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Tuberculosis in Colorado 2023

September 2024



COLORADO
**Disease Control and
Public Health Response**

Department of Public Health & Environment

cdphe.colorado.gov/tb

Summary

In 2023 in Colorado, 89 people were diagnosed with tuberculosis disease, an increase of 56% from the 57 cases reported in 2022 ([Figure 1](#) and [Table 1](#)) and the highest number of annual cases reported since 2008. The Colorado case rate increased to 1.5 per 100,000 people from 2022's rate of 1.0 per 100,000 people. The U.S. case rate also increased to 2.8 per 100,000 people according to Centers for Disease Control and Prevention's [March 2023 TB report](#) ([Figure 2](#)).

This increase in cases may be attributed to more timely diagnosis of TB disease and to changes in immigration patterns and the demographics of that immigration. Although the number of new TB patients in Colorado has fluctuated during the past 10 years, incidence of TB disease has declined approximately 36% from 2001, when there were 138 cases diagnosed (2.3 per 100,000 people). That was the highest annual incidence in the past 25 years in Colorado.

In 2023, TB disease burden in Colorado remained highest among racial and ethnic minorities ([Figure 4](#)), which is consistent with national epidemiologic trends. While comprising only 35% of the state's population, 88% of new TB patients identified as racial and ethnic minorities. A diabetes diagnosis is the strongest medical risk factor for developing TB disease (19% of all patients in 2023 had diabetes). In addition, the strongest social risk factor was birth in one of the [30 countries with highest TB burden](#) ([Fig. 1.1.9](#)), as defined by the World Health Organization, comprising 25% of Colorado's TB patients in 2023. The next most significant social risk factor was experiencing homelessness within one year of diagnosis (18%) ([Table 2](#) and [Figure 12](#)).

Seventeen (27%) of the state's 64 counties reported at least one person with TB disease in 2023. There were 35 patients reported in Denver County, the most of any single Colorado county, followed by Arapahoe County with 14, and Adams County with 13. Of all TB patients, 79% were reported in the Denver metro area (defined as Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties). Half

of Colorado's counties (32 of 64) reported at least one TB patient in the past 10 years (2014-2023) ([Table 1](#)).

In 2023, TB disease was reported among people ranging in age from younger than 1 to 82 years, with an average age of 41 years ([Figure 8](#)). The largest number of cases was reported in the 25- to 44-year age range with 19, followed closely by the 35- to 44-year age range with 18 cases, and then those 45 to 54 years with 16 cases. Six cases were diagnosed in people younger than 15 years. TB disease in children is particularly concerning because it indicates recent ongoing transmission in a community, as well as evidence of missed opportunities for prevention. Of the 2023 TB patients, 39% were female and 61% were male ([Figure 9](#)).

All pulmonary (with a lung site of disease) TB patients require directly observed therapy in Colorado ([Figure 15](#)). Drug susceptibility testing is recommended for all culture-positive TB patients in the United States. Drug susceptibility testing is important because TB can become resistant to one or more key antibiotics used to treat patients. In 2023, 70 patients were culture-positive for TB and all of those had drug susceptibility results. Eleven (16%) of the 70 patients were resistant to one or more first-line TB drugs (isoniazid-INH, rifampin-RIF, pyrazinamide-PZA, and ethambutol-EMB). There was one case diagnosed with multi-drug resistant TB (defined as being resistant to at least INH and RIF). No cases of extensively drug-resistant TB were identified in 2023 (defined as being resistant to INH and RIF, plus any fluoroquinolone and at least one of three injectable second-line drugs [i.e., amikacin, kanamycin, or capreomycin]) ([Figure 14](#)).

TB drug treatment is lengthy, so final completion rates for 2023 cases are pending. We expect all patients who started treatment in 2023 (and thus counted in 2023) to have completed treatment by August or September of 2024. All living patients reported in 2023 initiated appropriate TB treatment. Of the 57 TB patients reported in 2022, the most recent year with final completion data, 55 (96.5%) were alive at diagnosis and initiated treatment. Two patients were not alive at time of diagnosis. Forty-five (82%) completed treatment, four refused to complete treatment, one had an adverse

reaction to treatment and had to stop, two moved outside the United States before completing treatment, and three died during treatment ([Figure 16](#) and [Figure 17](#)).

Untreated or insufficient/incomplete TB infection treatment (also known as latent TB infection or LTBI) are the main causes of TB disease in Colorado. The [state's 10-year TB elimination plan](#) guides and informs programming to support people and populations at increased risk for TB infection and progression to TB disease. The plan offers guidance to medical providers who care for people at higher risk. A key goal of the plan is to encourage people at risk to “know their TB status” while increasing public and private provider capacity to screen, test, and treat for TB infection.

The primary strategy toward TB elimination in Colorado remains identifying and treating people with TB infection who are at elevated risk of developing TB disease. Timely evaluation of people identified as contacts to an infectious TB patient and those who arrive in Colorado with a Class B TB designation (defined as having evidence of non-infectious TB but in need of additional evaluation) will drive the identification and treatment of additional patients with TB disease and TB infection.

Generations-long social, economic, and environmental inequities have resulted in adverse health outcomes, including TB infection and TB disease, among racial and ethnic minorities and others experiencing deficits in key social determinants of health. Historic and systemic health inequities have a greater influence on health outcomes than either individual choices or a person's ability to access health care. Reducing the health disparities that can lead to TB infection and TB disease through policies, practices, and organizational systems can help improve opportunities and health outcomes for all Coloradans.

The [TB elimination plan](#) is available on the TB Program website.

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On the cover : Robert Koch German Bacteriologist portrait 1897 - stock illustration

Heinrich Hermann Robert Koch (11 December 1843 - 27 May 1910) was a German physician and microbiologist. As the discoverer of the specific causative agents of deadly infectious diseases including tuberculosis, cholera, and anthrax, he is regarded as one of the main founders of modern bacteriology.

Original edition from my own archives. Source: Zur guten Stunde 1897

Credit: Grafissimo/DigitalVision Vectors via Getty Images

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TB cases and rates

In 2023, 89 people were diagnosed and reported with TB disease in Colorado, an increase of 56% from 2022. This increase may be attributed to more timely diagnosis of TB disease and changes in immigration patterns and the volume of that immigration. Although the number of patients declined between 2006 and 2022, the cases have increased since 2012. Further progress towards [CDC's TB elimination goal](#) of one case per million in Colorado (this equates to approximately five to six cases per year in-state) will require refocused attention to the current public health TB prevention and control model. Additionally, new investment in interventions addressing co-morbidities such as diabetes, as well as expansion to and collaboration with private health care partners who care for at-risk patients, will be necessary to reach TB elimination. Overall, the number of patients and corresponding case rates are trending down in Colorado since 2004, as the linear trend lines in Figures 1 and 2 illustrate.

Figure 1. Number of TB patients and trend line: Colorado 2004-2023

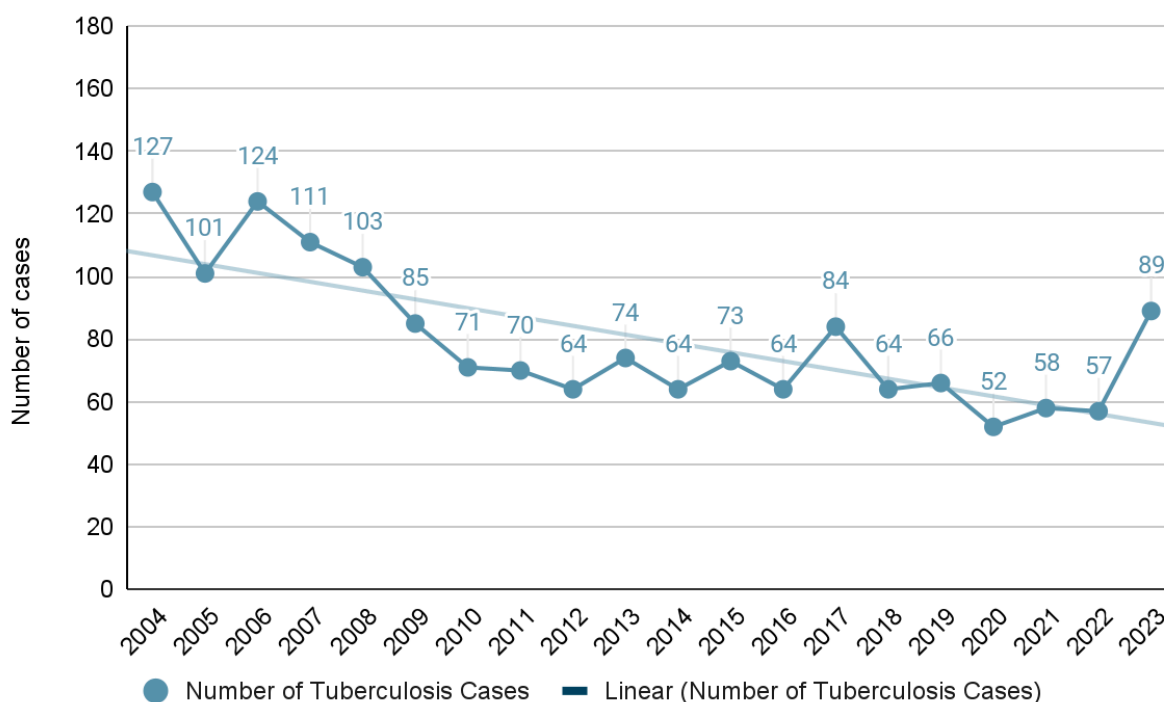
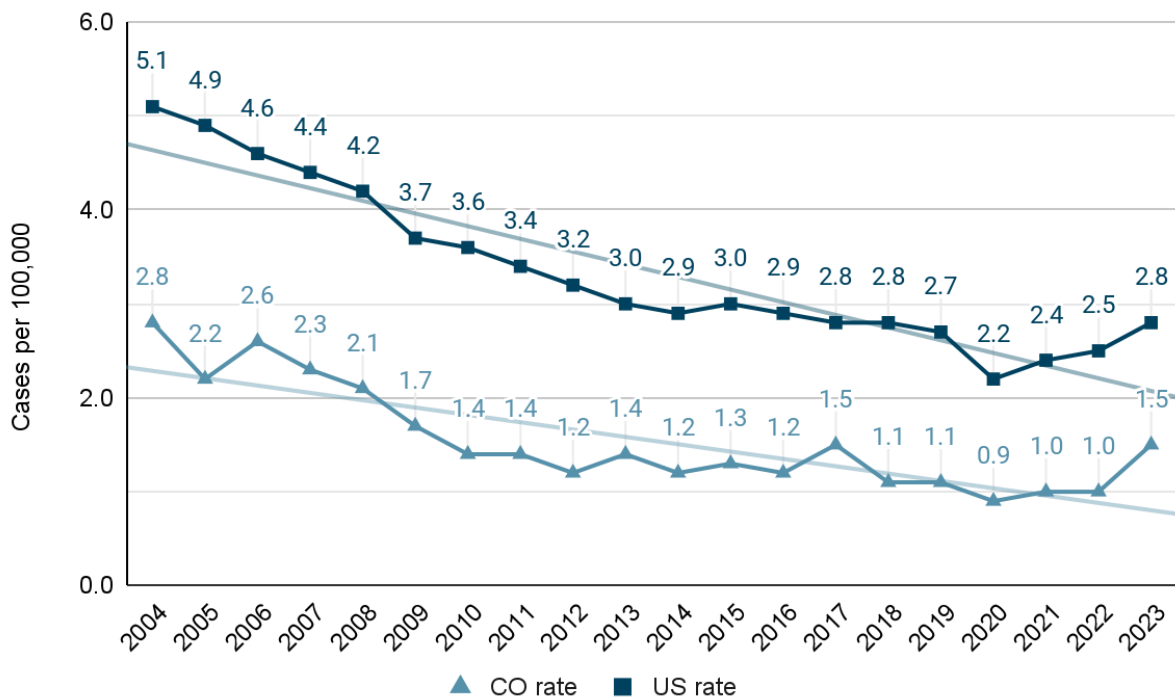


Figure 2. TB case rates per 100,000 people in the United States and Colorado 2004-2023



TB by county and demographic characteristics

Seventeen of Colorado’s 64 counties reported at least one new patient diagnosed with TB disease in 2023. Denver County reported 35, followed by Arapahoe (14), and Adams (13) counties (Figure 3). Thirty-two of Colorado’s 64 counties have reported at least one TB patient in the past 10 years (Table 1). Table 2 compares the demographics of 2022 and 2023 TB patients.

Figure 3. Tuberculosis patients by county: Colorado 2023

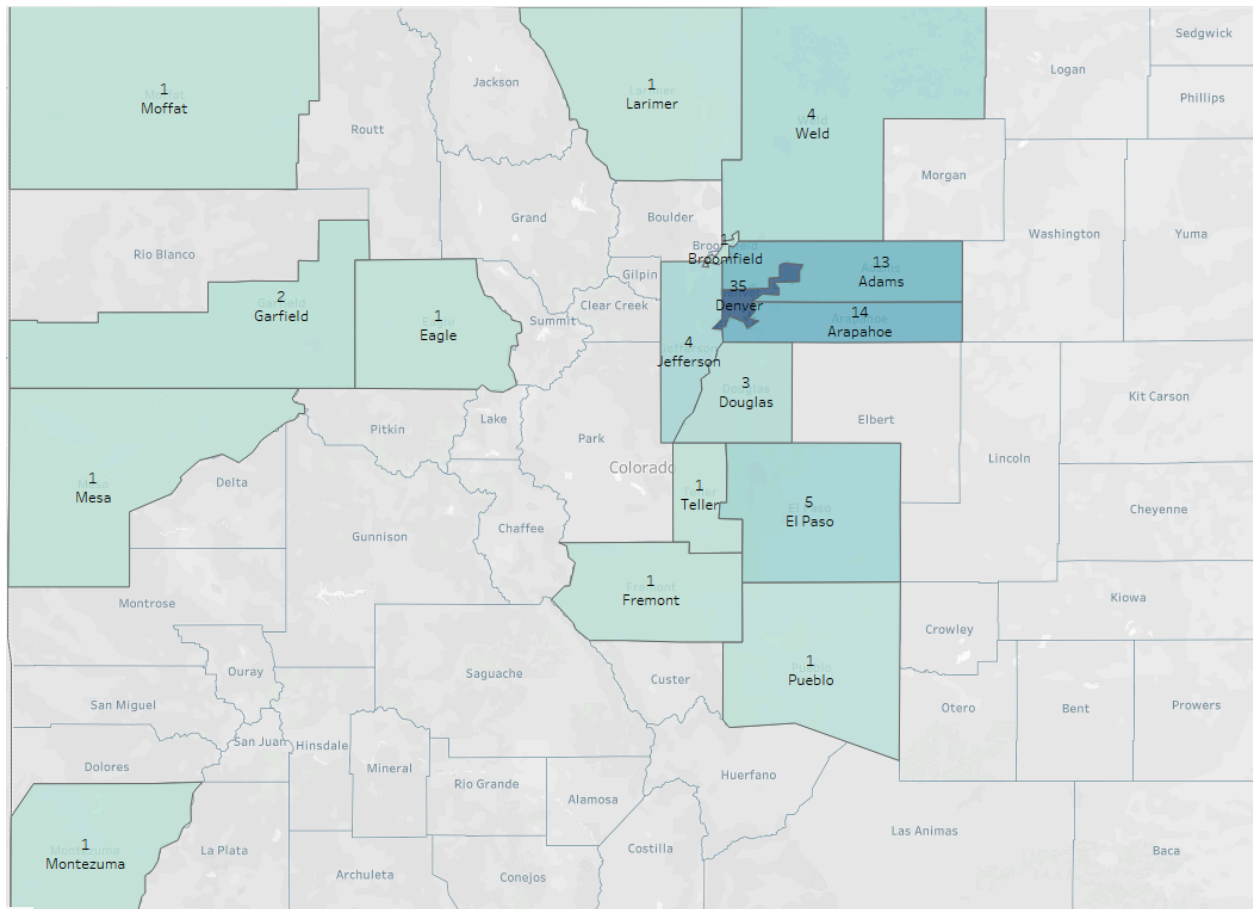


Table 1. TB in Colorado: patients by county and year of report 2014-2023

County ^a	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 ^b	Five-year case rate 2019-2023 ^{cd}
Adams	7	7	4	6	12	9	7	10	6	13	1.7
Arapahoe	14	14	18	19	10	18	9	9	9	14	1.8
Archuleta	0	0	0	0	0	0	0	0	2	0	2.9
Boulder	3	5	0	5	5	1	2	2	3	0	0.5
Broomfield	0	1	0	0	0	0	0	1	2	1	1.1
Denver	23	17	22	25	14	19	11	18	12	35	2.6
Douglas	1	8	1	0	3	2	0	3	3	3	0.6
Eagle	1	1	0	0	0	0	1	1	0	1	1.1
Elbert	0	0	0	0	0	1	0	1	0	0	1.5
El Paso	1	3	3	10	5	4	8	4	3	5	0.7
Fremont	0	0	0	1	1	0	0	0	0	1	0.4
Garfield	1	2	2	1	0	1	1	1	1	2	1.9
Jefferson	4	3	3	3	2	4	4	4	2	4	0.6
La Plata	0	0	0	0	1	0	0	0	1	0	0.4
Lake	0	0	0	0	0	0	0	1	0	0	2.6
Larimer	1	2	4	1	1	1	2	1	2	1	0.4
Las Animas	0	0	0	0	0	1	1	0	0	0	2.8
Logan	1	0	1	0	0	0	0	0	0	0	0.0
Mesa	0	1	1	0	4	0	1	0	1	1	0.4
Moffatt	0	0	0	0	0	0	0	0	0	1	1.5
Montezuma	0	0	0	0	0	2	0	0	1	1	3.0
Montrose	0	1	0	0	0	0	0	0	0	0	0.0
Morgan	1	0	1	2	0	0	1	0	1	0	1.4
Park	0	0	0	1	0	0	0	0	0	0	0.0

County ^a	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 ^b	Five-year case rate 2019-2023 ^{cd}
Pitkin	1	1	0	1	0	0	0	0	0	0	0.0
Pueblo	2	3	2	3	2	1	1	1	1	1	0.6
Saguache	0	2	0	0	0	1	0	0	0	0	3.0
San Miguel	0	0	1	0	0	0	0	0	0	0	0.0
Summit	0	0	0	1	1	0	0	0	0	0	0.0
Teller	0	1	0	0	0	0	0	0	0	1	0.8
Weld	3	1	1	4	3	1	3	1	7	4	0.9
Yuma	0	0	0	1	0	0	0	0	0	0	0.0
Total	64	73	64	84	64	66	52	58	57	89	1.1

^aOnly counties reporting an active case of TB (2014-2023) are included. This also applies to Tribal Nations.

^bHighlighted counties reported at least one case of active TB in 2023.

^cTB cases per 100,00 people.

^dPopulation data for determining the case rates throughout this report are from the Colorado Department of Local Affairs, State Demography Office.

Table 2. Demographic comparison of 2022 and 2023 TB patients

	2022		2023	
Age group (years)	n	%	n	%
<15	2	3.5	6	6.7
15-24	7	12.3	12	13.5
25-44	23	40.3	37	41.6
45-64	11	19.3	23	25.8
65+	14	24.6	11	12.4
Total	57	100	89	100
Sex	n	%	n	%
Male	29	50.9	54	60.7
Female	28	49.1	35	36.3
Total	57	100	89	100
Race/ethnicity	n	%	n	%
White	3	5.3	11	12.4
Black or African American	3	5.3	10	11.2
Hispanic	24	42.1	40	45.0
American Indian or Alaska Native	2	3.5	1	1.1
Asian	23	40.3	21	23.6
Native Hawaiian or Other Pacific Islander	2	3.5	5	5.6
Multiple Race/Unknown	0	0	1	1.1
Total	57	100	89	100
Region	n	%	n	%
Denver metro ^a	37	64.9	70	78.7
Outside Denver metro	20	35.1	19	21.3

	2022		2023	
Total	57	100	89	100
HIV status	n	%	n	%
HIV negative	55	96.4	77	86.5
HIV positive	1	1.8	5	5.6
Testing done, results unknown	0	0	0	0
Refused testing	0	0	0	0
Not offered	1	1.8	6	6.7
Not offered - patient dead at diagnosis	0	0	1	1.1
Total	57	100	89	100
Risk factors^b	n	%	n	%
Birth in one of the 30 highest TB-burden countries ^c	21	36.8	22	24.7
Experienced homelessness within past year	4	7.0	16	17.8
Diabetes	6	10.5	17	19.1
Resident of a correctional facility at diagnosis	1	1.8	1	1.1
Resident of long-term care facility at diagnosis	1	1.8	0	0
Injecting drug use within past year	0	0	2	2.2
Non-injecting drug use within past year	4	7.0	7	7.9
Heavy alcohol use within past year	5	8.8	8	9.0
Health care worker	1	1.8	1	1.1

Note: Percentages may not equal 100 due to rounding.

^aDenver metro includes: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties.

^bA case may have more than one risk factor.

^cAccording to WHO's definition of 30 highest-burden countries

<https://www.who.int/teams/global-tuberculosis-programme/tb-reports/global-tuberculosis-report-2023/tb-disease-burden/1-1-tb-incidence> (Fig.1.1.9).

TB by race/ethnicity

The number of people reported with TB in Colorado for the last decade has been highest among racial and ethnic minorities. Though comprising only 35% of the state's population, 88% of 2023's TB disease occurred in racial and ethnic minority populations (Figure 4). At 3.8 cases per 100,000 people in Colorado, the case rate in racial and ethnic minorities is 13 times higher than that of the majority white population (Figure 5). Small numbers can often yield exaggerated incidence rates, as seen in Figure 5. While five patients in 2023 identified as Native Hawaiian or other Pacific Islander, the Pacific Islands have some of the highest TB rates in the world. Aware that the TB burden among this population is disproportionately high, over the past two years, CDPHE has continued to seek collaboration with a local community-based organization that provides clinic services to this population to scale-up screening, testing, and treatment for TB infection.

Figure 4. TB patients by race/ethnicity: Colorado 2023

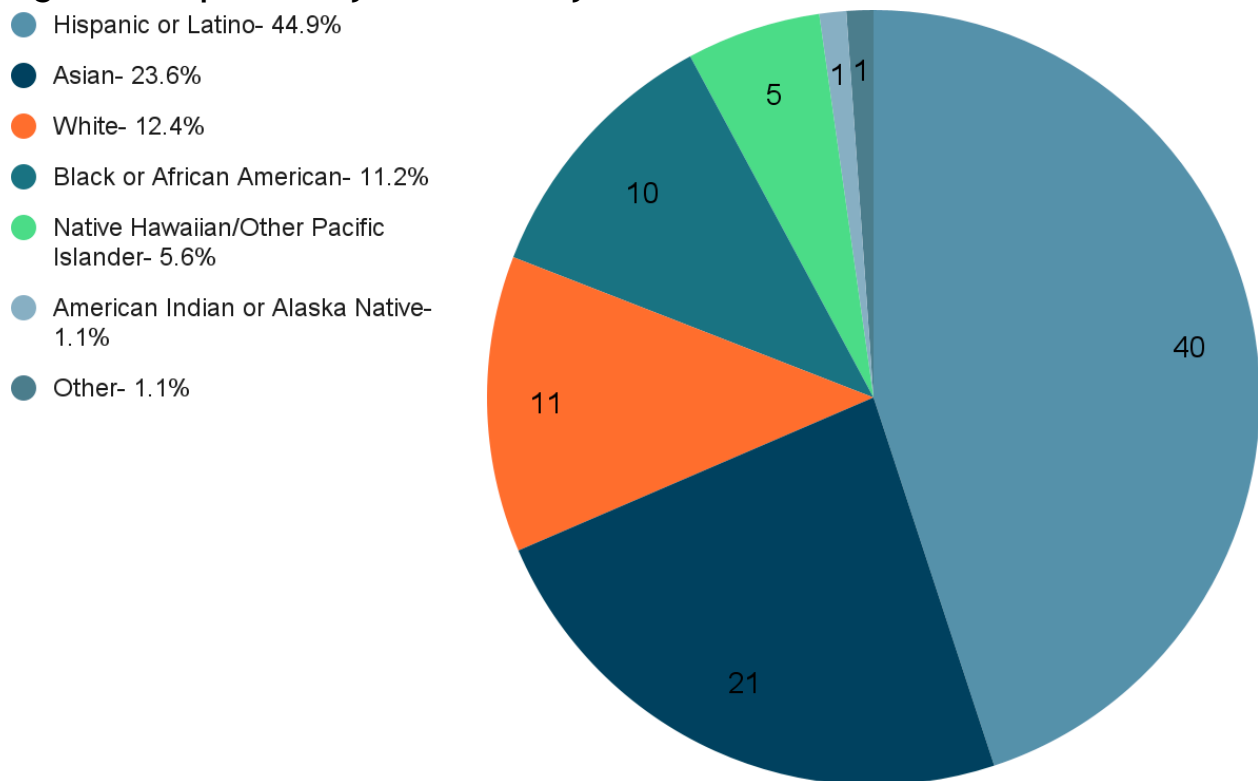
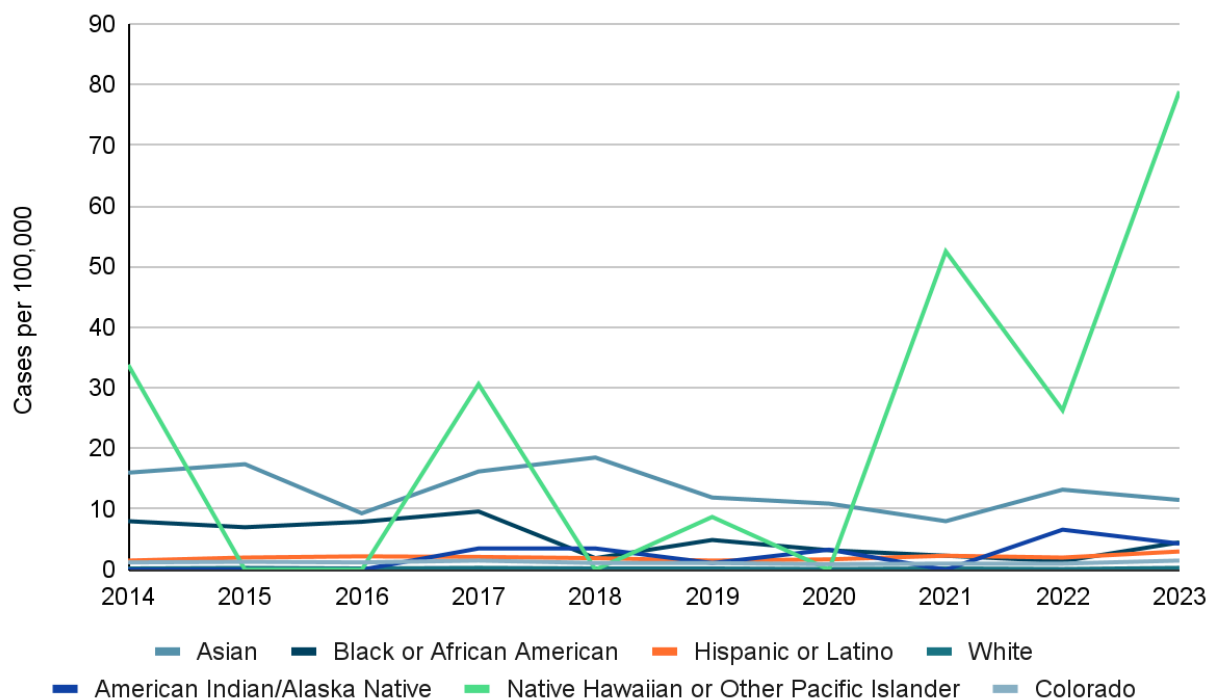


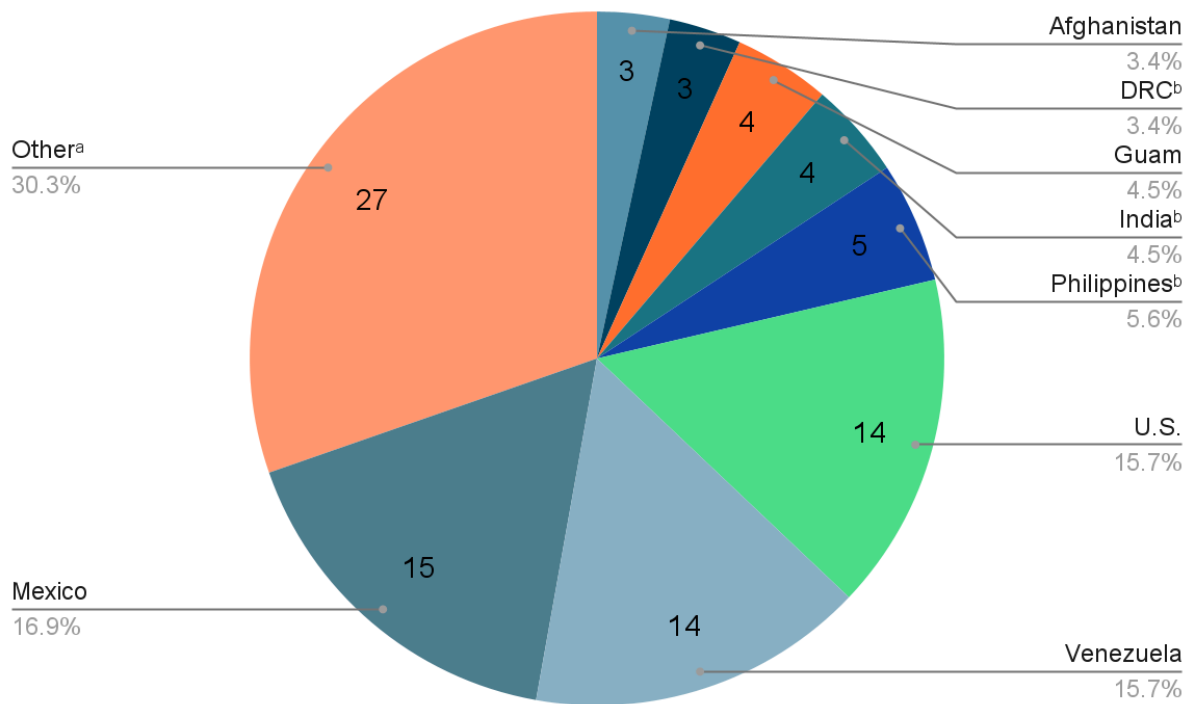
Figure 5. TB case rates by race/ethnicity: Colorado 2014-2023



TB by country of birth

TB disease was diagnosed in people originating from 27 different countries in 2023. The largest cohort came from Mexico with 15 people, followed by the United States and Venezuela with 14 each. Of people born outside of the United States, 22 (25% of all patients) came from one of the [top 30 highest-burdened countries](#) ([Fig. 1.1.9](#)), which comprise 85-89% of all global TB disease according to WHO (Figure 6).

Figure 6. TB patients by country of birth: Colorado 2023

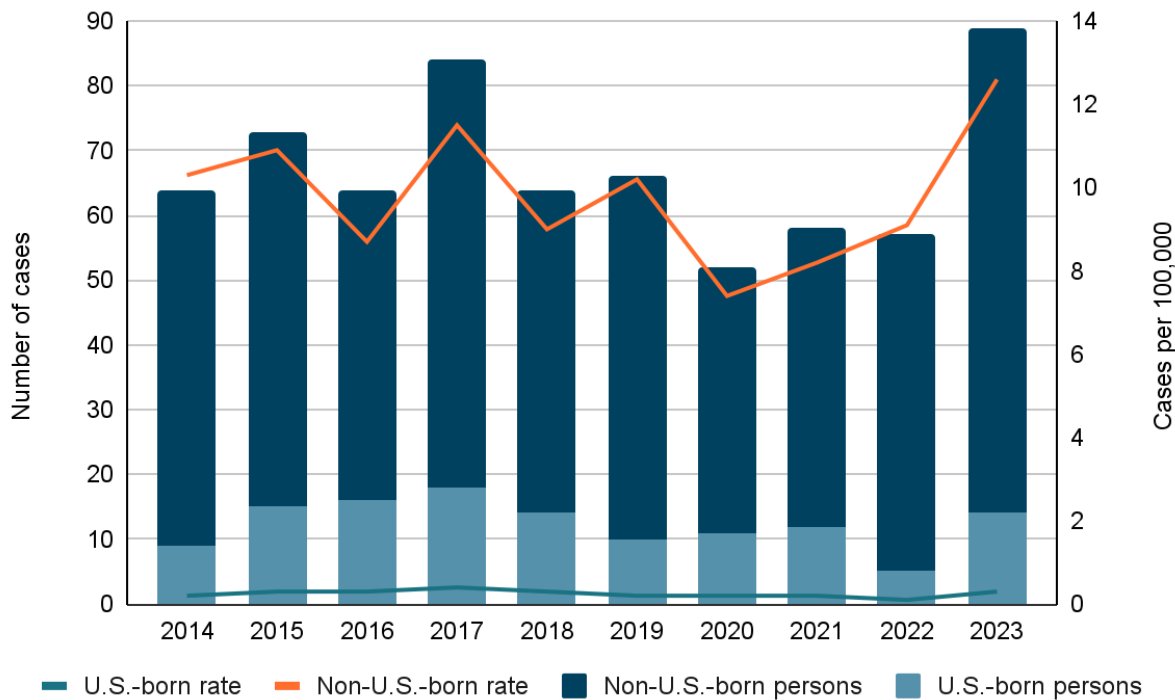


^aOther countries: 1- Cambodia, 1- Central African Rep^b, 2- China^b, 1- Columbia, 1- El Salvador, 2- Ethiopia^b, 1- Guatemala, 2- Honduras, 2- Indonesia^b, 2- Rep of Korea, 1- Mali, 1- Myanmar^b, 2- Nepal, 2- Nicaragua, 1- Romania, 1- Rwanda, 1- Senegal, 1- Somalia, 2- Vietnam^b.

^bDenotes one of the 30 highest TB burden countries according to WHO

<https://www.who.int/teams/global-tuberculosis-programme/tb-reports/global-tuberculosis-report-2023/tb-disease-burden/1-1-tb-incidence> (Fig.1.1.9).

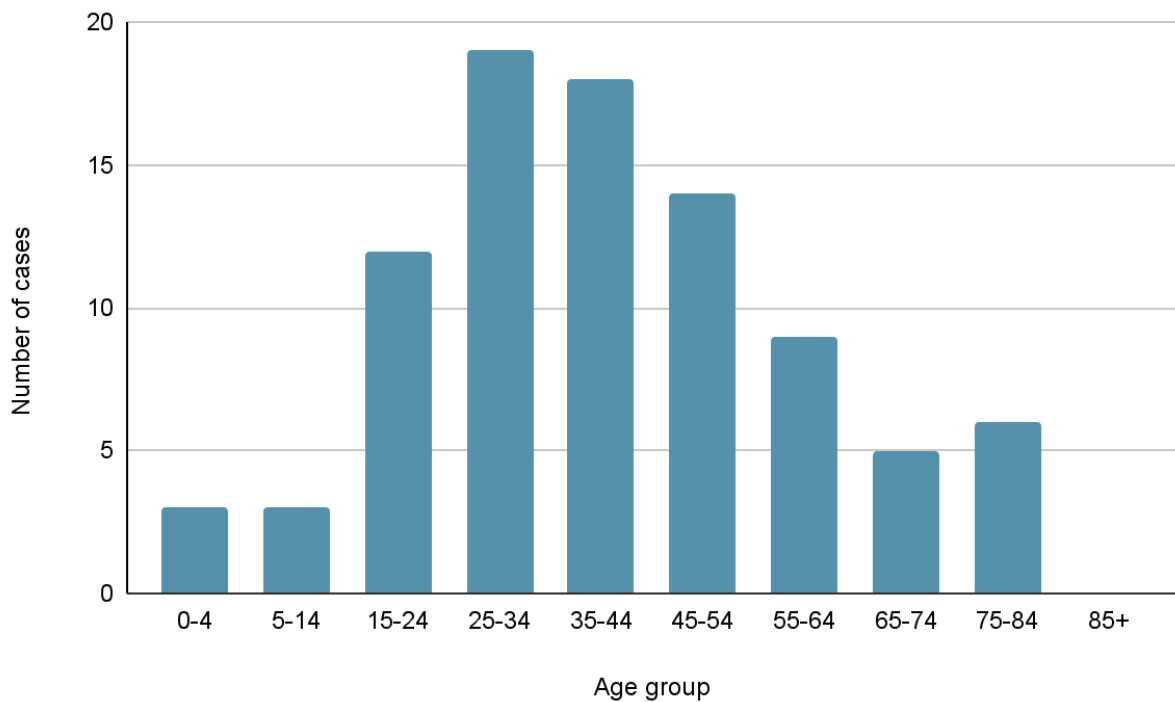
Figure 7. TB cases and incidence rates by origin of birth: Colorado 2014-2023



Tuberculosis by age group

In 2023, TB was reported among people ranging in age from under 1 to 82 years. The greatest percentage occurred among people 25-34 years old (21%), followed closely by those 35-44 years (20%) and those 45-54 years (16%). There were six children (7%), defined as younger than 15 years, diagnosed with TB disease in 2023. This is concerning because TB in children is an indication of recent transmission that were missed opportunities for TB prevention (Figure 8).

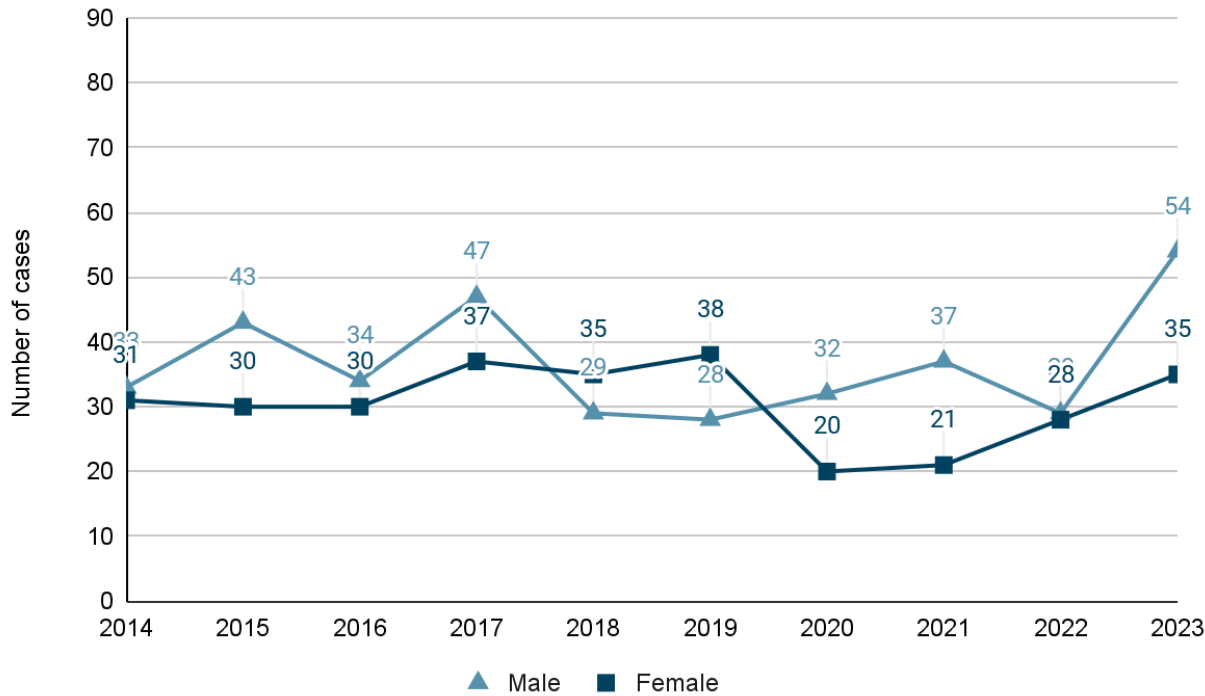
Figure 8. TB patients by age group: Colorado 2023



Tuberculosis by sex

In 2023, 61% of newly diagnosed TB patients were male and 39% were female (Figure 9).

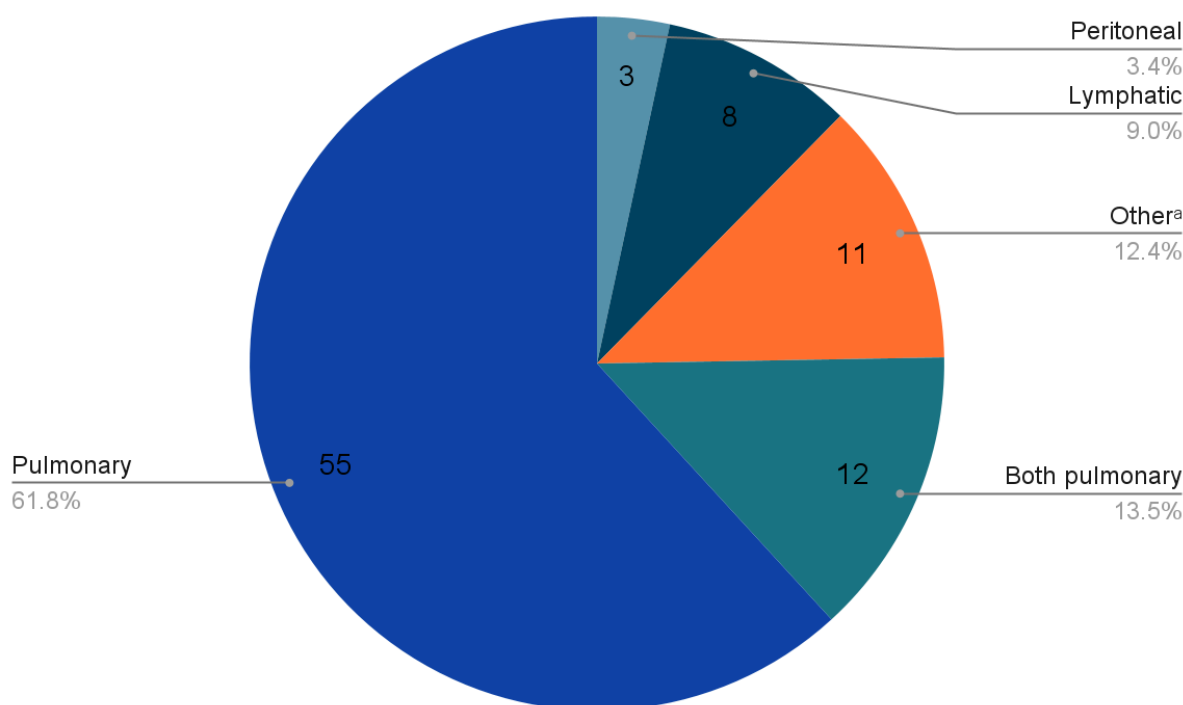
Figure 9. TB patients by sex: Colorado 2014-2023



TB patients by major site of disease

TB most often attacks the lungs (pulmonary TB), but may also attack other areas of the body (extra-pulmonary TB). In 2023, 67 patients (76%) had a pulmonary or both pulmonary and extra-pulmonary site of disease. The next most common site of infection in 2023 was lymphatic TB, with eight incidences (9%). (Figure 10).

Figure 10. TB patients by major site of disease: Colorado 2023

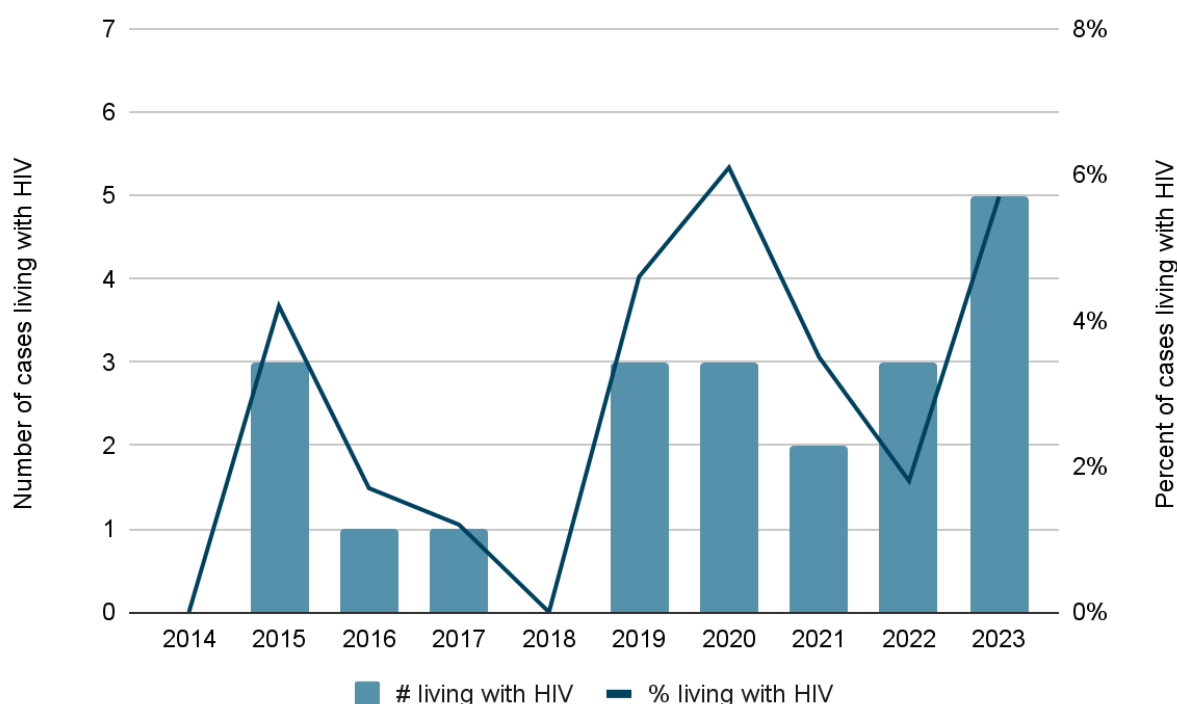


^aother sites: 2- Bone and/or Joint, 2- Eye, 2- Pleural, 2- Meningeal, 2- Skin, 1- Genitourinary

HIV co-diagnoses

Worldwide, one in four people living with HIV who die of an opportunistic infection die of TB disease, the primary opportunistic infection among people living with HIV. People living with HIV with TB infection are at higher risk of progression to TB disease due to a weakened immune system. Of the 89 people diagnosed with TB in 2023, recent HIV test results were available for 82 (92%). Of the seven people not tested for HIV, one was diagnosed after death and six were not offered testing. Of those tested, five people (6%) were co-diagnosed with HIV. Since 2019, there has been a sustained increase in the number of people who are co-diagnosed with TB and HIV. When analyzing small numbers, percentages can fluctuate widely and incidence rates, being unstable and imprecise, are likely to lack statistical significance (Figure 11).

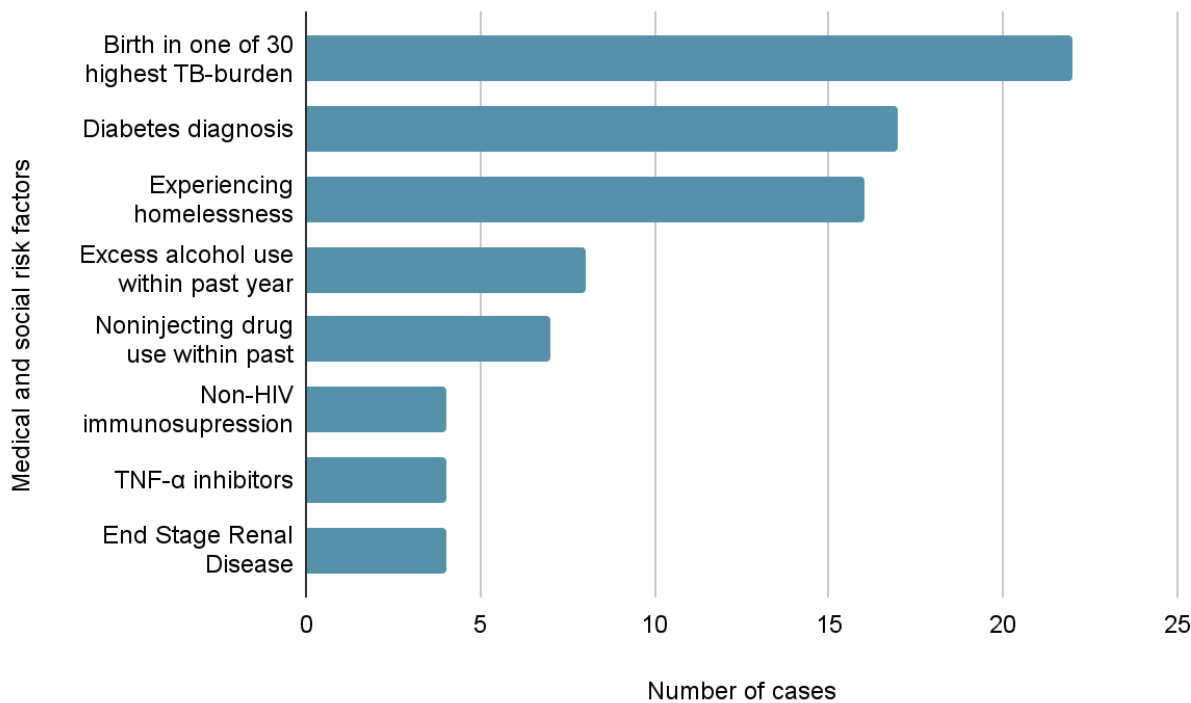
**Figure 11. TB patients living with HIV and percentage of annual total: Colorado
2014-2023**



Medical and social risk factors

According to WHO, in 2023, the most common risk factor for TB disease was birth in one of the [30 highest TB-burden countries](#) (Fig. 1.1.9), followed by a diabetes diagnosis, and experiencing homelessness within a year of diagnosis (Figure 12).

Figure 12. Medical and social risk factors for TB: Colorado 2023

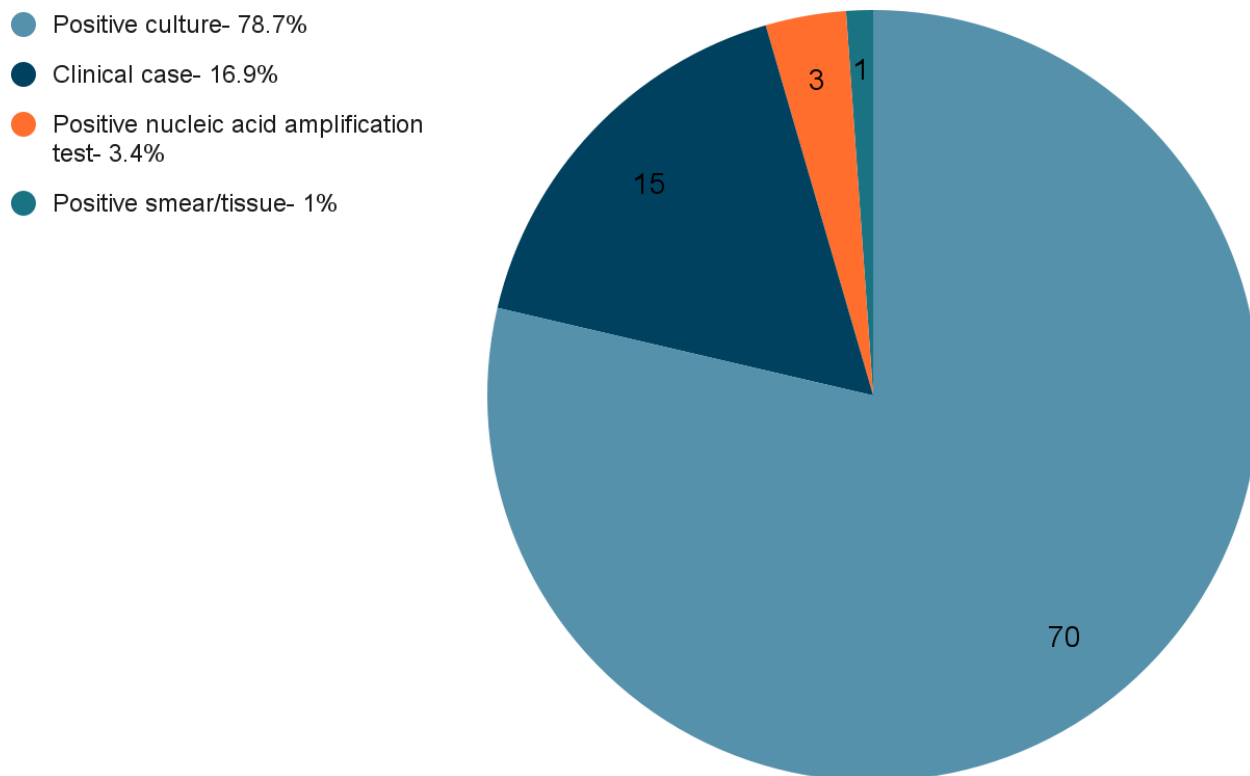


Note: A TB patient may have more than one risk factor indicated.

Tuberculosis case verification

Mycobacterium tuberculosis complex was culture-positive in 79% of TB patients in 2023. Another 17% met the clinical case definition (positive tuberculin skin test or interferon-gamma release assay with an abnormal chest radiograph). Three percent were diagnosed by a positive nucleic acid amplification test. One percent were diagnosed by positive smear/tissue (Figure 13). For more information on verification criteria, visit [CDC’s website](#).

Figure 13. TB patients by verification criteria: Colorado 2023

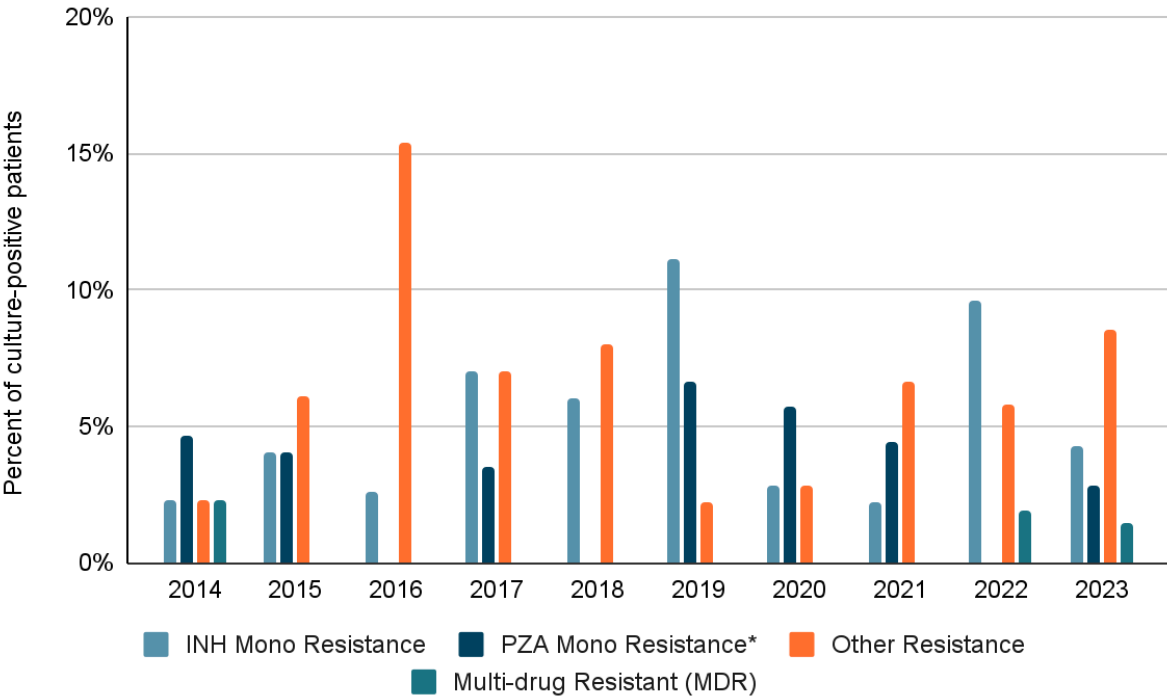


Drug resistance and tuberculosis

Of the 89 TB patients reported in 2023, 70 (79%) had a positive culture and all of those had drug susceptibility testing completed. Twelve (17% of culture-positive patients) were found to be resistant to one or more TB drugs. Eleven were resistant to one or more of the four first-line TB drugs: isoniazid, rifampin, pyrazinamide, and ethambutol. Of those 11 resistant to at least one first-line drug, three had isoniazid mono-resistance. Two were resistant to isoniazid and ethionamide. One was resistant to isoniazid, pyrazinamide, and ethionamide. Two had pyrazinamide mono-resistance. One had rifampin mono-resistance. One was resistant to rifampin, pyrazinamide, and rifabutin. There was one multi-drug resistant (defined as being resistant to at least

isoniazid and rifampin). Another patient had Streptomycin mono-resistance. There were no extensively drug-resistant TB (defined as being resistant to isoniazid and rifampin, plus any fluoroquinolone and at least one of three injectable second-line drugs [i.e., amikacin, kanamycin, or capreomycin]) identified in 2023 (Figure 14).

Figure 14. TB drug resistance: Colorado 2014-2023



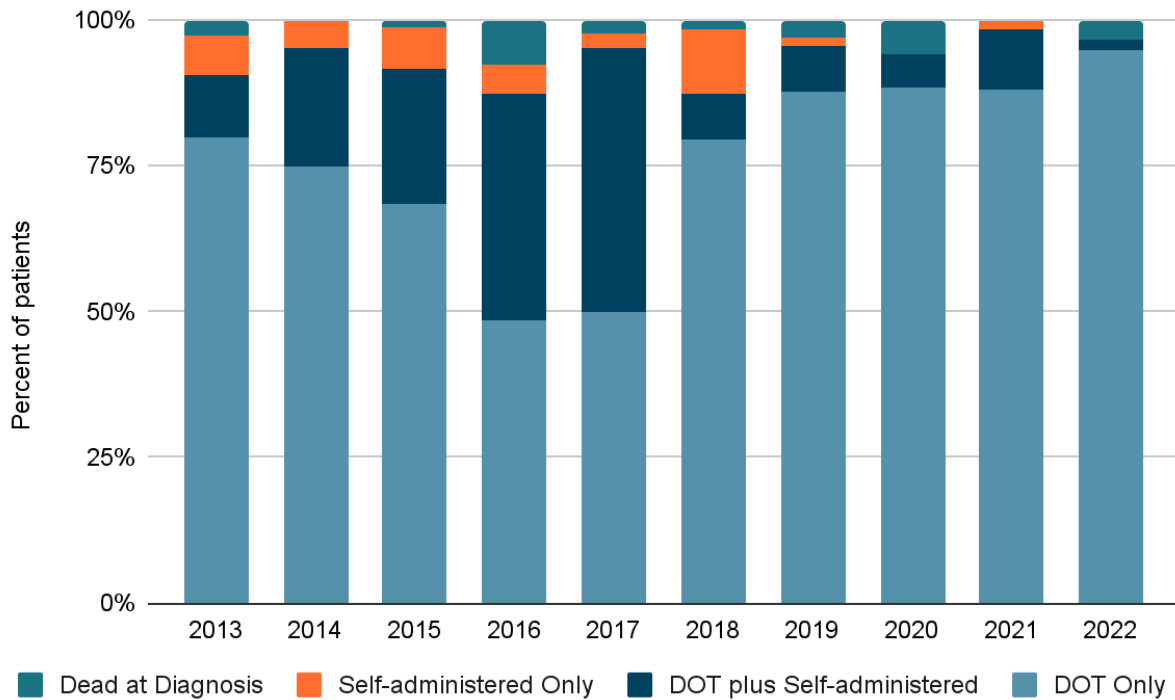
*Isolates with pyrazinamide resistance may indicate *Mycobacterium bovis*, a form of tuberculosis that causes disease in humans, cattle, and mammals. It is characteristically resistant to pyrazinamide.

Directly observed therapy

State statute (§ 25-4-501, et seq., C.R.S section G) requires directly observed therapy for all patients with pulmonary TB in Colorado. DOT is defined as a trained health care worker observing the patient taking every dose of their TB medications throughout the entire course of treatment. During 2022 (the most recent year with complete data), of the 55 patients who initiated treatment, 98% received medications

via DOT, and 2% received a combination of DOT and self-administered therapy (Figure 15).

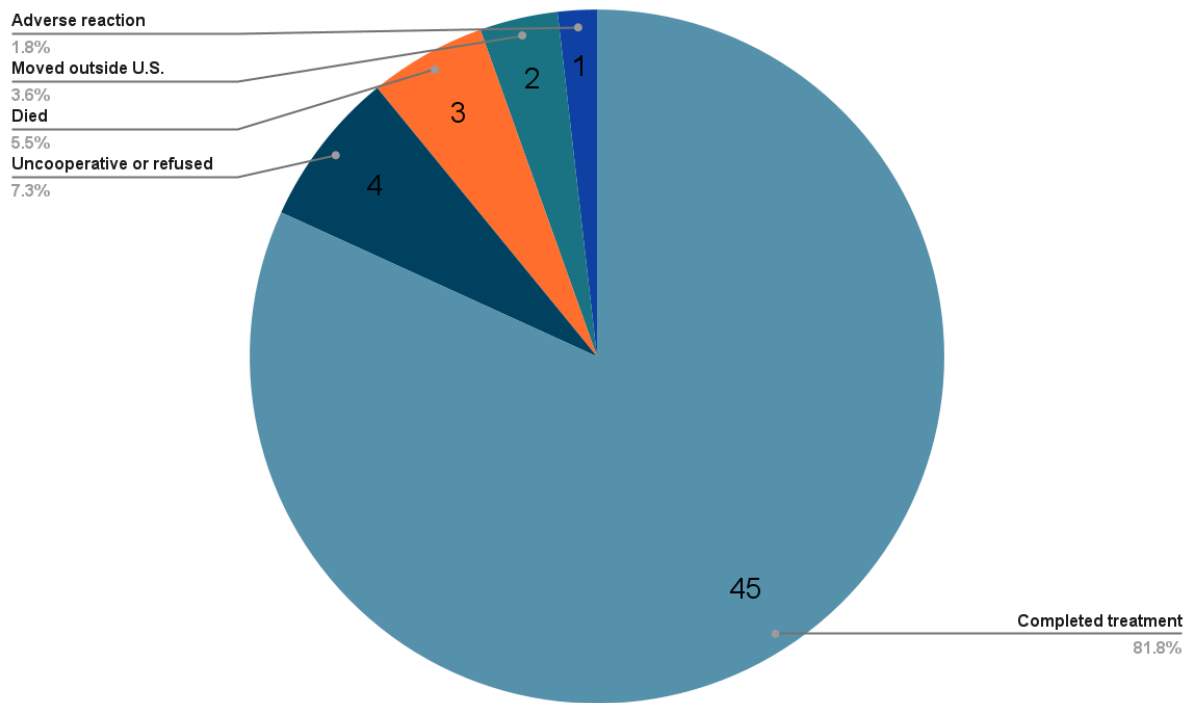
Figure 15. Mode of TB therapy: Colorado 2013-2022



Tuberculosis treatment outcomes

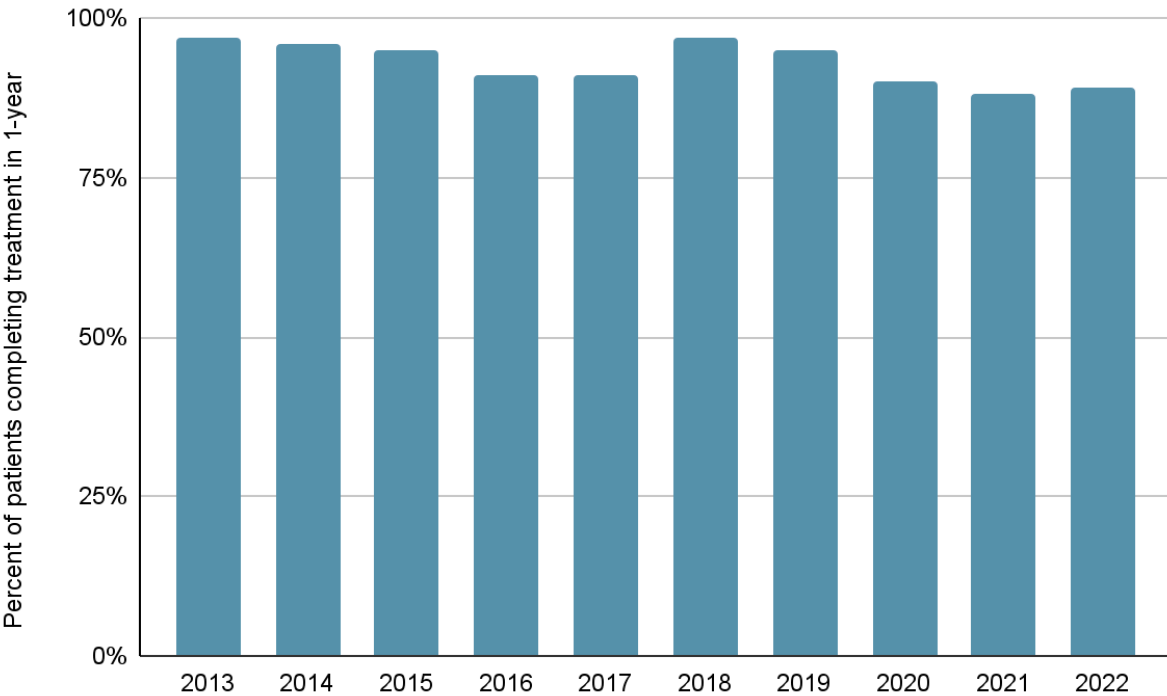
The standard treatment for TB disease is six months using isoniazid, rifampin, ethambutol, and pyrazinamide. Of the 57 patients in 2022 (the most recent year with complete data), 55 TB patients (96%) initiated treatment (two patients were diagnosed after death). For those who initiated treatment, 45 completed treatment. Four refused to complete treatment. One had an adverse reaction to treatment and had to stop. Two moved outside the United States before completing treatment, and three died during treatment (Figure 16). All 2023 patients initiated treatment. Many of those were still on treatment as of the publishing of this report.

Figure 16. TB treatment outcomes: Colorado 2022



In 2022, 45 patients were expected to complete TB treatment within one year of diagnosis. Of those, 40 (89%) completed within that expected time frame. Of those that didn't complete treatment, four were uncooperative or refused. One had an adverse reaction to treatment and did not continue treatment (Figure 17).

Figure 17. Completion of TB treatment within one year: Colorado 2013-2022



Note: Excludes patients with rifampin-resistant disease, patients with meningeal, bone and/or joint, or central nervous system disease, patients younger than 15 years with disseminated tuberculosis disease, and patients that died less than one year after treatment initiation or moved out of the country.

Cascade of care for individuals at high risk for TB infection

The key strategy for eliminating TB in Colorado is to identify and treat people with TB infection (also known as latent TB infection or LTBI). Timely evaluation of both people identified as contacts to an infectious TB patient and of those who arrive in Colorado with a Class B TB designation is crucial. The Class B TB designation includes immigrants and refugees who are traveling to the United States. U.S. immigration law requires that they be evaluated for TB prior to arrival in the U.S. and assigned a

classification according to the status of their disease. CDC’s Division of Global Migration and Health notifies CDPHE’s TB Program of all people known to be traveling to Colorado who are non-infectious, but need additional TB evaluation (referred to as Class B TB). By evaluating those at high risk, specifically contacts to pulmonary TB patients and those designated with a Class B TB designation, and treating those diagnosed with either TB disease or TB infection (Figure 18 and Table 3), further cases of TB disease can be prevented. Data provided here are from 2022, the most recent year with complete data. TB infection treatment is not mandatory since it is not infectious and the patient has no symptoms of TB. Despite patient education explaining the possibility of eventually progressing to TB disease (approximately 10% do), some patients choose not to take TB infection treatment. Some individuals who are diagnosed with TB infection after evaluation have received prior TB treatment and may not be recommended to initiate treatment again.

Figure 18. Cascade of care for people who are high risk (contacts and Class B TB): Colorado 2022

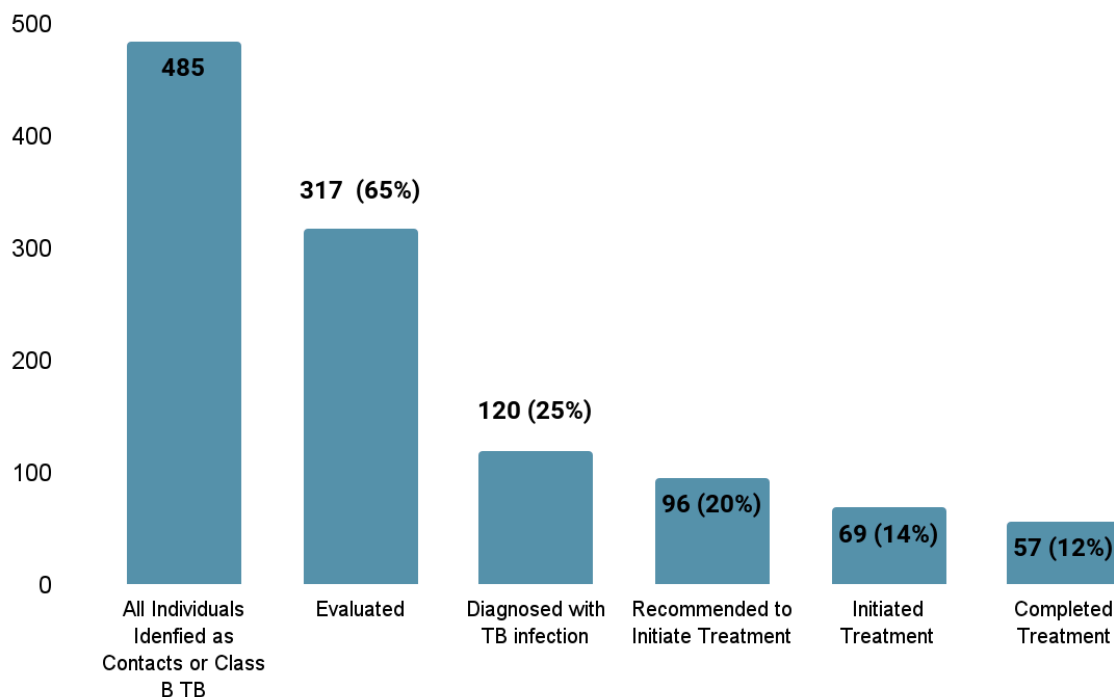


Table 3. Treatment outcomes for people who are high-risk individuals (contacts and Class B TB) recommended to initiate TB infection treatment: Colorado 2022

Outcomes	Number	Percentage
Total diagnosed with TB infection	120	(100%)
Recommended to initiate treatment	96	(80%)
Initiated treatment	69	(72%)
Completed treatment	57	(83%)
Reasons for not completing treatment	Number	Percentage
Died	0	(0%)
Moved	6	(9%)
Developed TB disease	0	(0%)
Adverse effect/s	1	(1%)
Patient chose to stop	3	(4%)
Lost to follow-up	1	(1%)
Provider decision to stop	1	(1%)
Pending outcome documentation	0	(0%)

Conclusions and next steps

In 2023, 89 people were diagnosed with tuberculosis (TB) disease, an increase of 56% from 2022 ([Figure 1](#) and [Table 1](#)). The Colorado case rate increased to 1.5 per 100,000 people from 2022's 1.0 per 100,000 people. Several factors may have contributed to the increase, including:

- Expanded local public health agency capacity to find undiagnosed TB patients
- An increase in expected immigration from endemic areas
- A return to normalized travel to and from endemic areas in 2023
- People seeking health care services after possible delayed care
- Fewer infection mitigation strategies, such as use of masks, self-isolating when feeling ill, and social distancing

In essence, more people may have been exposed to TB in 2023. As the demographic, medical, and social factor breakdowns in this report attest, surveillance data allows public health to identify the key risk factors and the most at-risk groups for

developing TB disease in order to focus prevention efforts (see [Figures 5](#) and [Figure 12](#)).

Limited TB elimination plan activities were initiated in 2021 or 2022 due to local public health agencies and CDPHE TB staff secondment or reallocation to COVID-19 response efforts. As public health capacity to respond to TB returns to normal, efforts towards TB elimination will continue. The short-term goals are to return to proactive screening, testing, and treatment of TB infection, along with a rollout of TB training curricula developed for LPHA staff statewide focused on core TB prevention and case management processes and expectations. The CDPHE TB Program will continue to offer online remote training, including self-paced courses while allowing for the possibility of safe, well-planned in-person training opportunities. Other strategies to be employed in 2024 and onward include:

- Promoting and facilitating a regional collaboration model aimed at improving case management and community engagement activities in under-resourced and under-served jurisdictions
- Continuing to provide no-cost remote directly observed therapy (V-DOT) services to LPHAs statewide. V-DOT is when a TB patient records themselves taking their medications and that recording is reviewed by their TB case manager counting toward the patient's treatment completion.
- Promoting opportunities to replicate the ongoing TB infection screening, testing, and treatment pilot focused on those with a diabetes diagnosis by a private health care provider network

Monthly enhanced TB case management sessions, designed to educate LPHAs and providers and increase capacity among those caring for TB patients, restarted and will be maintained. During ECM sessions, subject matter experts share knowledge and experiences while reviewing current TB patients via a live web-based, HIPAA-compliant, Project ECHO-based platform.

Other plans carried into 2024 include finalizing a nurse case-management toolkit to guide LPHA case managers through the chronological and incremental steps necessary to help a patient with TB disease successfully complete treatment. Efforts will continue to support non-LPHAs and other healthcare providers by developing site-specific algorithms to screen, test, and treat patients at risk for TB infection. This strategy is crucial, as private providers will need to care for their TB-infected patients to avoid over-burdening LPHAs with referrals, as past practice has dictated.

CDPHE will continue efforts to engage affected groups and populations in TB elimination activities in their respective communities. CDPHE's TB Training and Education Coordinator continues to spearhead the planning, collaboration, and implementation of these activities in coordination with CDPHE colleagues and community partners. Community participation is essential to developing meaningful and resonating content that will encourage and motivate people at risk for both TB infection and progression to TB disease to get tested and treatment, if necessary. Reducing health disparities through improved policies, practices, and organizational systems will benefit the entire state and help improve TB-specific health outcomes for all Coloradans impacted by the leading infectious disease killer in the world. The [TB elimination plan](#) is available on the TB Program website.