



Epidemiology

REPORTABLE INFECTIOUS DISEASES IN ALASKA

2011–2015 Summary

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TABLE OF CONTENTS

| | |
|--|----|
| Introduction..... | 3 |
| Botulism..... | 4 |
| Campylobacteriosis..... | 5 |
| Chlamydia..... | 6 |
| Giardiasis..... | 7 |
| Gonorrhea..... | 8 |
| Haemophilus influenzae Invasive Disease..... | 9 |
| Hepatitis C..... | 10 |
| HIV..... | 11 |
| Paralytic Shellfish Poisoning..... | 12 |
| Pertussis..... | 13 |
| Rabies – Animal..... | 14 |
| Salmonellosis..... | 15 |
| Syphilis..... | 16 |
| Tuberculosis..... | 17 |
| Varicella..... | 18 |

INTRODUCTION

Purpose

The purpose of this report is to provide trend information for select reportable diseases in the State of Alaska between 2011 and 2015.

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 and laboratories. 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://dhss.alaska.gov/dph/Epi/Pages/pubs/conditions/default.aspx>.

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>.

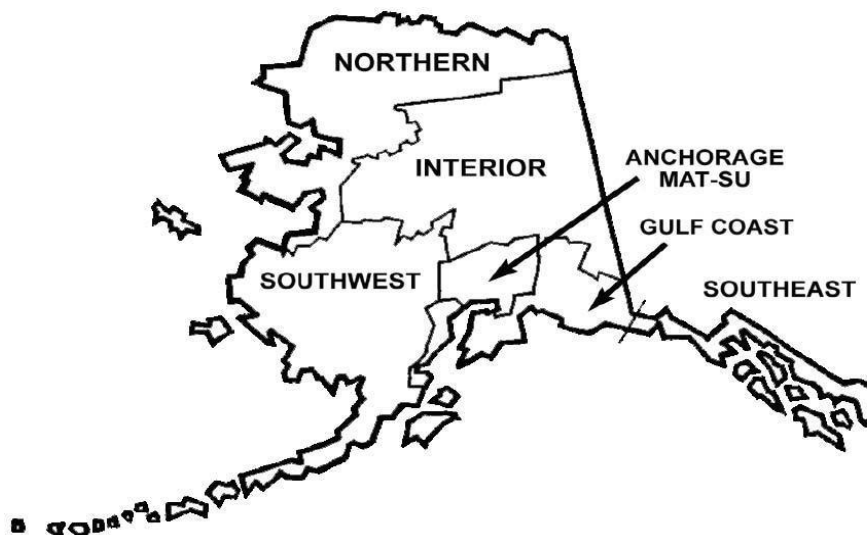
Cases without a known onset date are attributed to the date of specimen collection, diagnosis, or report to SOE, whichever was earliest. National reporting standards generally assign cases to the patient's state of residence, meaning that some diseases reported to SOE may have actually been acquired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

Technical Notes

This document is best viewed electronically. Items with [purple](#) font are embedded with links that 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://dhss.alaska.gov/dph/Epi/Pages/default.aspx>.

Infectious Disease Reports

The annual summary *Bulletin* of reportable conditions for 2014 and 2015, with disease counts and regional information, can be found [here](#).



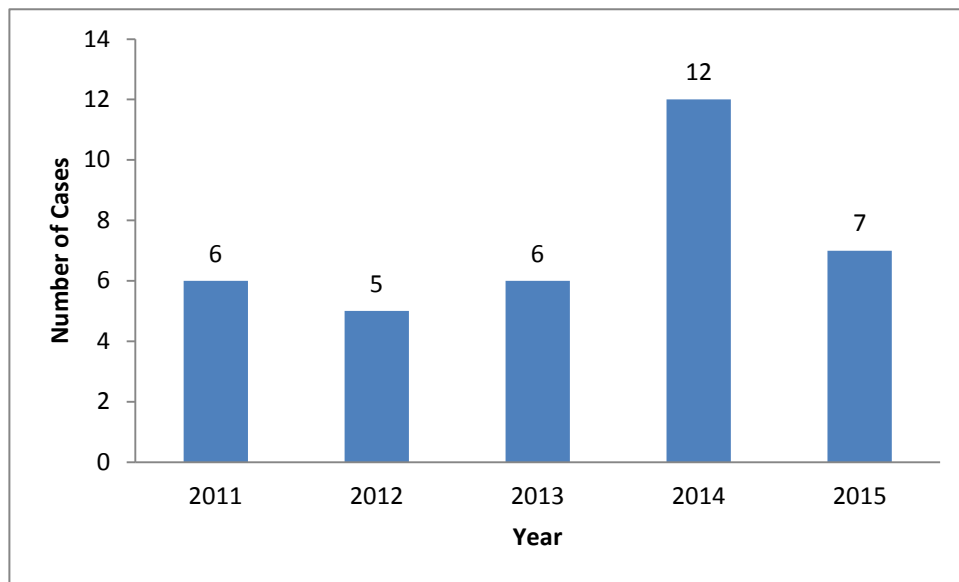
BOTULISM

From 2011 to 2015, 36 cases of foodborne botulism were reported to SOE; one case of infant botulism was reported in 2015 (Figure 1). Seven cases of foodborne botulism, representing four outbreaks, were reported in 2015. The age range of patients with foodborne botulism in 2015 was 23-77 years (median age: 48 years); five (71%) were female.

All 36 cases of foodborne botulism in the 5-year period were associated with eating traditionally-prepared Alaska Native foods. Six of the cases occurred 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 (BAT™). 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 Foodborne Botulism by Year — Alaska, 2011–2015



Reference

1. Alaska Section of Epidemiology. Botulism in Alaska: A Guide for Physicians and Health Care Providers, 2011 update. Available at: <http://dhss.alaska.gov/dph/Epi/id/Documents/botulism/Botulism.pdf>

CAMPYLOBACTERIOSIS

Alaska averaged 103 cases of *Campylobacter* infection each year from 2011 to 2015 (Figure 2). New for 2015, the case definition for campylobacteriosis included cases with positive results on culture-independent diagnostic (CIDT) tests.¹ 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.² Another *Campylobacter* outbreak linked to raw milk occurred in 2011, infecting 18 individuals.³

Figure 2. Reports of *Campylobacter* Infections by Year — Alaska, 2011–2015

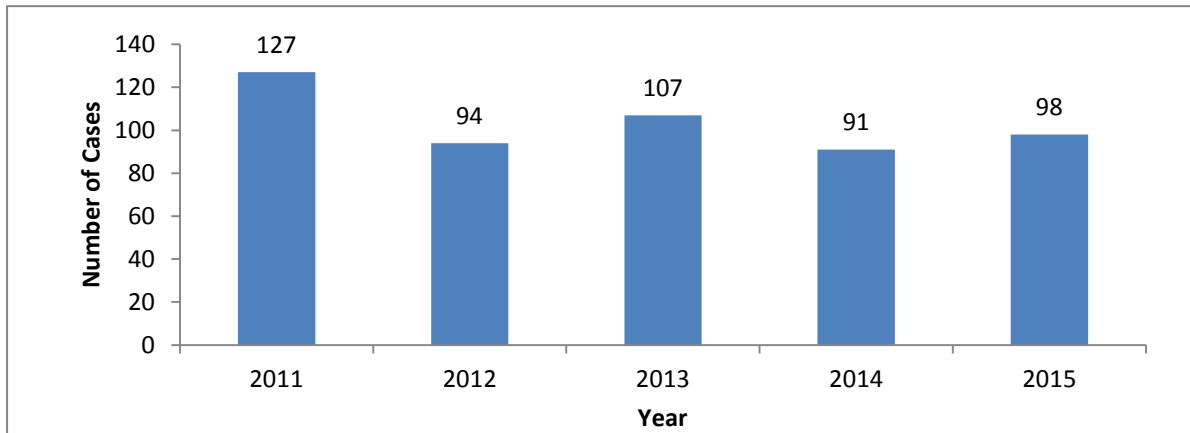
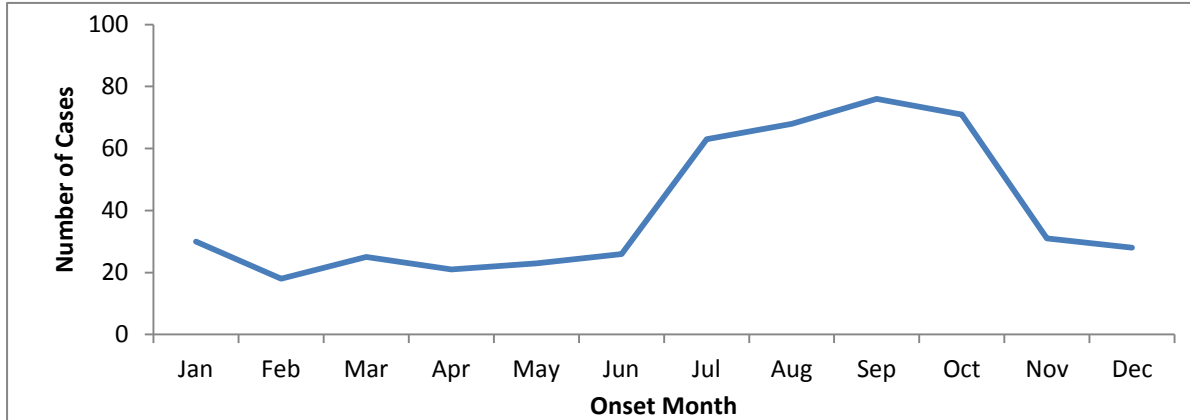


Figure 3. Reports of *Campylobacter* Infections by Onset Month — Alaska, 2011–2015



References

1. CDC. NNDSS. *Campylobacter* 2015 Case Definition. Available at: <https://www.cdc.gov/nndss/conditions/campylobacteriosis/case-definition/2015/>
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

CHLAMYDIA

In 2015, 5,653 cases of chlamydial infection (CT) were reported to SOE (Figure 4); Alaska’s CT incidence rate was 766 cases per 100,000 persons. This represents a 1.5% rate decrease compared to 2014 data (788 cases/100,000 persons, Figure 5).¹ Alaska ranked first for national CT rates from 2010-2014.

Figure 4. Reports of Chlamydial Infections by Year — Alaska, 2011–2015

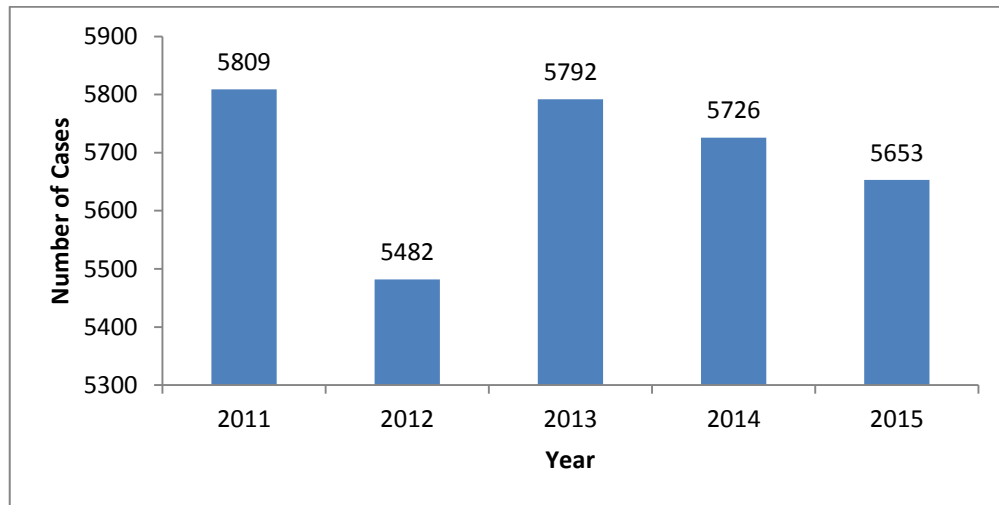


Figure 5. Chlamydia Rates per 100,000 with 5-year Rate Change, by Region — Alaska, 2011–2015

| Region | 2011 | 2012 | 2013 | 2014 | 2015 | 5 year |
|-------------|------|------|------|------|------|---------|
| Anch/Mat-Su | 771 | 727 | 786 | 725 | 724 | -6.10% |
| Gulf Coast | 365 | 414 | 329 | 370 | 297 | -18.60% |
| Interior | 799 | 597 | 645 | 759 | 714 | -10.60% |
| Northern | 2060 | 2278 | 2216 | 1975 | 2151 | 4.40% |
| Southeast | 460 | 487 | 513 | 512 | 535 | 16.30% |
| Southwest | 1753 | 1501 | 1598 | 1798 | 1702 | -2.90% |
| Statewide | 803 | 750 | 787 | 778 | 766 | -4.60% |

Reference

1. Alaska Section of Epidemiology *Bulletin*. Chlamydial Infection Update – Alaska, 2015. No. 16, June 23, 2016. Available at: http://www.epi.alaska.gov/bulletins/docs/b2016_16.pdf

GIARDIASIS

Alaska averaged 93 cases of giardiasis from 2011 to 2015 (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). However, cases are also transmitted from person-to-person and thus can occur year round. Often cases occur sporadically with no source identified. 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.

Figure 6. Reports of Giardia Infections by Year — Alaska, 2011–2015

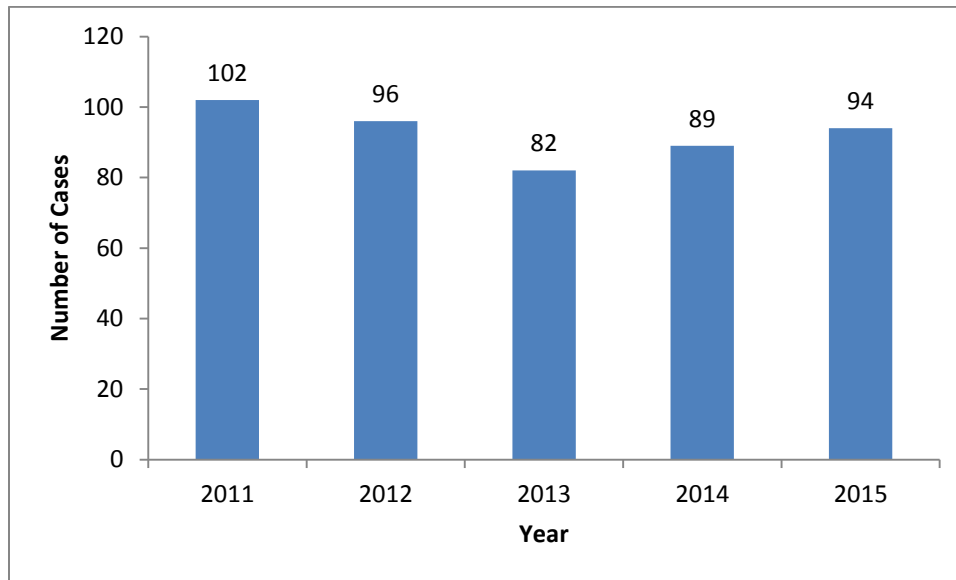
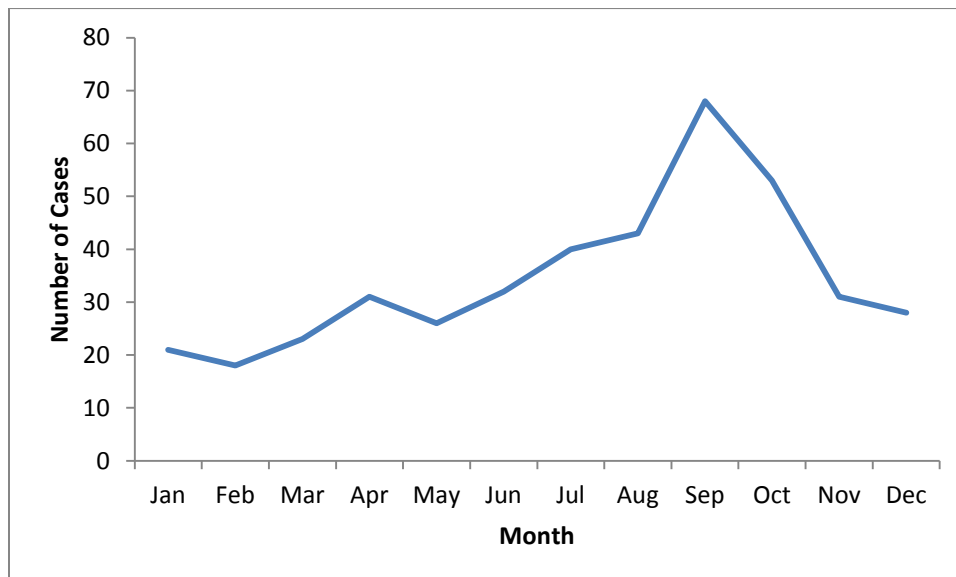


Figure 7. Reports of Giardia Infections by Onset Month — Alaska, 2011–2015



GONORRHEA

In 2015, 1,115 cases of gonococcal infection (GC) were reported to SOE (Figure 8); Alaska’s GC incidence rate was 151 cases per 100,000 persons. This represents a 16% decrease compared to 2014 data (Figure 9).¹

Figure 8. Reports of Gonococcal Infections by Year — Alaska, 2011–2015

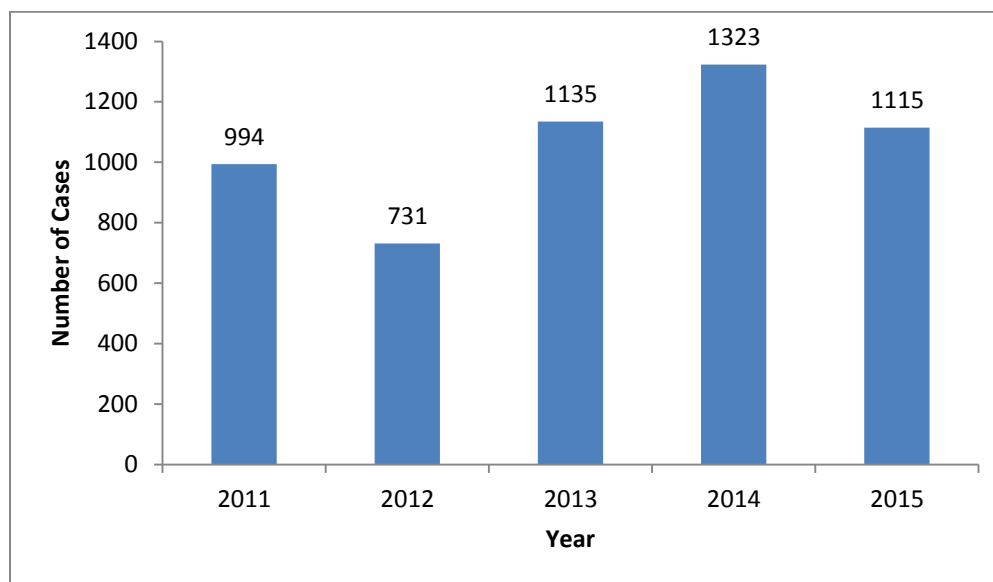


Figure 9. Gonorrhea Rates per 100,000 with 5-year Rate Change, by Region — Alaska, 2011–2015

| Region | 2011 | 2012 | 2013 | 2014 | 2015 | 5 year |
|-------------|------|------|------|------|------|--------|
| Anch/Mat-Su | 85 | 63 | 141 | 205 | 170 | 100% |
| Gulf Coast | 21 | 26 | 41 | 30 | 35 | 67% |
| Interior | 217 | 103 | 139 | 94 | 101 | -54% |
| Northern | 486 | 532 | 614 | 627 | 518 | 7% |
| Southeast | 12 | 12 | 18 | 24 | 31 | 158% |
| Southwest | 635 | 453 | 477 | 438 | 271 | -57% |
| Statewide | 129 | 100 | 154 | 180 | 151 | 17% |

Reference

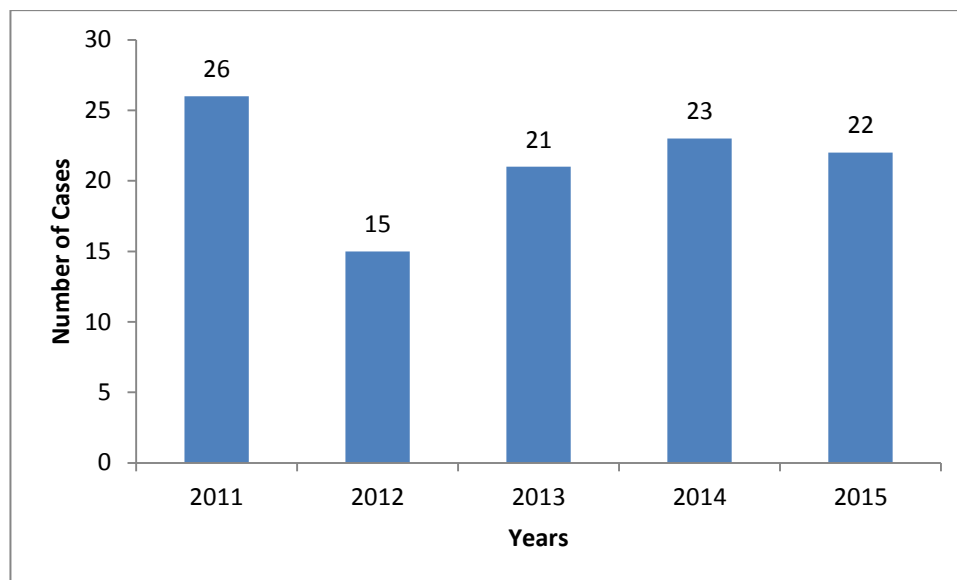
1. Alaska Section of Epidemiology *Bulletin*. Gonococcal Infection Update — Alaska, 2015. No.15, May 26, 2016. Available at: http://www.epi.alaska.gov/bulletins/docs/b2016_15.pdf

HAEMOPHILUS INFLUENZAE INVASIVE DISEASE

SOE received 107 reports of invasive *Haemophilus influenzae* cases from 2011 to 2015. In 2015, 22 cases of *H. influenzae* were reported to SOE (Figure 10). Of these 22 cases, six (27%) were type a, one (5%) was type b, one (5%) was type e, thirteen (59%) were nontypeable, and one (5%) was not tested. The six cases of *H. influenzae* type a came from the Yukon-Kuskokwim Delta, the region that has seen the most *H. influenzae* from 2002 to 2013.¹ The patient with *H. influenzae* type b (Hib) was aged less than 6 years. Six total cases of Hib were reported between 2011–2015; five cases of Hib were reported in children aged less than 10 years from Southwestern Alaska in 2009.²

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, 2011–2015



References

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 2011 to 2015, SOE received an average of 1,189 reports annually of hepatitis C virus (HCV) infection, with 1,542 new reports of HCV infection in 2015 (Figure 11). These data represent newly reported cases of either acute or chronic infections. 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://dhss.alaska.gov/dph/Epi/id/Pages/hepatitis/default.aspx>. An [HCV update](#) is available online, which summarizes reports of HCV from 2003 to 2012 in Alaska.¹

Figure 11. Reports of HCV by Year — Alaska, 2011–2015

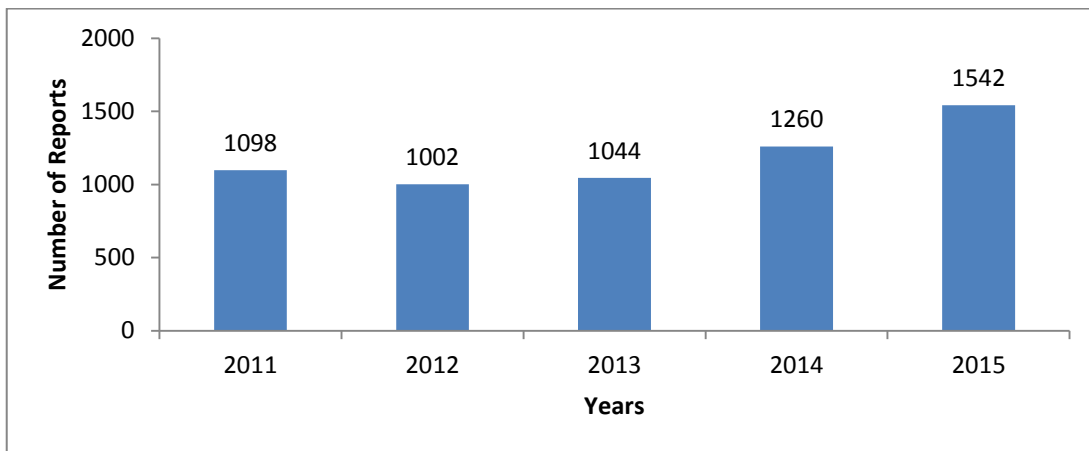
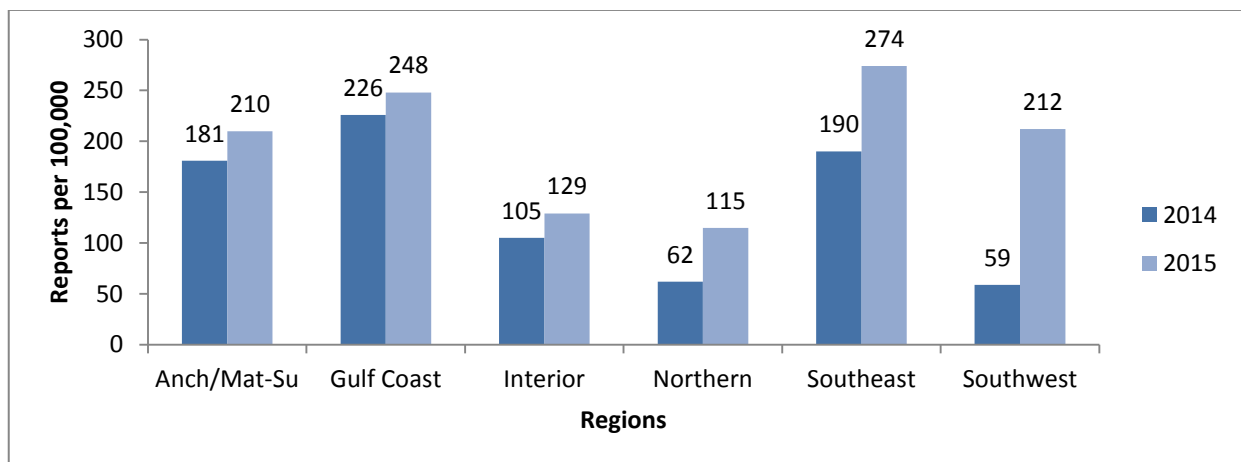


Figure 12. Rates of HCV Reports by Region — Alaska 2014–2015



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

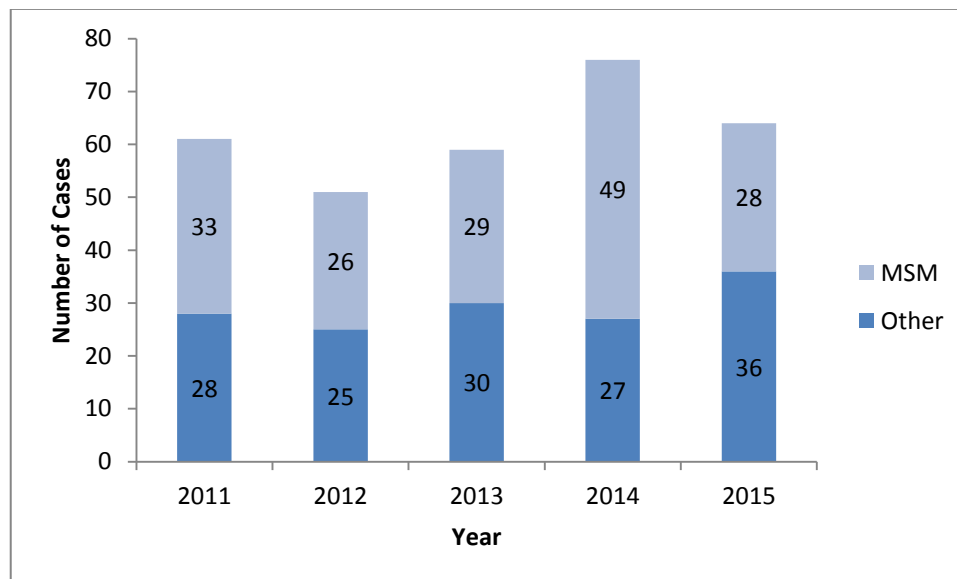
HIV

From January 1, 1982 through December 31, 2015, 1,680 cases of human immunodeficiency virus (HIV) infection were reported to SOE, including cases with an initial diagnosis in Alaska and those previously diagnosed out-of- state who are living in Alaska. Of the 1,680 cases, 586 (35%) were in persons who are known to have subsequently died. Of the 1,094 HIV-infected persons who are not known to have died, 671 (61%) are currently living in Alaska.¹

During 2015, 64 cases of HIV infection were reported to SOE; 22 (34%) of which were initially diagnosed in Alaska, yielding a 2015 statewide incidence rate of 3 cases per 100,000 persons. Of the 22 newly diagnosed persons, 17 (77%) were male, 15 (68%) were non-whites, and 10 (45%) 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. Other reported risk factors for newly diagnosed persons include drug and alcohol abuse (57%), history of incarceration (38%), co-infection with a bacterial STD (29%), and homelessness (19%).²

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 approximately half of new infections each year (Figure 13).

Figure 13. HIV Cases by Year by Risk Status — Alaska, 2011–2015



References

1. Alaska Section of Epidemiology. HIV Surveillance Report — Alaska, 1982–2015. Available at: <http://dhss.alaska.gov/dph/Epi/hivstd/Documents/HIVSurveillanceReport1982-2015.pdf>
2. Alaska Section of Epidemiology *Bulletin*. HIV Update — Alaska, 2015. No. 7, March 31, 2016. Available at: http://www.epi.alaska.gov/bulletins/docs/b2016_07.pdf

PARALYTIC SHELLFISH POISONING

From 2011 to 2015, 42 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: 51 years); 30 (72%) 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.¹ PSP cases from 1993-2014 were summarized in a 2015 *Bulletin*.²

The State of Alaska does not monitor or certify any beaches for toxins associated with PSP for the purposes of recreationally harvested shellfish; however, commercially harvested shellfish are routinely tested by the Alaska Department of Environmental Conservation prior to sale. A PSP **factsheet** is available online.³

Figure 14. Reports of PSP by Year — Alaska, 2011–2015

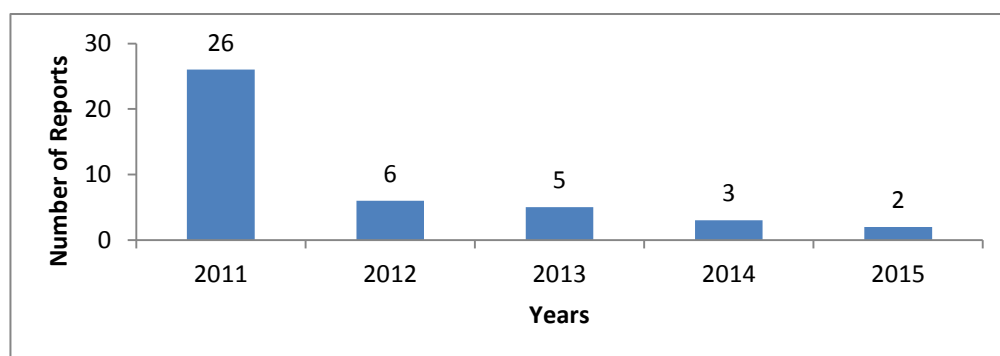
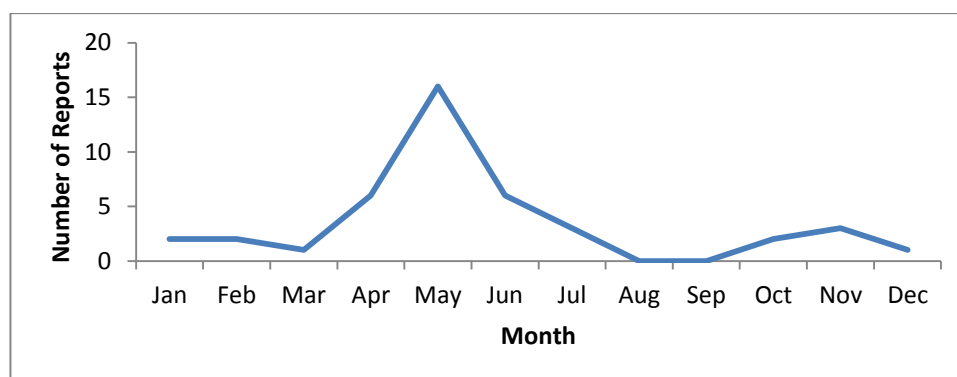


Figure 15. Reports of PSP by Month — Alaska, 2011–2015



References

1. 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 – Alaska, 1993-2014. No. 1, January 7, 2015. Available at: http://www.epi.alaska.gov/bulletins/docs/b2015_01.pdf
3. Paralytic shellfish poisoning factsheet. Available at: http://dhss.alaska.gov/dph/Epi/id/Documents/dod/foodwater/FactSheet_PSP.pdf

[Return to Table of Contents](#)

PERTUSSIS

During 2015, 106 cases of pertussis were reported to SOE, yielding an incidence rate of 14 cases per 100,000 persons; nearly half of the cases were reported as part of an outbreak in the Interior (Figure 16).¹ A breakdown of pertussis cases reported to SOE by age group for 2011–2015 is displayed (Figure 17). An outbreak of pertussis that began in 2012 accounted for significant increases in cases reported in 2012 and 2013.² Data from 2012 and 2013 were also summarized in a report that estimated epidemic conditions are reached after monthly cases counts exceed 30.³

Figure 16. Reports of Pertussis by Year — Alaska, 2011–2015

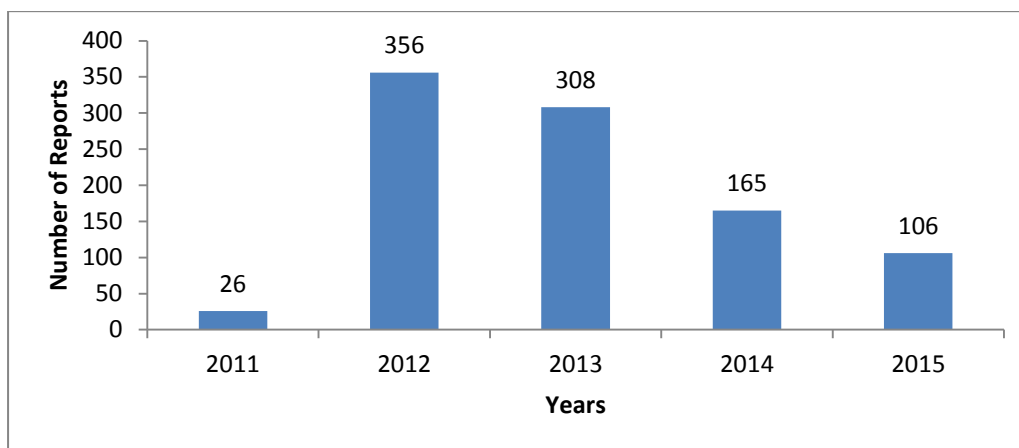
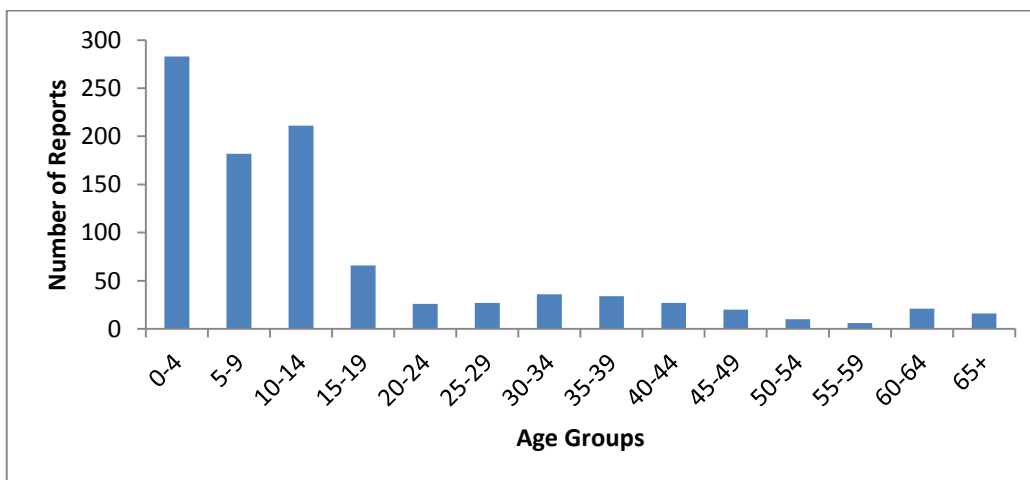


Figure 17. Reports of Pertussis by Age Group — Alaska, 2011–2015



References

1. 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
2. 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
3. Castrodale LJ, Grinnell MH. Pertussis: regional differences in disease burden during a statewide epidemic, Alaska, July 2012 through June 2013. *Alaska Med* 2015;56:18-22.

[Return to Table of Contents](#)

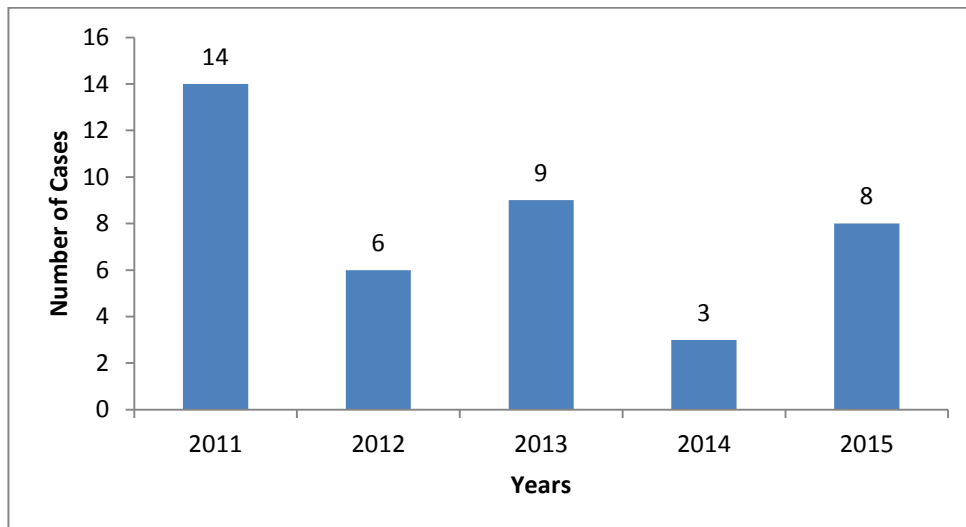
RABIES – ANIMAL

There were eight cases of animal rabies confirmed at the Alaska State Virology Lab (ASVL) in 2015 (Figure 18). The priorities for testing at ASVL have been animals for which there may be 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, the Centers for Disease Control and Prevention (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. DRIT positive animals are not captured in Figure 18, unless they were subsequently confirmed at ASVL by DFA.

Two of the five bats that have ever tested positive for rabies in Alaska initially tested positive by DRIT and were subsequently confirmed to have rabies by CDC. An *Epidemiology Bulletin* released in 2016 summarized updates to what is known about rabies in Alaska bats.¹

More information is available in the Rabies Control Manual available on the Rabies Webpage at: <http://dhss.alaska.gov/dph/Epi/id/Pages/rabies/default.aspx>.

Figure 18. Cases of Animal Rabies Documented by ASVL — Alaska, 2011–2015



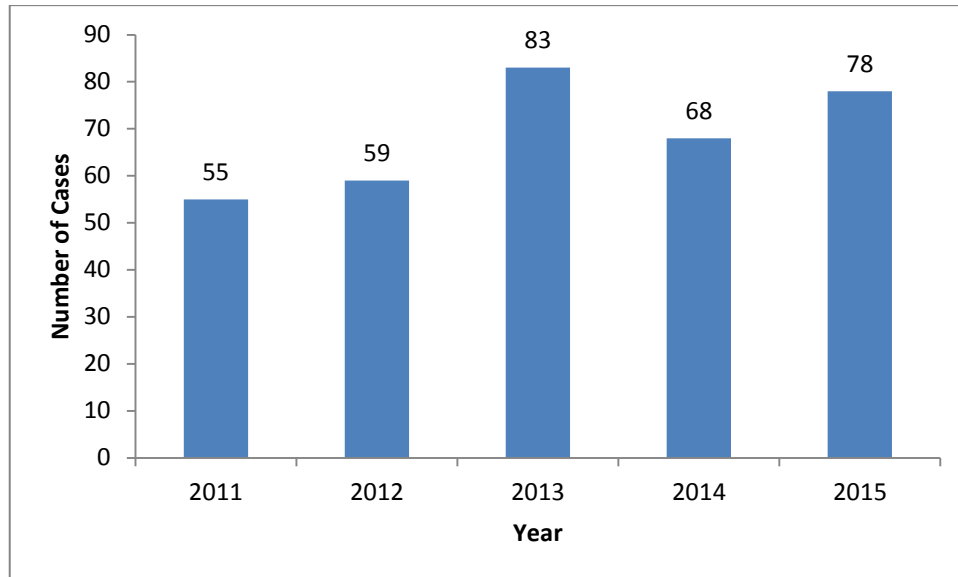
Reference

1. Alaska Section of *Epidemiology Bulletin*. Update on Bat Rabies in Alaska. No. 9, April 20, 2016. Available at: http://www.epi.alaska.gov/bulletins/docs/b2016_09.pdf

SALMONELLOSIS

From 2011 to 2015, SOE received an average of 69 reports annually of salmonellosis (Figure 19). Many cases reported were sporadic with no confirmed source. During 2015, there were 21 laboratory-confirmed cases associated with the multistate outbreak of *S. Poona* linked to the consumption of cucumbers.¹ There were 13 outbreaks detected during 2013-2014; 64 of the 83 cases reported to SOE in 2013 were linked to seven outbreaks. Eleven of 59 cases in 2012 were part of an *S. Heidelberg* outbreak linked to poultry from a single producer that sickened over 120 people in 13 states.²

Figure 19. Reports of *Salmonella* Infections by Year — Alaska, 2011–2015



References

1. Alaska Section of Epidemiology *Bulletin*. Multistate *Salmonella* Poona Outbreak Linked to Cucumbers — Alaska 2015. Available at: http://www.epi.alaska.gov/bulletins/docs/b2015_28.pdf
2. 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>

[Return to Table of Contents](#)

SYPHILIS

In 2015, 20 cases of early (primary, secondary, and early latent) syphilis were reported to SOE, which represents a 50% decrease from 2014 data (Figure 20). The incidence rate fell from 5.4 cases per 100,000 persons in 2014 to 2.7 cases per 100,000 in 2015.¹ This outbreak resulted in two congenital syphilis (CS) cases, one in 2012 and one in 2013. The 2013 CS case resulted in stillbirth. Common risk factors include men who have sex with men (MSM), and persons engaging in anonymous sex, often with multiple partners found through the internet and phone apps (Figure 21).

Figure 20. Reports of Early Syphilis Infections by Year — Alaska, 2011–2015

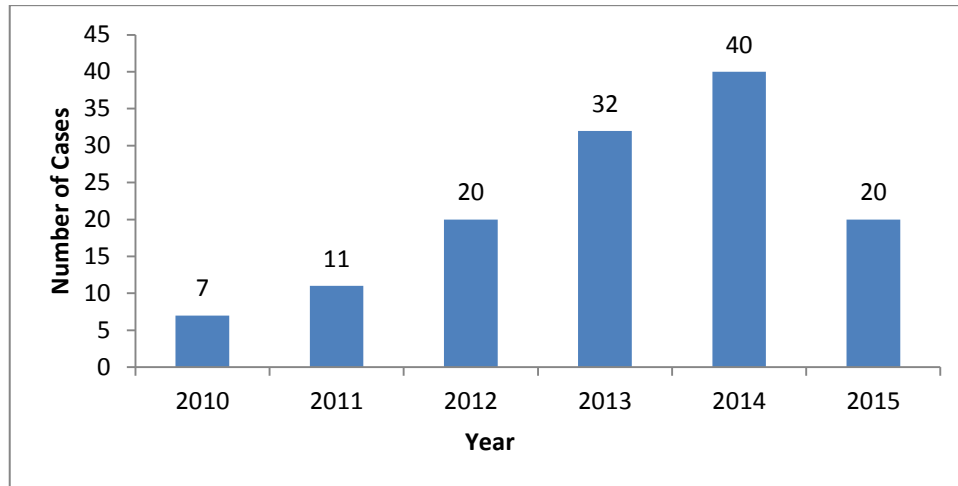
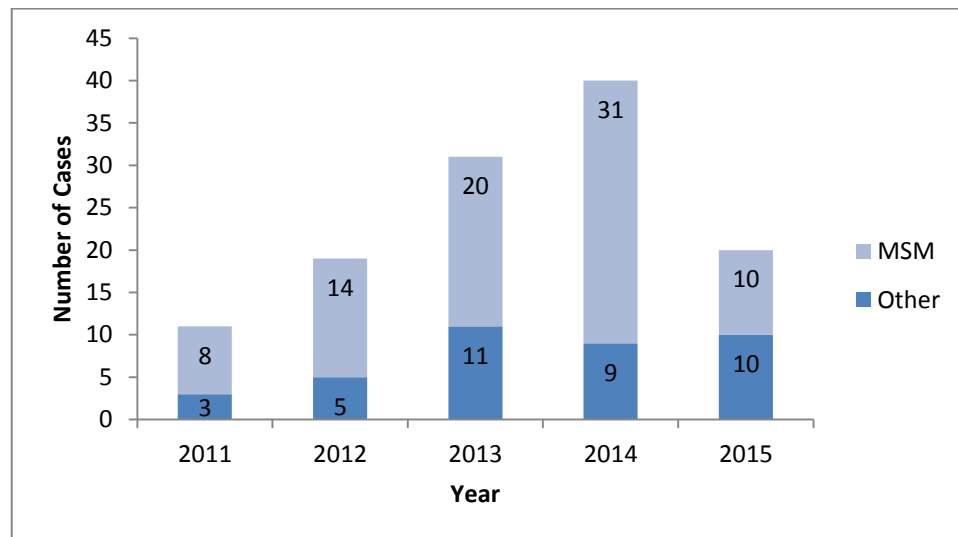


Figure 21. Primary, Secondary, and Early Latent Syphilis Cases by Risk Factor — Alaska, 2011–2015



**Syphilis counts include infectious syphilis only*

Reference

1. Alaska Section of Epidemiology *Bulletin*. Syphilis Update — Alaska, 2015. No. 10, April 26, 2016. Available at: http://www.epi.alaska.gov/bulletins/docs/b2016_10.pdf

[Return to Table of Contents](#)

TUBERCULOSIS

In 2015, 68 cases of tuberculosis (TB) were reported to the Alaska Tuberculosis Control Program (Figure 22), for a rate of 9.2 cases per 100,000. This was the highest rate in the United States in 2015, well above the nationwide rate of 3.0 cases per 100,000.¹ 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 ~2,000/100,000.² The detailed Annual TB Report can be found on the [Alaska Tuberculosis Control Program website](#).

Figure 22. Report of Tuberculosis by Year — Alaska, 2011–2015

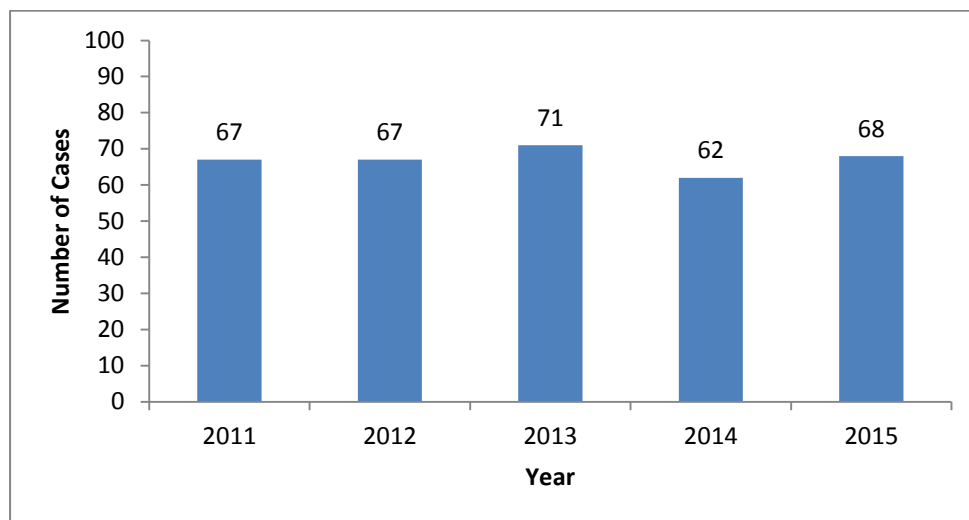
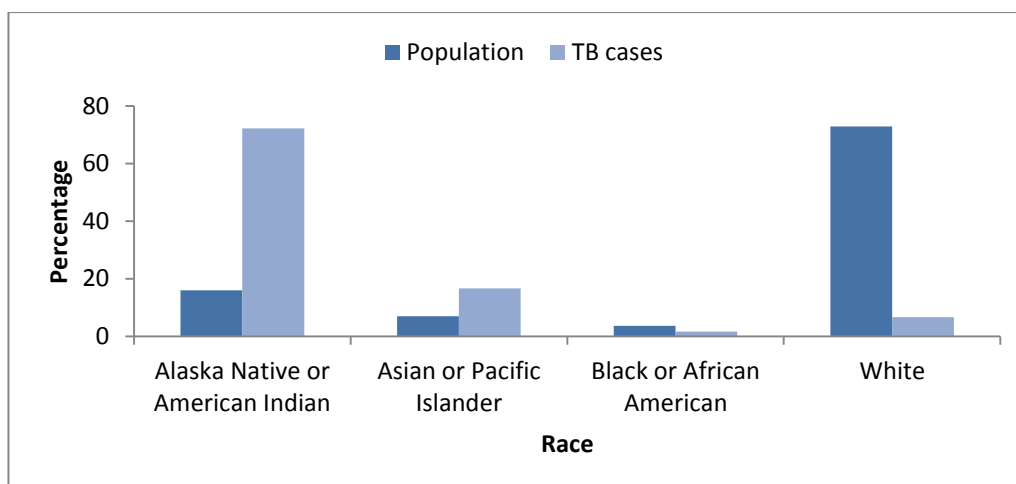


Figure 23. Racial Demographics of TB Cases Compared to 2012 Population — Alaska, 2011–2015



References

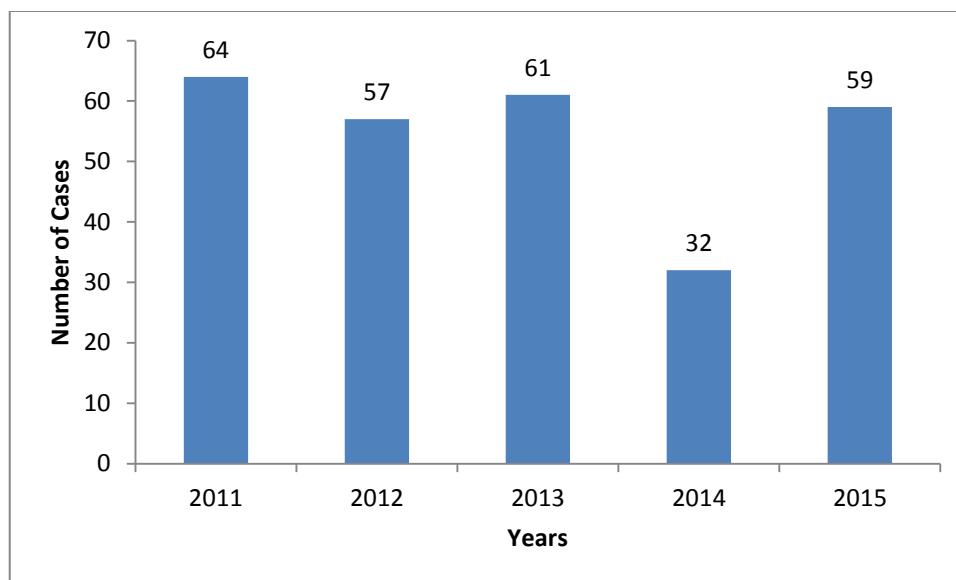
1. CDC. Tuberculosis Data and Statistics. Available at: <http://www.cdc.gov/tb/statistics>
2. Alaska Section of Epidemiology *Bulletin*. The Financial Cost of a Large Tuberculosis Outbreak in an Alaska Village. No. 14, June 25, 2015. Available at: http://www.epi.alaska.gov/bulletins/docs/b2015_14.pdf

[Return to Table of Contents](#)

VARICELLA

Alaska averaged 55 cases of varicella annually from 2011 to 2015 (Figure 24). A spike in varicella cases occurred in the fall of 2012 in Kenai Peninsula communities with low vaccination rates. A Public Health Advisory was published and an investigation completed.¹ 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

Figure 24. Reports of Varicella — Alaska, 2011–2015



References

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