

The Epidemiology of Vaccine-Preventable Diseases in Alaska

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Vaccine-Preventable Diseases

≥ 24

Vaccine-Preventable Diseases

4

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

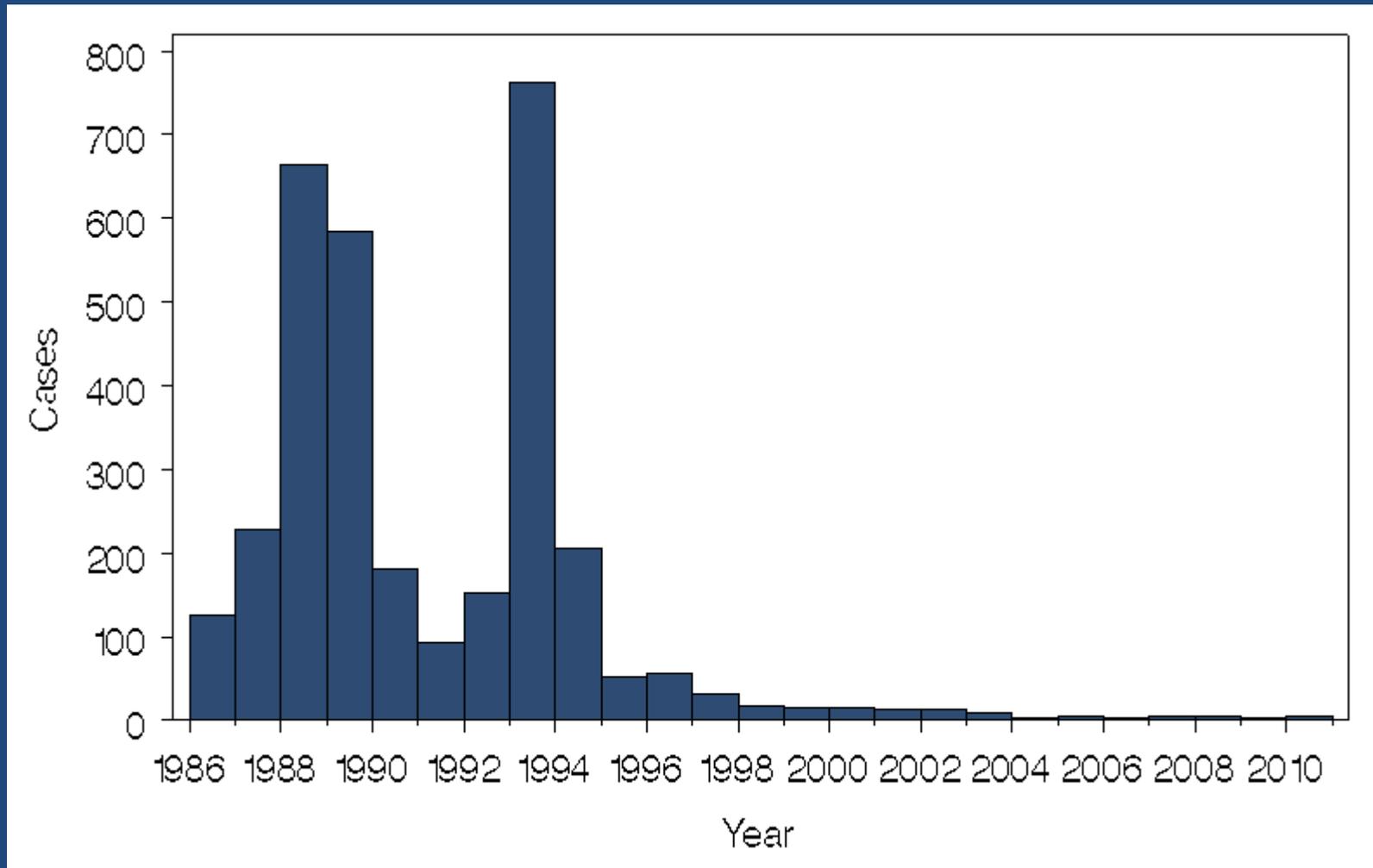
Dark urine

Light-colored stool

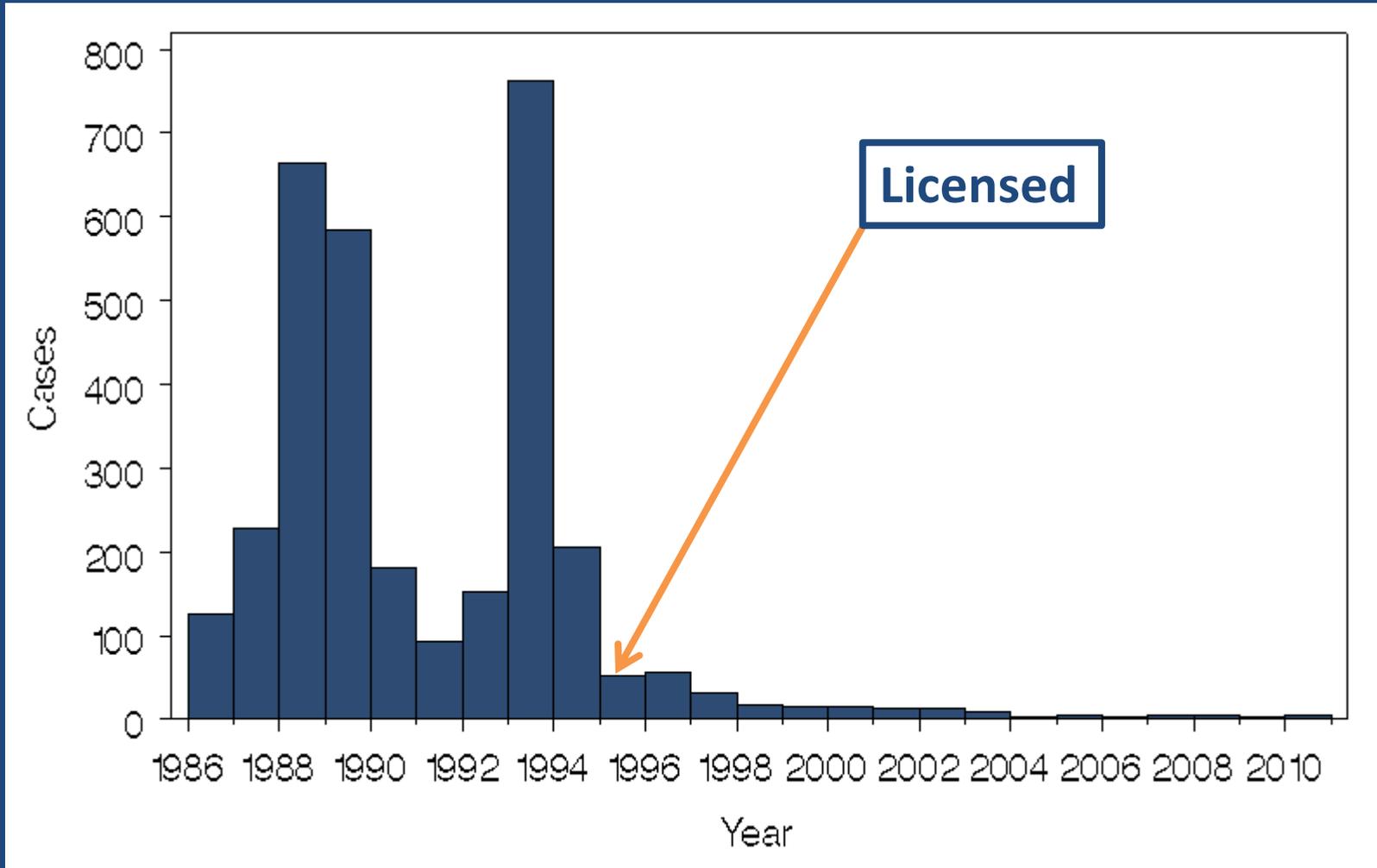
Jaundice



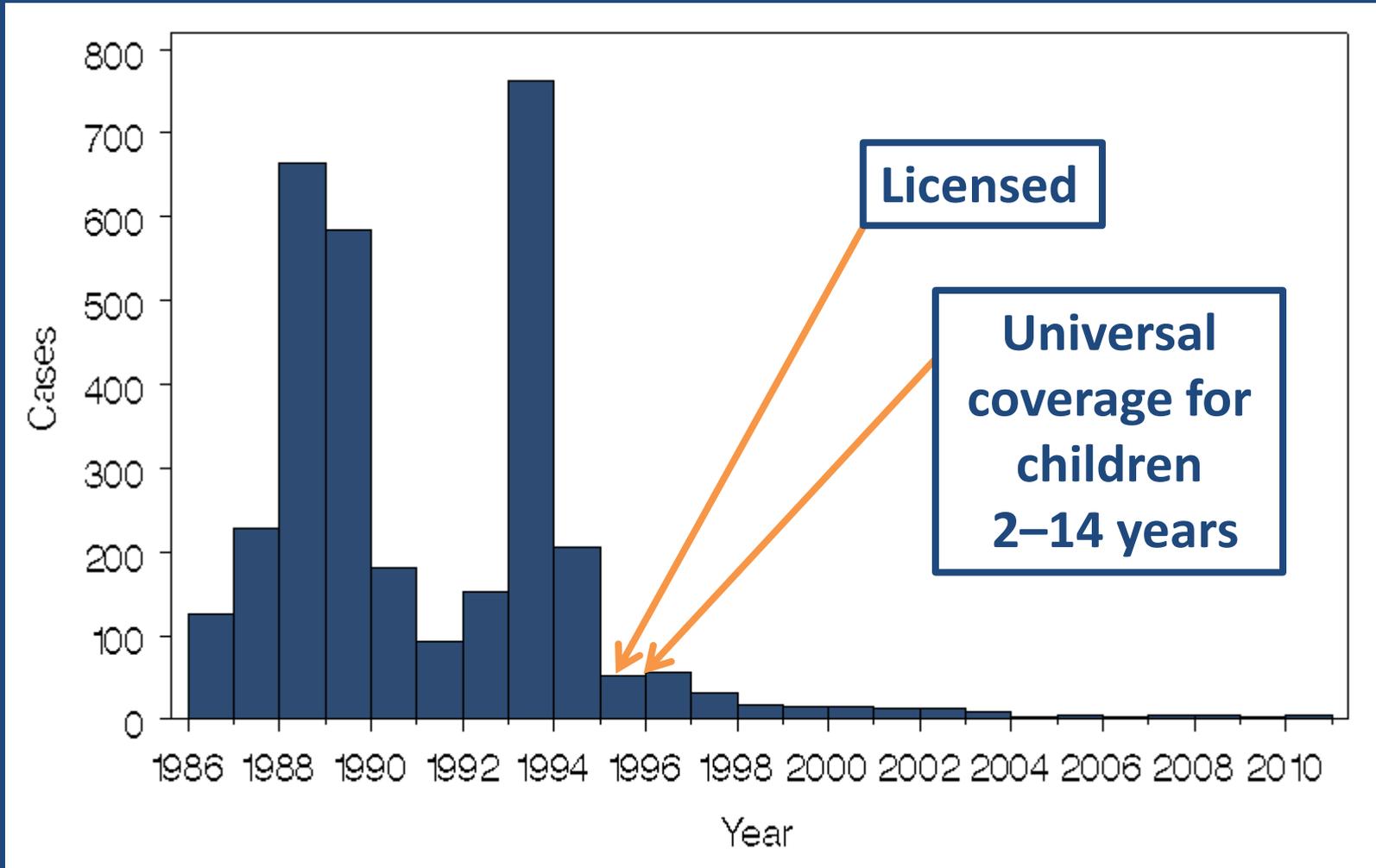
Hepatitis A in AK — 1986 – 2010



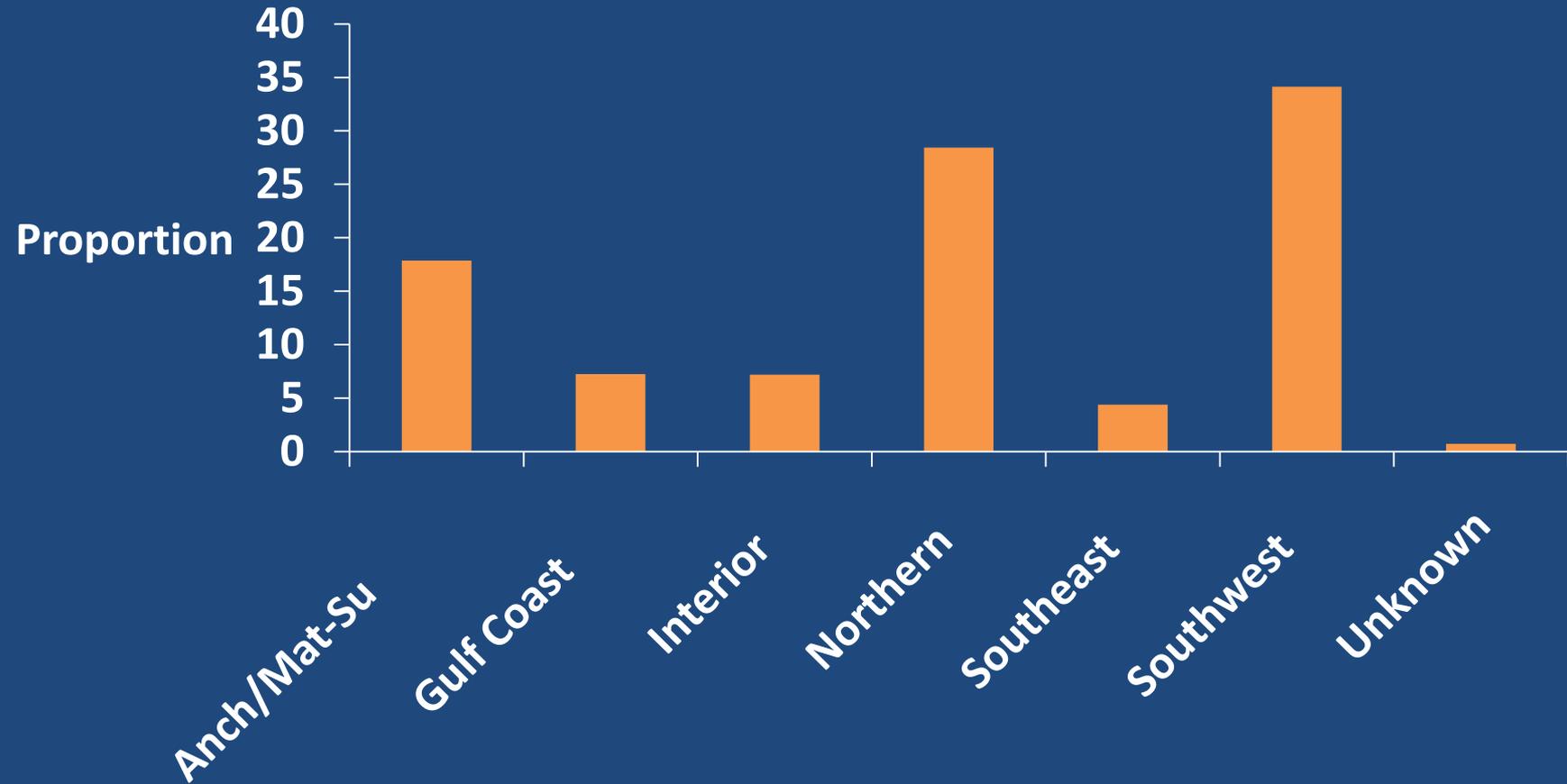
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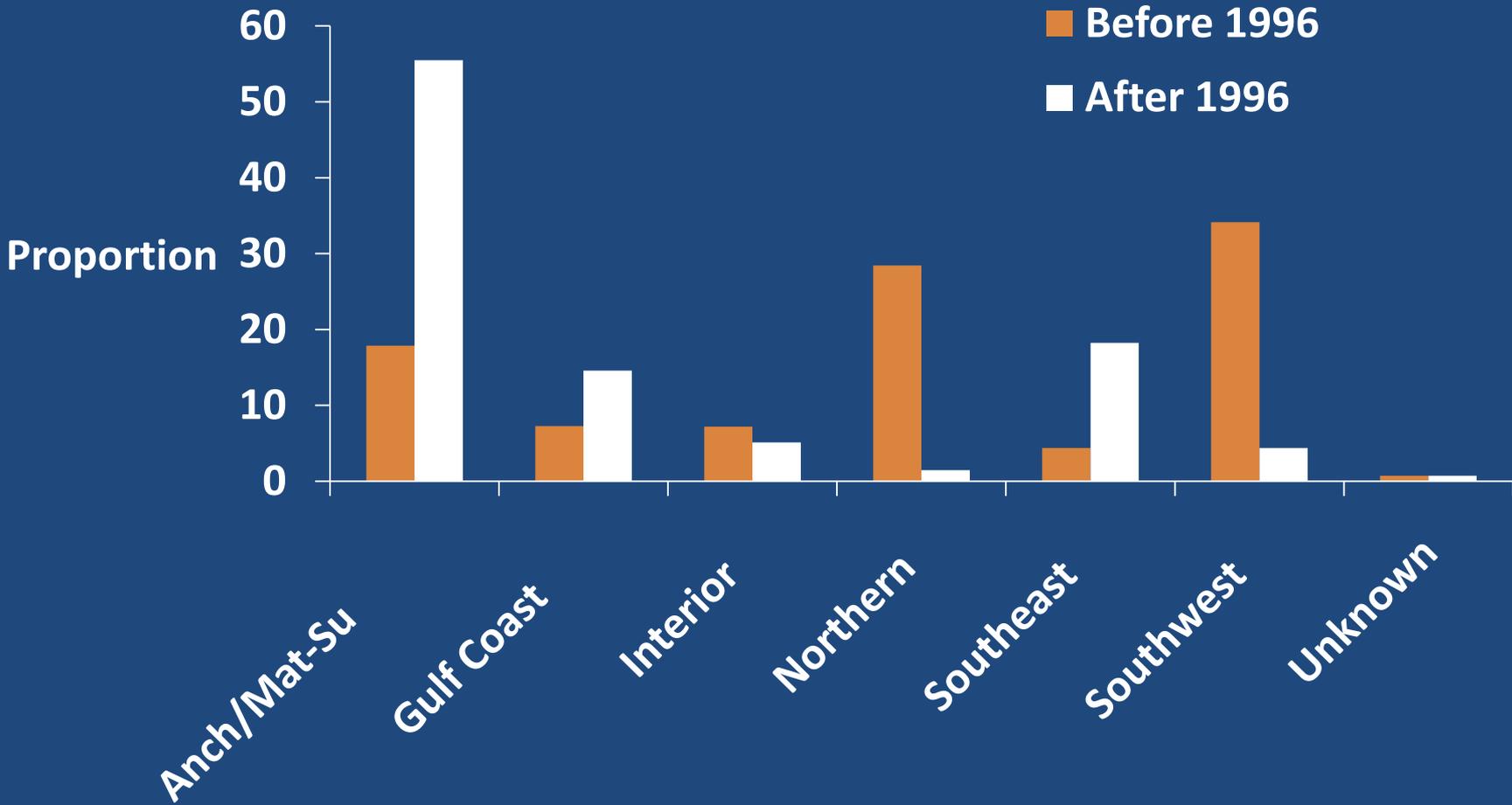
Hepatitis A in AK — 1986 – 2010



Before 1996



And After...



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

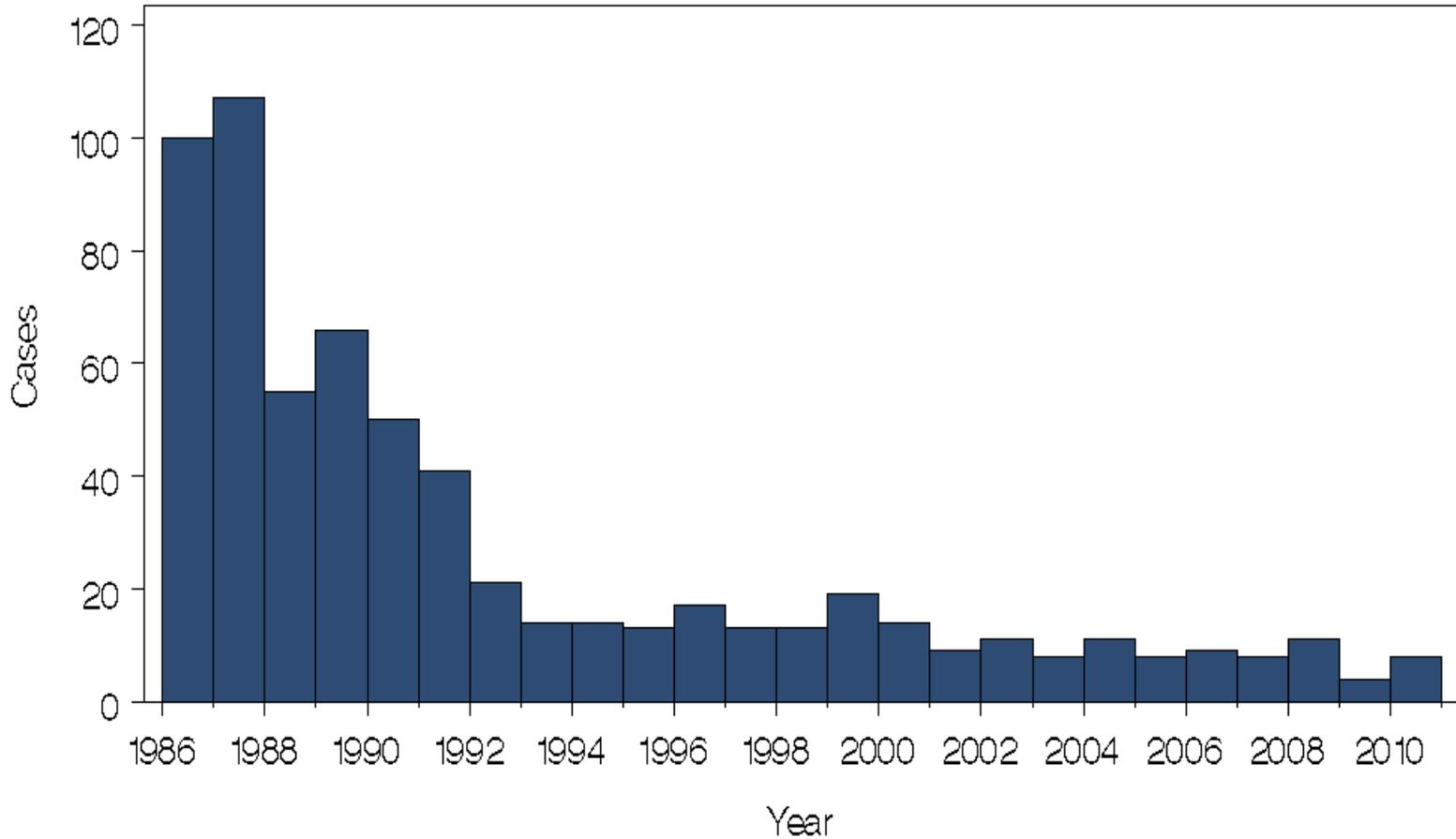
Insidious onset

Chronic disease

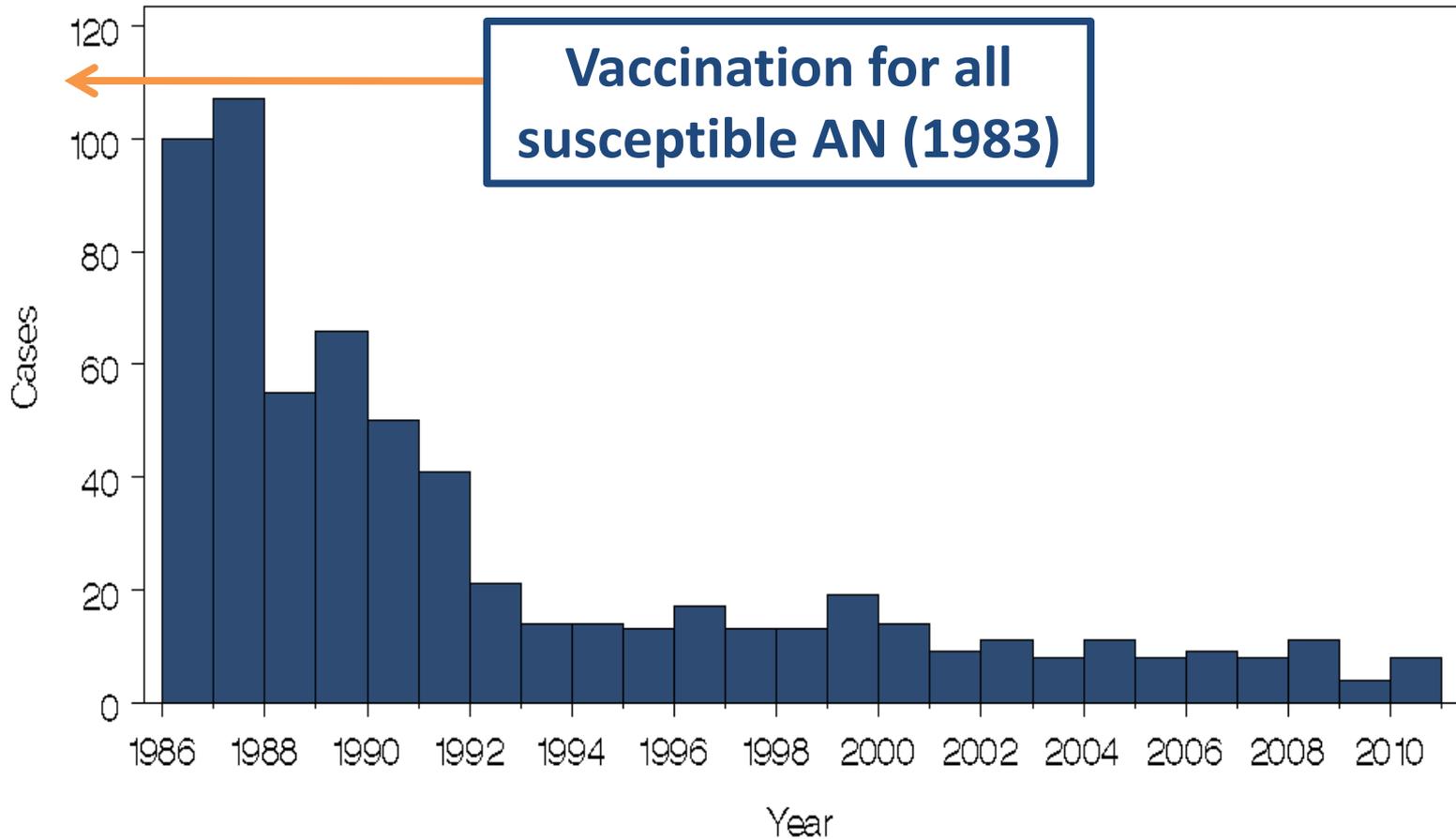
Liver cancer



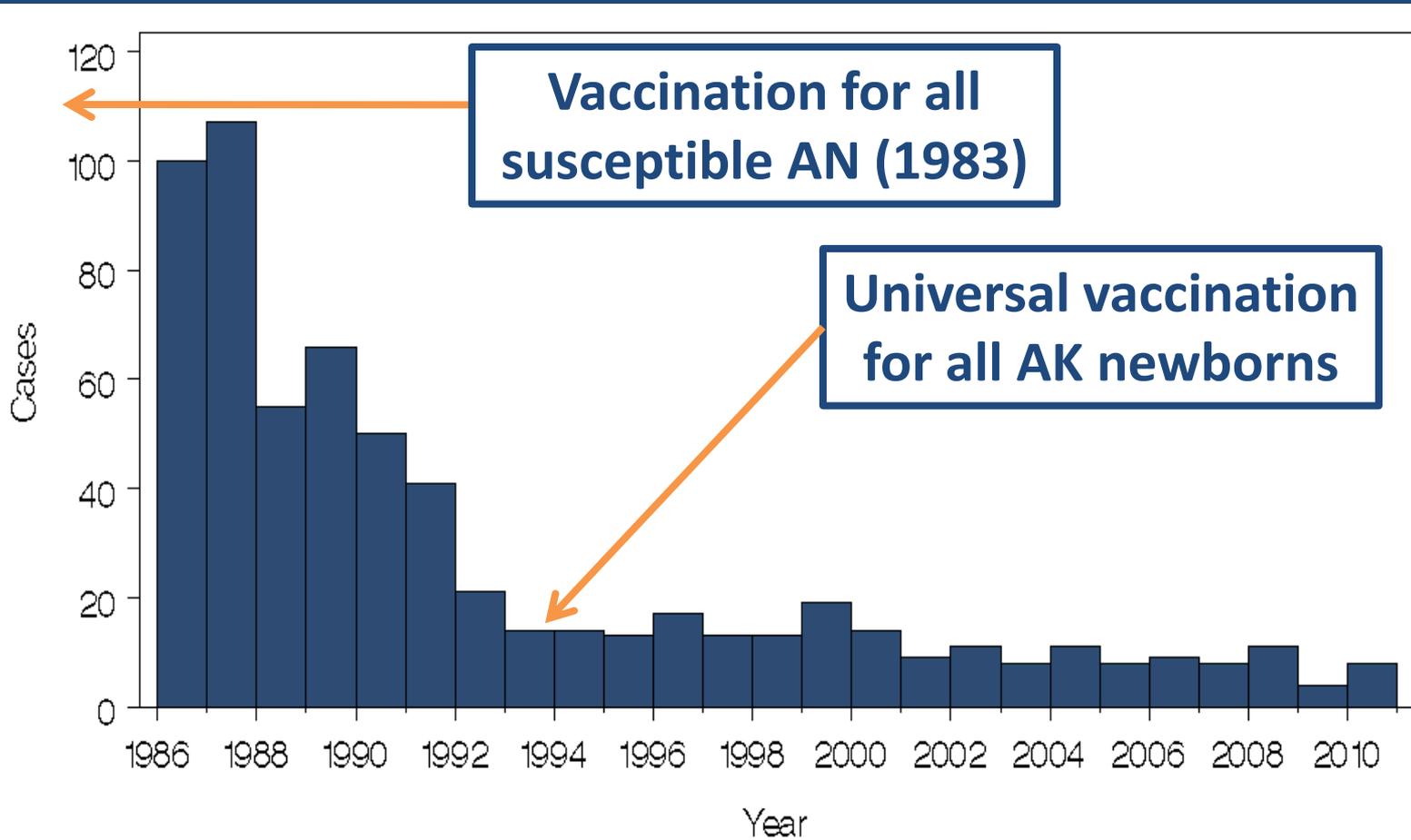
Hepatitis B in AK — 1986 – 2010



Hepatitis B in AK — 1986 – 2010



Hepatitis B in AK — 1986 – 2010



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%

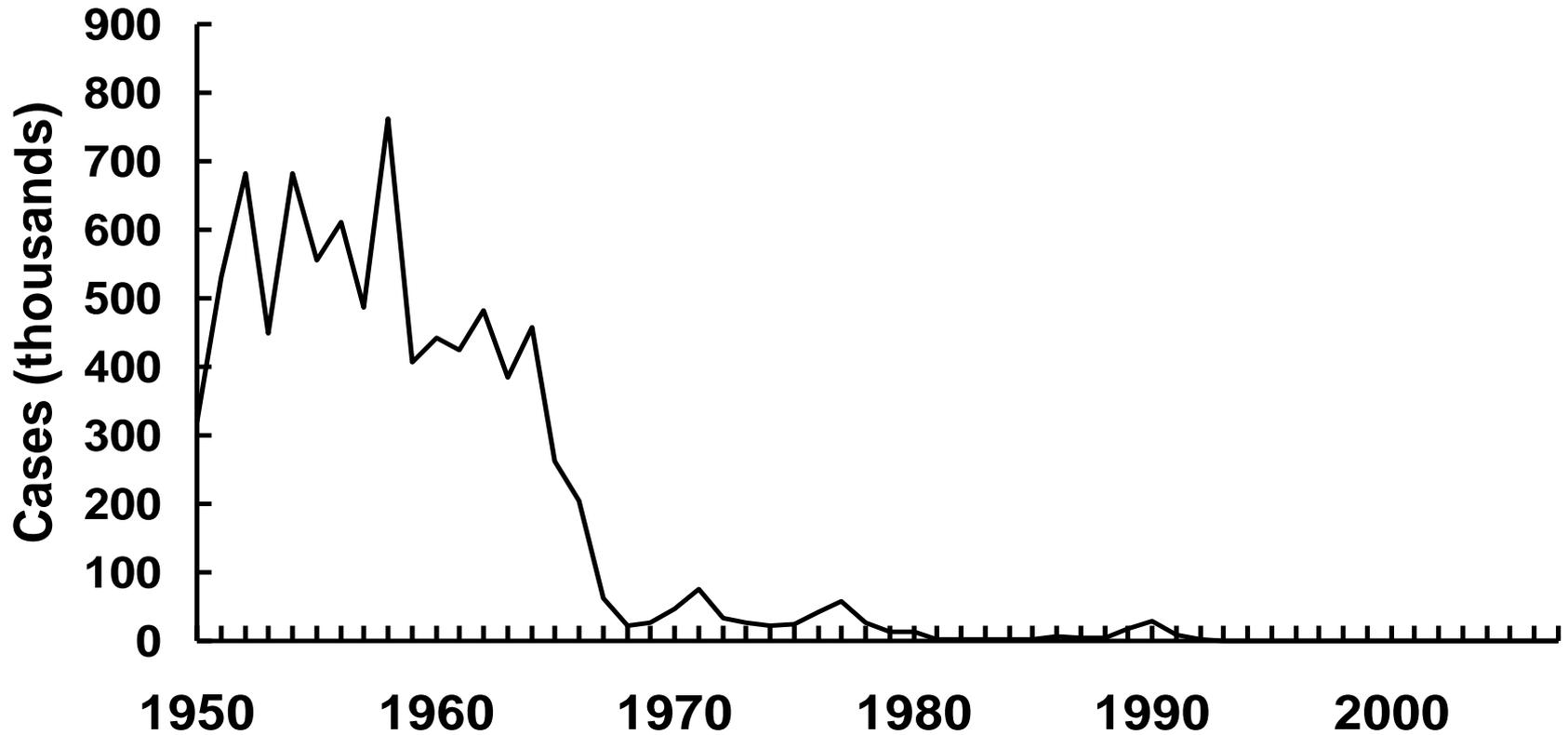
Pneumonia: 6%

Seizures: 0.6–0.7%

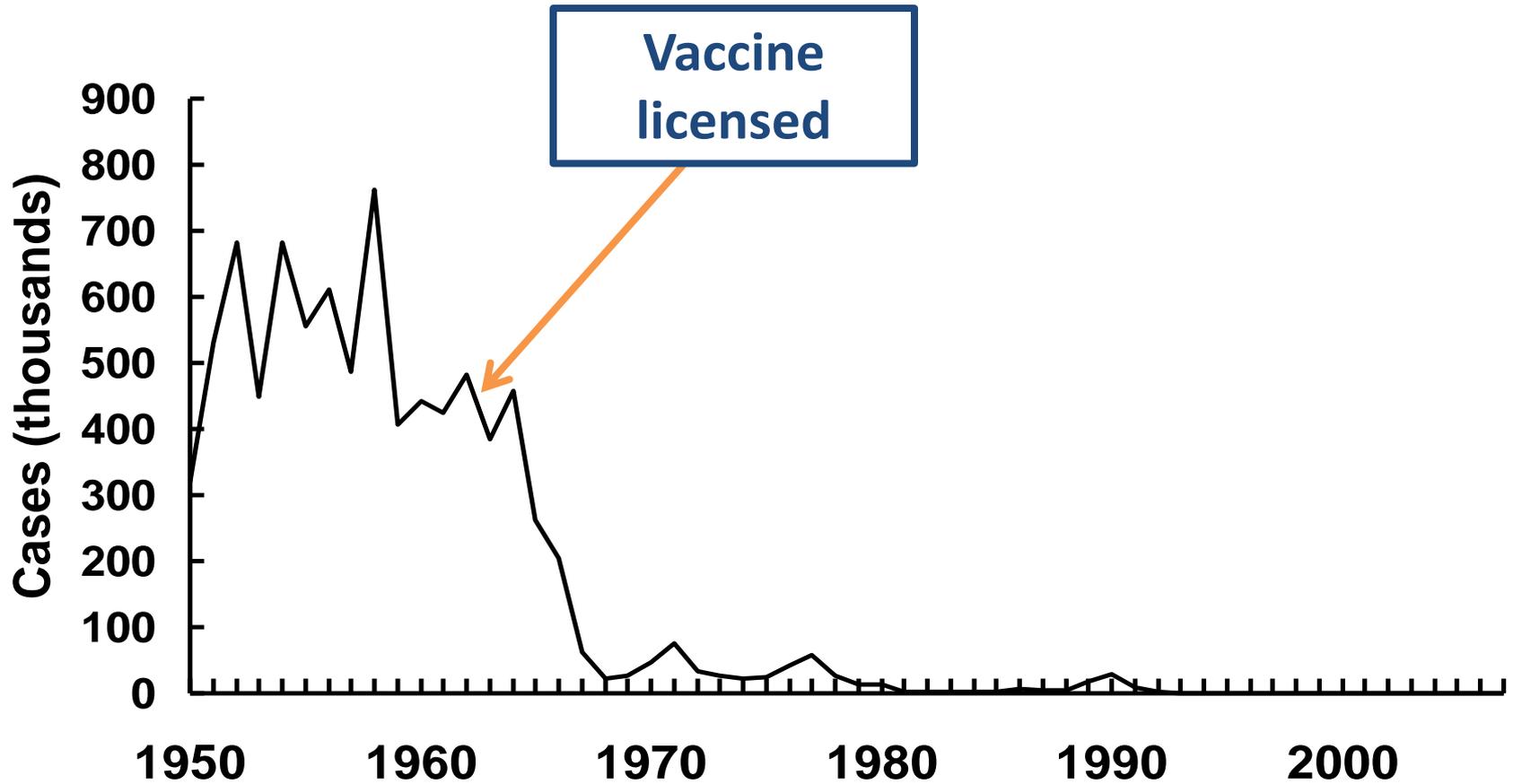
Encephalitis: 0.1%

Based on 1985-1992 surveillance data

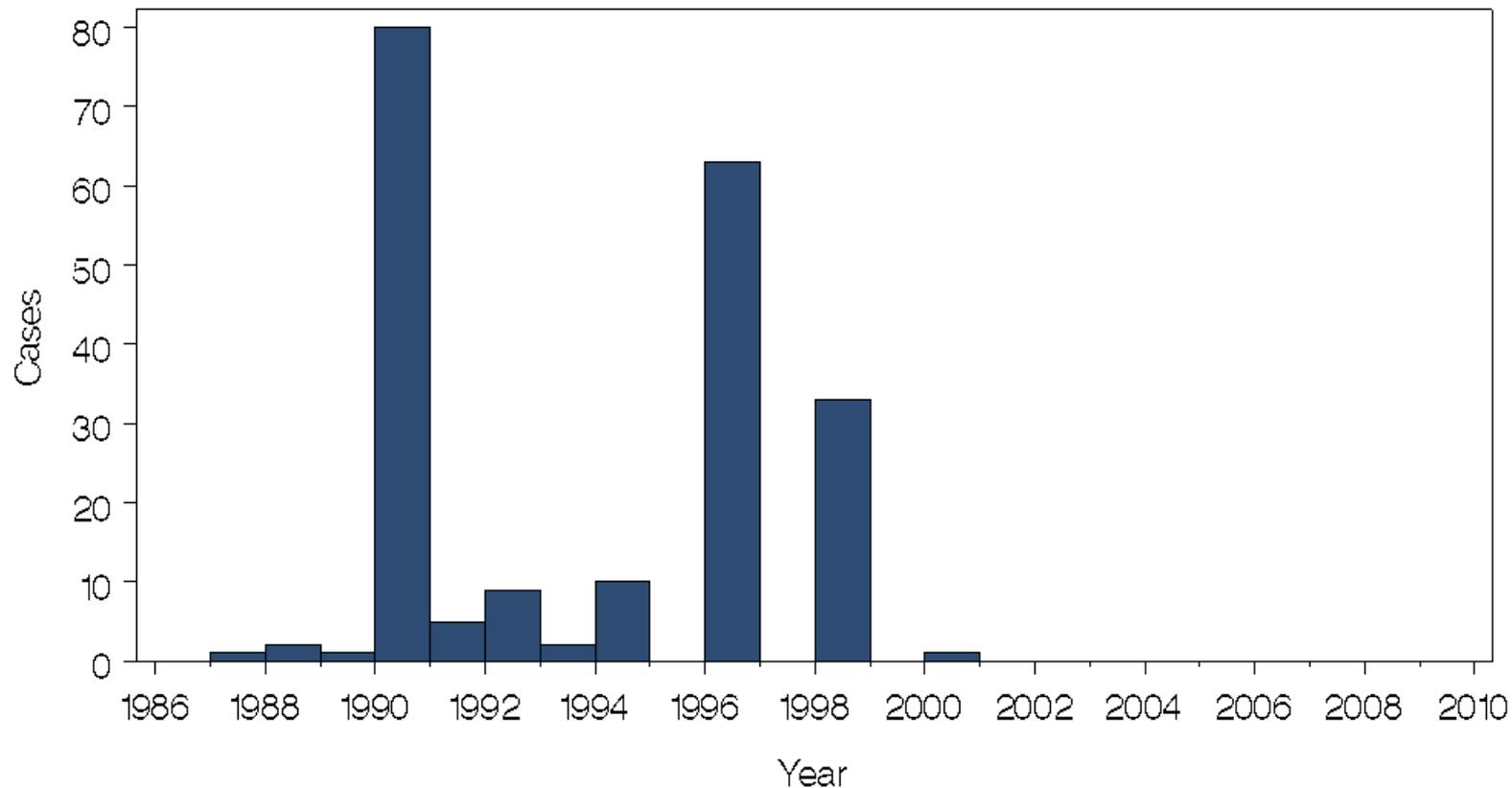
Measles in the U.S. — 1950–2007



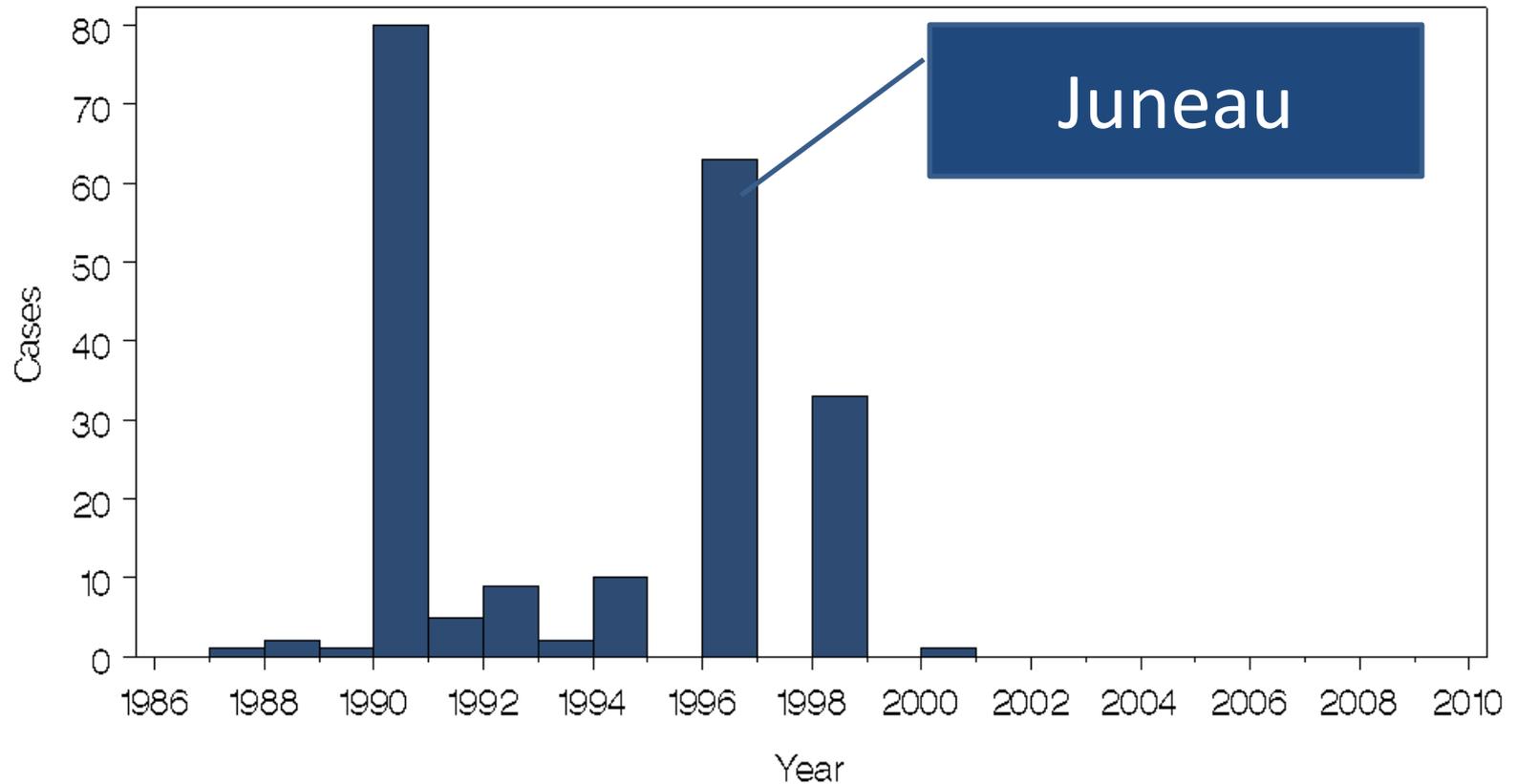
Measles in the U.S. — 1950–2007



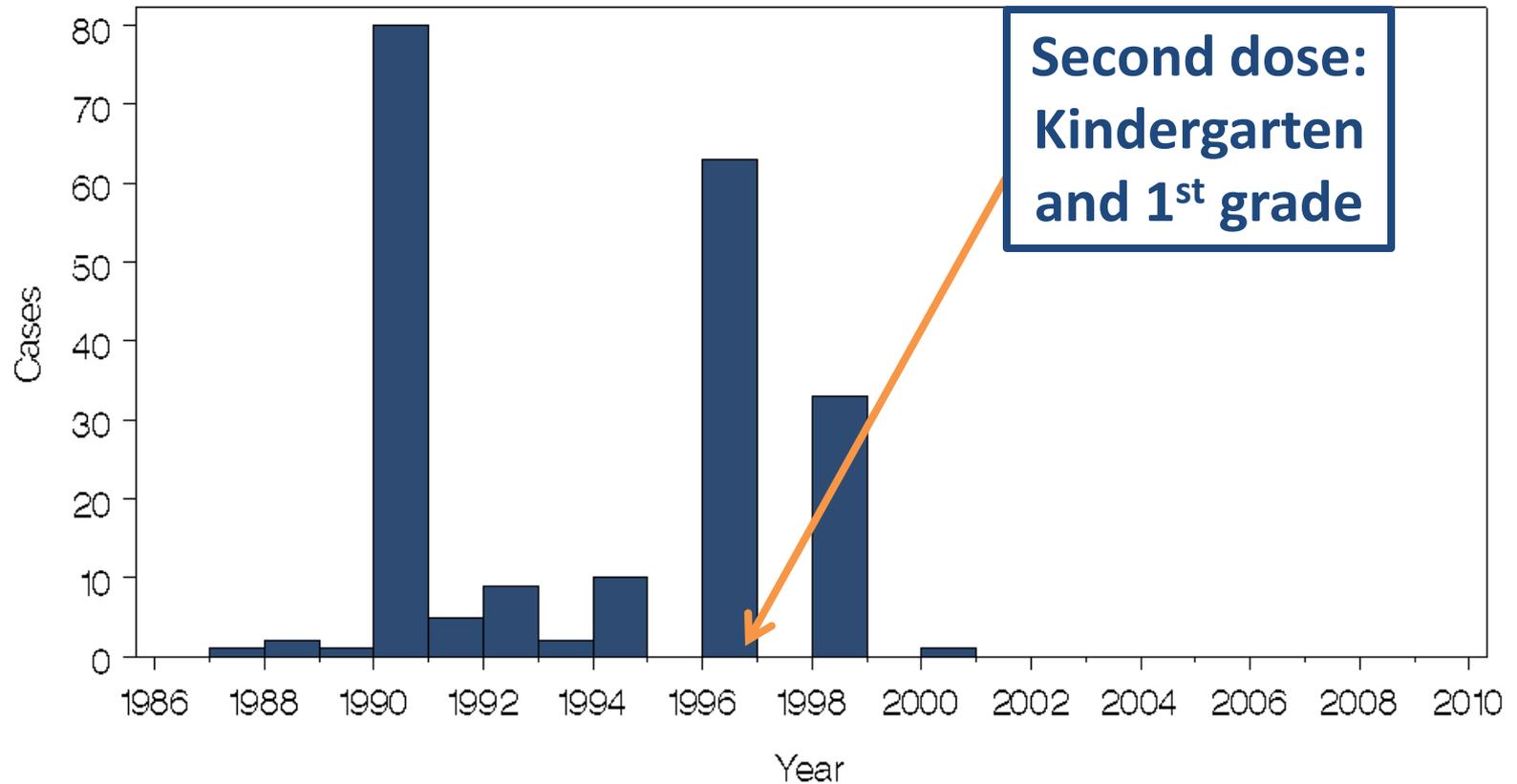
Measles in AK — 1986 – 2010



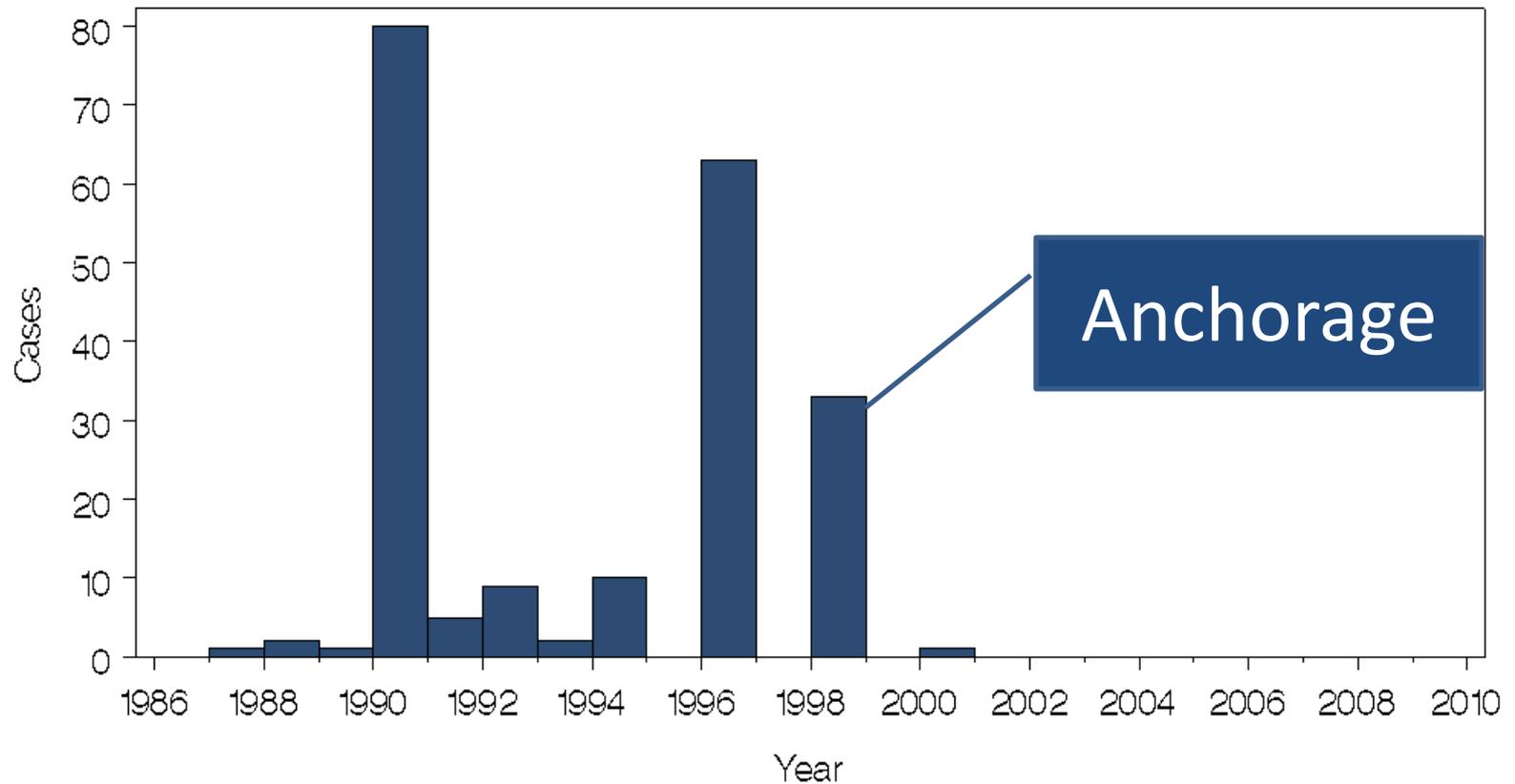
Measles in AK — 1986 – 2010



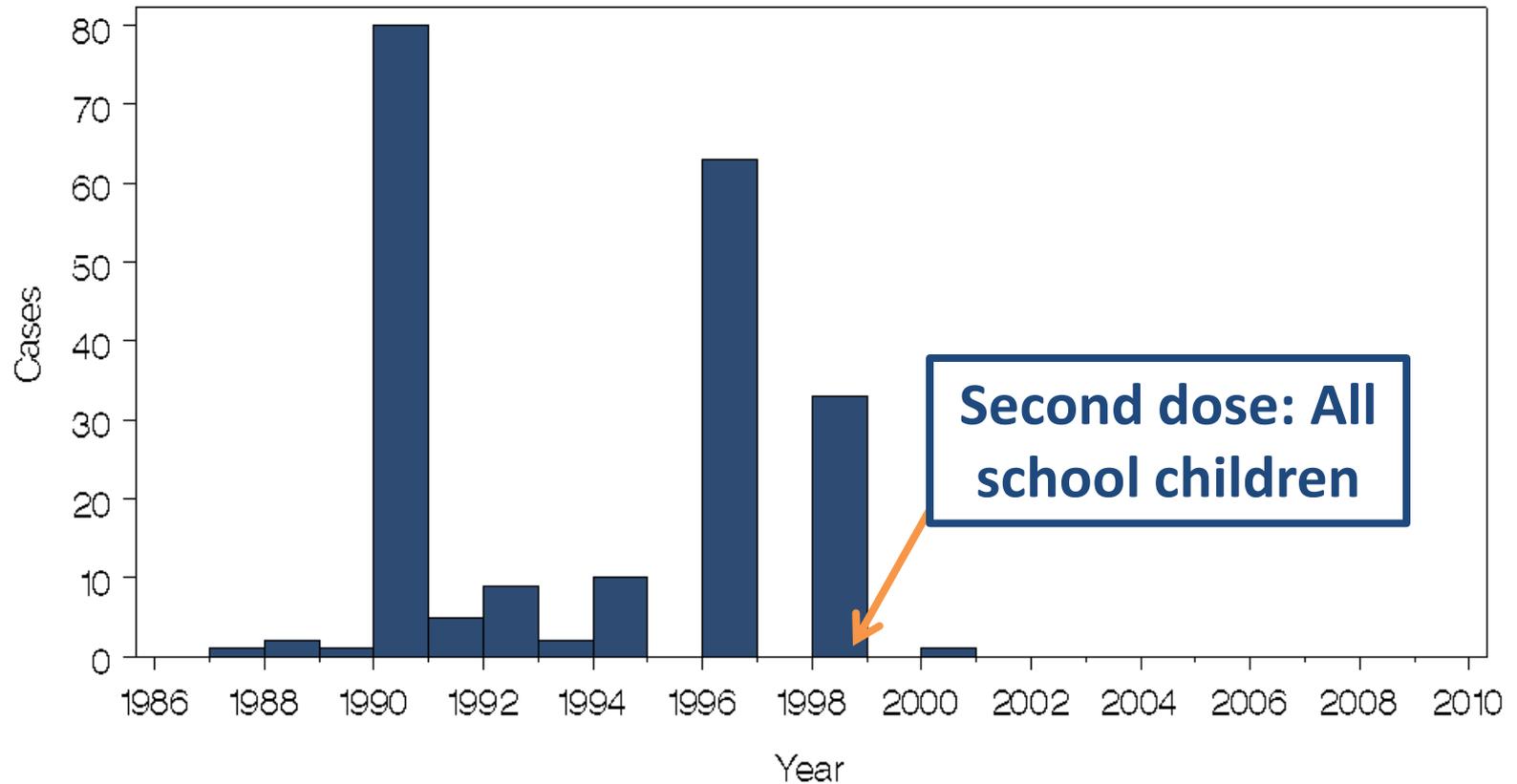
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Measles in AK — 1986 – 2010



Mass Vaccination Clinic



Measles in the U.S.

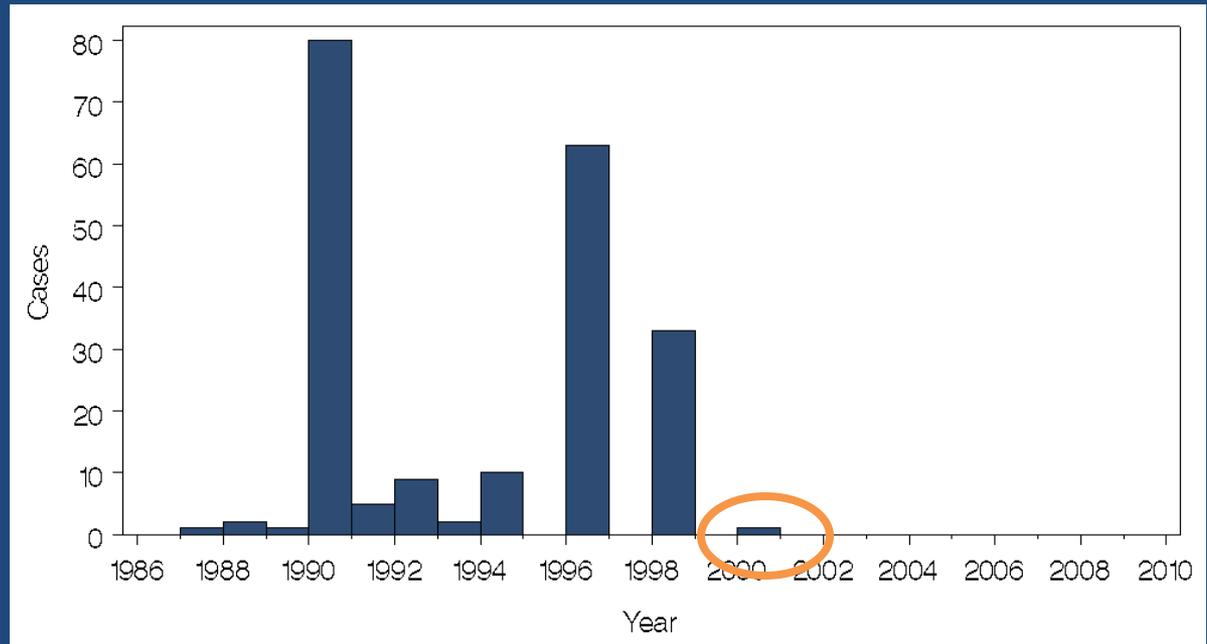
2001–2008: 556 measles cases & 38 outbreaks

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

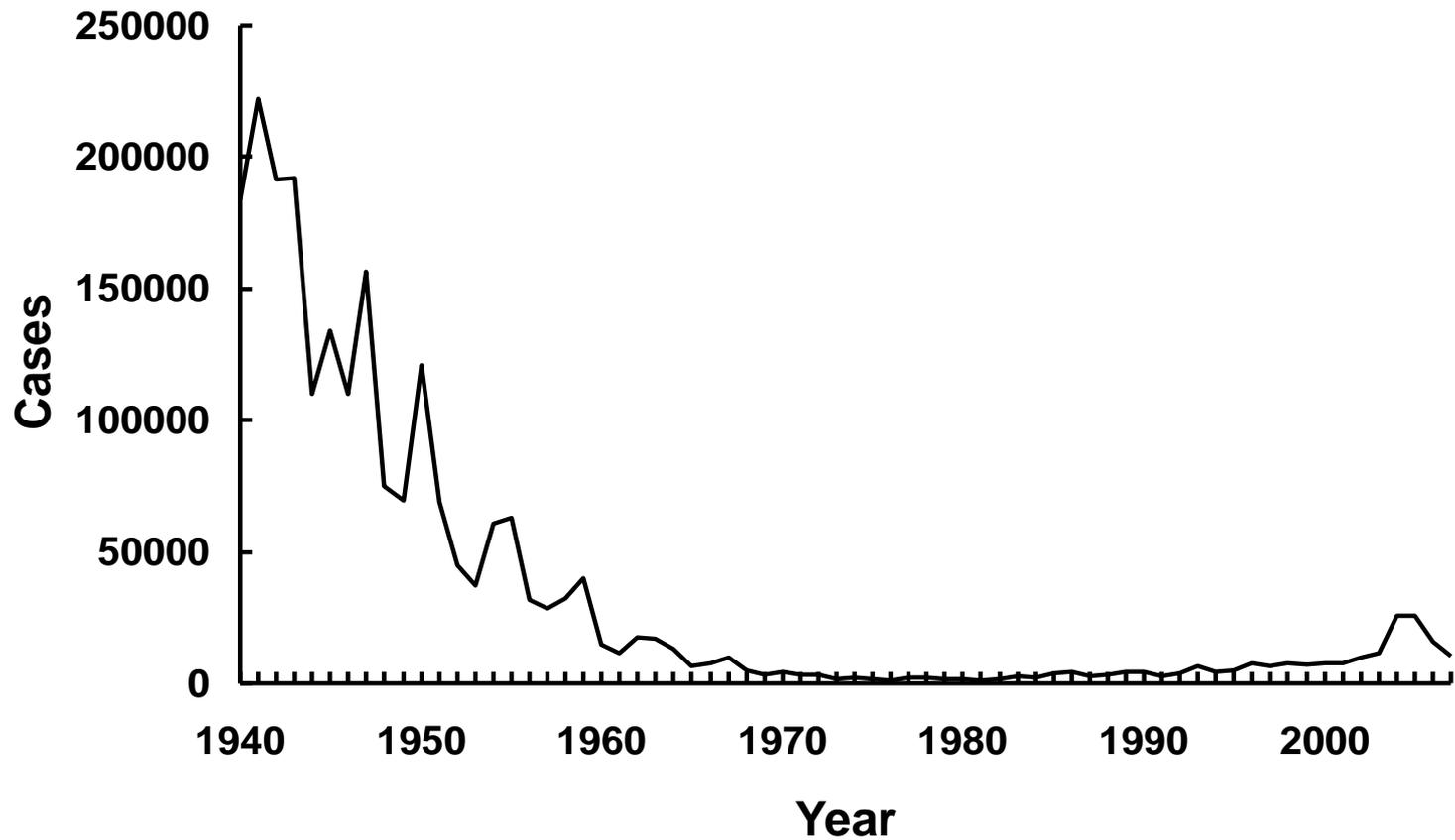
Droplet transmission

Insidious onset

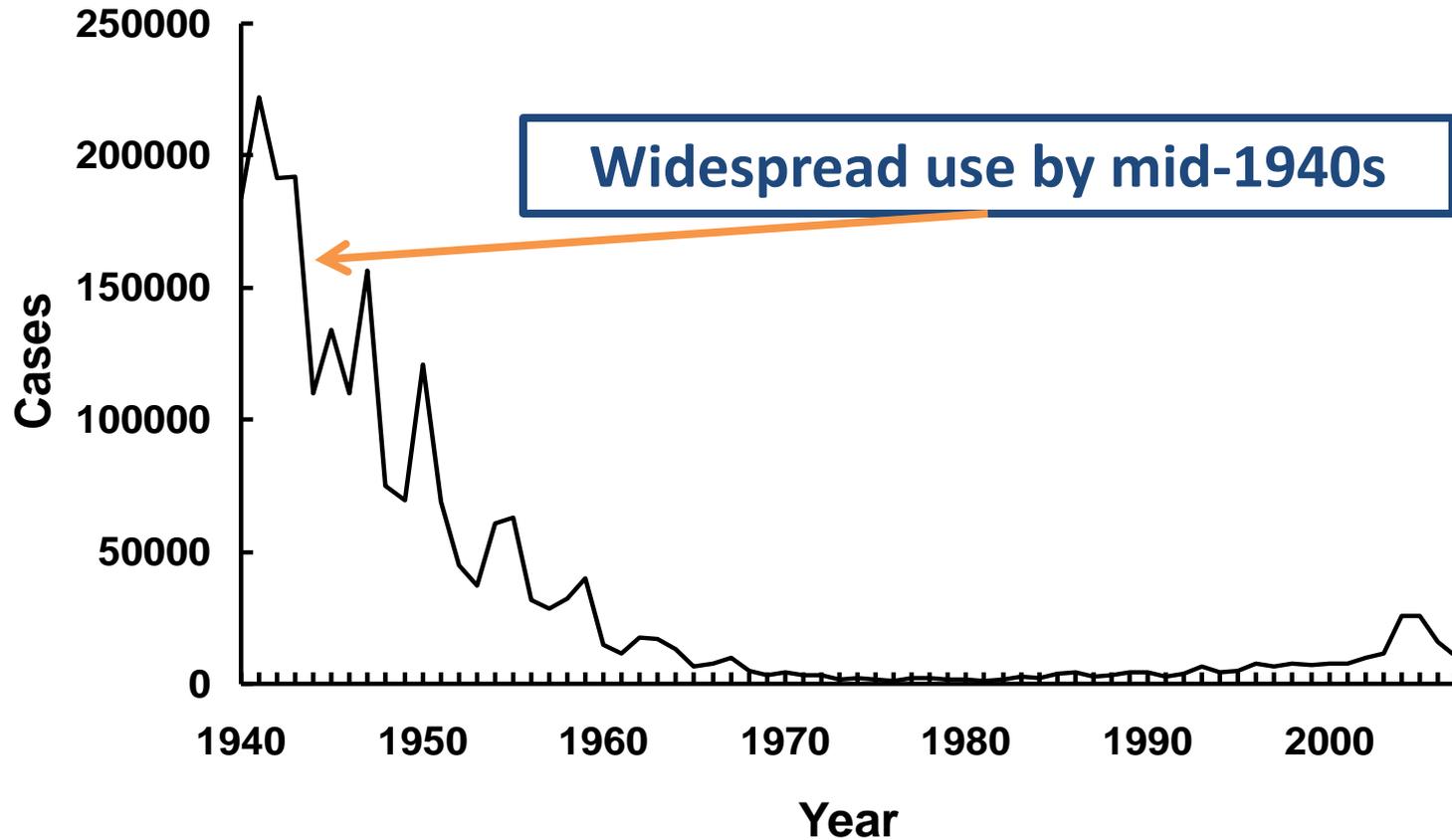
“Whoop” follows paroxysmal cough



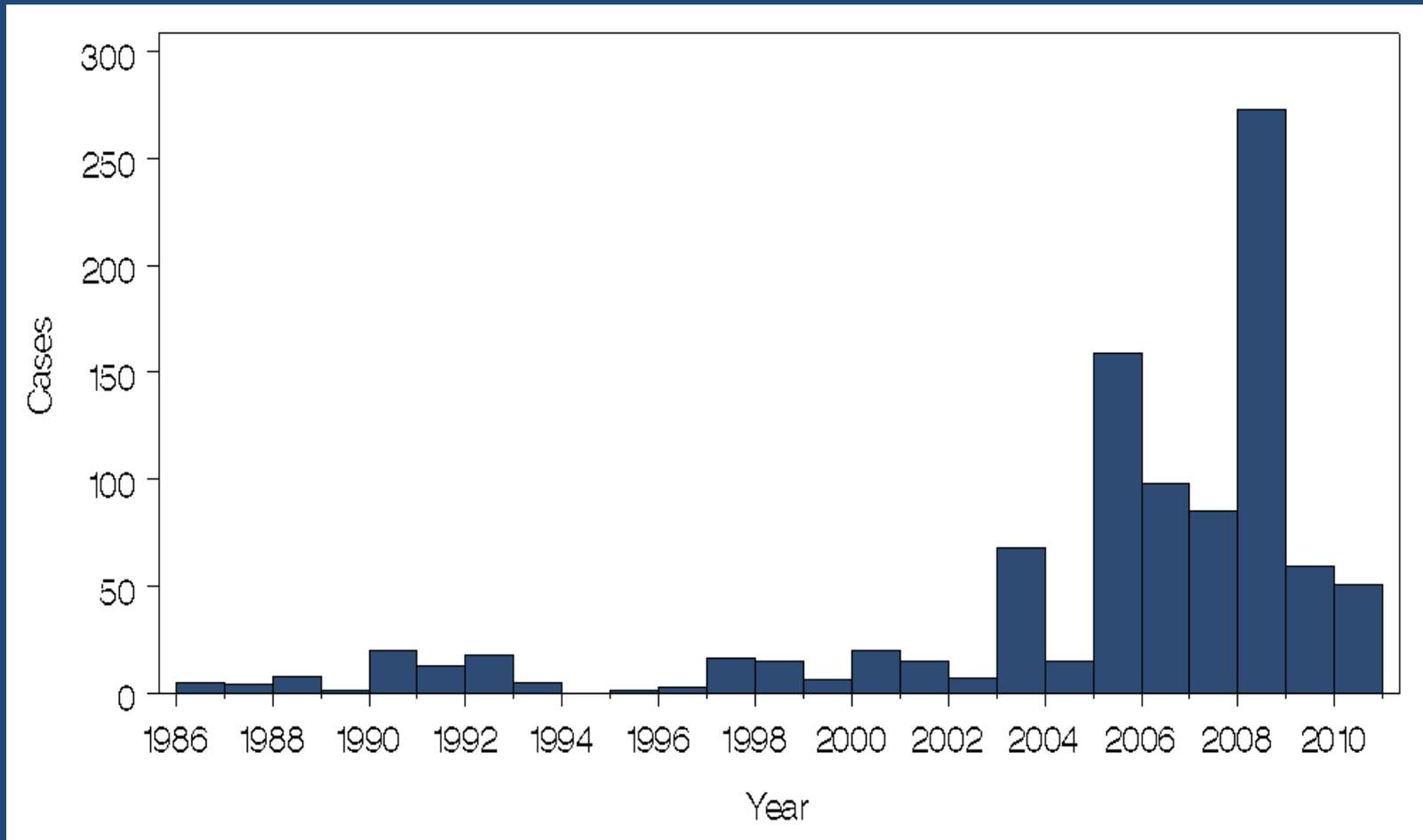
Pertussis in U.S. — 1940–2007



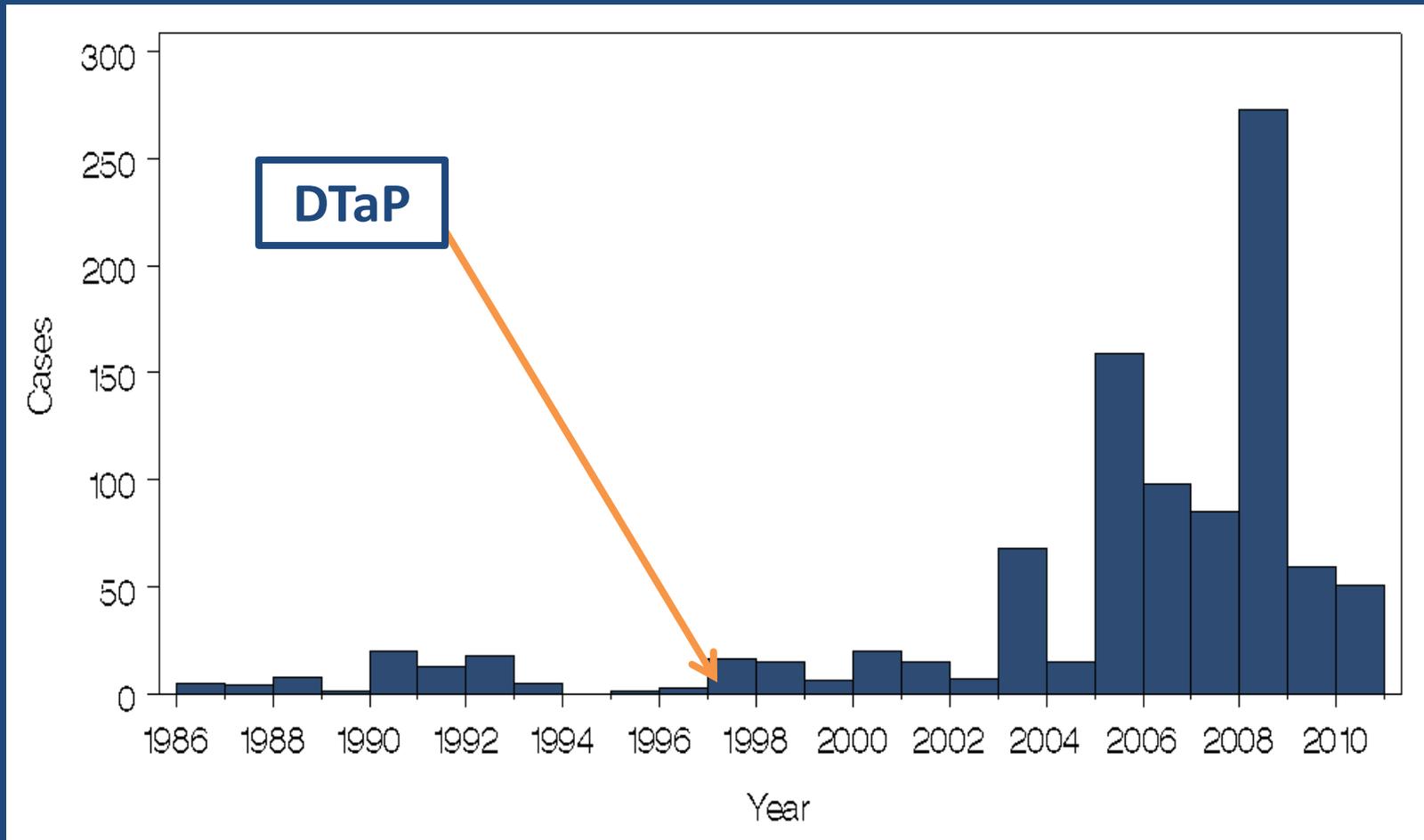
Pertussis in U.S. — 1940–2007



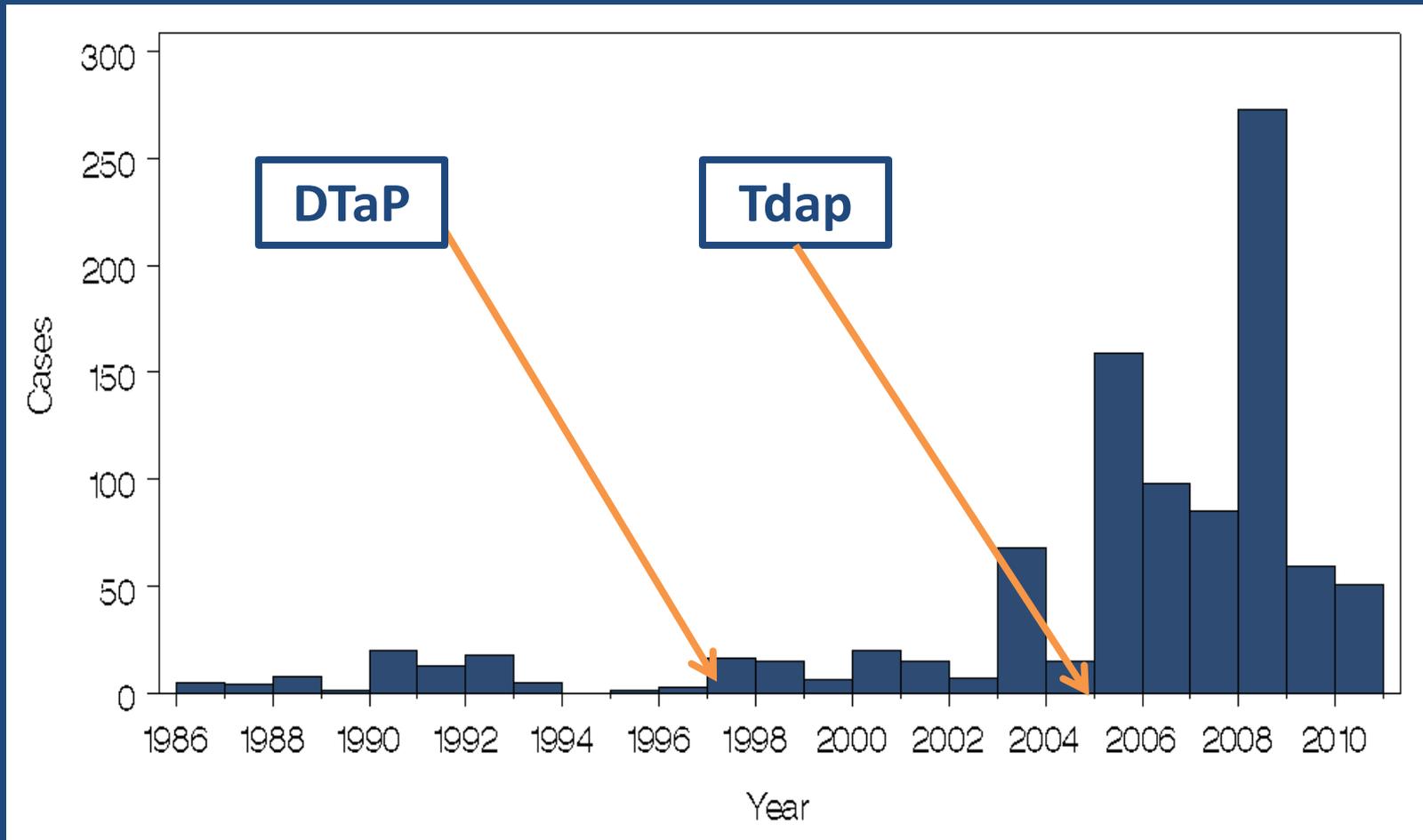
Pertussis in AK — 1986 – 2010



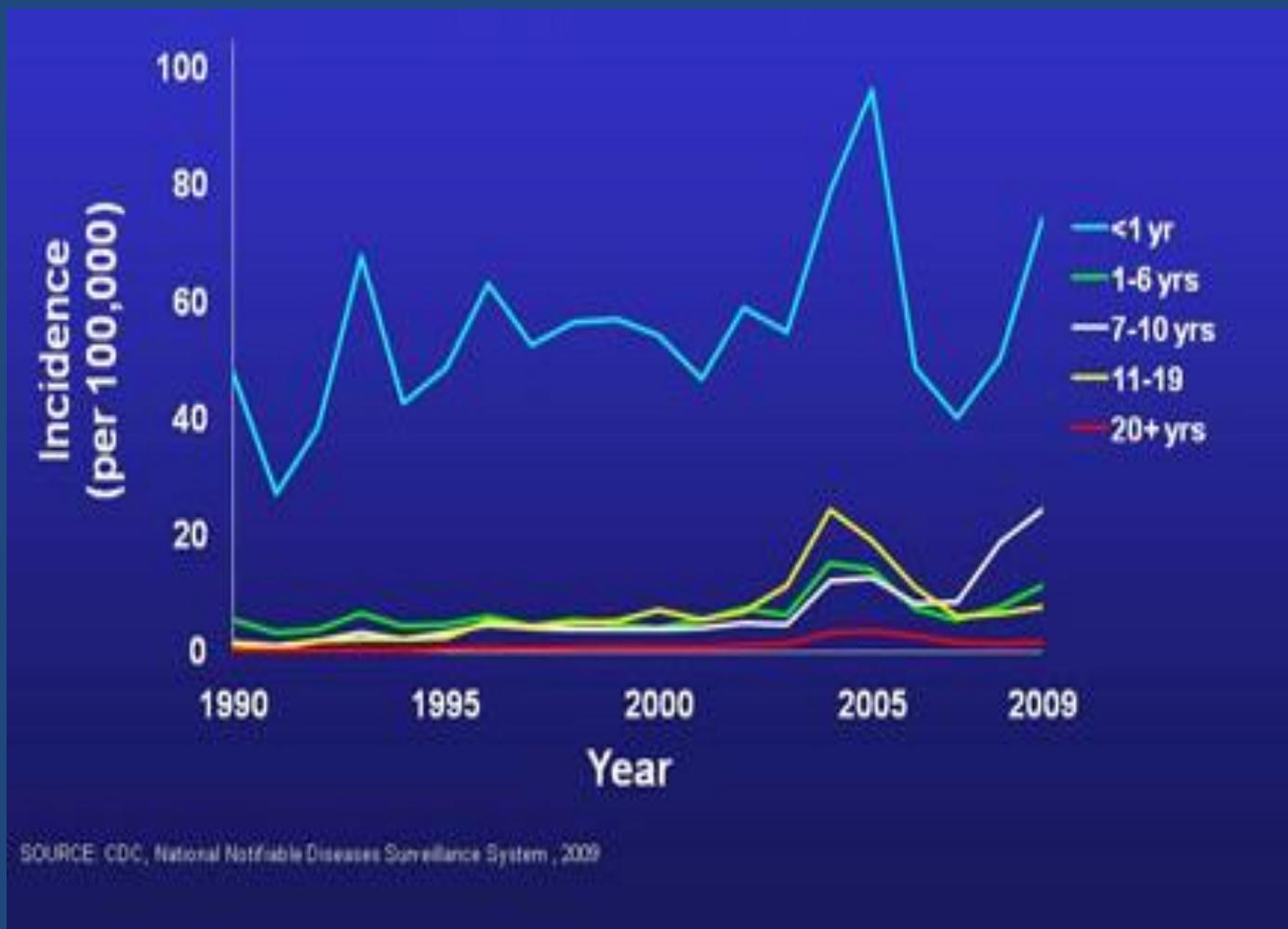
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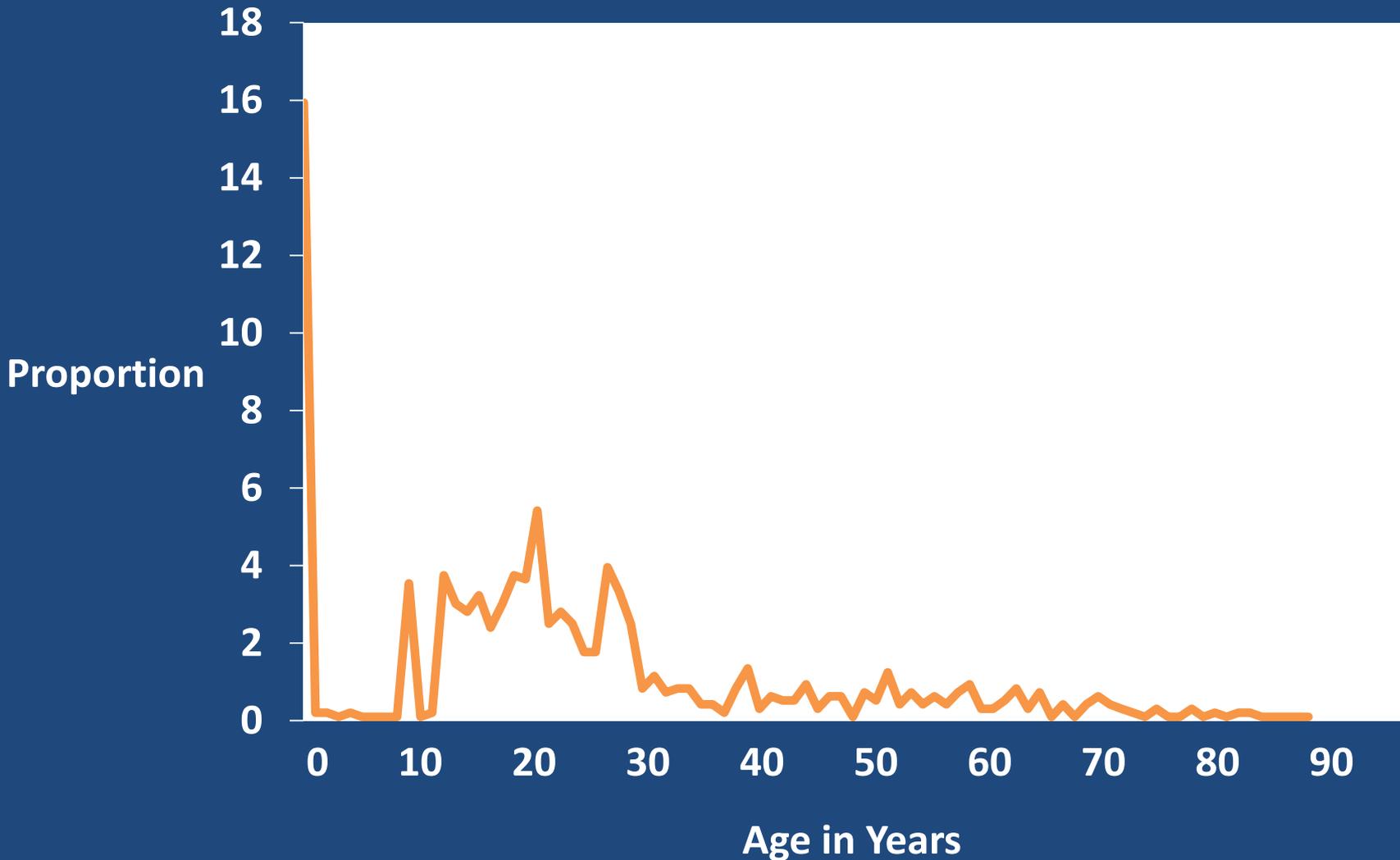
Pertussis in AK — 1986 – 2010



Pertussis Rates in U.S. — 1990–2009



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

Acknowledgments

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Louisa Castrodale

Section of Epidemiology

Thank you

