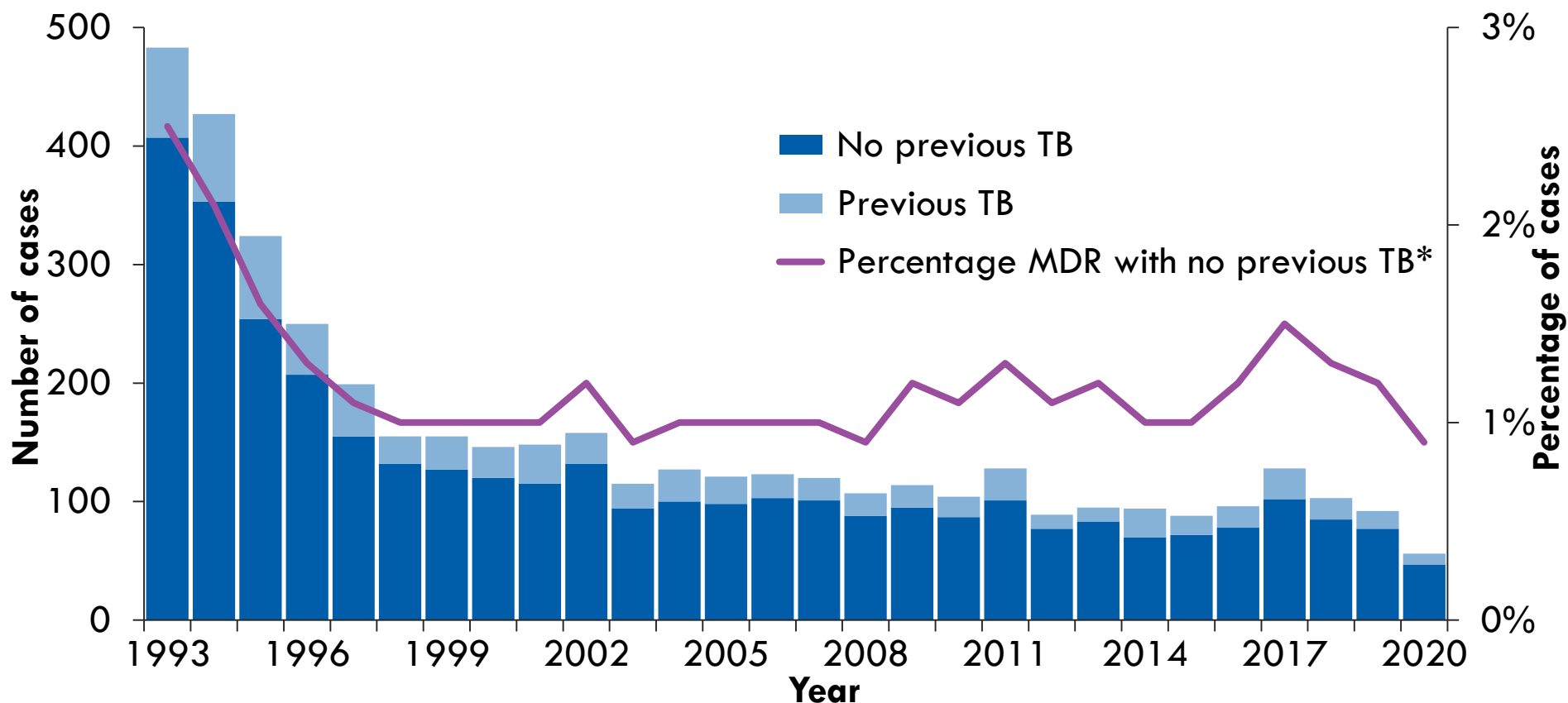
Wisconsin 68% Pulmonary, 32% Extrapulmonary



\*Any pulmonary involvement which includes cases that are pulmonary only and both pulmonary and extrapulmonary. Patients may have more than one disease site but are counted in mutually exclusive categories for surveillance purposes.

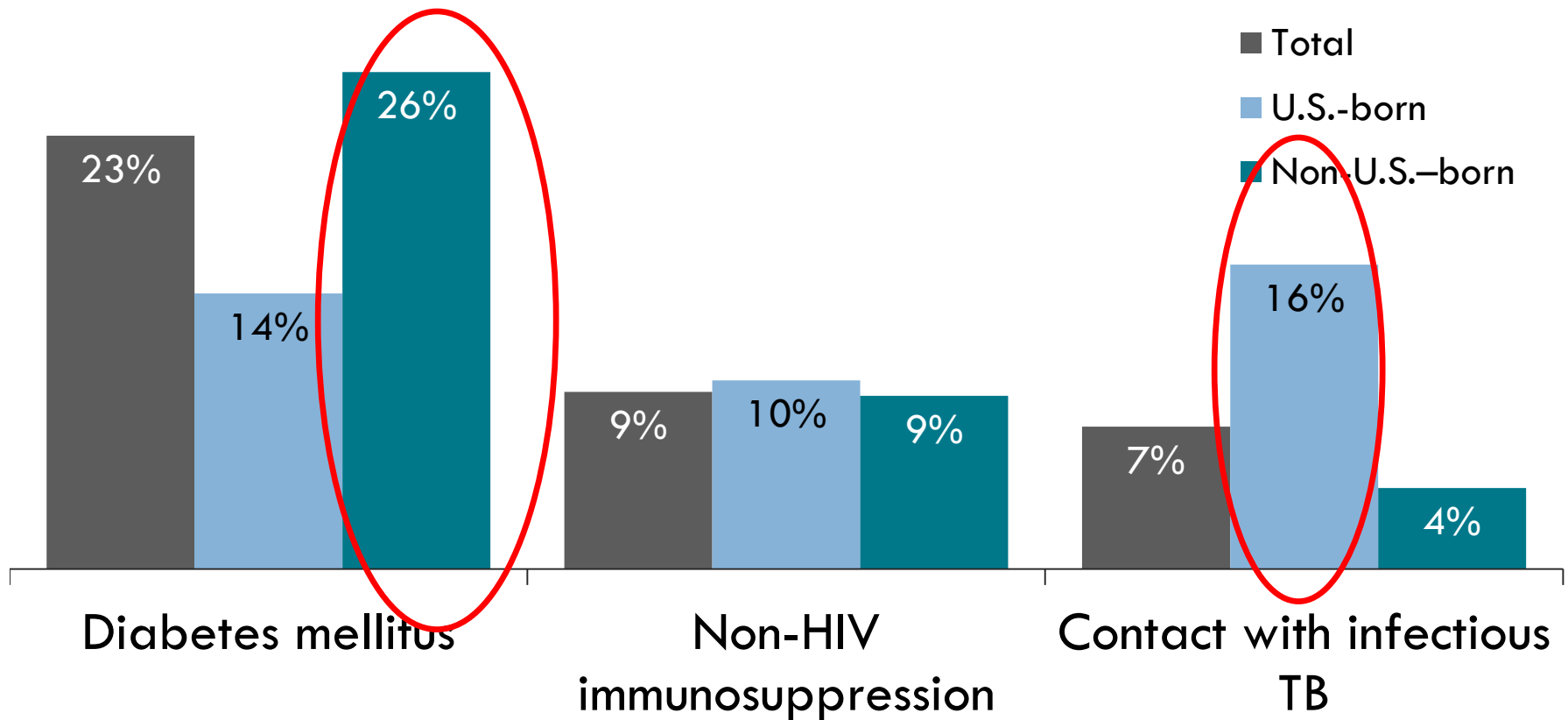
# Cases and Percentages of MDR TB by History of TB, United States, 1993–2020

Wisconsin MDR-TB is 5.5% of Foreign-Born, 3.5% of all TB

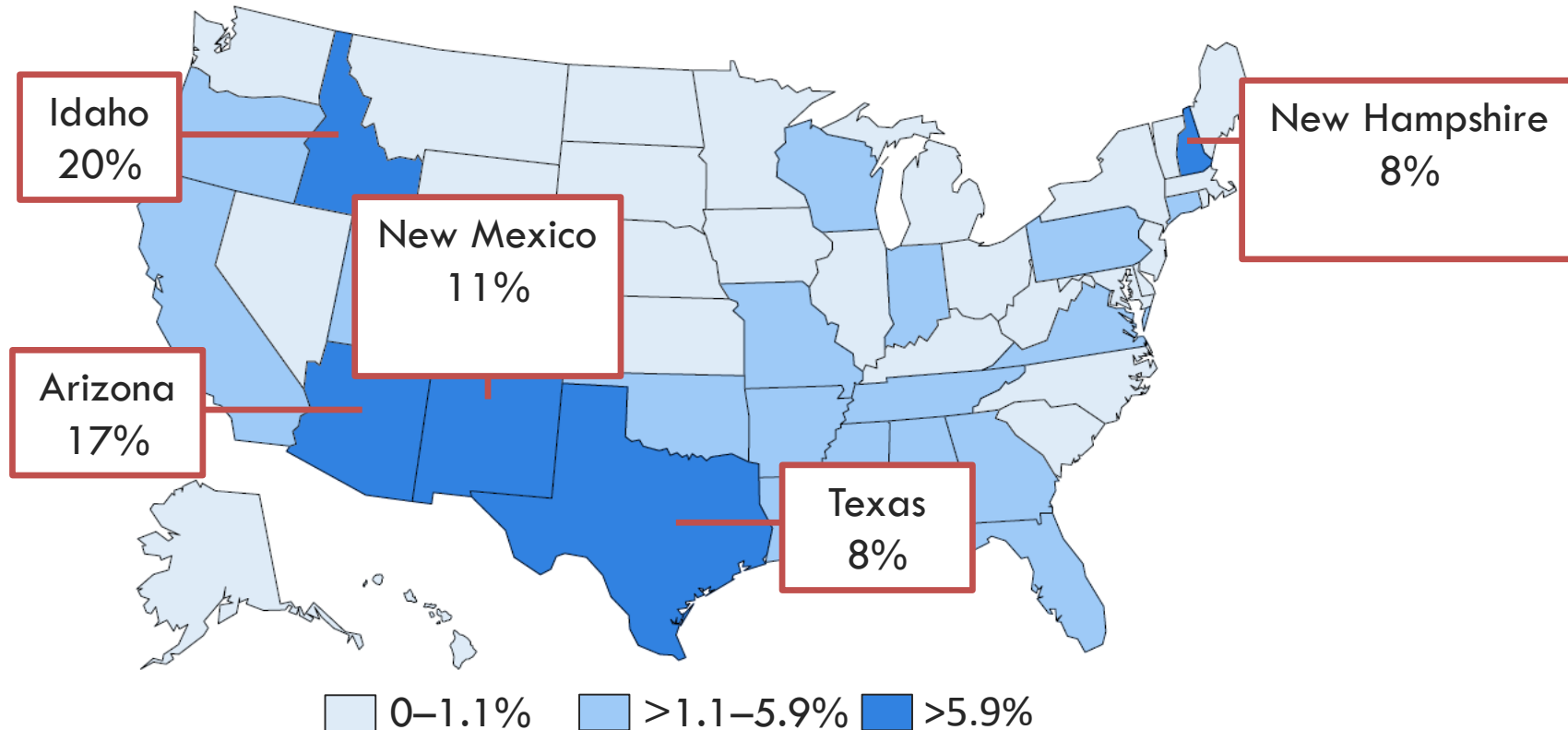


\*Based on initial isolates from persons with no prior history of TB; multidrug-resistant TB (MDR TB) is defined as resistance to at least isoniazid and rifampin.

# Percentage of Selected Risk Factors Among Persons with TB by Origin of Birth, United States, 2020

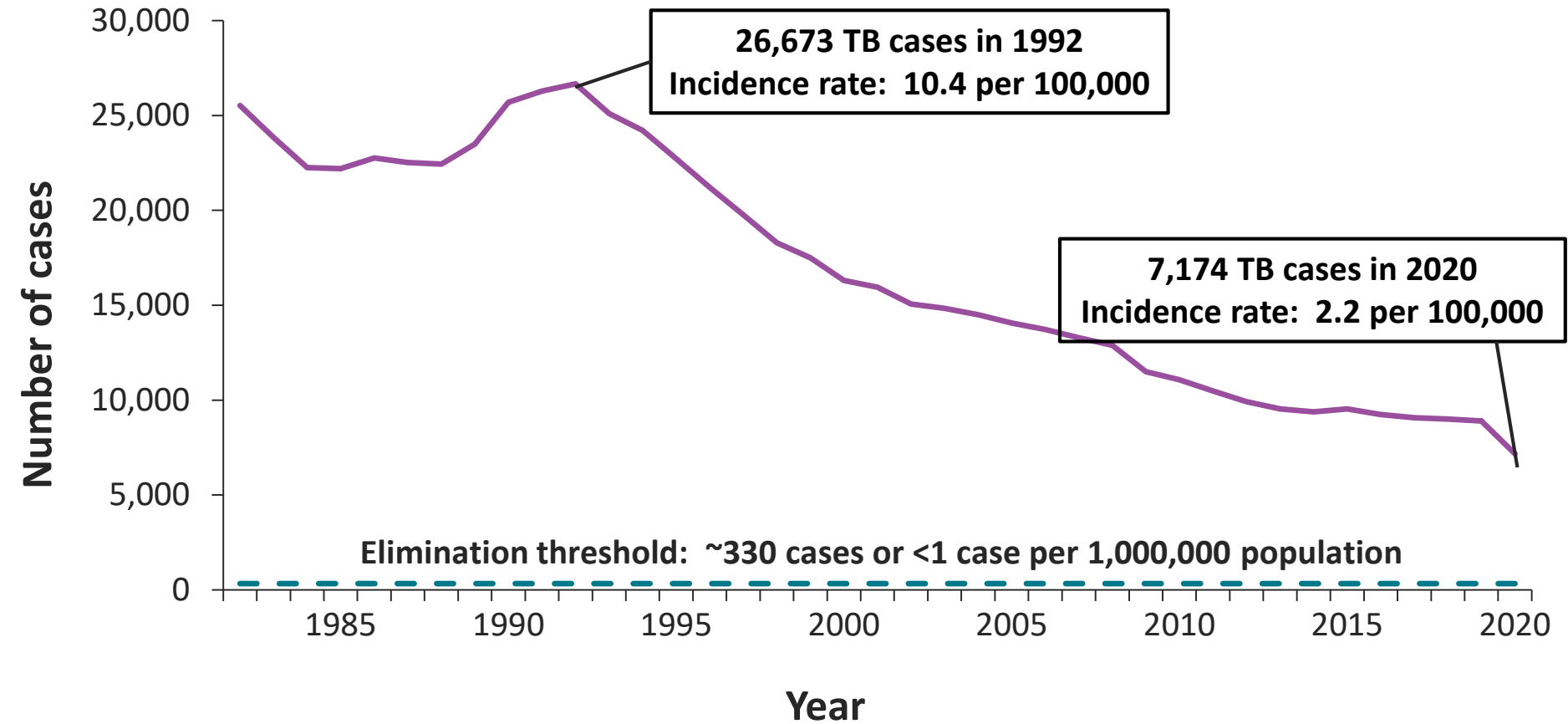


# Five States with the Highest Percentages of TB Cases Diagnosed Among Correctional Facility\* Residents Aged $\geq 15$ Years, United States, 2020



\*Correctional facilities include federal prisons, state prisons, local jails, juvenile correctional facilities, other correctional facilities, or unknown type.

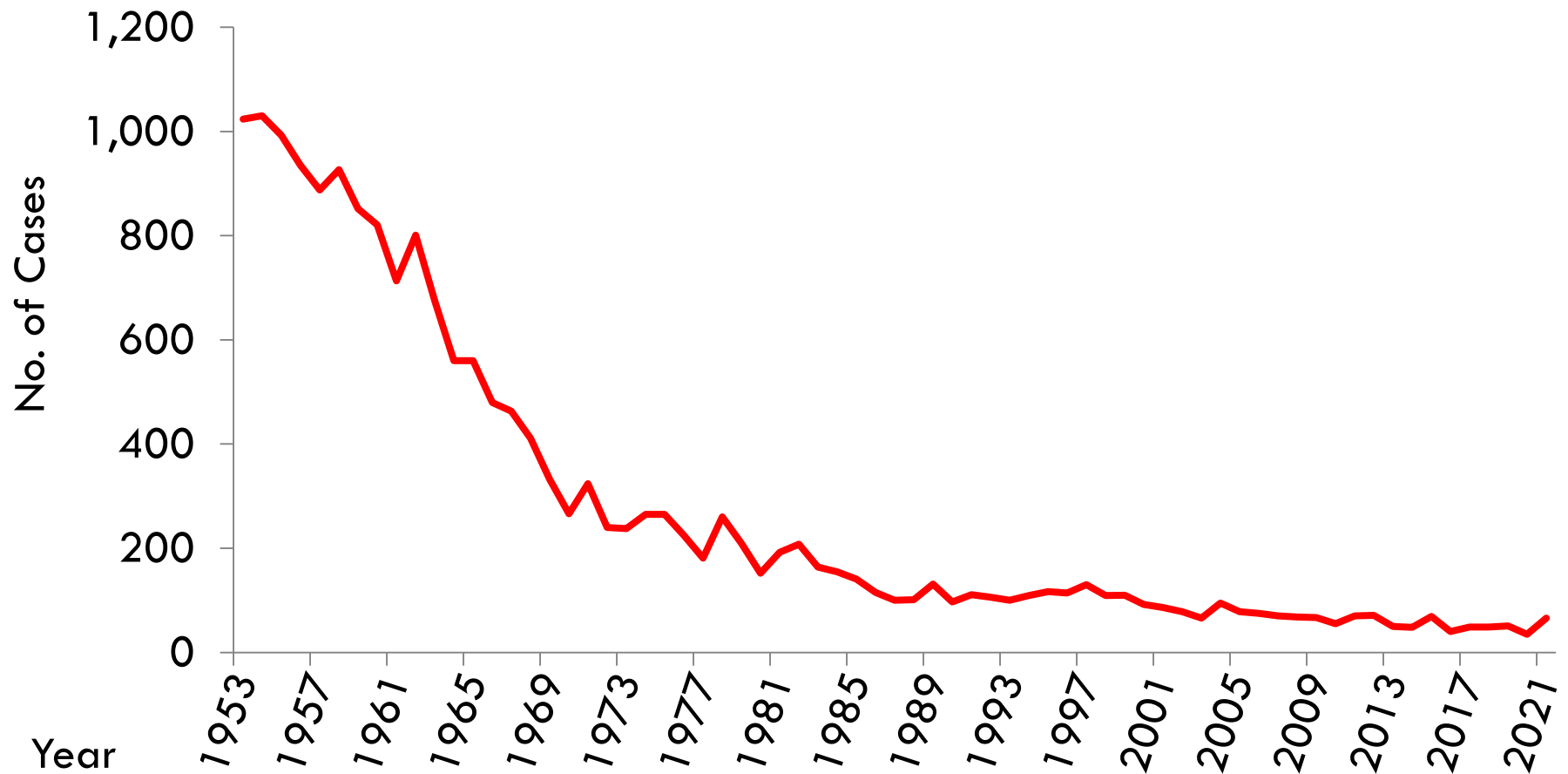
# Progress Towards TB Elimination, United States, 1982–2020



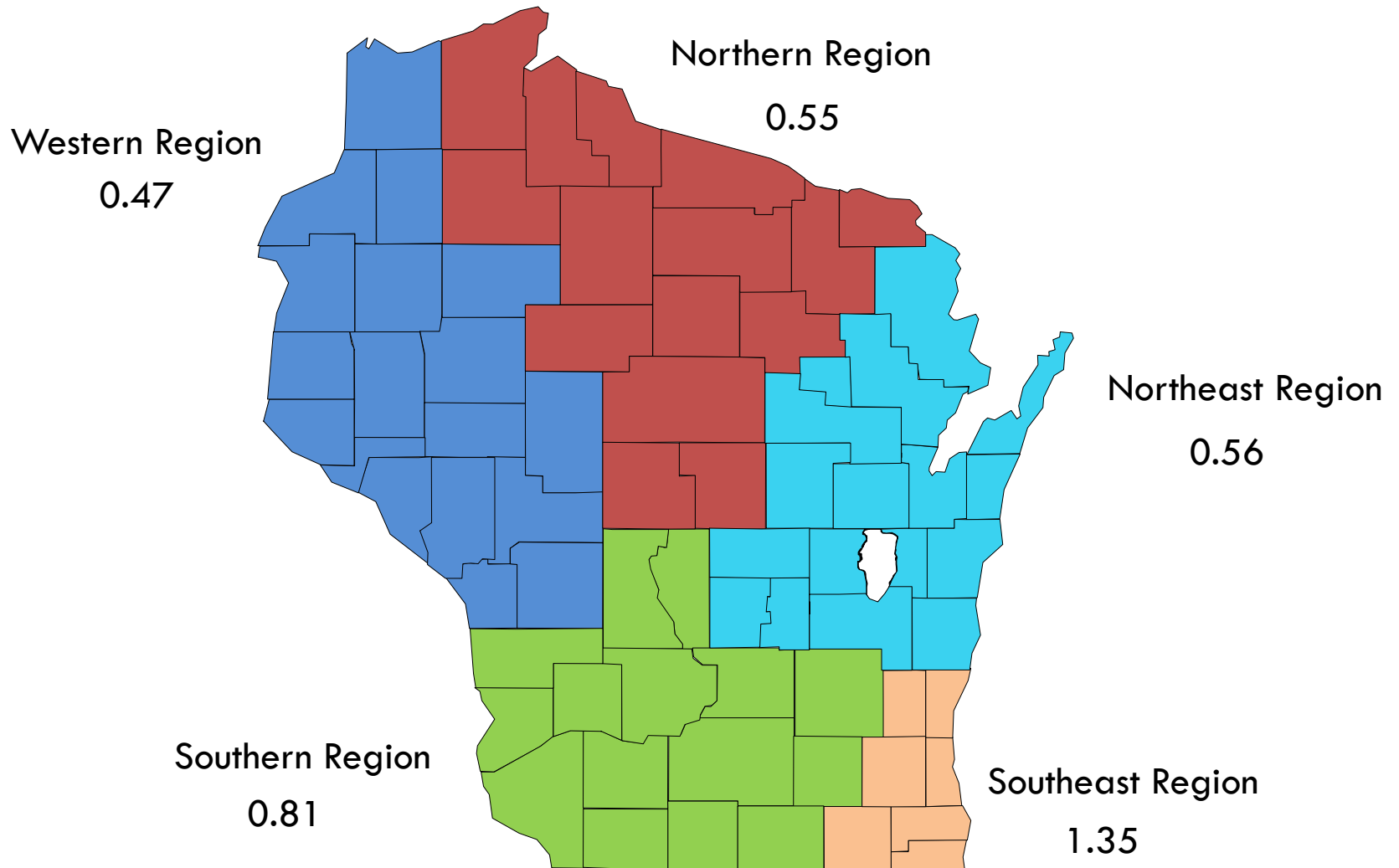


## TB in Wisconsin

# Reported TB Cases Wisconsin, 1953–2021

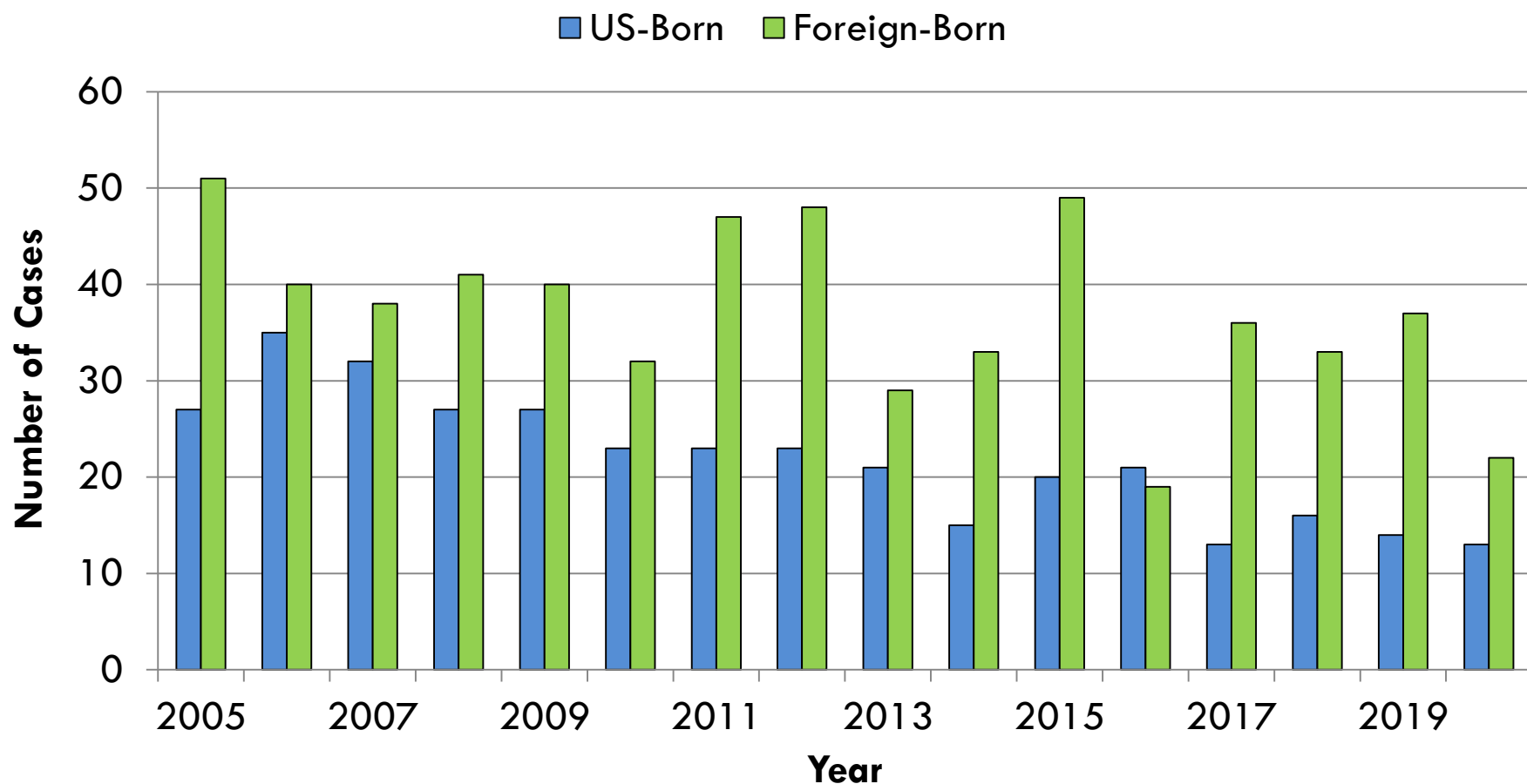


# Average TB Incidence rates by Regions in Wisconsin 2011-2020

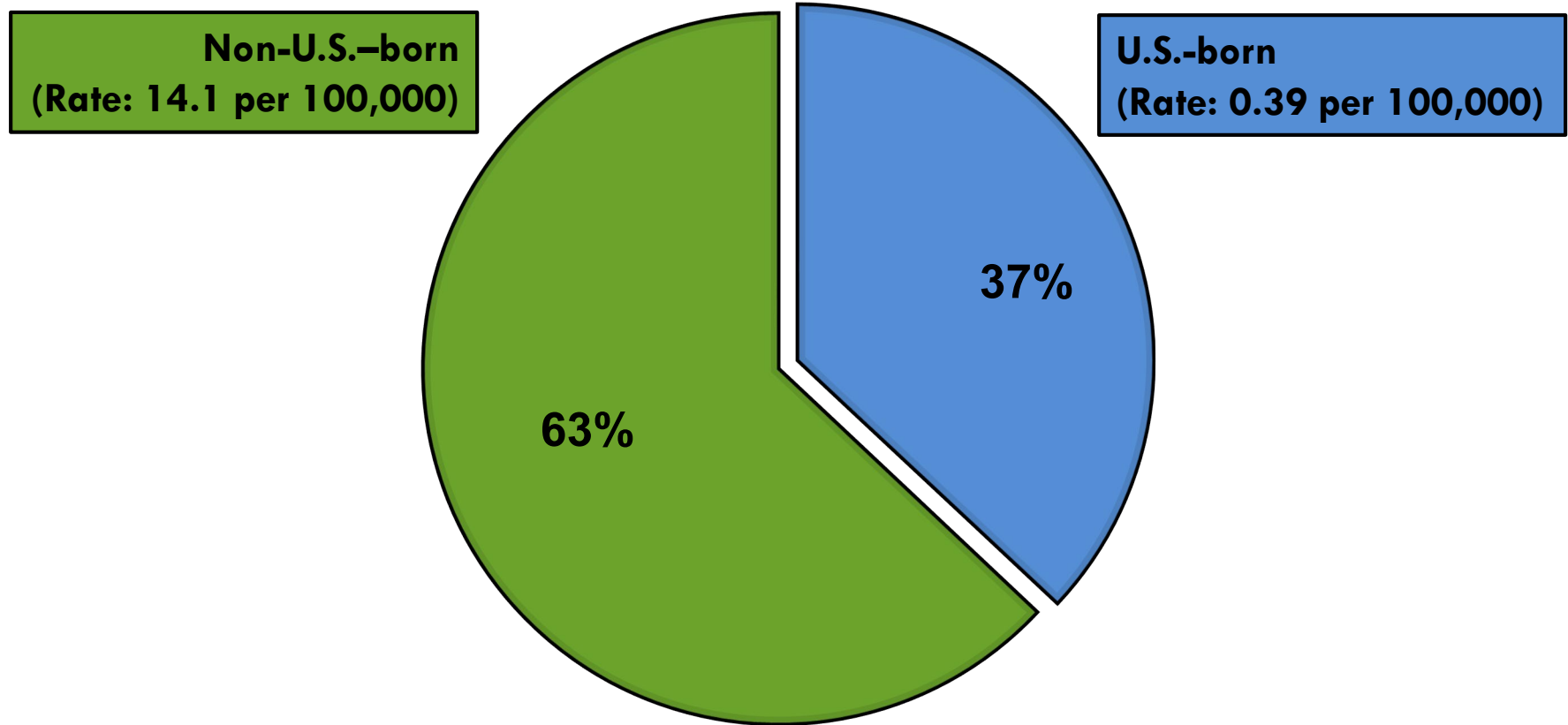




# Number of TB Cases in U.S.-born vs. Foreign-born Persons, Wisconsin, 2005–2020

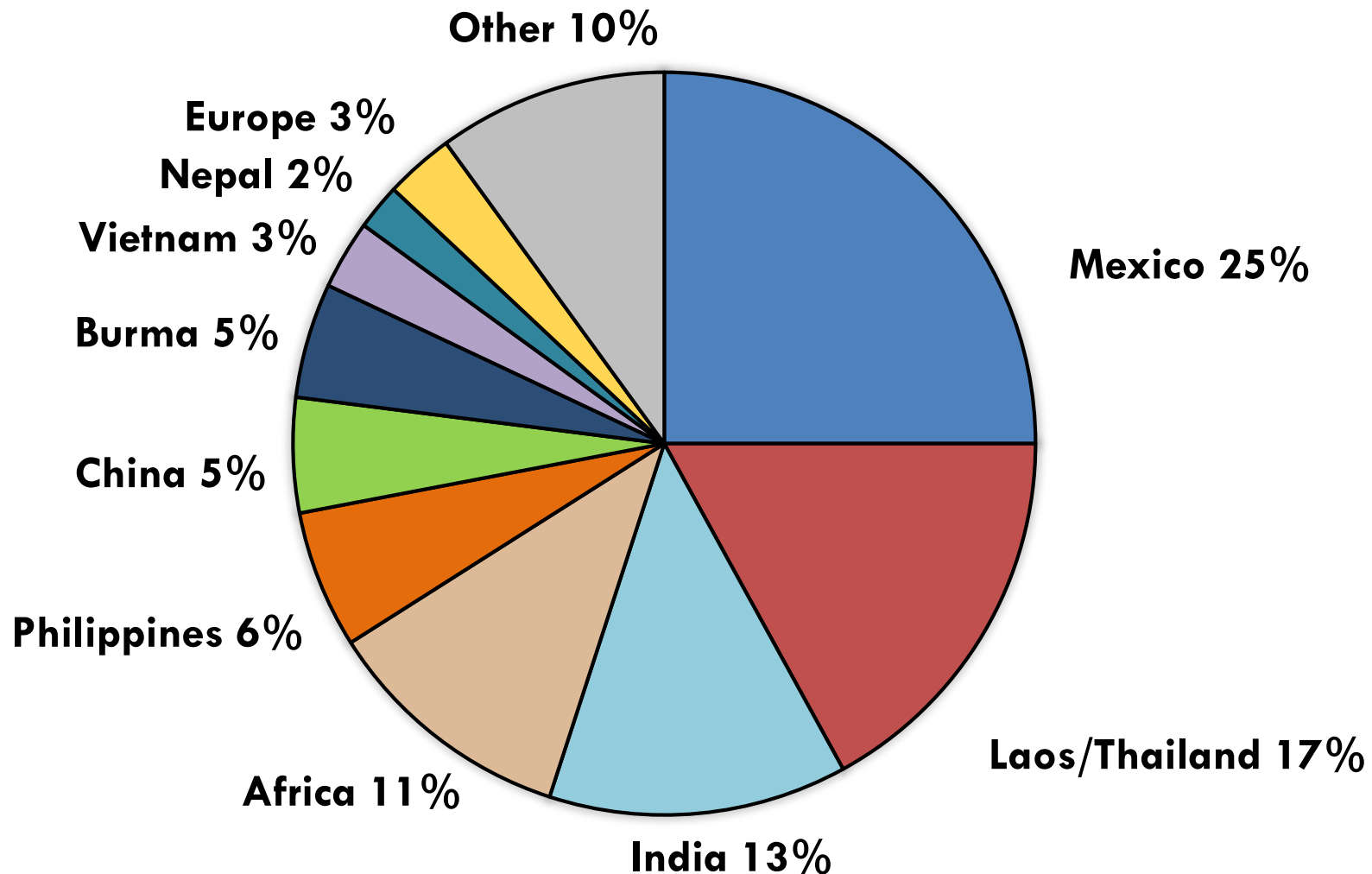


# TB Incidence Rates\* and Percentages by Origin of Birth, Wisconsin, 2005-2020 (N=945)

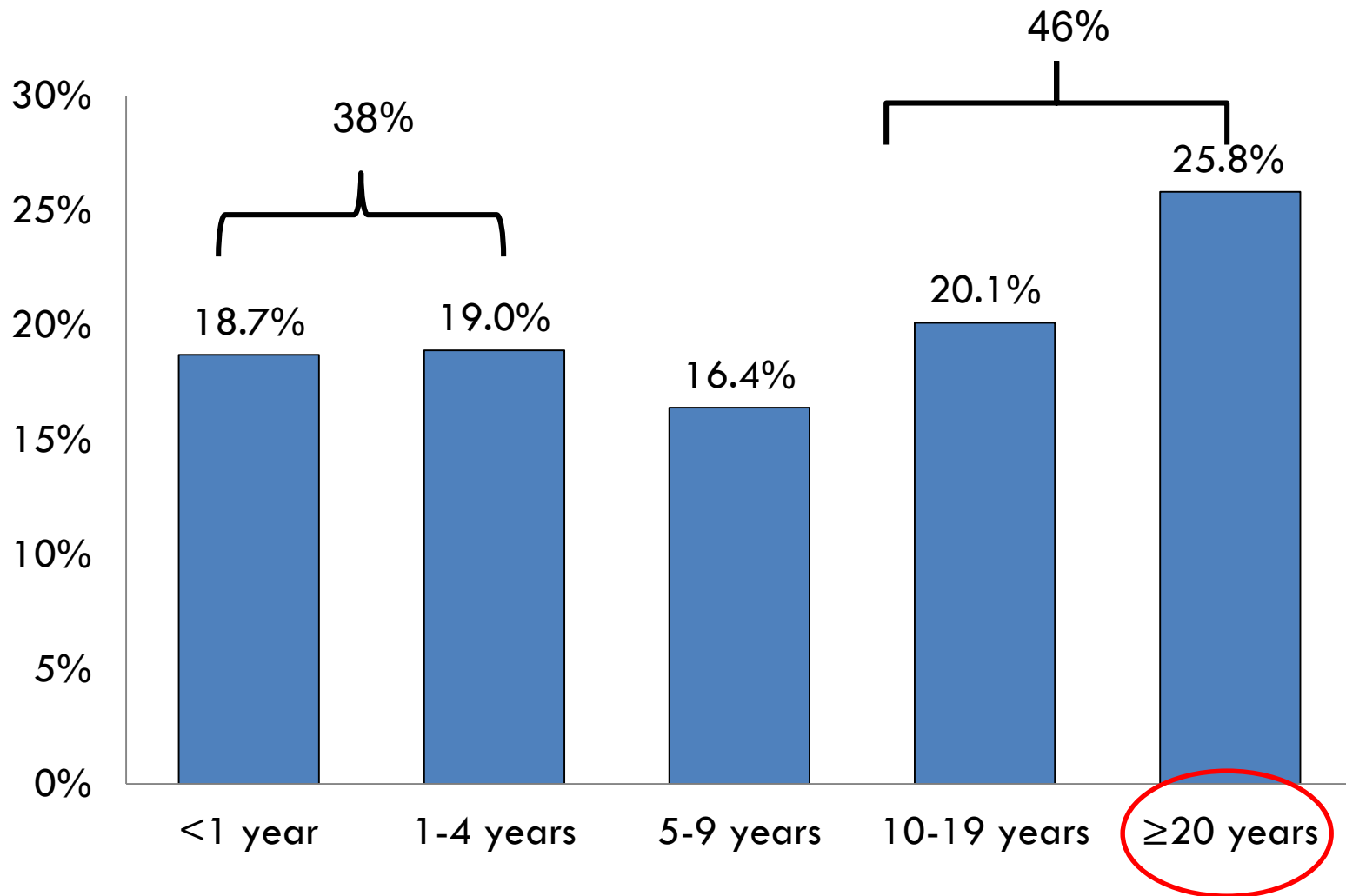


\*Cases per 100,000 persons

# Top Countries of Birth Among Non-U.S.-born Persons with TB, Wisconsin, 2005-2020

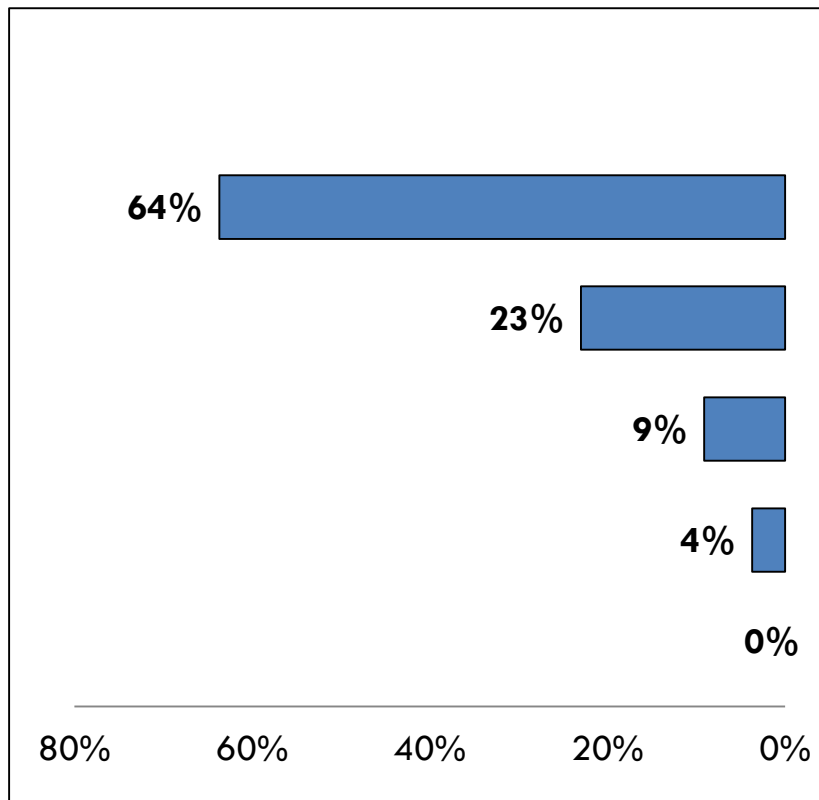


# Percentage of Non-U.S.–Born TB Cases by Time in Wisconsin at Diagnosis, 2011-2020

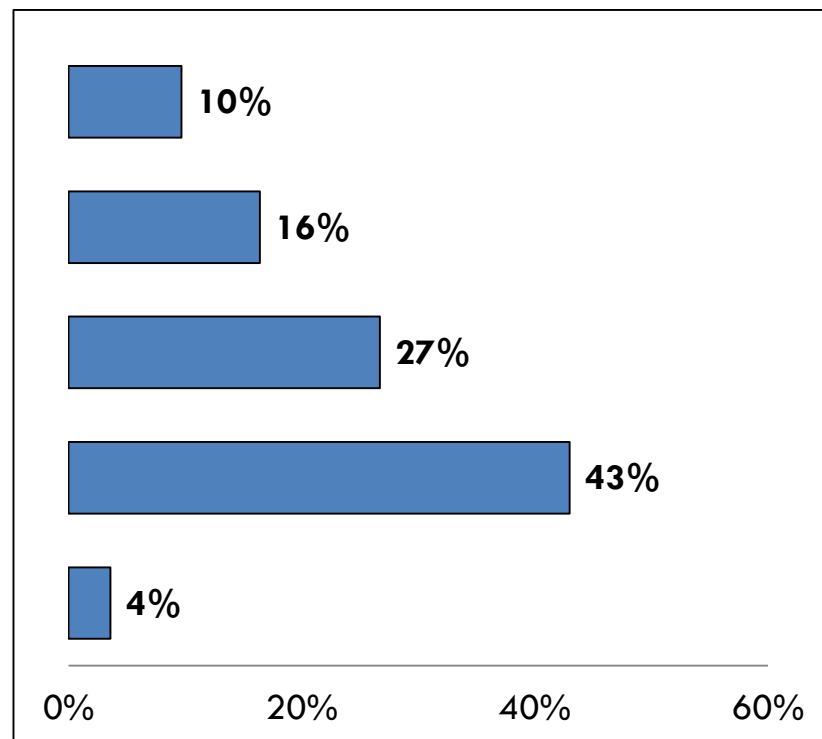


# Reported TB Cases by Origin and Race/Ethnicity Wisconsin, 2011–2020

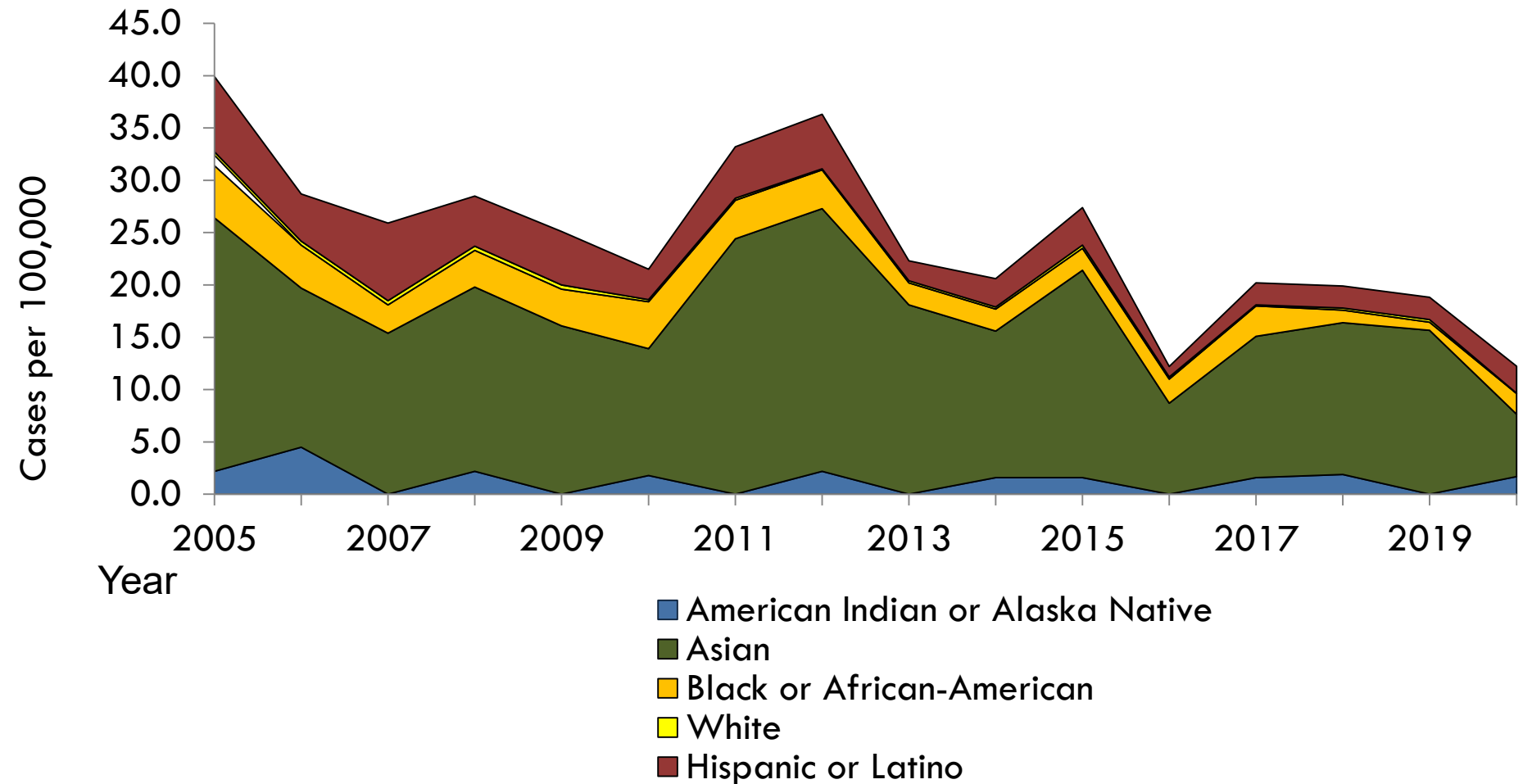
## Non-U.S.—Born persons



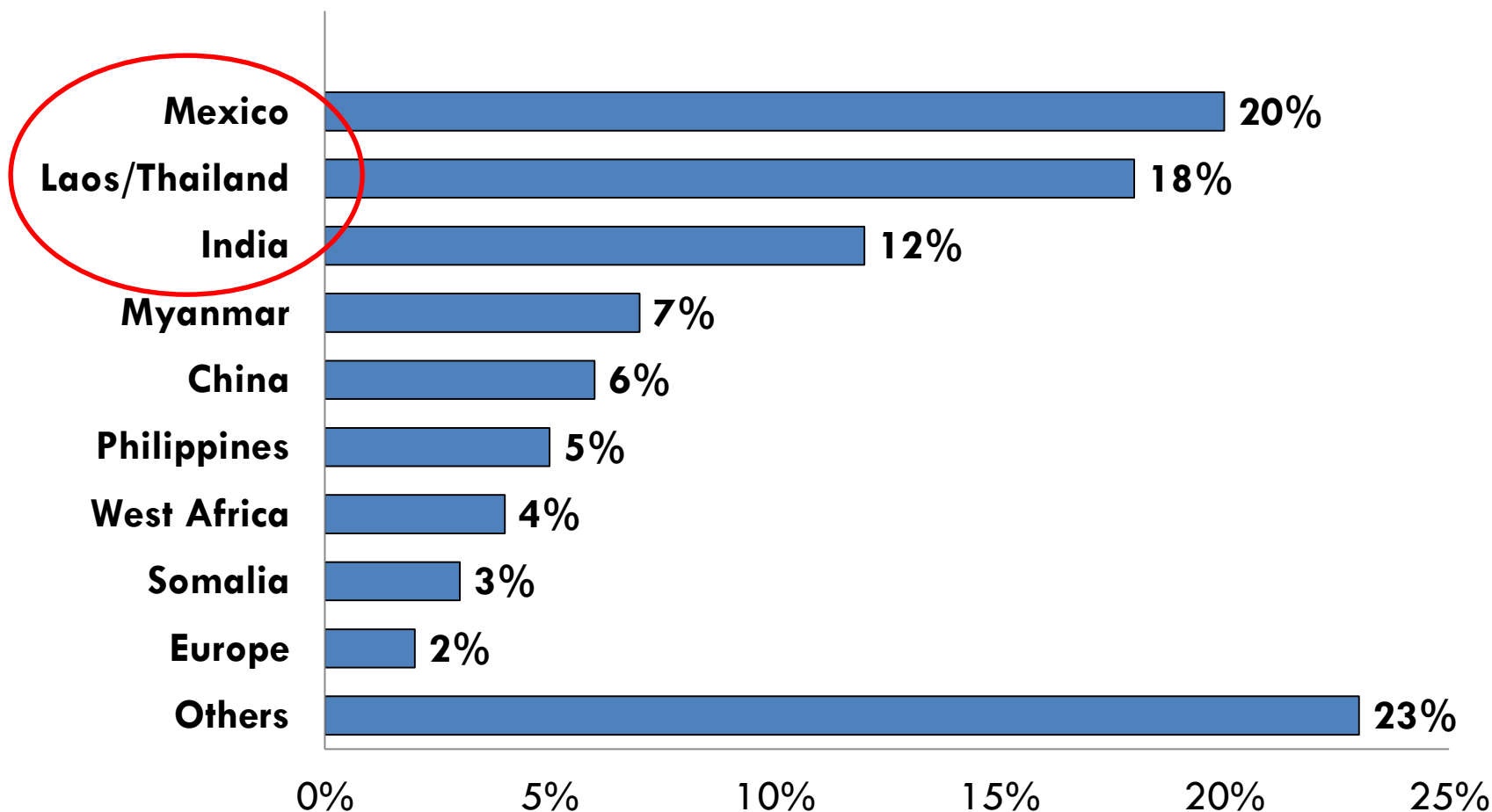
## U.S.—Born persons



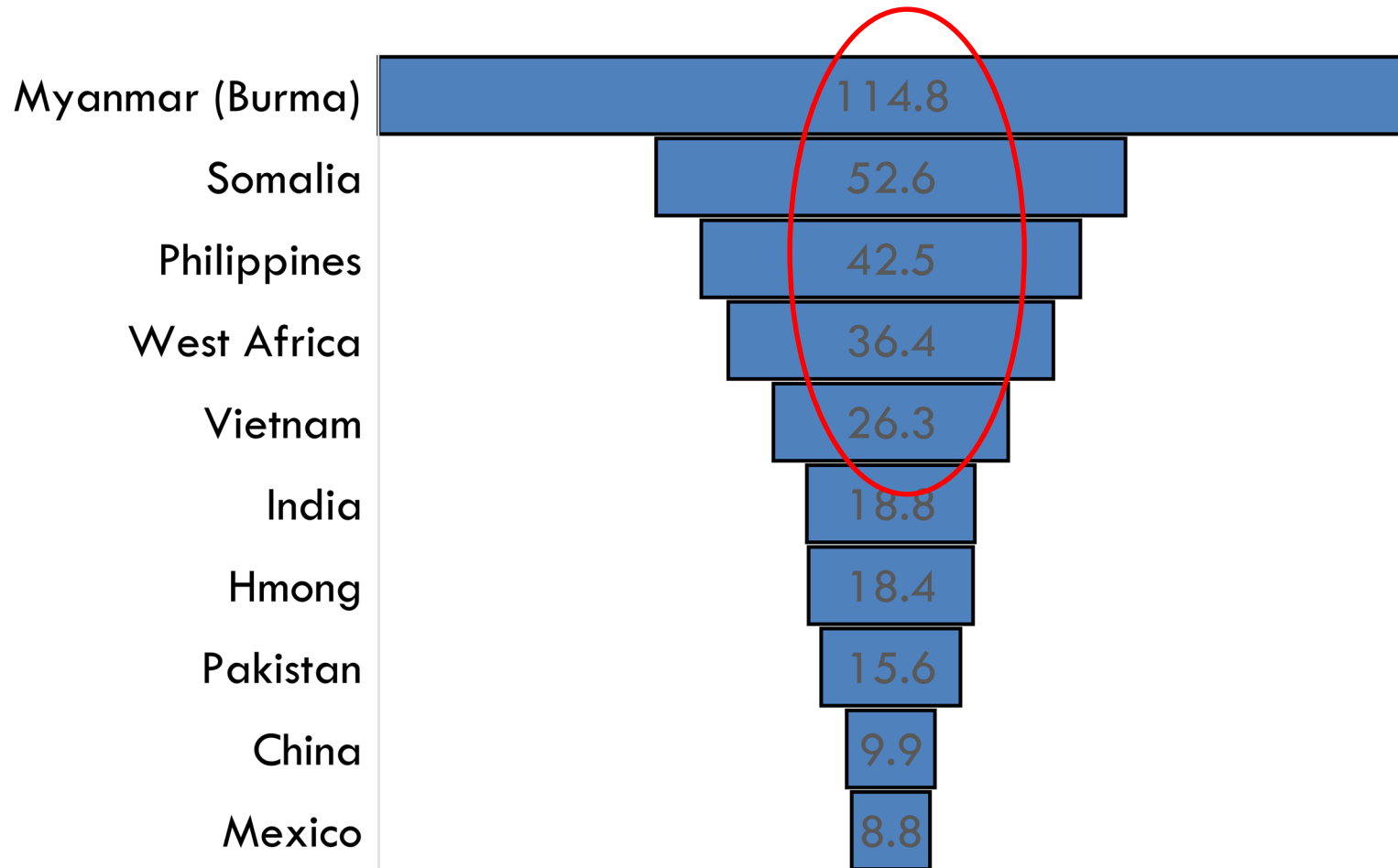
# TB Case Rates by Race/Ethnicity, Wisconsin, 2005–2020



## Countries of Birth Among Non-U.S.—Born Persons with TB Wisconsin, 2011–2020.



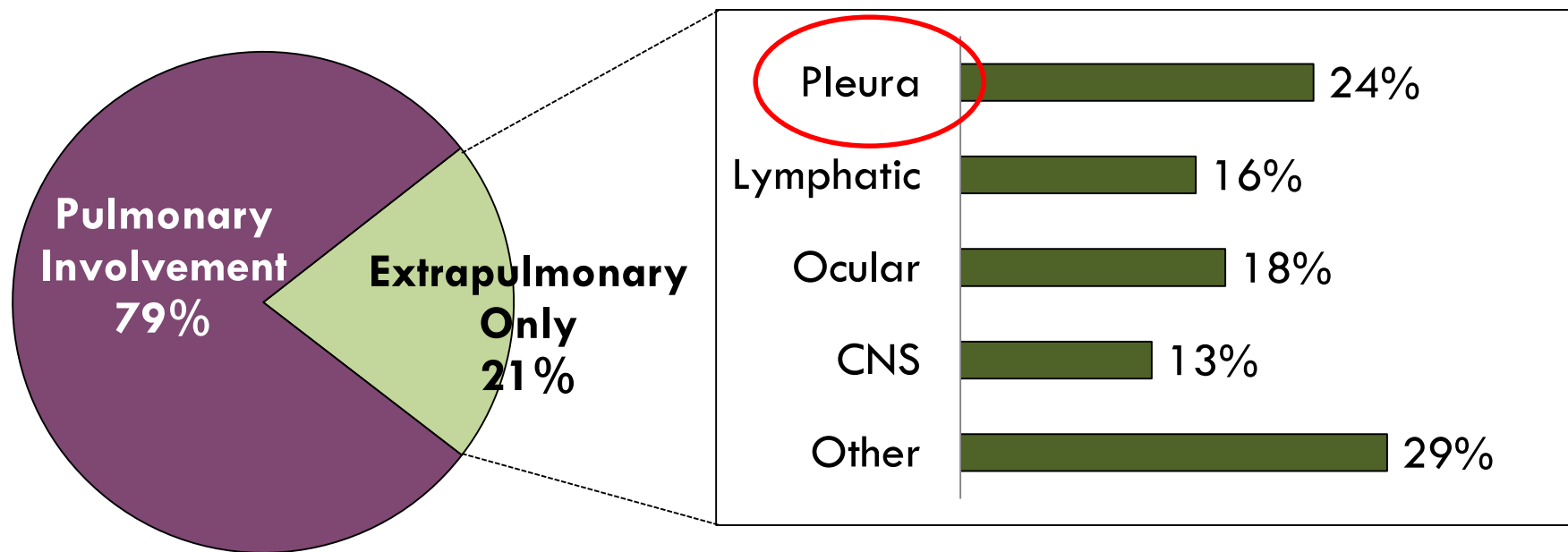
# TB rates for Top 10 Countries of Birth Wisconsin, 2012–2021



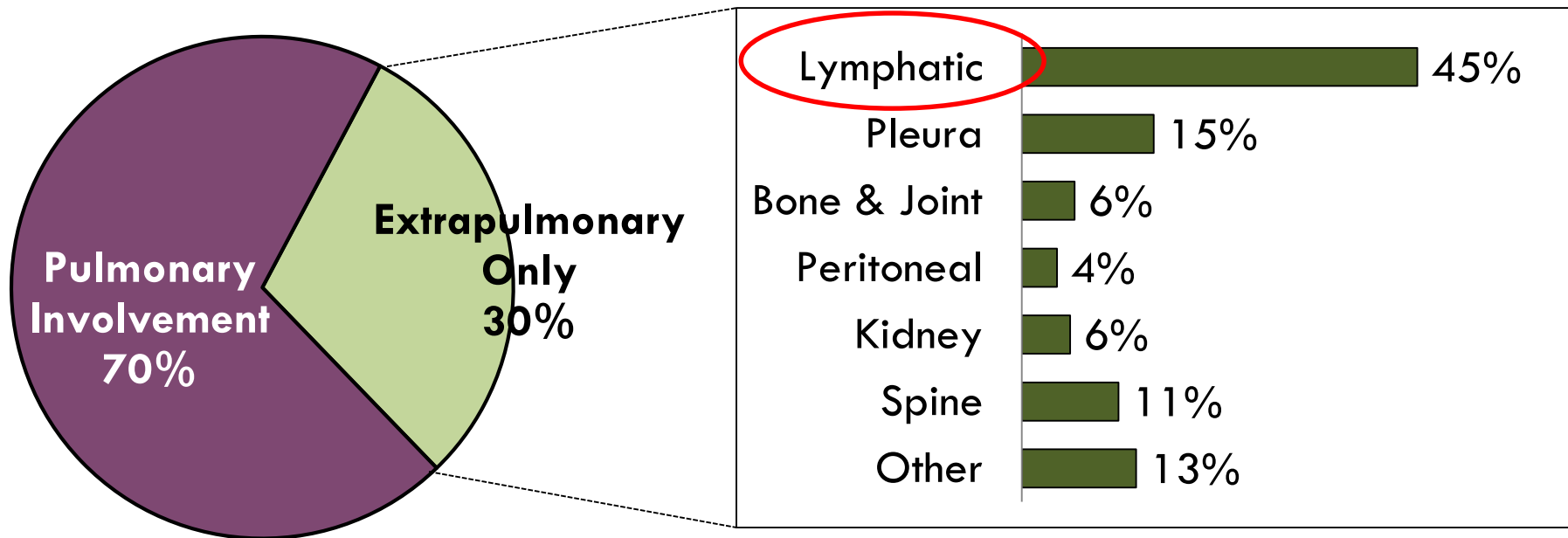


# U.S. TB Cases by Site of Disease

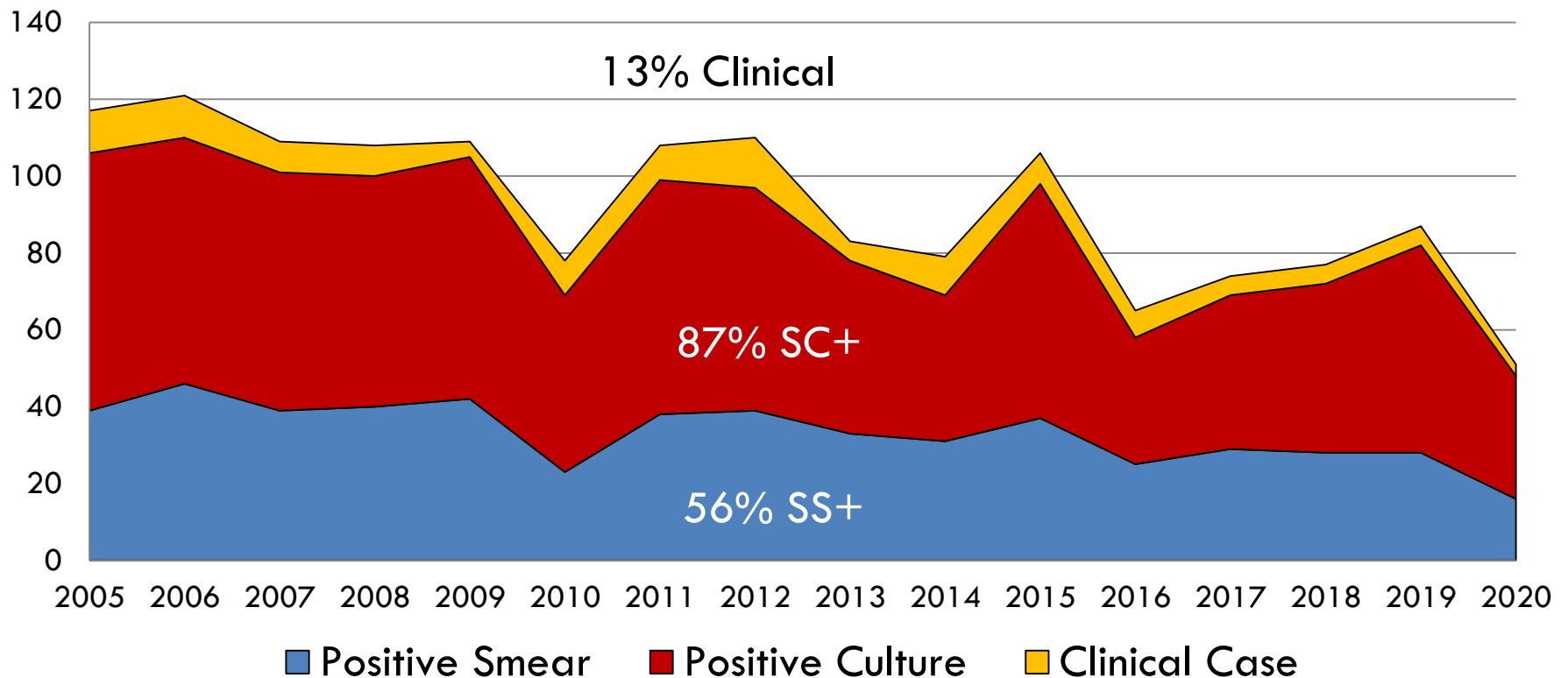
## Wisconsin, 2011–2020



# Foreign—Born TB Cases by Site of Disease Wisconsin, 2011–2020



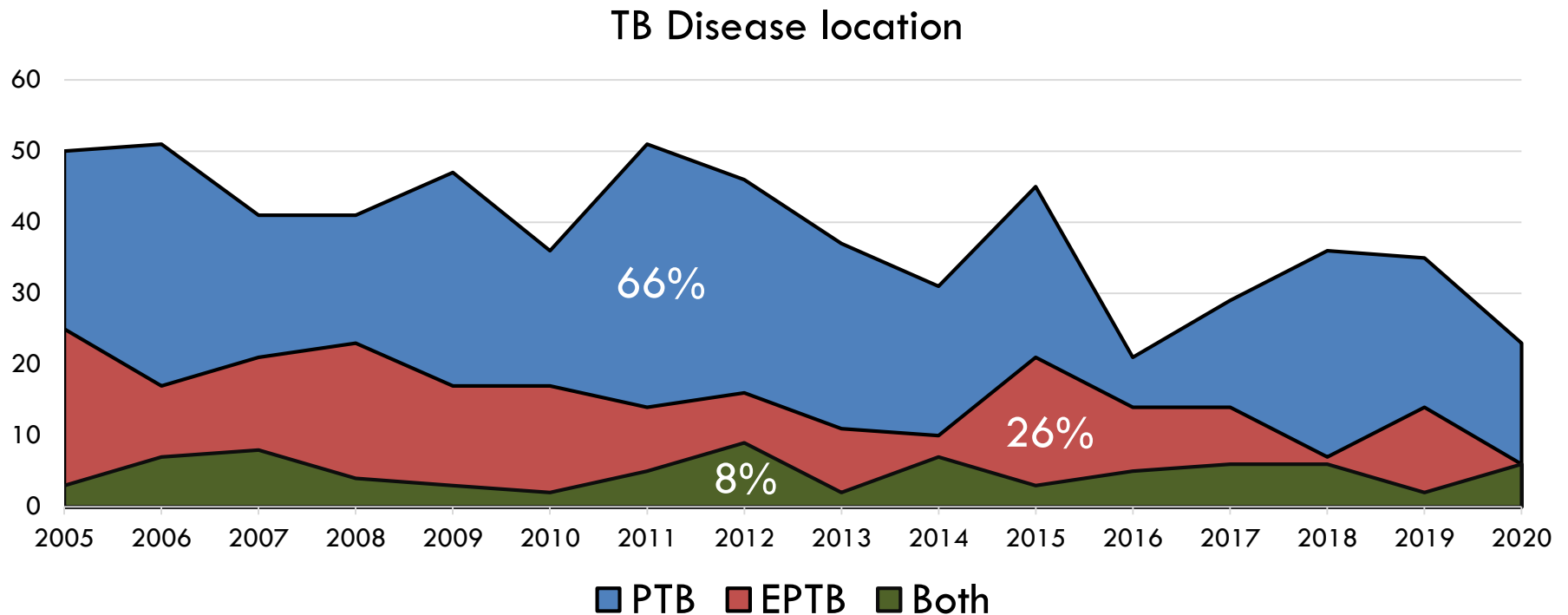
# Number of TB Cases by Case Verification Criteria Wisconsin, 2005–2020



18% SS- and SC+

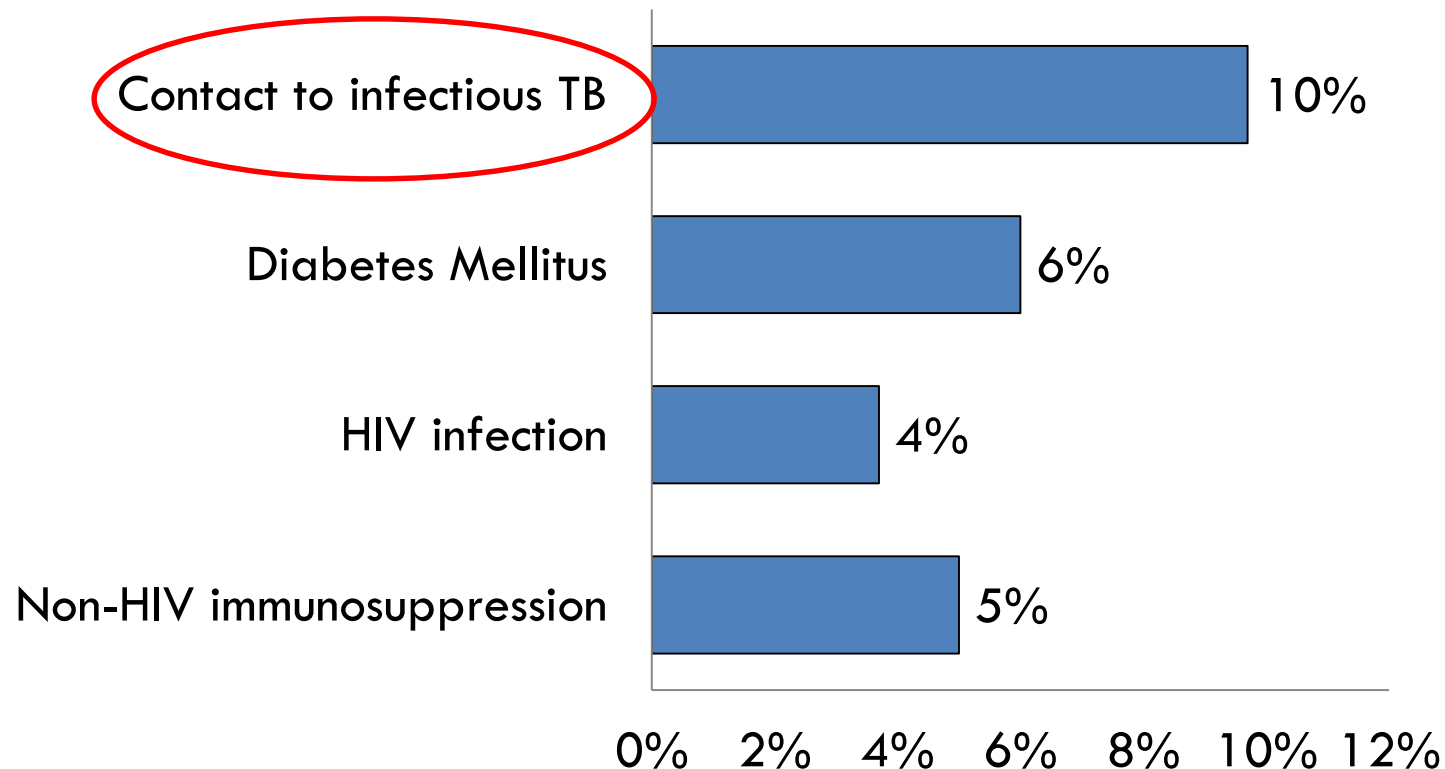
24% both SS+ and SC+

# TB by location in the body- Wisconsin 2005-2020



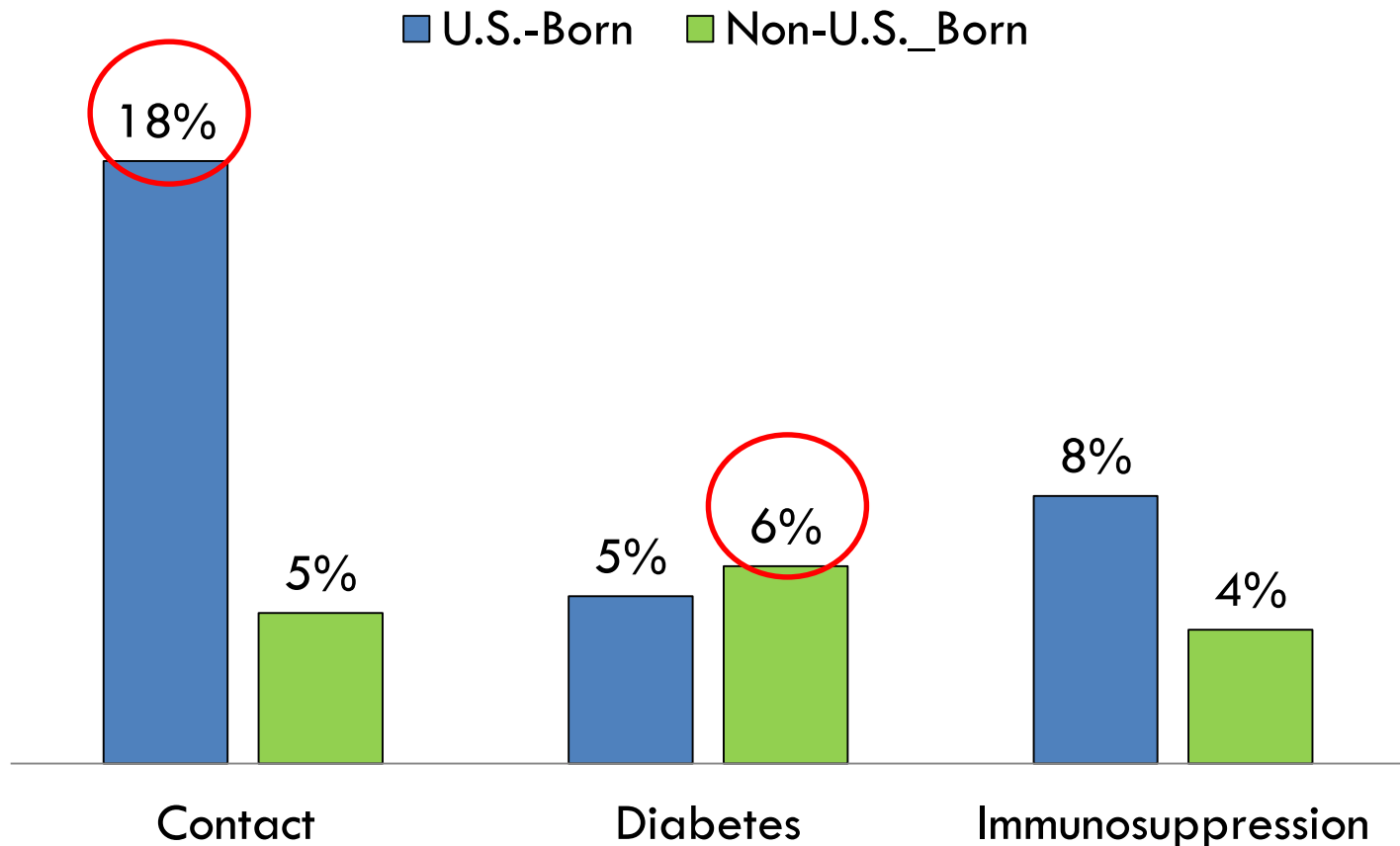
# Reported TB Cases by Risk Factor, Wisconsin, 2005–2020

## Most Common Risk Factors Reported Among TB patients



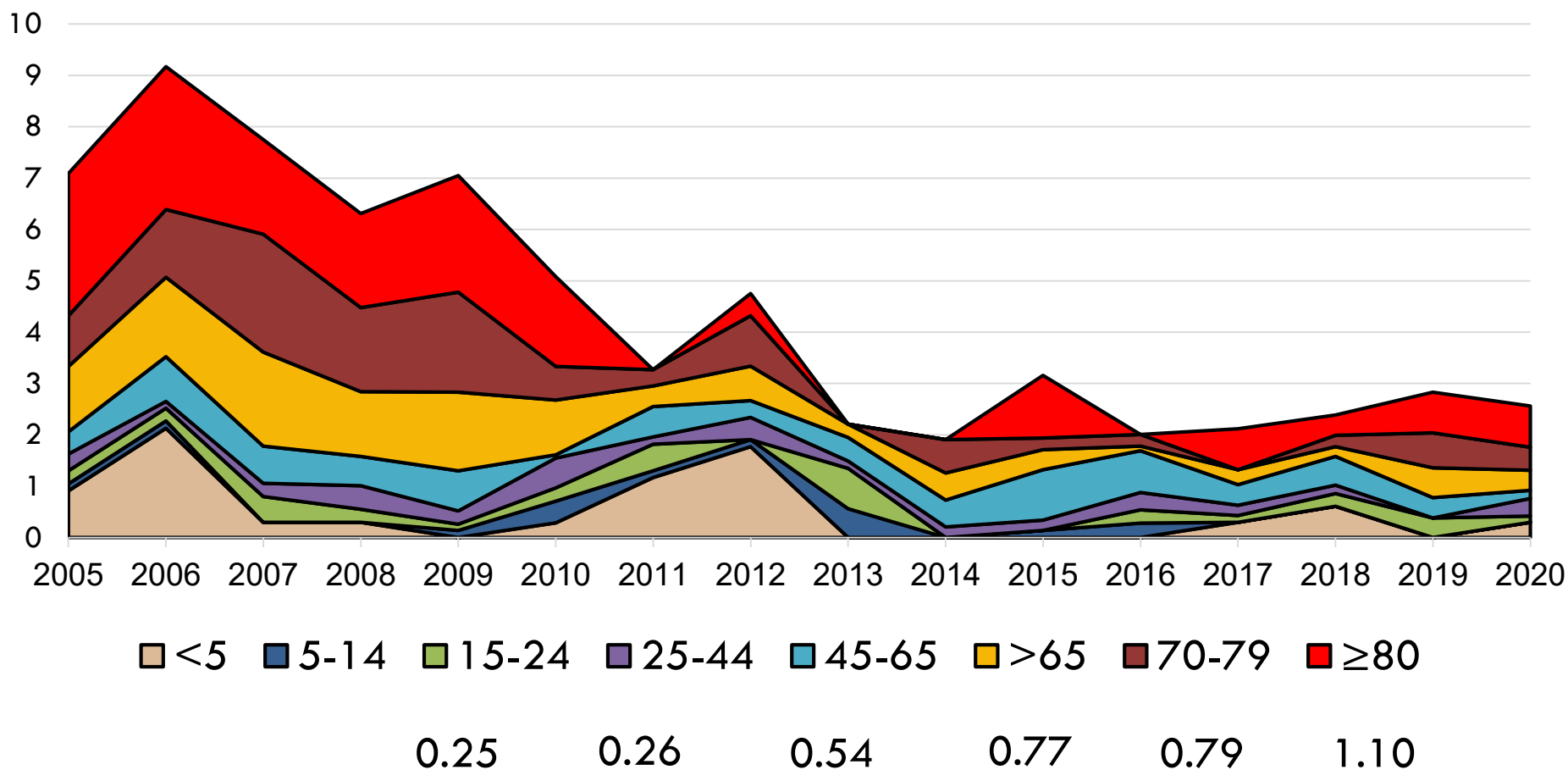
# Reported TB Cases by Risk Factor, Wisconsin, 2005–2020

## Comparison of Selected Risk Factors by Origin of Birth



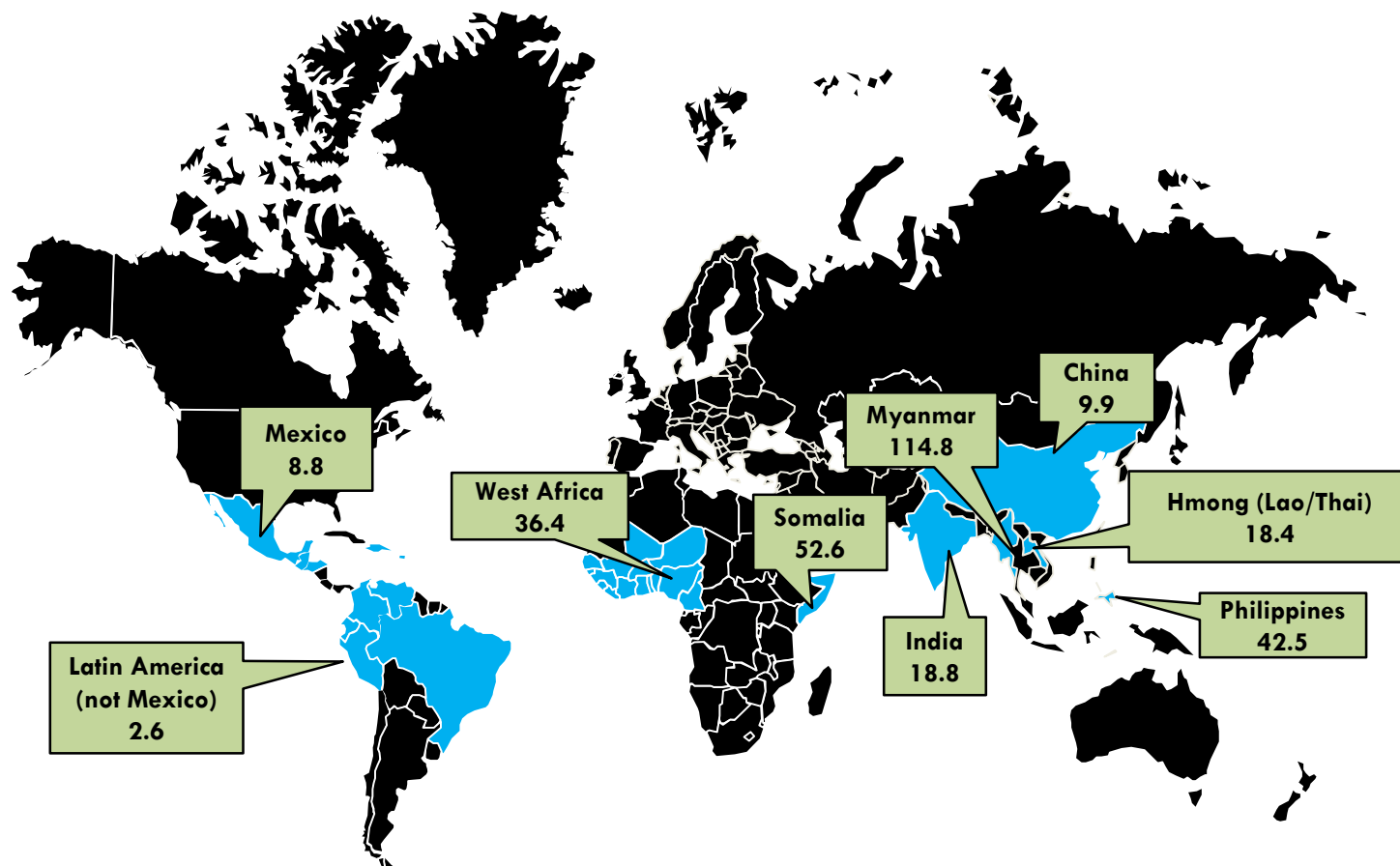
# Who Has TB By Age in Wisconsin 2005-2020?

Wisconsin TB rates in U.S.-Born by Age Group



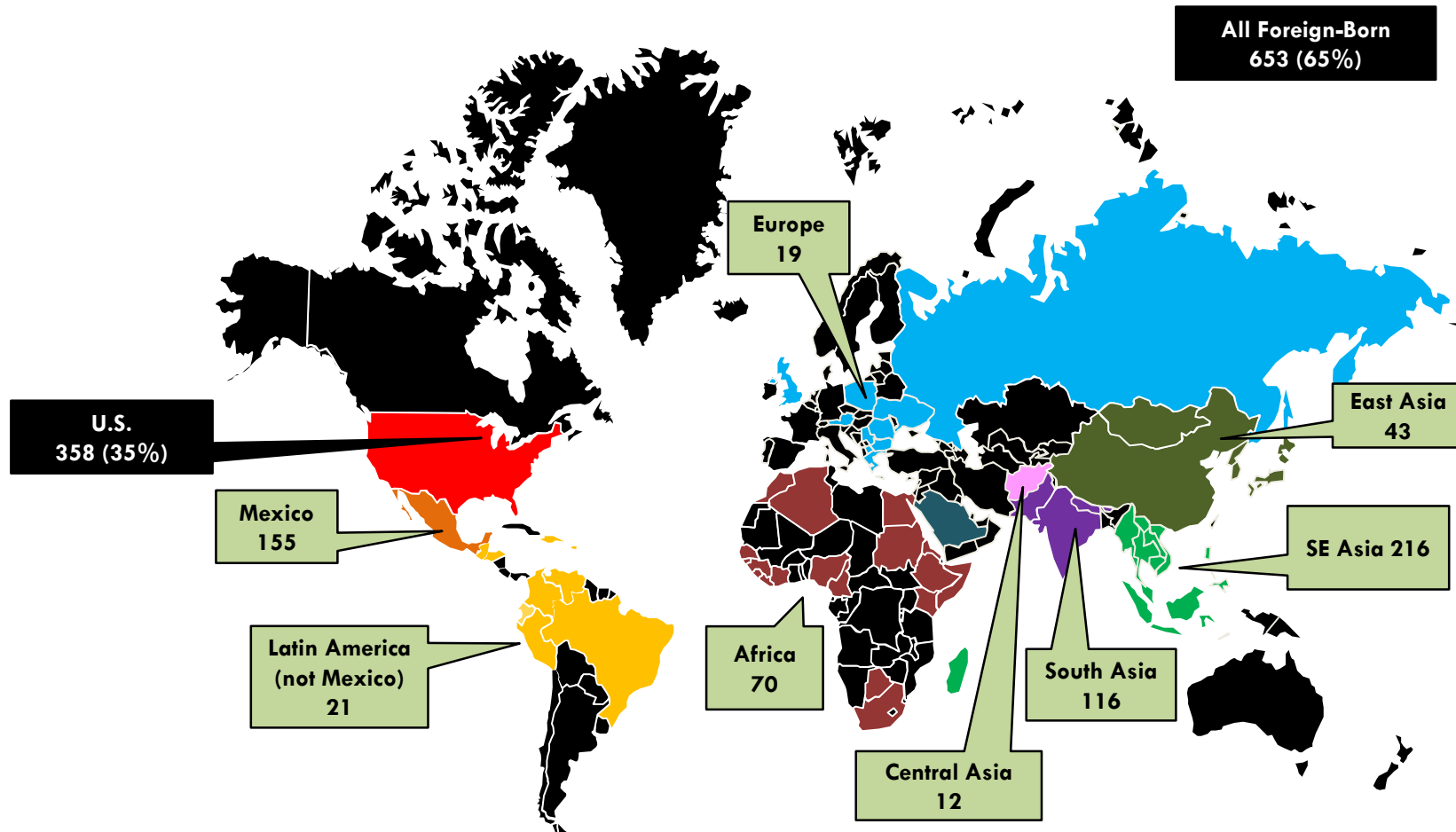
# TB in Selected Wisconsin Populations 2012-2021

## Foreign-Born





# TB in Wisconsin Foreign-Born Populations 2005-2021

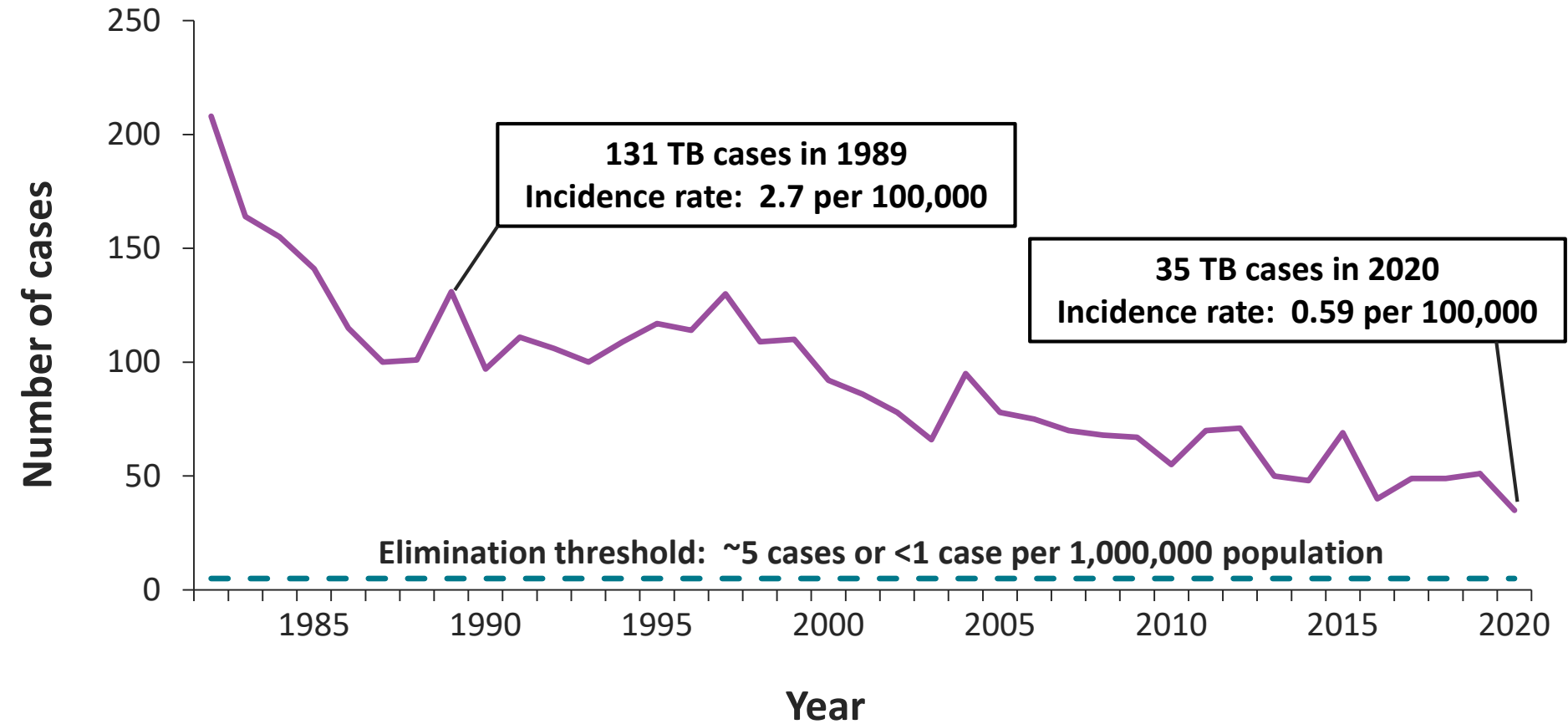


## TB in selected Wisconsin Populations 2012-2021

Rank by rate/100,000		Rank by country of origin Numbers & Rate/100,000			
	Rate/100,000	Country/Location	Number	Country	Rate/100,000
New Refugees*	40.8	Mexico	71	Myanmar (Burma)	114.8
African-born	33.2	Hmong (Lao/ Thai)	69	Somalia	52.6
All Refugees	30.7	India	45	Philippines	42.5
Asian-born	21.7	Philippines	26	West Africa	36.4
<b>Homeless</b>	<b>13.4</b>	Myanmar (Burma)	25	Vietnam	26.3
Foreign-born	12.2	China	18	India	18.8
Latin American	4.9	Vietnam	12	Hmong (Laos/Thai)	18.4
<b>Corrections</b>	<b>3.9</b>	Somalia	10	China	9.9
<b>Long-Term Care</b>	<b>1.2</b>	<b>Corrections</b>	<b>9</b>	Mexico	8.8
All U.S.-born	0.34	<b>Homeless</b>	<b>7</b>	<b>U.S.-born (African-American)</b>	<b>1.4</b>
U.S.-born (White)	0.14	<b>Long-Term Care</b>	<b>3</b>	<b>U.S.-born (Native American)</b>	<b>1.3</b>

\* New refugee is defined as a refugee diagnosed with TB within 5-years of arrival into the U.S.

# Progress Towards TB Elimination, Wisconsin, 1982–2020





Questions?