

Tuberculosis in Alaska

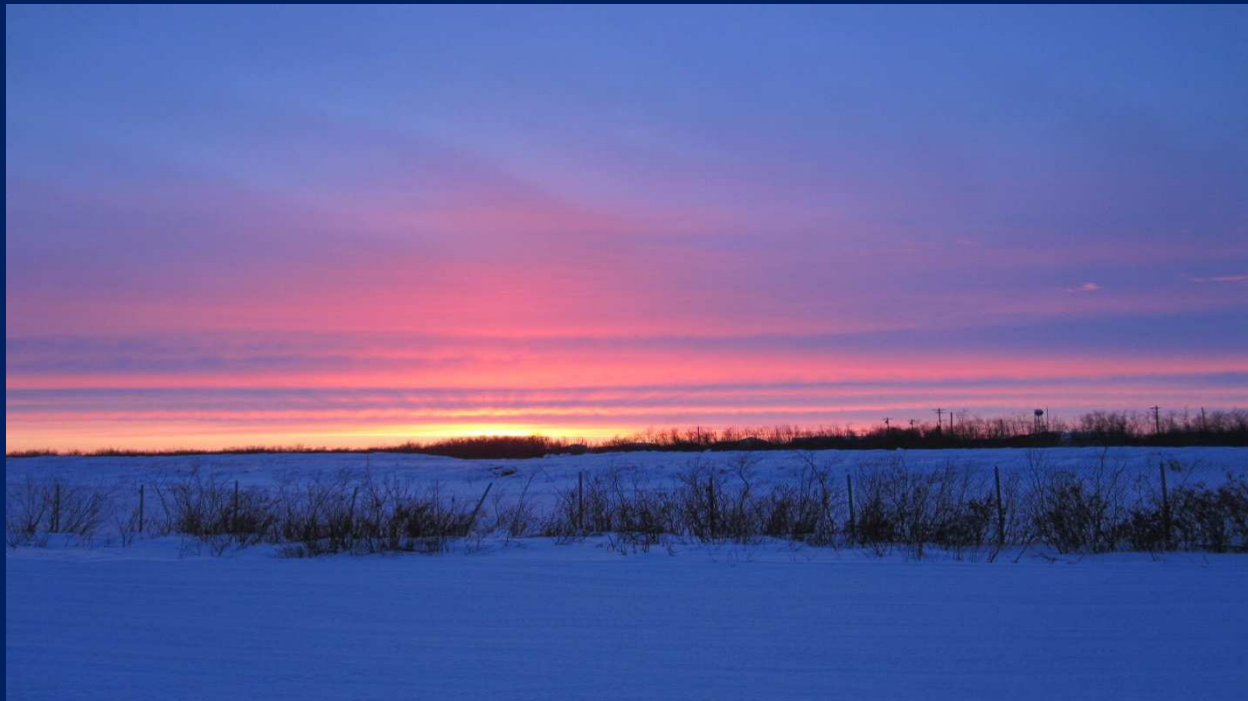
2002-2012

State of Alaska, Division of Public Health
Section of Epidemiology
Donna Fearey, ANP, MSN
August 2012



Objectives

- TB control in Alaska
- Brief historical perspective
- Current epidemiology



TB Control in Alaska – Public Health

- **Infectious Disease Program - Anchorage**
 - Physician, five nurse epidemiologists
 - Case oversight, assist with outbreak investigations, surveillance, consults, medications
- **Public Health Nurses**
 - Based throughout Alaska
 - Groundwork, contact investigations, drug administration, etc
- **Public Health Laboratories**
- **Public Health Vaccine Depot**

Brief History of TB in Alaska



The Scourge of Alaska

Tuberculosis Control-Library Copy
338 Denali Street, Room 301
Anchorage, AK 99501

The Decline of Tuberculosis in Alaska Since 1946, with The
Discussion of the Present Control Program

Historically, probably no population group in the world has experienced as high an infection rate with tuberculosis as the Alaska Native population, during the interval 1945-1960. Interpolating from the new case figures during the interval 1950 to 1960, and comparing this with population data, it can be calculated that during this interval about one of seven Alaska Natives had active tuberculosis and in the Non-Native population about one out of 250 individuals was similarly affected.

the Eskimos, Indians, and Aleuts of 600 per 100,000 population and a prevalence of active tuberculosis of 25 percent in some villages (1).

Alaska's No. 1 Enemy

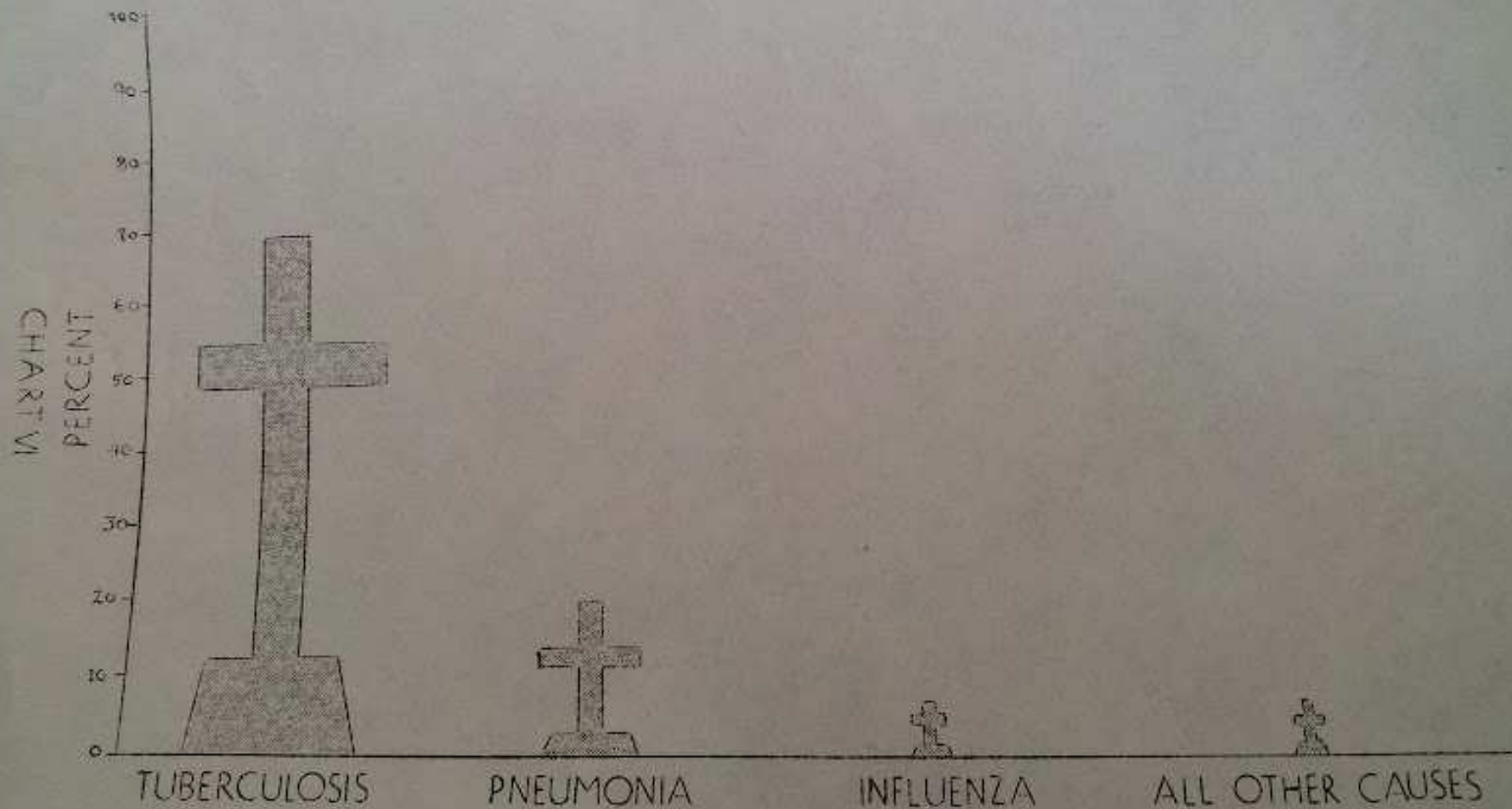
TB Killed at Rate of 359 Persons per 100,000 Population in 1945 — Program of Education, Detection and Care Seeks to Lower This Figure

By LOIS M. JUND

Robert I. Fraser, M. D.

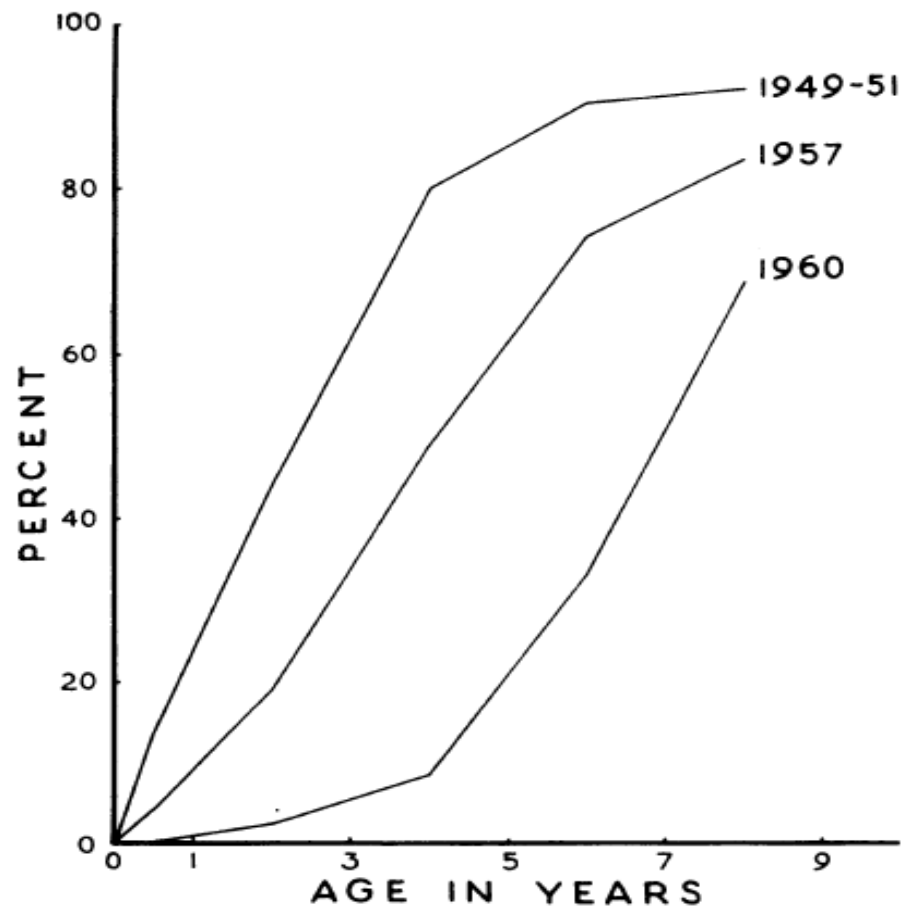
State of Alaska
Tuberculosis Control-Library Copy
338 Denali Street, Room 301
1971
THE DECLINE OF TUBERCULOSIS IN ALASKA UNRELATED TO ECONOMIC OR ENVIRONMENTAL CHANGE

The disease, Tuberculosis, represents for Alaska a saga relatively unique in the annals of recorded medicine. The incidence of new cases of this disease and of death from this disease in the 1950's represents figures that were higher than any population group in the world. Incidence in death figures have surpassed those of China and India and other underdeveloped nations. The last 20 years have witnessed dramatic changes in the effort



PERCENTAGE OF DEATHS CAUSED BY DIFFERENT
COMMUNICABLE DISEASES - ALASKA 1945

Figure 2. Prevalence of tuberculin sensitivity among Eskimo children tested in three successive surveys, by age



Comstock GW and Philip Public Health Rep. 1961 January; 76(1): 19-24, G. Comstock and R. Philip

Figure 3. Tuberculosis incidence rates, 1952-70

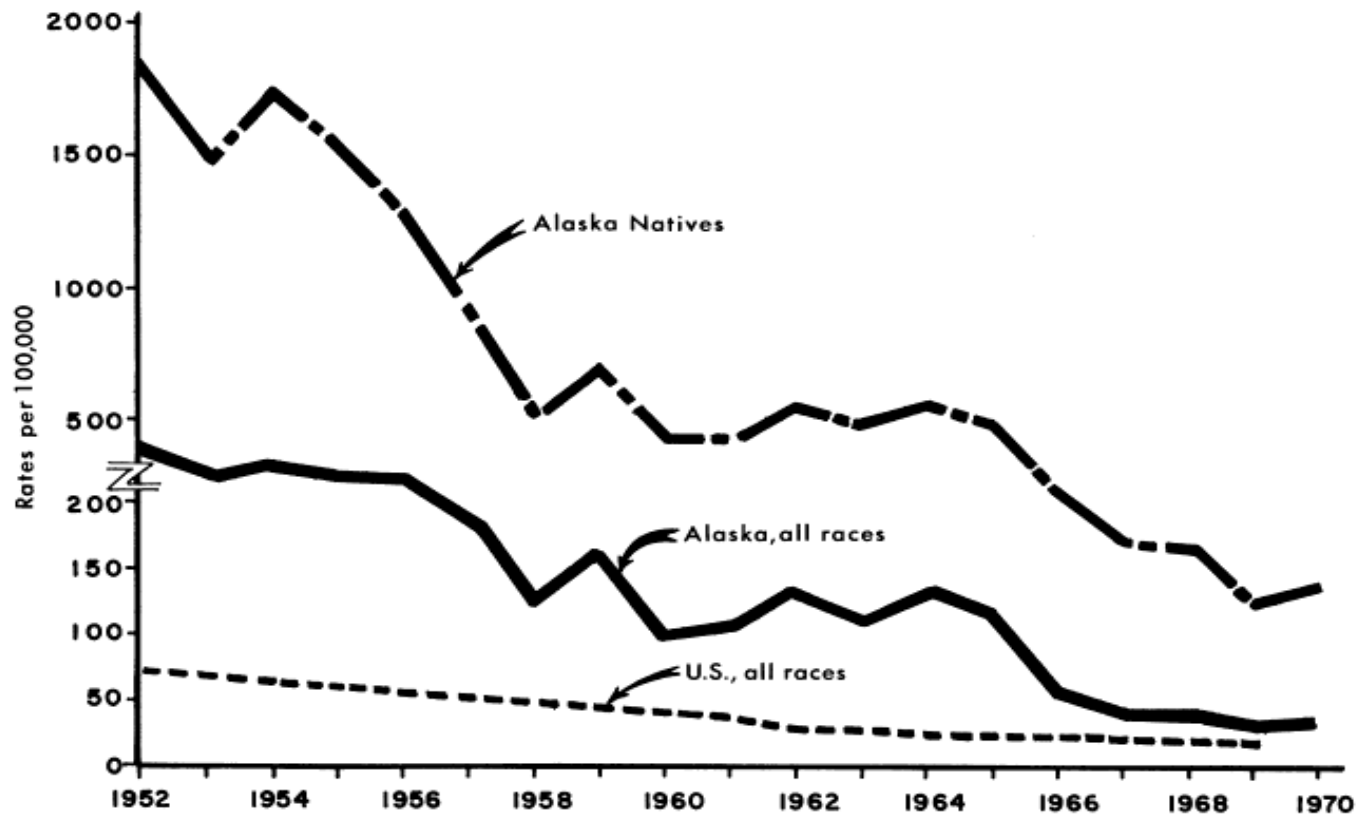
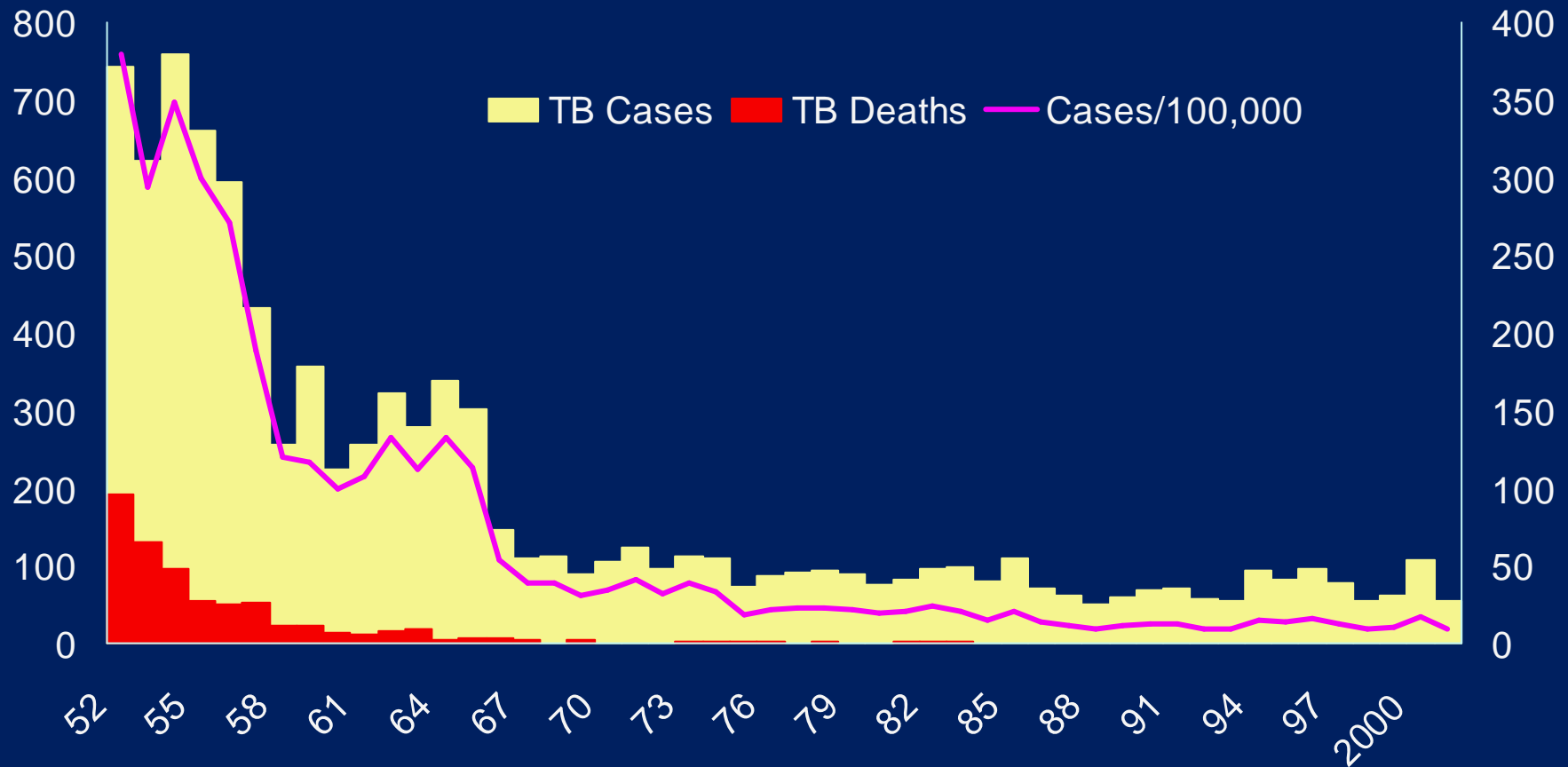


Figure 4. Cases of active tuberculosis by diagnostic category, all races, Alaska, 1964-69

Alaska – Historical TB Rates

Number of Cases

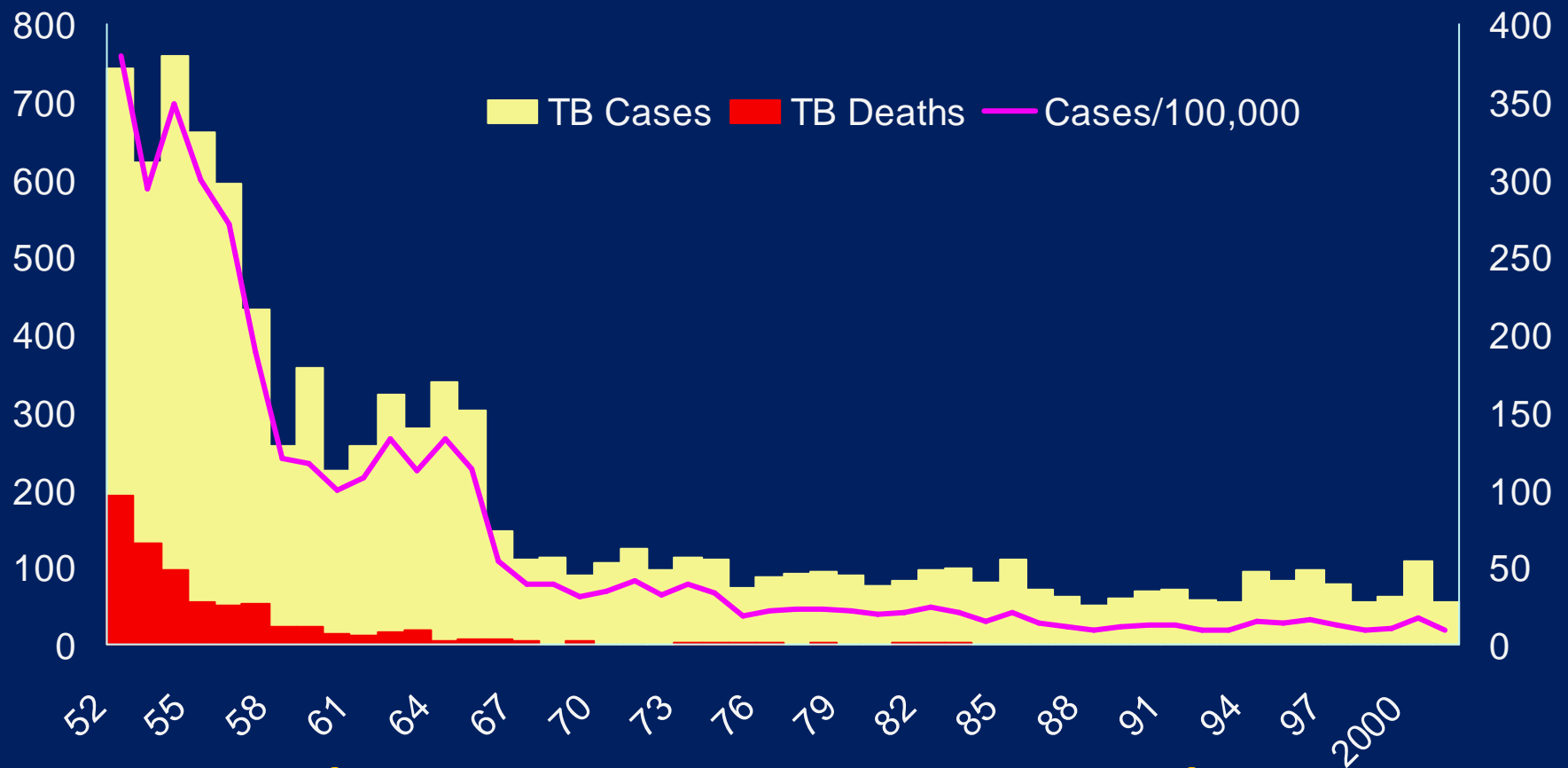
Cases/100,000



Alaska – Historical TB Rates

Number of Cases

Cases/100,000



Large Pool of Latent TB

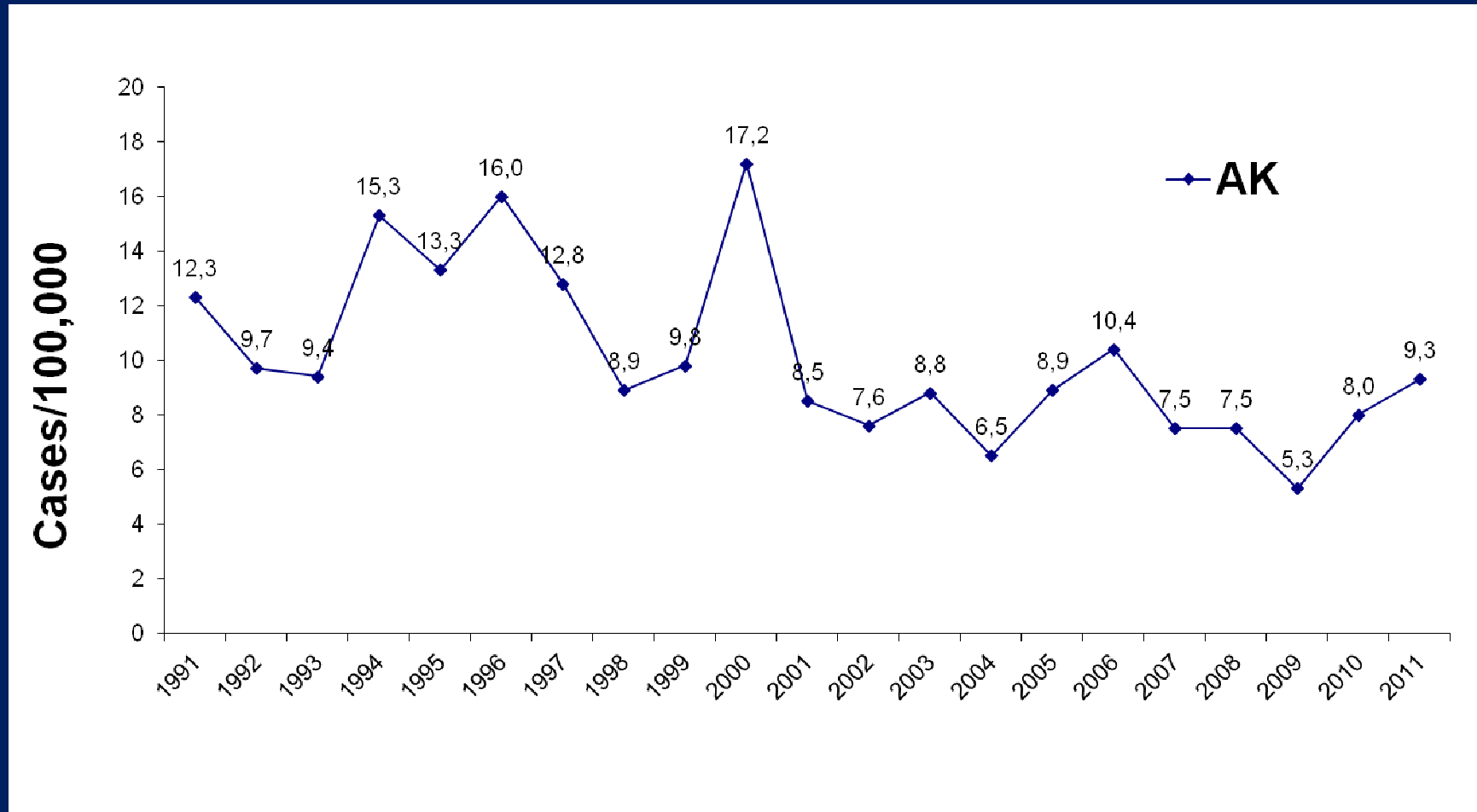
Current Epidemiology



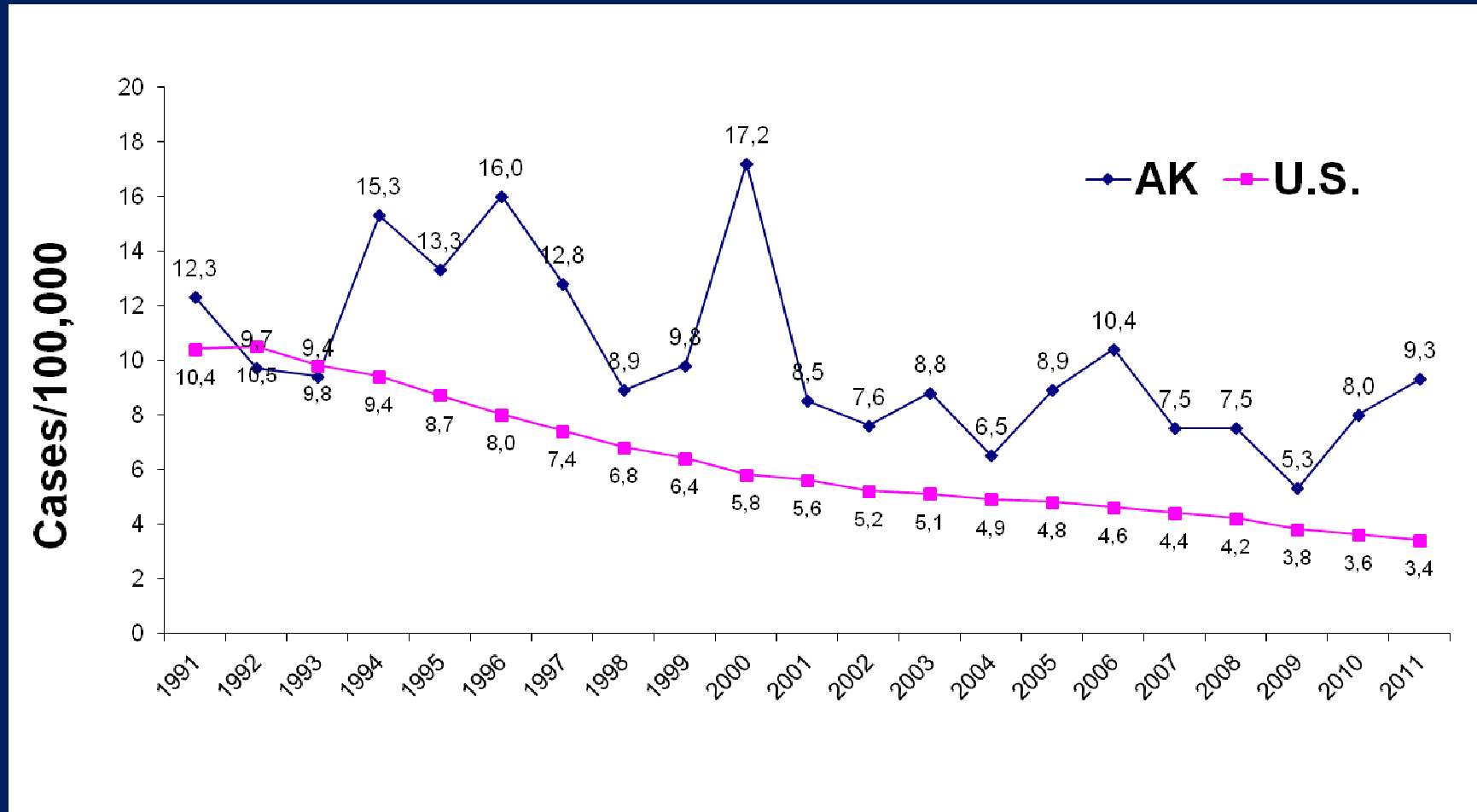
2011 TB Cases/Rates – “Top” States

State or District	Number Cases	Incidence of TB	Population
Alaska	67	9.3	722,718
Hawaii	123	8.9	1,374,810
District of Columbia	55	7.1	617,996
California	2,317	6.1	37,691,912
Texas	1,325	5.2	25,674,681

Active TB Cases by year, Alaska, 1991-2011



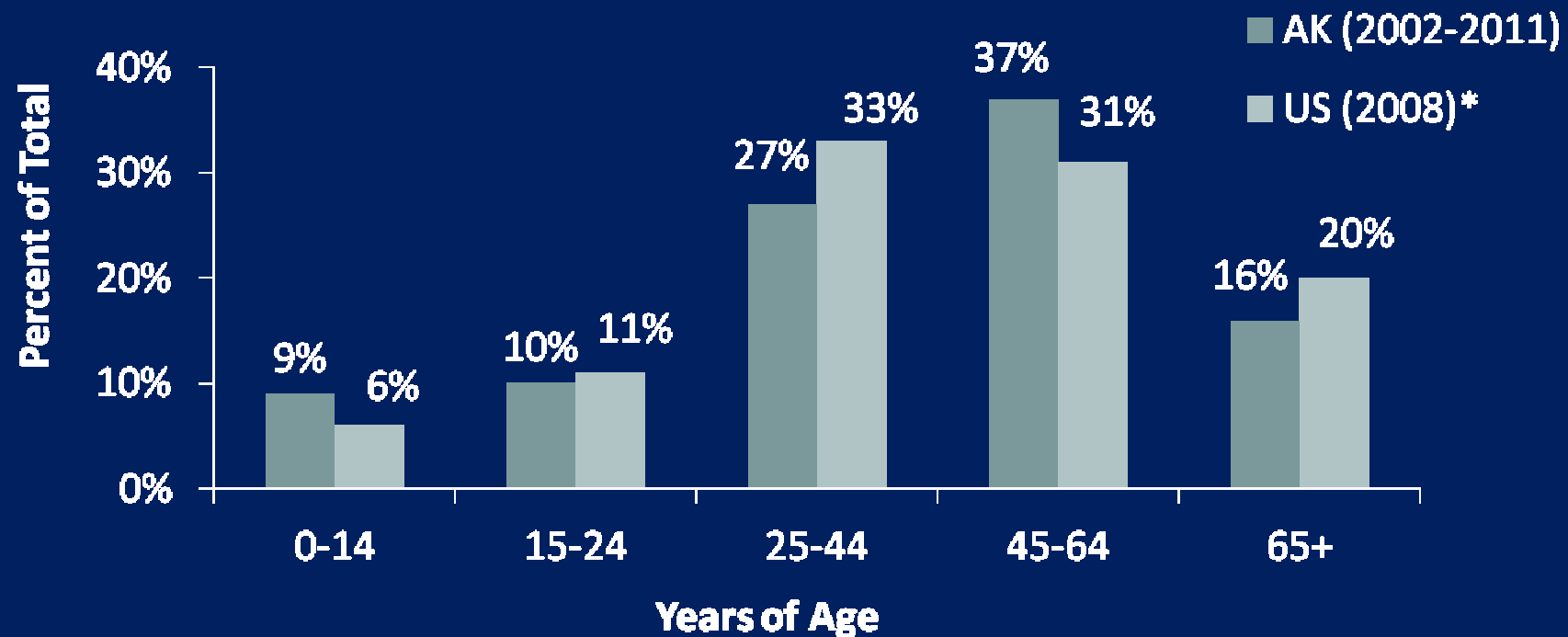
TB Rates



TB Cases, by Median Age, Alaska

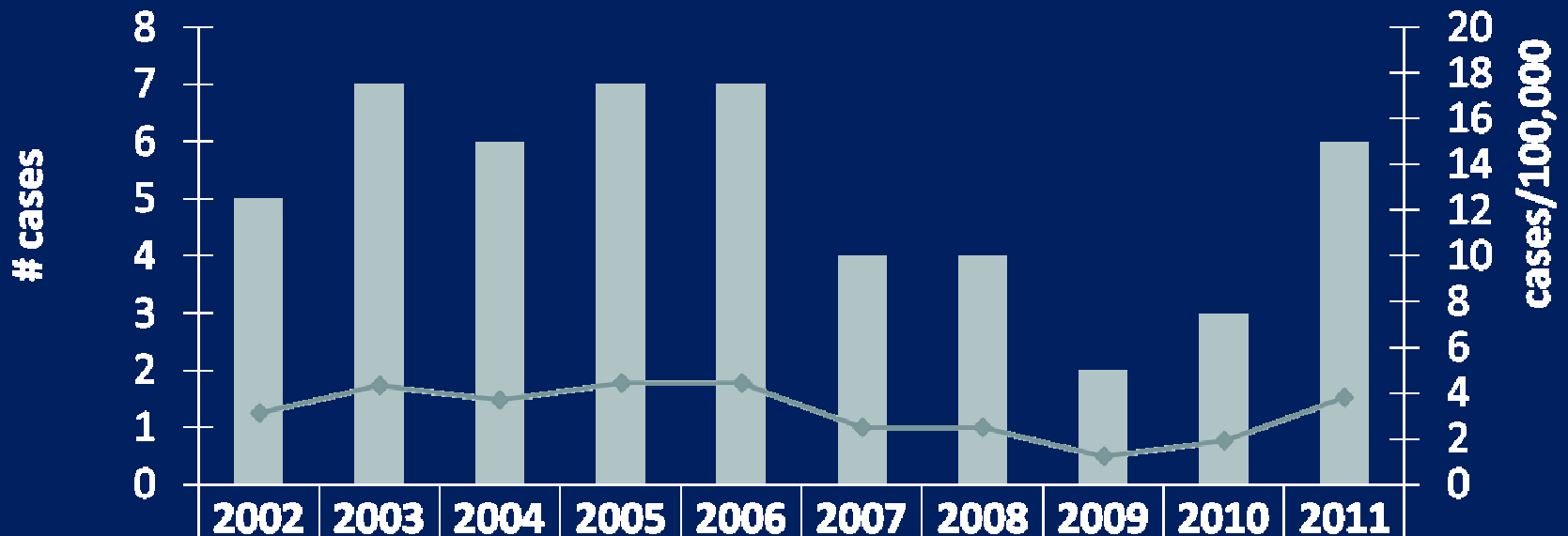


TB Cases, by Age Group, Alaska and U.S.



*CDC. Reported Tuberculosis in the United States, 2010. Atlanta, GA: U.S. Department of Health and Human Services, CDC, October 2011.

Pediatric TB in Alaska, 2002-2011



# cases	5	7	6	7	7	4	4	2	3	6
rate/100,000	3,1	4,3	3,7	4,4	4,4	2,5	2,5	1,2	1,9	3,8

Active TB Cases, by Race, Alaska

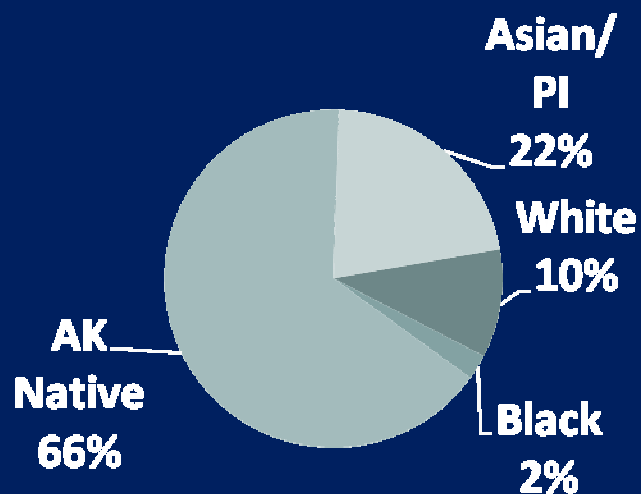
Race	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	Cases / Rate	
White	7	1.5	4	0.8	3	0.6	8	1.7	6	1.2	9	1.8	5	1.0	2	0.4	5	1.2	7	1.5
Black	1	3.7	0	0.0	2	7.8	1	3.4	2	6.7	1	3.3	2	6.6	1	3.2	2	6.5	1	4.3
Native	24	21.5	41	36.0	30	25.9	30	25.4	50	41.8	32	26.3	33	27.0	25	20.1	41	33.0	47	37.8
Asian/Pacific Islander	17	49.3	12	34.8	8	23.0	20	54.3	12	32.2	8	21.3	10	26.3	9	23.3	9	23.3	12	31.5
Total	49	7.6	57	8.8	43	6.5	59	8.9	70	10.4	50	7.4	50	7.3	37	5.3	57	8.0	67	9.3

Active TB Cases, by Race, Alaska

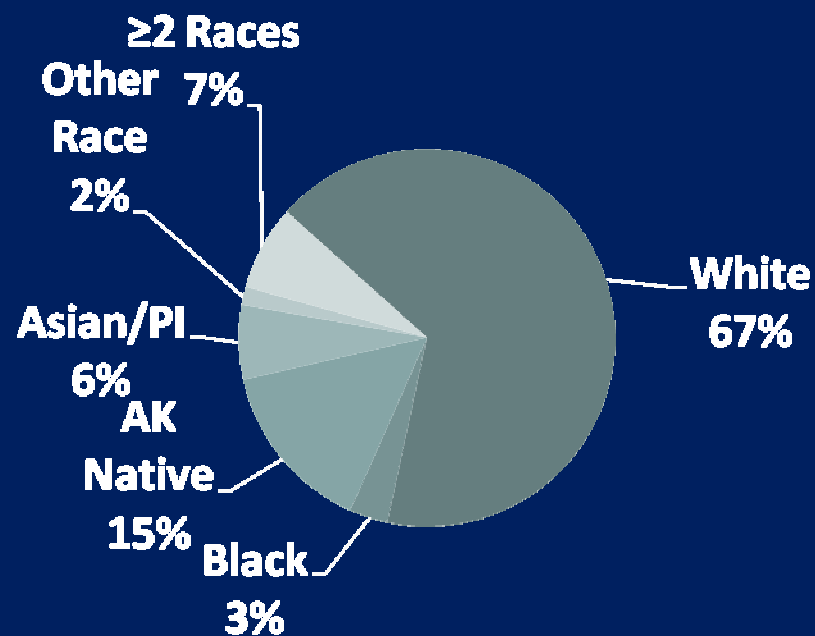
Race	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
	Cases /	Rate	Cases /	Rate	Cases /	Rate	Cases /	Rate	Cases /	Rate	Cases /	Rate	Cases /	Rate	Cases /	Rate	Cases /	Rate	Cases /	Rate
White	7	1.5	4	0.8	3	0.6	8	1.7	6	1.2	9	1.8	5	1.0	2	0.4	5	1.2	7	1.5
Black	1	3.7	0	0.0	2	7.8	1	3.4	2	6.7	1	3.3	2	6.6	1	3.2	2	6.5	1	4.3
Native	24	21.5	41	36.0	30	25.9	30	25.4	50	41.8	32	26.3	33	27.0	25	20.1	41	33.0	47	37.8
Asian/Pacific Islander	17	49.3	12	34.8	8	23.0	20	54.3	12	32.2	8	21.3	10	26.3	9	23.3	9	23.3	12	31.5
Total	49	7.6	57	8.8	43	6.5	59	8.9	70	10.4	50	7.4	50	7.3	37	5.3	57	8.0	67	9.3

TB Cases, by Race, Alaska, 2001-2010

**Alaska TB Cases
N=539**



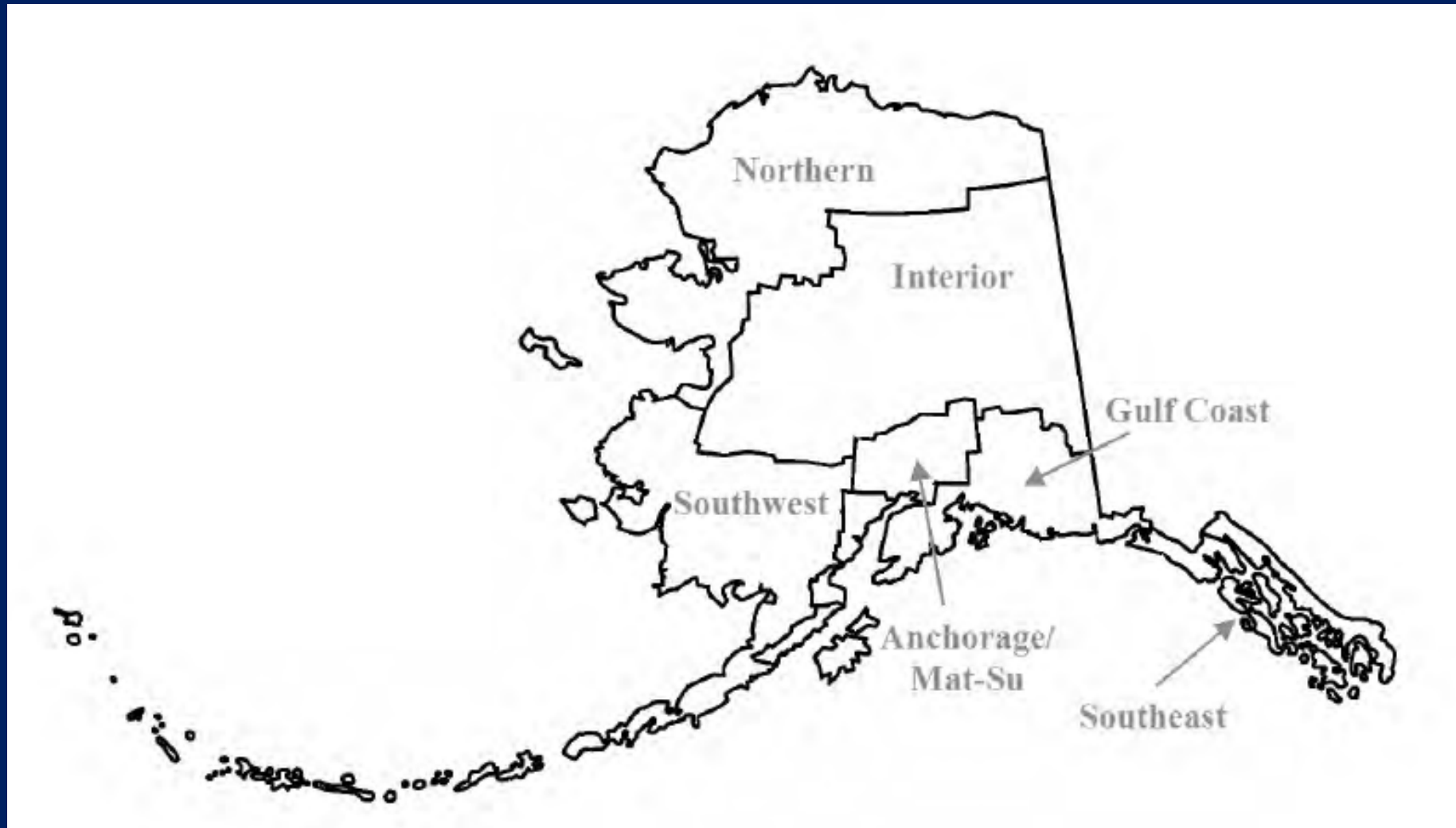
**All Alaska Residents
N=710,231**



TB Cases, by Sex, Alaska



TB Rates by Region



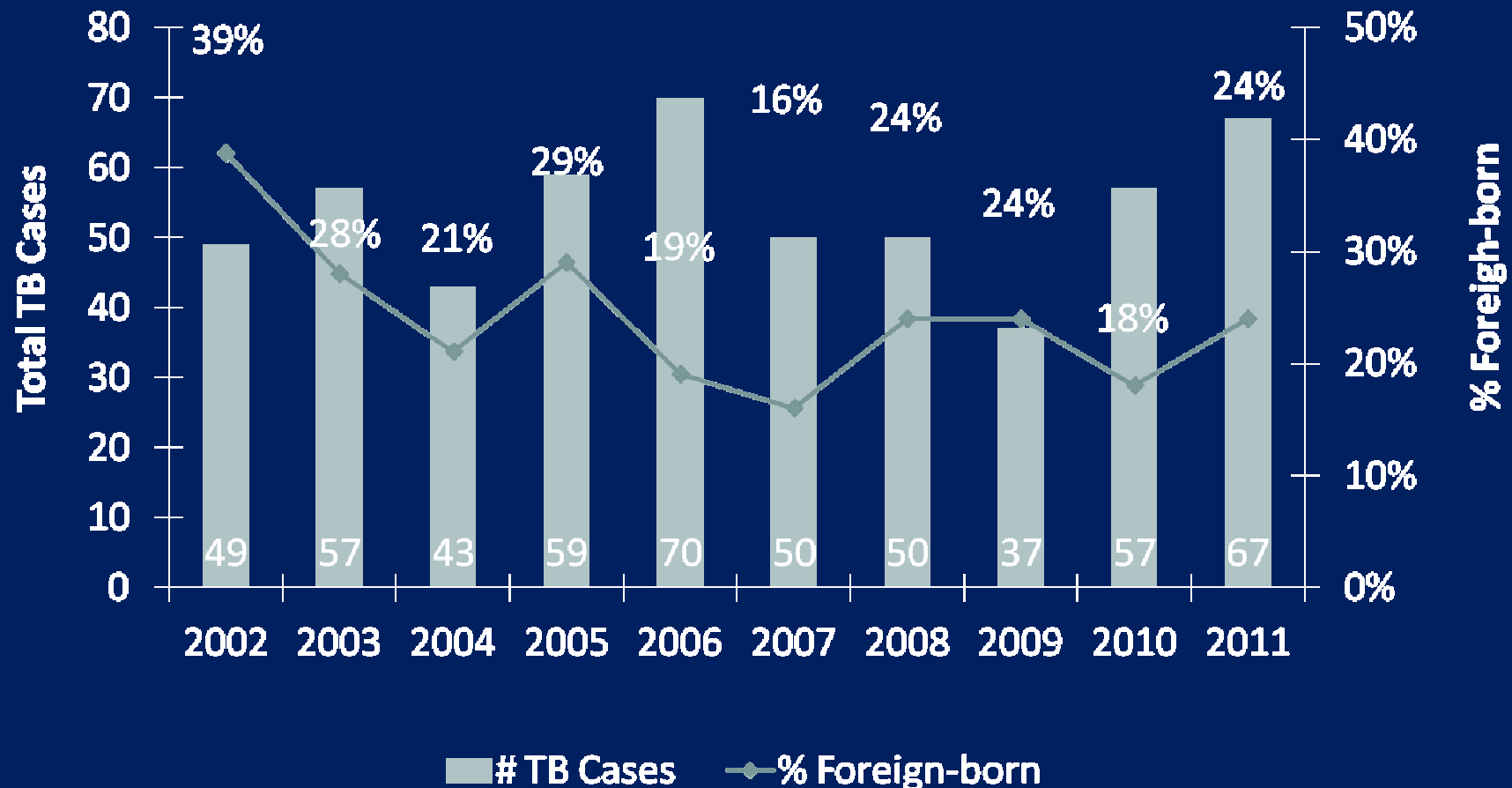
TB Rates by Region

Region	2006 (cases/100,000)	2007 (cases/100,000)	2008 (cases/100,000)	2009 (cases/100,000)	2010 (cases/100,000)	2011 (cases/100,000)
Anchorage/Mat-Su	41 (11.4)	27 (7.4)	19 (5.2)	12 (3.2)	18 (4.8)	29 (7.5)
Gulf	4 (5.4)	1 (1.3)	2 (2.6)	1 (1.3)	0 (0.0)	5 (6.2)
Interior	4 (3.9)	4 (3.8)	4 (3.8)	4 (3.7)	11 (10.1)	4 (3.6)
Northern	7 (29.6)	7 (29.6)	6 (25.4)	5 (21.1)	11 (46.5)	8 (29.7)
Southeast	4 (5.7)	2 (2.9)	3 (4.3)	2 (2.9)	2 (2.9)	1 (1.4)
Southwest	10 (25.3)	9 (23.0)	17 (43.5)	13 (33.1)	15 (38.2)	20 (48.1)
STATE TOTAL	70 (10.4)	50 (7.4)	50 (7.4)	37 (5.3)	57 (8/0)	67 (9.3)

TB Rates by Region

Region	2006 (cases/100,000)	2007 (cases/100,000)	2008 (cases/100,000)	2009 (cases/100,000)	2010 (cases/100,000)	2011 (cases/100,000)
Anchorage/Mat-Su	41 (11.4)	27 (7.4)	19 (5.2)	12 (3.2)	18 (4.8)	29 (7.5)
Gulf	4 (5.4)	1 (1.3)	2 (2.6)	1 (1.3)	0 (0.0)	5 (6.2)
Interior	4 (3.9)	4 (3.8)	4 (3.8)	4 (3.7)	11 (10.1)	4 (3.6)
Northern	7 (29.6)	7 (29.6)	6 (25.4)	5 (21.1)	11 (46.5)	8 (29.7)
Southeast	4 (5.7)	2 (2.9)	3 (4.3)	2 (2.9)	2 (2.9)	1 (1.4)
Southwest	10 (25.3)	9 (23.0)	17 (43.5)	13 (33.1)	15 (38.2)	20 (48.1)
STATE TOTAL	70 (10.4)	50 (7.4)	50 (7.4)	37 (5.3)	57 (8/0)	67 (9.3)

Active TB Cases – Foreign Born, Alaska, 2002-2011



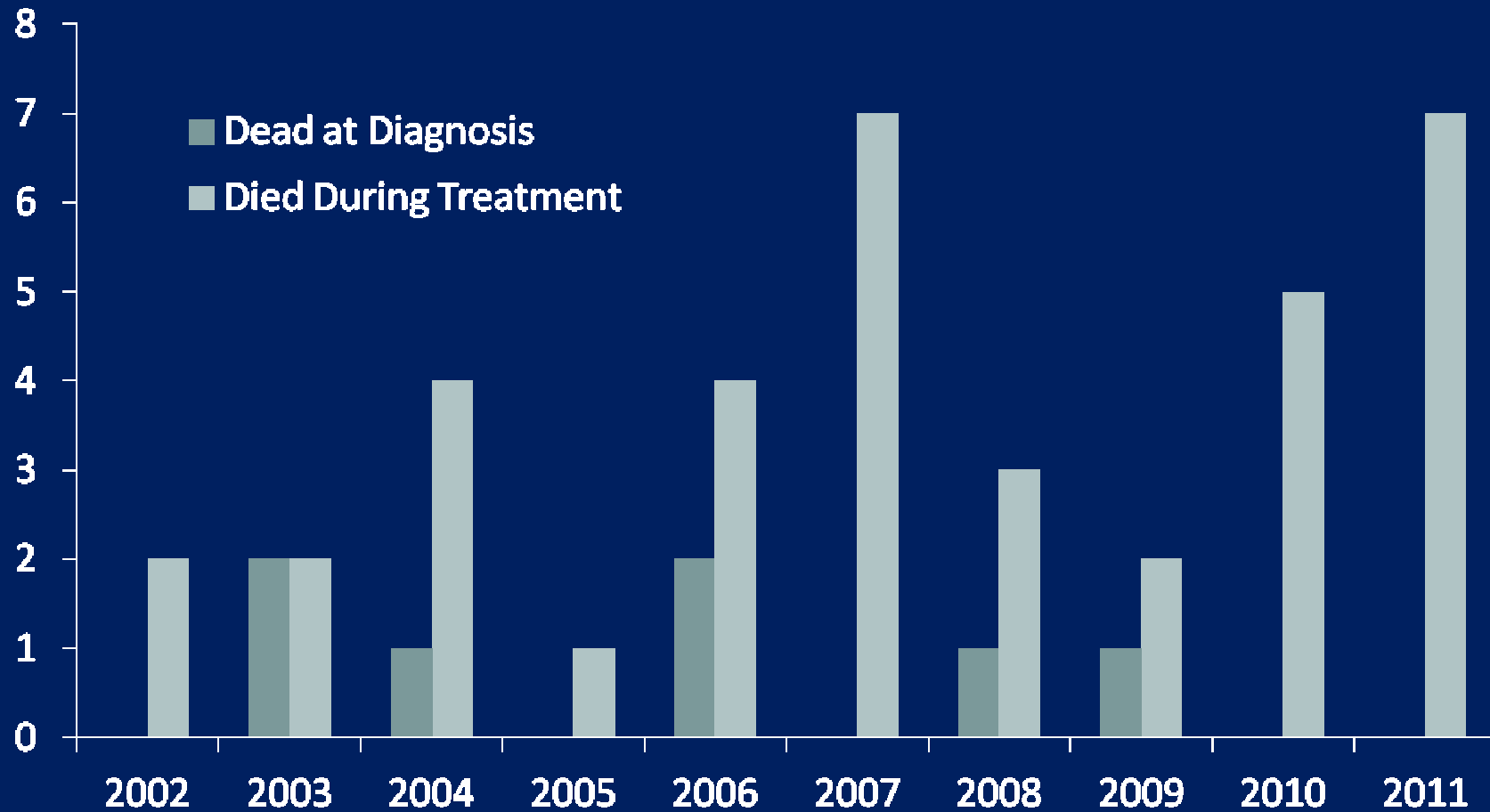
Foreign Born Cases, Country of Origin, Alaska, 2002-2011

	Country of Origin	TB Cases (%)
Asian and Pacific Island Countries	Philippines	77 (60%)
	Korea, Republic of	8 (6%)
	Vietnam	3 (2%)
	Laos	10 (8%)
	China	2 (2%)
	Thailand	4 (3%)
	Indonesia	2 (2%)
	Nepal	2 (2%)
Latin American Countries	Mexico	6 (5%)

Extra-pulmonary TB, Alaska

Site	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Lymphatic: cervical	2		3	2	3	2	2	1	3	1	18
Genitourinary	2			2				1	1		6
Pleural			1		2	1	1			1	6
Lymphatic: intrathoracic			1	1				1			3
Bone/Joint	1					1			1	1	4
Pericardium		1		1					1		3
Miliary	1		1								2
Meningeal		1						1		1	3
Other							1		1	1	3
Lymphatic: other	1										1
Ear & mastoid cells								1			1
Eye and Ear							1				1
Peritoneal										1	1
Thyroid/parathyroid											0
Subcutaneous tissue					1						1
Skin/skin appendages		1									1
Total for year	7	3	6	6	6	4	5	5	7	6	55

TB Mortality, Alaska, 2002-2011



Drug Resistance and Co-infection with HIV

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
No. with isoniazid-resistant TB	3	2	2	2	2	0	1	0	1	7
No. with multiple drug resistant TB (MDR-TB)*	0	1	0	0	1	0	0	0	1	4
* MDR-TB indicates resistance to both isoniazid and <u>rifampin</u> .										
No. offered HIV testing (% of total)	31 (63%)	41 (72%)	33 (77%)	46 (78%)	52 (74%)	39 (78%)	38 (76%)	30 (81%)	37 (65%) [†]	58 (87%)
No. TB cases infected with HIV	0	1	2	0	1	1	1	1	1	1

Conclusions

- **TB still a major problem in Alaska**
 - Highest rate in the United States
- **Limited progress over past 15 years**
- **Alaska Natives and Asian/PI have greatest burden**
- **Large pool of latent disease, geography and health infrastructure important challenges**

Thank you!

