TUBERCULOSIS IN SEATTLE & KING COUNTY

2023 PROGRAM SUMMARY

Public Health
Seattle & King County

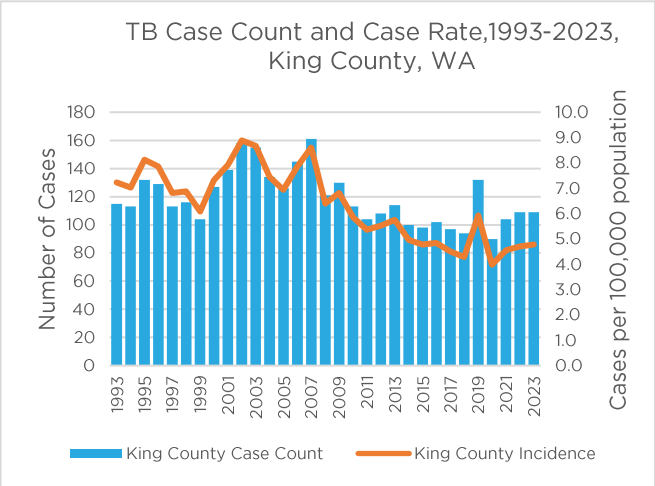
TB CONTROL PROGRAM

The mission of the TB Control Program is to prevent the transmission of tuberculosis (TB) within Seattle-King County.

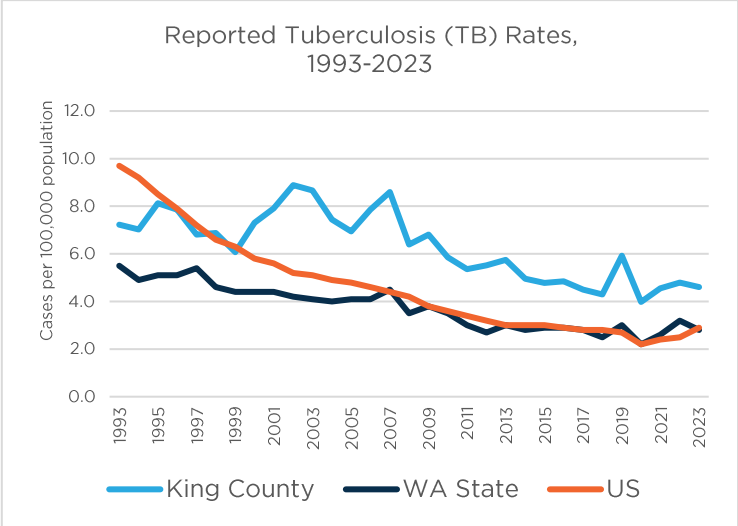
The Public Health Seattle-King County TB Control Program views TB control as a multi-disciplinary, public-private partnership, collaborating with other local, state, and national organizations. With this deep-rooted collaboration, it provides residents, workers, and students of King County with the best available prevention and treatment services.

The TB Control Program is mandated by Washington State law to perform public health functions related to surveillance, epidemiologic analysis, and contact tracing.

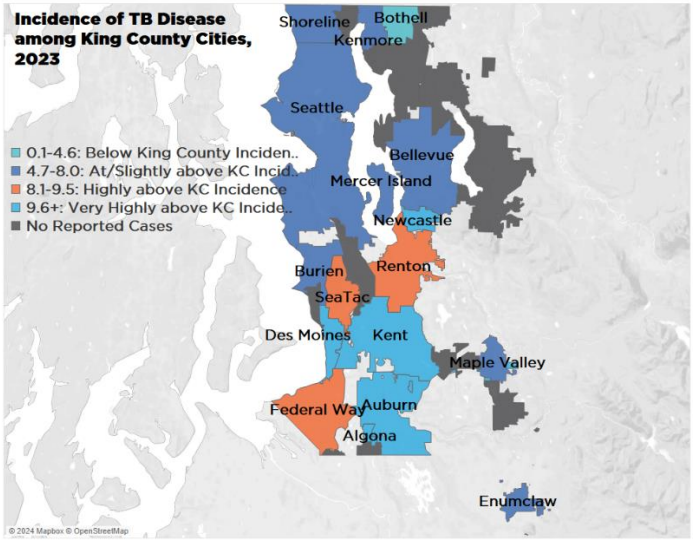
2023 EPIDEMIOLOGY HIGHLIGHTS



In 2023, a total of 109 patients with active TB disease were reported in King County, which is slightly lower compared to 2022 (n=111). In 2023, the incidence rate was 4.6 TB cases per 100,000 people which was higher compared to both the state (2.8 per 100,000) and national (2.9 per 100,000) incidence rates for 2023. Since 2020, there has been a trend of increased case reporting.



In 2023, South King County cities (Kent, Des Moines, Auburn & Algona) had over double the incidence rates (≥ 9.6 cases per 100,000 people) compared to the King County average of 4.6 cases per 100,000. This is significant as these South King County Cities were the majority of cities reporting very highly above King County incidence rates in 2023.



TB-RELATED DEATHS

In 2023, there were 9 deaths among the TB patients related to TB or complications of TB treatment, increased from the previous two years (4 deaths per year). The vast majority of TB patients who died had high clinical complexity (concurrent cardiovascular and/or serious hematologic conditions) and 7 of them were age ≥ 65 years.

GENDER AND AGE

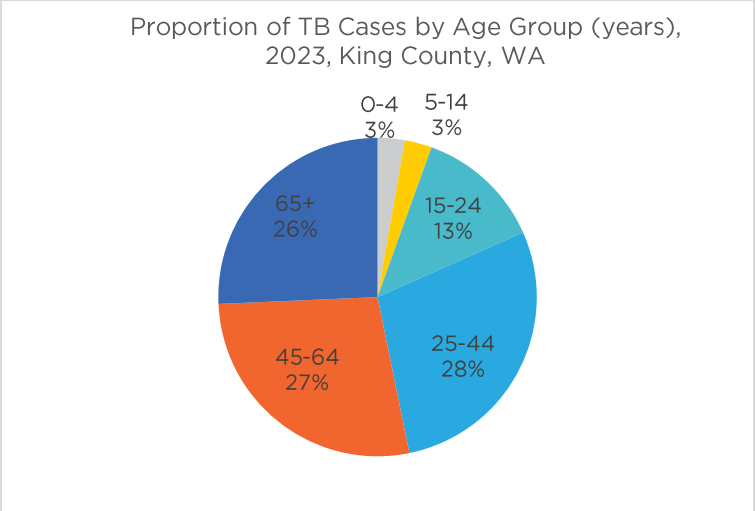
In 2023, the incidence rate for males was 5.7 per 100,000 and the incidence rate for females was 3.9 per 100,000. This fits the historical trends, as males typically have a greater incidence than females.

In 2023, the age range of patients was between 0 to 92 years, with a median age of 46 years and an average age of 48 years. This is consistent with the 5-year average for both mean and median age from 2019-2023.

Table 1: Mean and Median Age of TB Cases 2019-2023, King County, WA

Year	Mean Age	Median Age
2019	49	46
2020	44	42
2021	46	40
2022	46	45
2023	48	46

See the pie chart for case distribution among different age groups in 2023.



- ## PEDIATRIC TB:

In 2023, King County had six cases reported in children (age range: 0-14 years). This was 6% of the total TB cases. For reference, the 5-year average of cases in this age group from 2019-2023 was 3.8%.

- ## TB IN OLDER ADULTS:

Males in the 65 and older age group, had the highest incidence rate at 13.1 cases per 100,000 people. Overall, this age group had the highest incidence rate at 8.3 cases per 100,000 in comparison to all the other age groups. In 2023, King County had 28 cases reported in older adults aged ≥ 65 years. This was 26% of the total TB cases and is consistent with previous years. For reference, the 5-year average for older adults aged ≥ 65 years in King County from 2019-2023 was 23%.

RACE AND ETHNICITY

In 2023, Asians had the highest proportion of cases at 45% with an incidence rate of 9.7 per 100,000. This is consistent with the 5-year average of 51% for this race group from 2019-2023. This was followed by Black or African Americans at 25% of TB King County cases with an incidence rate of 16.1 per 100,000. This is consistent with

the 5-year average of 24% for this race group from 2019-2023.

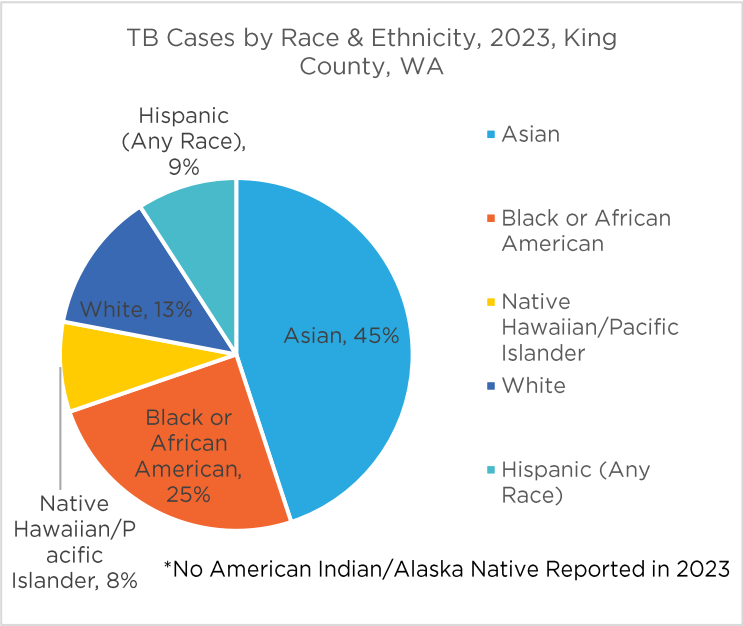


Table 2: Proportion of Race and Ethnicity of TB Cases 2019-2023, King County, WA

Race and Ethnicity	2019	2020	2021	2022	2023
Asian	55%	45%	59%	49%	45%
Black or African American	22%	24%	25%	22%	25%
Native Hawaiian/Pacific Islander	3%	6%	2%	10%	8%
White	11%	10%	5%	5%	13%
American Indian/Alaska Native	1%	1%	1%	0%	0%
Hispanic (Any Race)	8%	14%	9%	15%	9%

PLACE OF BIRTH

About half of cases born outside the US came from five countries: Vietnam, Philippines, Ethiopia, India, and Mexico.

TB historically disproportionately affects individuals that were born outside of the US. In 2023 in King County, 8% of reported TB cases were US-born while 92% of reported TB cases were non-US-born and is consistent with previous years. For reference, the 5-year average of US born from 2019-2023 was 11% and non-US born was 89%,

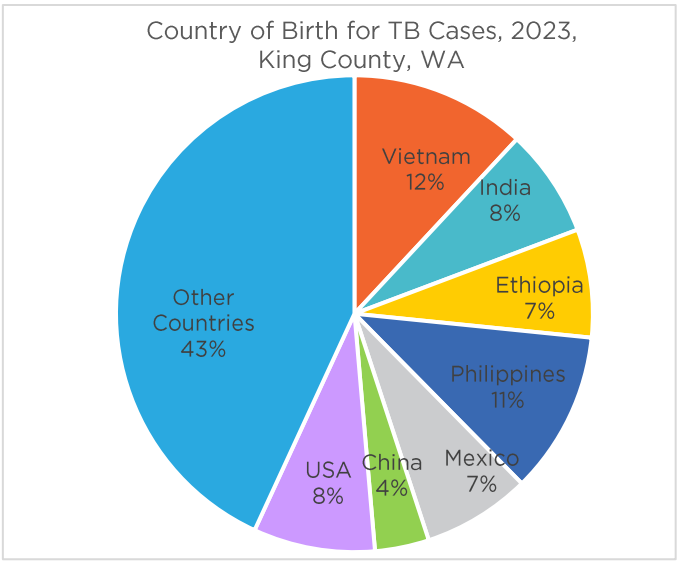
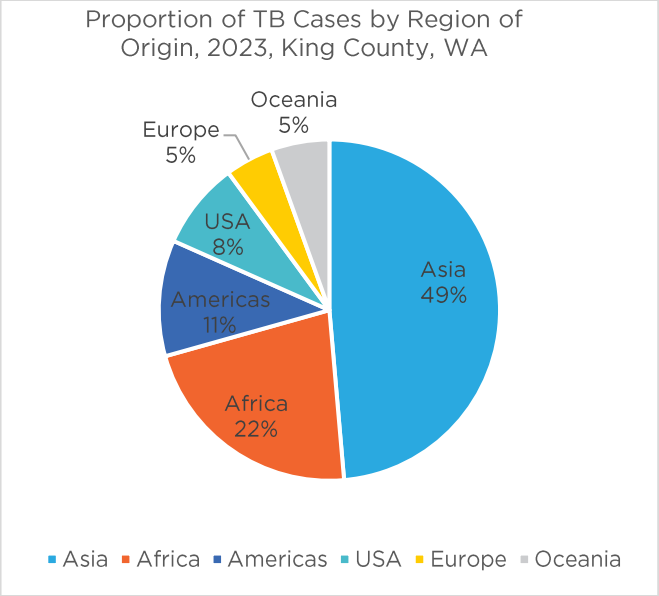


Table 3: Country of Birth for TB Cases 2019-2023, King County, WA

Country	2019	2020	2021	2022	2023
USA	13%	13%	7%	14%	8%
China	5%	3%	8%	5%	4%
Mexico	4%	9%	8%	6%	7%
Philippines	12%	9%	10%	7%	11%
Ethiopia	7%	10%	14%	7%	7%
India	16%	17%	14%	8%	8%
Vietnam	9%	11%	8%	15%	12%
Other Countries	34%	28%	31%	38%	43%

Of the 92% of cases reported in King County in 2023 that were non-US-born, the majority of cases were born in either Asia (49%) or Africa (22%). This is consistent with previous years in regard to region of origin.



COMORBIDITIES AND RISK FACTORS

HIV is an important and crucial medical risk factor that the CDC tracks for TB patients. In 2023, the CDC reported that 5% of TB patients had HIV. 90% of King County cases (98 patients) were tested for HIV infection, and of those, four patients (4%) had a positive result for HIV. For reference, the 5-year average from 2019-2023 in King County for TB patients was 4%.

Diabetes mellitus is also a risk factor for progression to active TB disease and was the most commonly reported comorbidity in 2023 (32 cases, 29%). For reference, the 5-year average from 2019-2023 in King County was 23%.

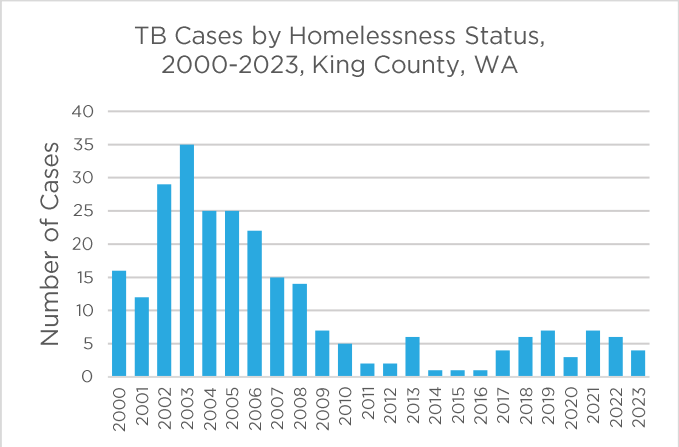
Table 4: HIV and Diabetes Status for TB Patients 2019-2023, King County, WA

Risk Factor	2019	2020	2021	2022	2023
HIV	3%	6%	4%	4%	4%
Diabetes	14%	22%	29%	19%	29%

TB AND PEOPLE EXPERIENCING HOMELESSNESS

A large outbreak occurred among people experiencing homelessness in 2002 and 2003 with a total of 64 active TB cases, and a single virulent strain was responsible for 66% of the cases. This strain is still observed in King today.

Given this historical context, and health disparities present among the people experiencing homelessness, we closely monitor TB in this population. In 2023, there were four cases among King County residents experiencing homelessness.



DRUG RESISTANCE

Of the 82 TB cases with drug susceptibility testing available, 15 were resistant to at least one first-line drug. Four cases were diagnosed with multidrug-resistant TB (MDR-TB), defined as resistance to both isoniazid and rifampin.

CONTACT INVESTIGATIONS

Contact investigations are a pivotal and important aspect of TB prevention. As TB can be highly infectious, it is imperative to screen, treat and identify any potential secondary cases. In 2023, the TB program conducted 84 contact investigations and identified 517 contacts of infectious TB cases from King County and cases transferred from other jurisdictions. Through these investigations, we identified 86 individuals with latent TB infections (LTBI) and 9 with active TB disease.

COMMUNITY TB PREVENTION UNIT

It is estimated that as much of a fourth of the world's population has tuberculosis (TB) infection. Individuals with Latent TB infection (LTBI) or inactive TB are not sick from TB and can't spread TB to others, but can develop active, contagious TB over time. LTBI is treatable. Nearly all the cases of active TB in King County could have been prevented by increasing LTBI testing and treatment among individuals who have spent two or more years in TB endemic countries. To address this prevention opportunity, King County TB Control Program established a Community TB Prevention Unit in 2022 to focus on the more than 100,000 people in King County estimated to have LTBI. The goal of this unit is to reduce the number of people with untreated latent TB infection by 20% in ten years. To achieve this goal, the Community TB Prevention Unit has developed a multifaceted approach to TB prevention that includes:

a) working with communities at higher risk for TB infection in partnership with Community Navigators, who are trusted community members that are able to effectively convey public health messages, and community based and faith-based organizations

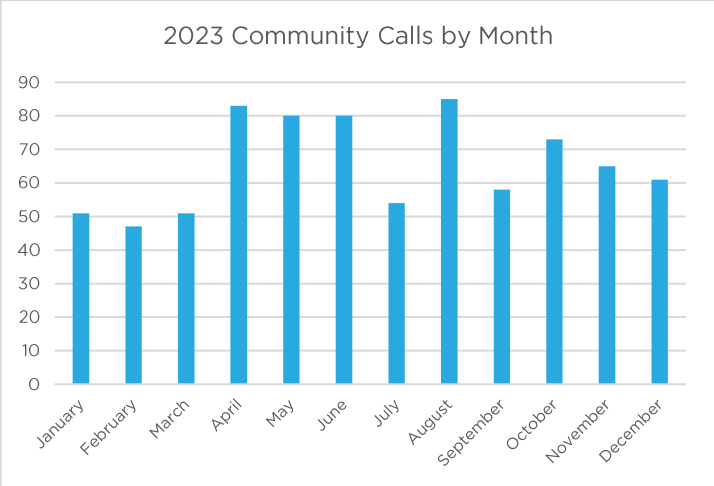
b) working with healthcare providers and systems to identify and treat more people who have LTBI to prevent their infections from becoming active.

Some 2023 Community TB Prevention Unit highlights are:

- Attending over 400 community events, tabling monthly at 4 federally qualified healthcare clinics, and partnering with 16 community navigators to share information about TB and resources about healthcare access.

Top Community Engagements	
Afghan	Chinese
Congolese	Ethiopian
Eritrean	Filipino
Garifuna	Iraqi
Purhepecha	Kenyan
LatinX	Marshallese
Samoan	Somali
Tongan	Ukrainian
Vietnamese	

- Reaching out to offer resources to over 700 individuals adjusting their immigration status who tested positive for TB infection.
- Responding to more than 700 community and provider calls.



CDC-FUNDED TB RESEARCH

TBESC: TUBERCULOGIS EPIDEMIOLOGIC STUDIES CONSORTIUM

TBESC is CDC-funded epidemiological research to improve testing and treatment of latent TB infection. The Seattle-King County TB Control Program is awarded contracts for TBESC-III cycle (2021 – 2025). We are partnering with International Community Health Services (ICHS) to accomplish the research objectives which includes:

- Design and implement primary-care-based interventions to

improve performance measures across the LTBI care cascade.
- Monitor and evaluate intervention performance over time to identify efficient and effective strategies to prevent TB disease.

We have currently implemented four interventions to improve TB screening and treatment at ICHS:

- Provider education regarding LTBI best practices.
- Cost/financial support for uninsured patients.
- Case management for LTBI patients.
- EMR modifications to alert providers to screen for LTBI.

TBTC: TUBERCULOSIS TRIALS CONSORTIUM

The TB Control Program is also awarded contracts for TBTC-III cycle (2021 – 2030). TBTC's mission is to conduct programmatically relevant research concerning the diagnosis, clinical management and prevent of tuberculosis infection and disease. Since its inception, TBTC clinical trials have had significant impact on TB treatment and prevention such as the discovery of the 3HP regimen which is the shortest regimen for the treatment of LTBI and the 4-month treatment regimen for active TB disease which reduced the treatment duration by 2 months from the current standard regimen.

Currently Study 37 (ASTERoiD) is looking into a 6-week regimen of daily rifapentine against the current standard of 12-16 weeks of rifamycin-based treatment for latent TB infection.

DATA NOTES

1. In Washington State health care providers, laboratories and health care facilities are legally required to notify public health authorities at their local health jurisdiction of suspected or confirmed cases of tuberculosis. Case counts are calculated using these reports.
2. Rates are calculated with population data from the Washington State Office of Financial Management with the exception of non-US-born rate. http://www.ofm.wa.gov/pop/
3. Rate of non-US-born cases is calculated with population data from the U.S. Census Bureau: State and County QuickFacts. https://census.gov/quickfacts
4. CDC TB incidence rate and HIV rate were obtained from the CDC TB MMWR report. Schildknecht KR, Pratt RH, Feng PI, Price SF, Self JL. Tuberculosis - United States, 2022. MMWR Morb Mortal Wkly Rep 2023;72:297–303.DOI: http://dx.doi.org/10.15585/mmwr.mm7212a1.
5. State incidence rate obtained from Tuberculosis Cases Statewide by Year 2019-2023 report from Washington Department of Health. https://doh.wa.gov/sites/default/files/2024-03/343113-TuberculosisCasesStatewidebyYear2023.pdf

***This program summary is a synopsis of the TB Control Program's annual report. The full comprehensive report will release later in 2024.**

WANT TO KNOW MORE? CHECK OUT:

- Public Health – Seattle & King County Tuberculosis Control Program *http://kingcounty.gov/health/TB*
- Centers for Disease Control and Prevention Division of Tuberculosis Elimination *http://cdc.gov/tb*
- World Health Organization - TB *https://who.int/tb*