

REPORTABLE INFECTIOUS DISEASES IN ALASKA

2010–2014 Summary

Last updated 5/31/2015

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INTRODUCTION

Purpose

The purpose of this report is to provide trend information for select reportable diseases in the State of Alaska between 2010 and 2014.

Infectious Disease Surveillance in Alaska

The Alaska Division of Public Health, Section of Epidemiology's (SOE) ability to detect and investigate infectious disease outbreaks depends on robust, consistent, and timely reporting by healthcare providers. Information on how providers and laboratories can report to SOE, as well as a complete list of diseases mandated by regulation to be reported to Alaska public health authorities can be found at: http://www.epi.alaska.gov/pubs/conditions.

Select Reportable Disease Summaries

Diseases were selected for inclusion in this report based on their public health significance and frequency of occurrence. Case definitions from the Centers for Disease Control and Prevention (CDC) are available at: http://wwwn.cdc.gov/nndss/script/casedefDefault.aspx.

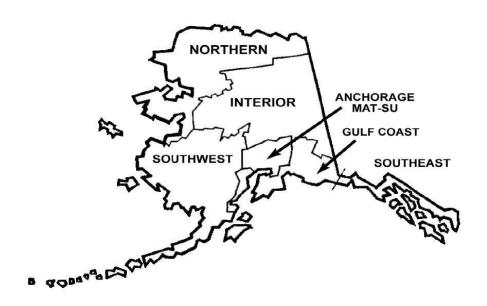
Cases without a known onset date are attributed to the date of specimen collection, diagnosis, or report to SOE, whichever was earliest. National reporting standards assign cases to the patient's state of residence, meaning that some diseases reported to SOE may have actually been acquired outside of Alaska.

Technical Notes

This document is best viewed electronically. Items with purple font are embedded with links which will take you to appropriate content within this document or on the internet. Clicking the names of the diseases in the Table of Contents above will take you to the relevant page within this document. Clicking the Return to Table of Contents link at the bottom of each page in this document will take you back to the Table of Contents. Clicking the disease names on their respective pages below will take you to relevant SOE webpage. Alternatively, relevant SOE webpages may be found by navigating to http://www.epi.alaska.gov.

Infectious Disease Reports

The annual summary *Bulletin* of reportable conditions for 2013 and 2014, with disease counts and regional information, can be found here. The 2009–2013 edition of Reportable Infectious Diseases in Alaska can be found here.



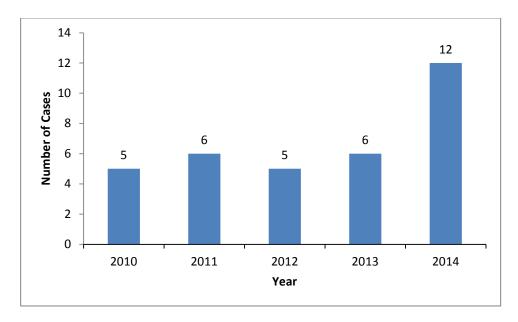
BOTULISM

From 2010 to 2014, 34 cases of botulism were reported to SOE, all of which were foodborne (Figure 1). Twelve cases of botulism poisoning, representing eight outbreaks, were reported in 2014, including one death. The age range of patients with botulism poisoning in 2014 was 8–86 years (median age: 50 years); seven (59%) were female.

All 34 cases of foodborne botulism in the 5-year period were associated with eating traditionally-prepared Alaska Native foods. All except one were in the Southwest region of Alaska (one in the Northern region). Foods identified as sources for these outbreaks included seal flipper, aged fish, fish heads, beaver tail, and seal oil.

Health care providers should be aware of the possibility of botulism poisoning among patients presenting with gastrointestinal symptoms, a recent history of eating traditionally aged foods, and symmetrical, descending CNS (central nervous system) paralysis. Expert medical consultation from SOE is available 24 hours per day, year round, along with rapid provision of botulism antitoxin. In April 2013, antitoxin product switched from an investigational product to a product licensed by the FDA (BATTM). The Botulism in Alaska monograph, a guide to diagnosis and treatment of botulism for physicians and healthcare providers, is available online. ¹

Figure 1. Reports of Botulism by Year — Alaska, 2010–2014



Reference

1. Alaska Section of Epidemiology. Botulism in Alaska: A guide for physicians and healthcare providers, 2011 update. Available at: http://www.epi.alaska.gov/id/botulism/monograph.htm

CAMPYLOBACTERIOSIS

Alaska averaged 107 cases of *Campylobacter* infection each year from 2010 to 2014 (Figure 2). The average annual number of cases of campylobacteriosis has increased roughly 50% when compared to data from 1998 to 2007, when the average number of cases was about 70 cases per year. Reported cases of campylobacteriosis have shown an increase during the summer months (Figure 3). There were five *Campylobacter* outbreaks in 2013, and the largest of these infected 31 people and was associated with raw milk consumption. Another *Campylobacter* outbreak linked to raw milk occurred in 2011, infecting 18 individuals.

Figure 2. Reports of Campylobacter Infections by Year — Alaska, 2010–2014

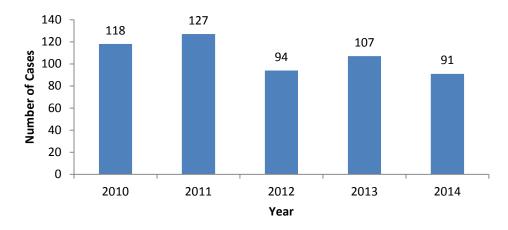
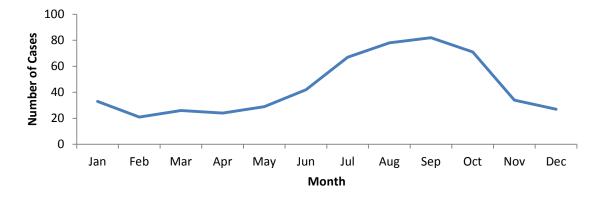


Figure 3. Reports of Campylobacter Infections by Onset Month — Alaska, 2010–2014



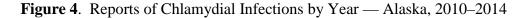
References

- Alaska Section of Epidemiology *Bulletin*. 2007 Annual Infectious Disease Report (January–December). No. 1, July 25, 2008. Available at: http://www.epi.alaska.gov/bulletins/docs/rr2008_01.pdf
- 2. Alaska Section of Epidemiology *Bulletin*. Raw Milk *Campylobacter* Outbreak Kenai Peninsula, Jan–Feb 2013. No. 12, May 1, 2013. Available at: http://www.epi.alaska.gov/bulletins/docs/b2013_12.pdf
- 3. Alaska Section of Epidemiology *Bulletin*. Ongoing Raw Milk *Campylobacter* Outbreak Southcentral Alaska, July 2011. No. 22, July 28, 2011. Available at: http://www.epi.alaska.gov/bulletins/docs/b2011 22.pdf

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CHLAMYDIA

In 2014, 5,726 cases of chlamydial infection (CT) were reported to SOE; Alaska's CT incidence rate was 778 cases per 100,000 persons. This represents a 1% rate decrease compared to 2013 data. Alaska has ranked first or second for national CT rates since 2000.



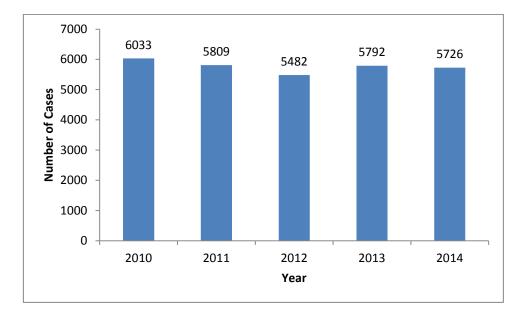


Figure 5. Chlamydia Rates per 100,000 population with 5-year Rate Change, by Region — Alaska, 2010–2014

Region	2010	2011	2012	2013	2014	5 year
Anch/MatSu	810	771	727	786	725	-11%
Gulf Coast	355	365	414	329	370	4%
Interior	811	799	597	645	759	-6%
Northern	2250	2060	2278	2216	1975	-12%
Southeast	604	460	487	513	512	-15%
Southwest	1801	1753	1501	1598	1798	0%
Statewide	849	803	750	787	778	-8%

Reference

1. Alaska Section of Epidemiology *Bulletin*. Chlamydial Infection Update – Alaska, 2014. No. 9, April 29, 2015. Available at: http://www.epi.alaska.gov/bulletins/docs/b2015_09.pdf

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GIARDIASIS

Alaska averaged 94 cases of giardiasis from 2010 to 2014 (Figure 6). *Giardia* is a well-known inhabitant of Alaska's surface waters. Cases of *Giardia* have shown an increase during the summer months and the fall hunting season (Figure 7). Many cases occur sporadically with no source identified. However, during the summer of 2012, one major outbreak of giardiasis was identified and investigated. Reports were received for 21 ill patients, and the source was determined to be contaminated spring water. There was one giardia outbreak investigated in 2014, involving five individuals. There were no outbreaks of giardiasis reported in 2013.

Figure 6. Reports of Giardia Infections by Year — Alaska, 2010–2014

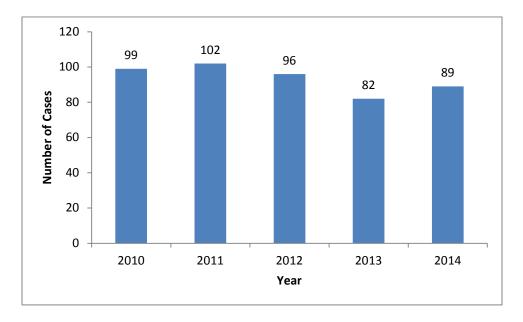
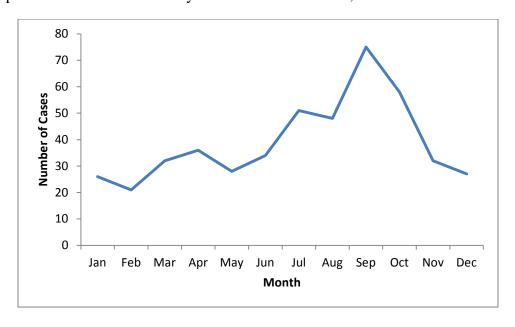


Figure 7. Reports of Giardia Infections by Onset Month — Alaska, 2010–2014



GONORRHEA

In 2014, 1,323 cases of gonococcal infection (GC) were reported to SOE; Alaska's GC incidence rate was 180 cases per 100,000 persons. This represents a 17% increase compared to 2013 data. This increase was driven mostly by a marked increase in case counts in the Anchorage/MatSu region, with more frequent extragenital testing a contributor.



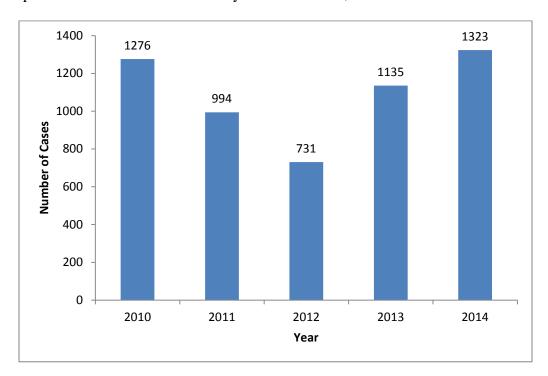


Figure 9. Gonorrhea Rates per 100,000 population with 5-year Rate Change, by Region — Alaska, 2010–2014

Region	2010	2011	2012	2013	2014	5 year
Anch/MatSu	141	85	63	141	205	45%
Gulf Coast	18	21	26	41	30	39%
Interior	154	217	103	139	94	-39%
Northern	745	486	532	614	627	-16%
Southeast	15	12	12	18	24	60%
Southwest	846	635	453	477	438	-48%
Statewide	180	129	100	154	180	0%

Reference

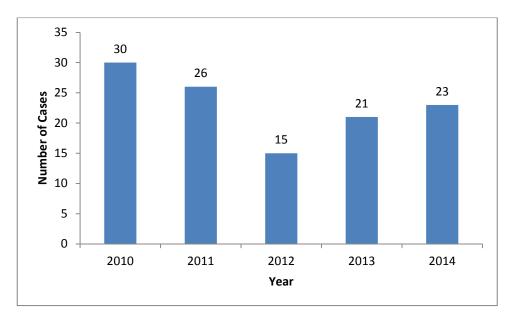
1. Alaska Section of Epidemiology *Bulletin*. Gonococcal Infection Update — Alaska, 2014. No.10, April 30, 2015. Available at: http://www.epi.alaska.gov/bulletins/docs/b2015_10.pdf

HAEMOPHILUS INFLUENZAE INVASIVE DISEASE

SOE received 115 reports of invasive *Haemophilus influenzae* cases from 2010 to 2014. In 2014, 23 cases of *H. influenzae* were reported to SOE (Figure 10). Of these 23 cases, two (9%) were type a, one (4%) was type b, one (4%) was type e, two (9%) were type f, and 17 (74%) were nontypeable. The two cases of *H. influenzae* type a came from the Yukon-Kuskokwim Delta, the region that has seen the most of *H. influenzae* from 2002 to 2013. The patient with *H. influenzae* type b (Hib) was aged less than 6 years. Six total cases of Hib were reported between 2010–2014; four cases of Hib were reported in children aged less than 10 years from Southwestern Alaska in 2009.

SOE works closely with the CDC's Arctic Investigations Program (AIP) on *H. influenzae* investigations. In addition to providing support for infectious disease research projects, AIP assists in investigations and performs laboratory testing for various invasive disease-causing bacteria such as *H. influenzae*.

Figure 10. Reports of *Haemophilus influenzae* Invasive Disease by Year — Alaska, 2010–2014

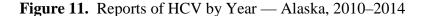


- 1. Alaska Section of Epidemiology *Bulletin*. Update on *Haemophilus influenzae* Type a Invasive Disease Alaska, 2002–2013. No. 3, March 24, 2014. Available at: http://www.epi.alaska.gov/bulletins/docs/b2014_03.pdf
- 2. Alaska Section of Epidemiology *Bulletin*. Four Cases of Invasive *Haemophilus influenzae* Type b Southwestern Alaska, 2009. No. 19, August 11, 2009. Available at: http://www.epi.alaska.gov/bulletins/docs/b2009_19.pdf

HEPATITIS C

From 2010 to 2014, SOE received an average of 906 reports annually of hepatitis C virus (HCV) infection, with 1,126 new reports of HCV infection in 2014 (Figure 11). These data represent newly reported cases of either acute cases or chronic cases. Rates of HCV reports were highest in the Anchorage/Mat-Su, Gulf Coast, and Southeast regions (Figure 12).

The Hepatitis Advisory Working Group is working to refer infected Alaskans to providers for follow up care and treatment. Information on viral hepatitis in Alaska is available at http://www.epi.alaska.gov/id/hepatitis/default.htm. An HCV update is available online, which summarizes reports of HCV from 2003 to 2012 in Alaska.¹



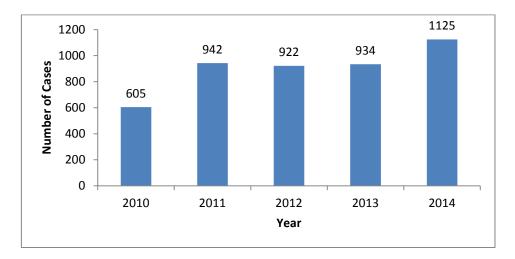
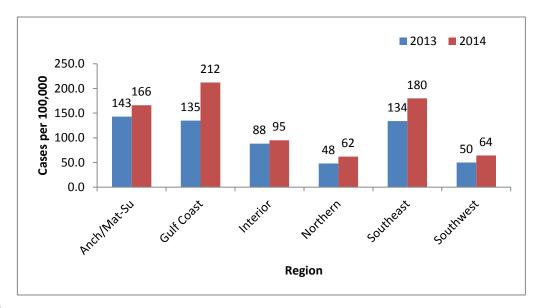


Figure 12. Rates of HCV Reports by Region — Alaska 2013–2014



Reference

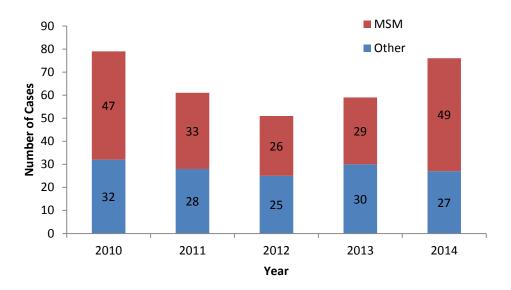
1. Alaska Section of Epidemiology *Bulletin*. Hepatitis C Update — Alaska 2003–2012. No. 13, May 15, 2013. Available at: http://www.epi.alaska.gov/bulletins/docs/b2013_13.pdf

From January 1, 1982 through December 31, 2014, 1,616 cases of human immunodeficiency virus (HIV) infection were reported to SOE.¹ Of the 1,616 reported cases, 575 (36%) were in persons who are known to have subsequently died. Of the 1,041 HIV-infected persons who are not known to have died, 618 (59%) are currently living in Alaska.

During 2014, 76 cases of HIV infection were reported to SOE.² Of the 76 reported cases, 42 (55%) were initially diagnosed in Alaska, yielding a statewide incidence rate in 2014 of 5.7 cases per 100,000 persons. Of the 42 newly diagnosed persons who agreed to be interviewed, 34 (81%) were male, 19 (45%) were white, and 25 (60%) were men who have sex with men (MSM). Of the MSM who agreed to be interviewed, the most commonly reported venues to meet sexual partners were online and through mobile applications (16/25, 64%).

The number of new HIV infections reported to SOE varies from year to year as Alaska is a low incidence jurisdiction. The most common risk factor is MSM which represents over half of new infections each year (Figure 13).

Figure 13. HIV Cases by Year — Alaska, 2010–2014



- 1. Alaska Section of Epidemiology. HIV Surveillance Report Alaska, 1982–2014. Available at: http://www.epi.alaska.gov/hivstd/HIVSurveillanceReport2014.pdf
- 2. Alaska Section of Epidemiology *Bulletin*. HIV Update Alaska, 2014. No. 7, April 1, 2015. Available at: http://www.epi.alaska.gov/bulletins/docs/b2015_07.pdf

PARALYTIC SHELLFISH POISONING

From 2010 to 2014, 46 cases of paralytic shellfish poisoning (PSP) were reported to SOE (Figure 14). During this time, the age range of patients with PSP was 13–72 years (median age: 53 years); 28 (62%) were male. All ill persons consumed self-harvested shellfish from the Gulf Coast or Southeast regions of Alaska, except one probable case from the Northern region in 2014. Confirmed or probable cases have been reported to SOE in every month, with the spring and summer months being most common (Figure 15). During 2011, a large outbreak accounting for 21 of the 26 cases from 2011 was identified in Metlakatla and Ketchikan that resulted in four hospitalizations. Two ill persons diagnosed with PSP in 2010 died.²

The State of Alaska does not monitor or certify any beaches for toxins associated with PSP for the purposes of recreationally harvested shellfish, and the consumption of recreationally harvested shellfish cannot be considered safe. A PSP factsheet is available online.³

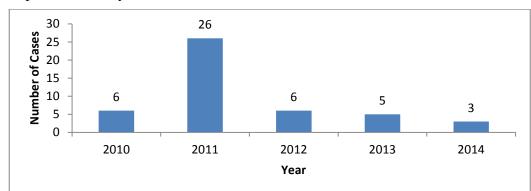
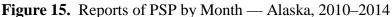
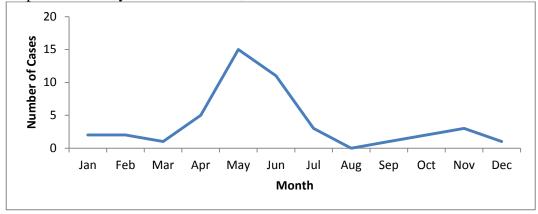


Figure 14. Reports of PSP by Year — Alaska, 2010–2014





- Alaska Section of Epidemiology *Bulletin*. Paralytic Shellfish Poisoning in Southeast Alaska, May– June 2011. No. 17, June 23, 2011. Available at: http://www.epi.alaska.gov/bulletins/docs/b2011_17.pdf
- 2. Alaska Section of Epidemiology *Bulletin*. Paralytic Shellfish Poisoning in Juneau, Kodiak, and Haines, June 2010. No. 17, June 23, 2010. Available at: http://www.epi.alaska.gov/bulletins/docs/b2010_17.pdf
- 3. Paralytic shellfish poisoning factsheet. Available at: http://www.epi.alaska.gov/id/dod/psp

PERTUSSIS

An outbreak of pertussis that began in 2012 accounted for significant increases in cases reported in 2012 and 2013. During 2014, 165 cases of pertussis were reported to SOE, yielding an incidence rate of 22.4 cases per 100,000 persons; nearly a quarter of the cases were reported as part of an outbreak in the Interior. In 2013, 308 cases of pertussis were reported to SOE for an incidence of 41.8 cases per 100,000 persons (Figure 16). A breakdown of pertussis cases reported to SOE by age group for 2010–2014 is displayed (Figure 17). Other states reported increased levels of reported pertussis during this same time period.

Figure 16. Reports of Pertussis by Year — Alaska, 2010–2014

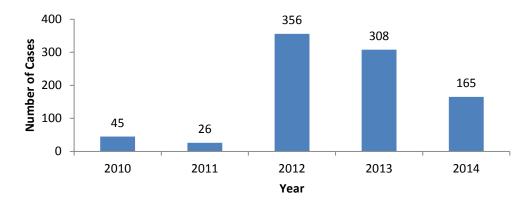
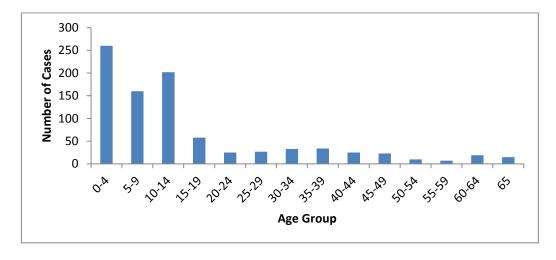


Figure 17. Reports of Pertussis by Age Group — Alaska, 2010–2014



- 1. Alaska Section of Epidemiology *Bulletin*. Pertussis Epidemic Alaska, 2012. No. 5, January 30, 2013. Available at: http://www.epi.alaska.gov/bulletins/docs/b2013_05.pdf
- 2. Alaska Section of Epidemiology *Bulletin*. Pertussis Outbreak in the Interior Region Alaska, Fall 2014. No. 3, January 28, 2015. Available at: http://epi.alaska.gov/bulletins/docs/b2015_03.pdf
- 3. CDC. 2012 Provisional Pertussis Surveillance Report. March 19, 2013. Available at: http://www.cdc.gov/pertussis/downloads/pertussis-surveillance-report.pdf

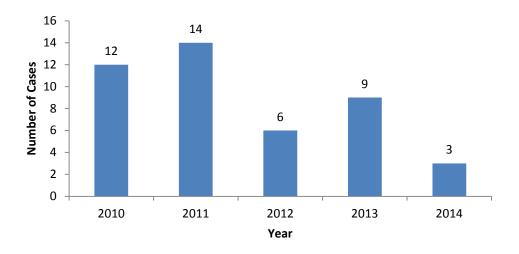
RABIES – ANIMAL

There were three cases of animal rabies confirmed at Alaska State Virology Lab (ASVL) in 2014 (Figure 18). The priorities for testing at ASVL have been animals for which there are public health actions associated, such as to determine whether an exposed human would need administration of rabies post-exposure prophylaxis (PEP), or appropriate follow-up for another animal exposed to the suspected rabid one. In March 2011, CDC trained staff from the Alaska Department of Fish and Game (ADF&G), the University of Alaska Fairbanks (UAF), and the USDA Wildlife Services (USDA-WS) in field screening direct rapid immunohistochemical test (DRIT) methods. All animals tested positive by DRIT must be confirmed by DFA (direct fluorescent antibody) at CDC. On average, annually DRIT is used to evaluate 10 times more animals than are tested at ASVL.

Of note in 2014, two bats from Southeast tested positive for rabies. The first was tested at ASVL as a human exposure had been reported. On July 13, 2014, biologists working on Prince of Wales Island trapped several Keen's myotis bats near Harris River. One bat that appeared to be potentially ill and was acting more aggressively than the others was later euthanized and submitted to ASVL. This bat tested positive for rabies on July 17. Because this was only the third bat ever found to have rabies in Alaska, a public health alert was disseminated to remind health care providers and the public about possible health risks from handling bats. The second positive bat was detected during the enhanced surveillance for rabies in bats prompted by the July finding. The bat, another Keen's myotis, was collected in August and provisionally positive via DRIT testing that occurred in October. CDC later confirmed the result.

More information is available in the Rabies Control Manual available on the Rabies Webpage at: http://epi.alaska.gov/id/rabies/default.htm.

Figure 18. Cases of Animal Rabies Documented by ASVL — Alaska, 2010–2014



Reference

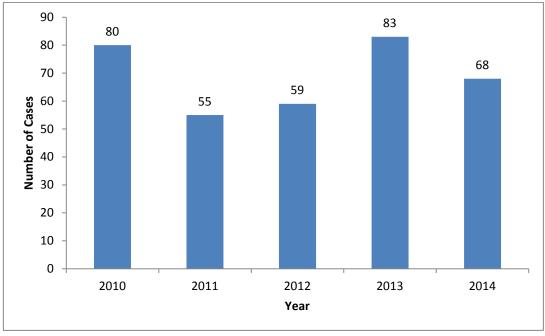
1. Alaska Public Health Advisory. July 18, 2014. Rabies Detected in a Keen's Myotis Bat — Prince of Wales Island, Alaska. Available at: http://epi.alaska.gov/phan/AKPHAN_20140718_RabiesBat.pdf

SALMONELLOSIS

Most cases of salmonellosis reported from 2009 to 2012 were sporadic with no identified source. However, 64 of the 83 cases reported to SOE in 2013 were linked to seven outbreaks (Figure 19). One outbreak accounted for 39 cases. Six outbreaks were detected in 2014. Eleven of 59 cases in 2012 were part of an *S. enteritidis* Heidelberg outbreak linked to poultry from a single producer that sickened over 120 people in 13 states.¹

Alaska cases that were linked to national outbreaks were identified though pulsed-field gel electrophoresis (PFGE) at the Alaska State Public Health Laboratory (ASPHL).²

Figure 19. Reports of *Salmonella* Infections by Year — Alaska, 2010–2014



- 1. CDC. Outbreak of *Salmonella* Heidelberg Infections Linked to a Single Poultry Producer 13 states, 2012–2013. *MMWR* 2013;62(27):553–6. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6227a3.htm
- 2. Alaska Section of Epidemiology *Bulletin*. Pulsed Field Gel Electrophoresis in Alaska: A Tool to Assist Epidemiologic Investigations. No. 1, January 11, 2008. Available at: http://www.epi.alaska.gov/bulletins/docs/b2008_01.pdf

SYPHILIS

An ongoing syphilis outbreak, first reported in 2010, continues to be fueled in part by persons engaging in anonymous sex, often with partners found through the internet and mobile phone apps. In 2014, 40 cases of early (primary, secondary, and early latent) and congenital syphilis were reported to SOE for an incidence rate of 5.4 cases per 100,000, an increase from 2013, which had an incidence rate of 4.4 cases per 100,000 persons. This outbreak has resulted in two congenital syphilis (CS) cases, one in 2012 and one in 2013. The 2013 CS case resulted in stillbirth.

Figure 20. Reports of Early Syphilis Infections by Year — Alaska, 2010–2014

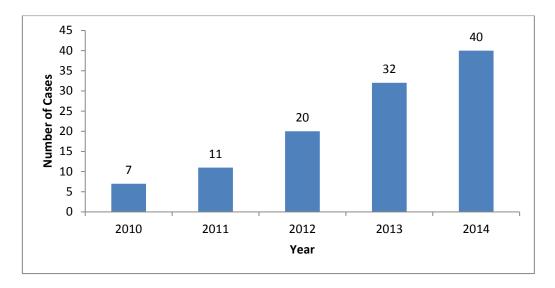
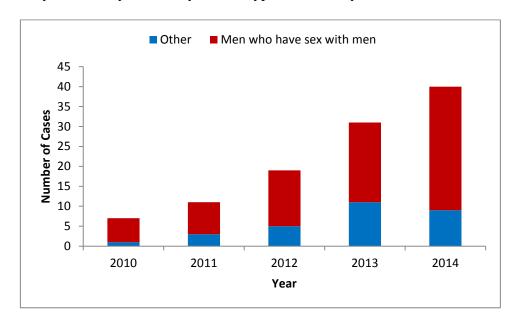


Figure 21. Primary, Secondary, and Early Latent Syphilis Cases by Risk Factor — Alaska, 2010–2014



Reference

1. Alaska Section of Epidemiology *Bulletin*. Syphilis Update — Alaska, 2014. No. 8, April 9, 2015. Available at: http://www.epi.alaska.gov/bulletins/docs/b2015_08.pdf

TUBERCULOSIS

In 2014, 62 cases of tuberculosis (TB) were reported to the Alaska Tuberculosis Control Program (Figure 22) for a rate of 8.4 cases per 100,000. This was the second highest rate in the United States, well above the nationwide rate of 3.0 cases per 100,000. The Southwest and Northern Regions of Alaska traditionally have the highest rates of TB, and Alaska Natives and Asians/Pacific Islanders bear a disproportionate burden of TB in Alaska (Figure 23). In 2013, one village-based outbreak from the Southwest Region accounted for 17 cases of TB with a corresponding incidence rate of ~2,000/100,000. The full Annual TB Reports can be found on the Alaska Tuberculosis Control Program website.

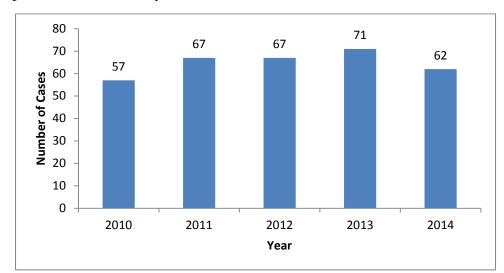
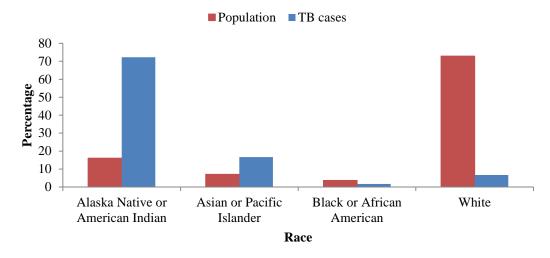


Figure 22. Report of Tuberculosis by Year — Alaska, 2010–2014

Figure 23. Racial Demographics of TB Cases Compared to 2012 Population — Alaska, 2010–2014

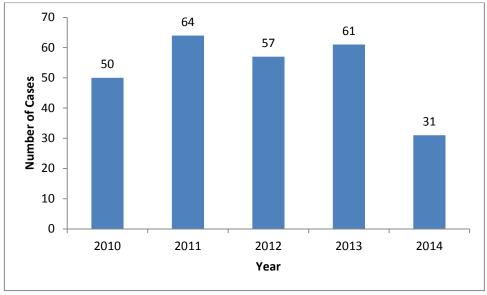


- 1. CDC. Tuberculosis Trends United States, 2014. *MMWR* 2015;64(10);265–69. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6410a2.htm
- 2. Alaska Section of Epidemiology. Tuberculosis in Alaska 2013 Annual Report. Available at: http://www.epi.alaska.gov/pubs/webtb/TB_Report_2013.pdf

VARICELLA

Alaska averaged 53 cases of varicella annually from 2010 to 2014 (Figure 24). A spike in varicella cases occurred in the fall of 2012 in Kenai communities with low vaccination rates. A Public Health Advisory was published and an investigation completed. Twelve cases were confirmed among school-age children attending four schools in Homer. The majority of cases reported to SOE are only clinically diagnosed without laboratory confirmation; health care providers are encouraged to test to more accurately describe varicella epidemiology and ensure that appropriate disease control measures are implemented. 2





- 1. Alaska Section of Epidemiology *Bulletin*. Outbreak of Chickenpox at a Child Care Facility Kenai Peninsula, 2011. No. 6, March 7, 2012. Available at: http://www.epi.alaska.gov/bulletins/docs/b2012_06.pdf
- 2. Alaska Section of Epidemiology *Bulletin*. Chickenpox (Varicella) Update. No. 2, January 13, 2015. Available at: http://epi.alaska.gov/bulletins/docs/b2015_02.pdf