The Epidemiology of Vaccine-Preventable Diseases in Alaska

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≥ 24
Vaccine-Preventable Diseases
Outline

Hepatitis A

Hepatitis B

Measles

Pertussis
Plan of Action

Basic biology and clinical presentation

25 years worth of data from Alaska

Important dates in history of vaccine

Current topics
Hepatitis A

Fecal-oral transmission

Acute onset
  Fever
  Fatigue
  Nausea & loss of appetite

Other symptoms
  Dark urine
  Light-colored stool
  Jaundice

Hepatitis A in AK — 1986 – 2010
Hepatitis A in AK — 1986 – 2010

The graph shows the number of hepatitis A cases in Alaska from 1986 to 2010. The cases peaked around 1990, with a significant decline thereafter, indicating effective interventions or changes in exposure factors over time. The term "Licensed" likely refers to licensed or reported cases, which may not capture all cases, especially in earlier years.
Licensed Universal coverage for children 2–14 years

Hepatitis A in AK — 1986 – 2010
And After...

Before 1996
After 1996

Proportion

Anch/Mat-Su | Gulf Coast | Interior | Northern | Southeast | Southwest | Unknown
---|---|---|---|---|---|---


Travel-Associated Outbreak

Fall 2010
Travel-Associated Outbreak

Fall 2010

Anchorage-area woman
Travel-Associated Outbreak

Fall 2010

Anchorage-area woman

Two other adults

Toddler
HAV

Success

Stop it in the kids, stop it in the community

Travelers
Hepatitis B

Person-to-person
Contact with blood
Sexual contact
Household contacts

Insidious onset
Chronic disease
Liver cancer

Hepatitis B in AK — 1986 – 2010
Hepatitis B in AK — 1986 – 2010

Vaccination for all susceptible AN (1983)
Hepatitis B in AK — 1986 – 2010

Vaccination for all susceptible AN (1983)

Universal vaccination for all AK newborns
HBV

Another success story

Vaccination at birth
Measles

Airborne droplets, direct contact

Prodrome

Stepwise increase in fever
Cough, coryza, conjunctivitis
Koplik spots
Measles Rash

2–4 days after prodrome, 14 days after exposure

Maculopapular, becomes confluent

Begins at hairline

Persists 5–6 days

Fades in order of appearance
Measles Complications

Diarrhea: 8%
Middle ear inflammation: 7%
Pneumonia: 6%
Seizures: 0.6–0.7%
Encephalitis: 0.1%

Based on 1985-1992 surveillance data
Measles in the U.S. — 1950–2007
Measles in the U.S. — 1950–2007

Vaccine licensed
Measles in AK — 1986 – 2010

Juneau
Measles in AK — 1986 – 2010

Second dose: Kindergarten and 1st grade
Measles in AK — 1986 – 2010

The chart shows the number of measles cases in Anchorage from 1986 to 2010. There were significant spikes in 1990 and 1996.
Measles in AK — 1986 – 2010

Second dose: All school children
Mass Vaccination Clinic
Measles in the U.S.

2001–2008: 556 measles cases & 38 outbreaks

65% involved people had not been vaccinated

68% of unvaccinated who contracted measles had opted out of vaccine because of personal beliefs
Measles

Success! (That’s the third time I’ve said that.)
Pertussis

*Bordetella pertussis*

Droplet transmission

Insidious onset

“Whoop” follows paroxysmal cough
Pertussis in U.S. — 1940–2007
Pertussis in U.S. — 1940–2007

Widespread use by mid-1940s
Pertussis in AK — 1986 – 2010
Pertussis in AK — 1986 – 2010

![Graph showing cases of pertussis from 1986 to 2010, with a peak in 2008-2010 following the introduction of the DTaP vaccine.](image-url)
Pertussis in AK — 1986 – 2010

The chart shows the number of pertussis cases in Alaska from 1986 to 2010. The cases are divided into two categories: DTaP and Tdap. The number of cases decreases significantly after the introduction of Tdap vaccination in 2006.
Pertussis Rates in U.S. — 1990–2009

SOURCE: CDC, National Notifiable Diseases Surveillance System, 2009
Age Distribution in AK — 1986 – 2010
Waning Immunity

Estimated duration of immunity (post-vac): 4-12 years

Increase in cases in adolescents and adults
Pertussis

Often missed in adults

Optimism about Tdap

Protect infants
Conclusions

Successful vaccination campaigns in Alaska stem from collaboration between stakeholders.

Worldwide morbidity and mortality
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