Getting Ready to Go to Camp

Alfred DeMaria, Jr., M.D.

MEHA

March 26, 2025

Disclosures

- I never went to camp
- I never inspected a camp
- I have no financial interests in camps or camping

Objectives

- **Participants will be able to:**
  - **Explain the history and rationale of the regulation of recreational camps**
  - **Identify major medical and safety issues related to camping**
  - **Discuss the epidemiology and presentation of infectious diseases associated with camping**

Boy Scout Jamboree at Bear Mountain, 1921

Franklin Delano Roosevelt and Poliomyelitis, 1921

July 27, 1921 – spends day at the Boys Scout Jamboree at Bear Mountain

August 10, 1921 – develops chills, nausea and back pain, and the next day fever

August 12-13, 1921 – paralysis arms and legs to chest down, fever persists

August 19, 1921 – question of poliomyelitis first raised

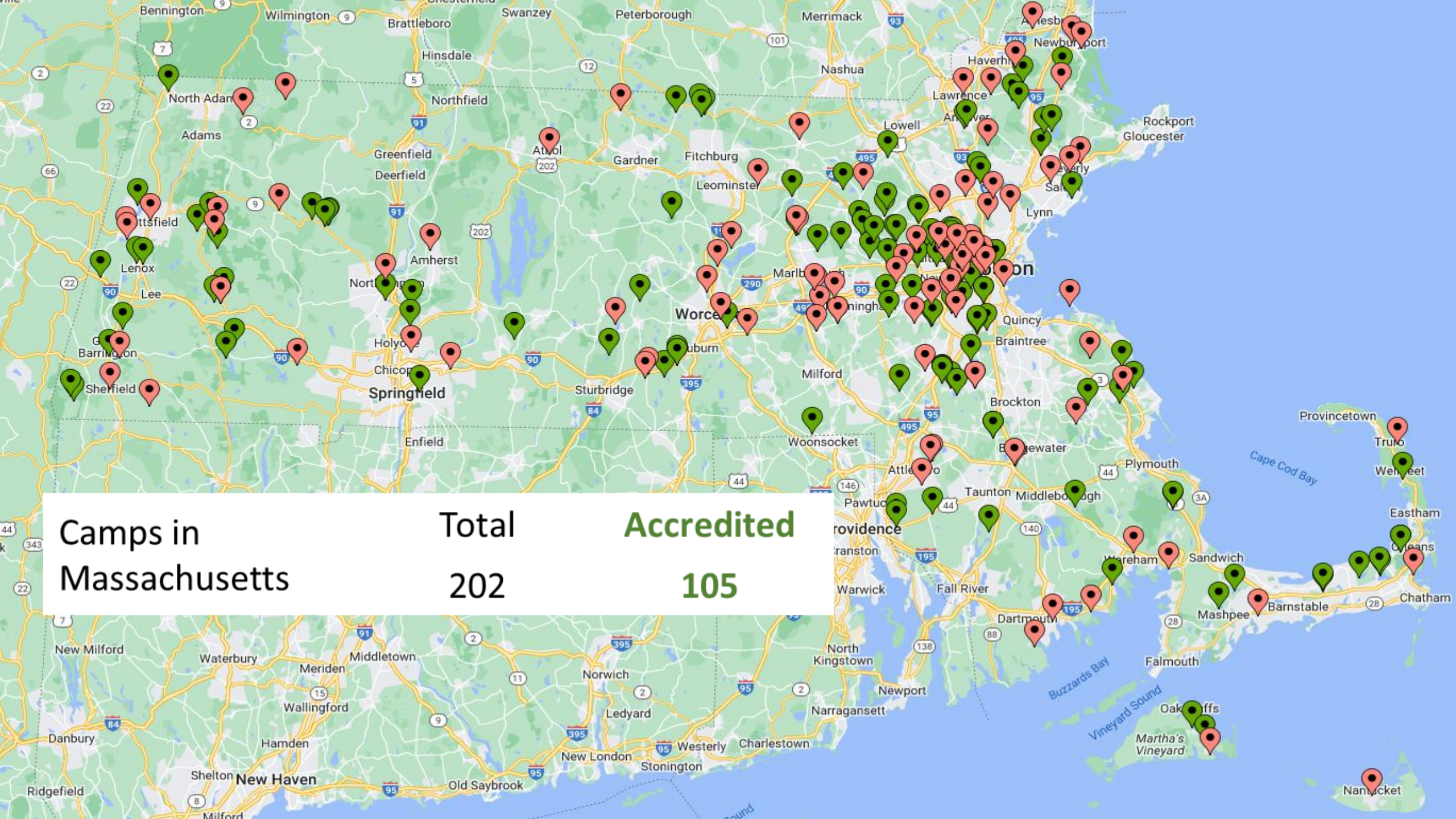
August 25, 1921 – polio diagnosed by Dr. Robert Lovett of the Harvard Infantile Paralysis Commission, and Boston Children's Hospital

Incubation period for paralytic polio is 7-21days.

Postponed until 1937 because of a polio outbreak

Early Camp Standards and Regulations in Massachusetts

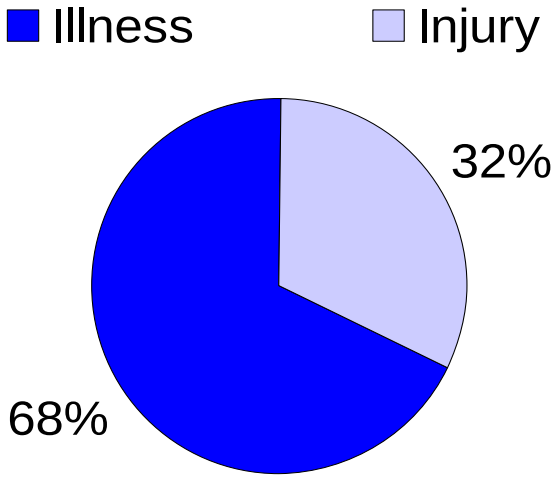
- **1900-1920's**
  - **Private camps**
  - **First Boy's Club Camp**
  - **Morgan Memorial Fresh Air Camp**
  - **Preventoria for children exposed to or with TB**
- **1925 – New Hampshire regulates recreational camps**
- **1929 – *Recommended Health Standards for Summer Camps*, MDPH**
- **1920s and 1930s – Specialty camps established (nutrition, diabetes, heart disease, etc.)**
- **1936 - Legislative commission to investigate sanitation in overnight and trailer camps**
  - **Focus on habitation and physical layout**
- **1938 – American Academy of Pediatrics National Committee on Camps with Massachusetts committee established**
- **1939 – Chapter 416 of the Acts of 1939 mandating licensure (annual) and inspection**
- **1940 – 634 camps licensed in 166 municipalities**
- **1956 – Report on Licensing and Regulating Summer Camps for Children, 329 summer resident camps for children, and 79 day camps**
  - **Questions raised about staffing and safety, argues for regulation of program and personnel**
- **105 CMR 430.000 et. seq.: Minimum Sanitation and Safety Standards for Recreational Camps for Children serial revisions**


Camps in Massachusetts
Total
202
Accredited
105

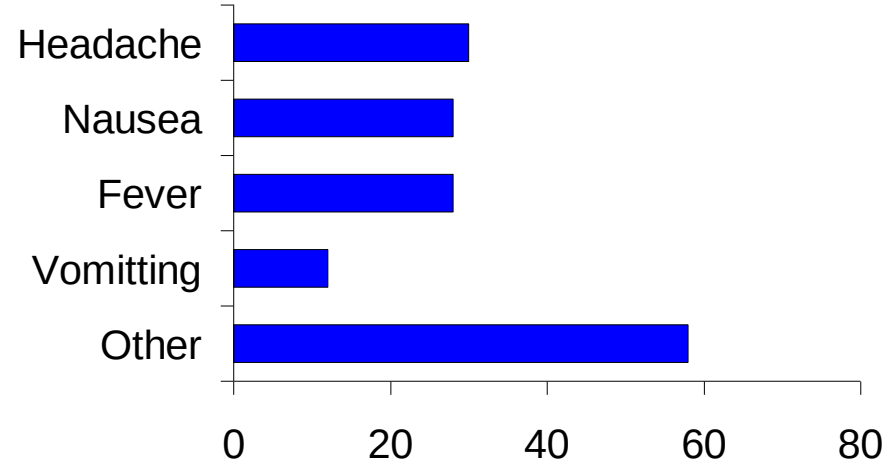
Internet-Based Surveillance of Injuries Sustained by US Campers in 2005

Yard EE, et al. Pediatrics (2006) 118 (5): e1342–e1349

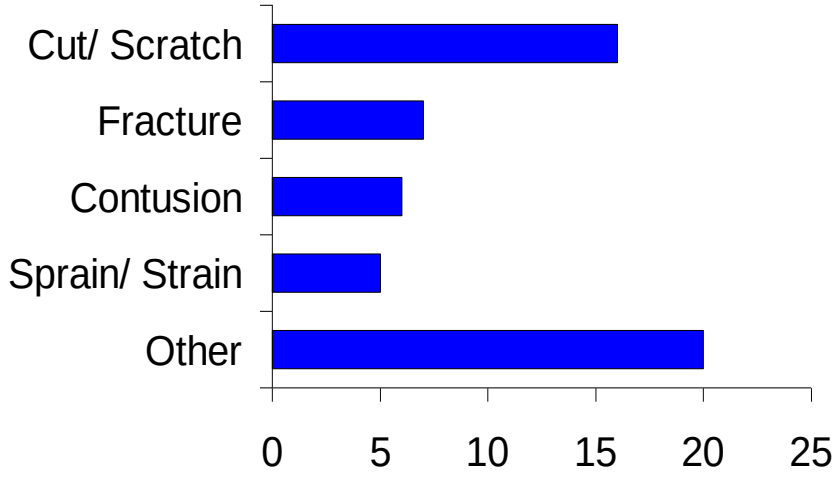
177 camper illnesses and injuries in 122,379 camper-days



Most commonly reported illness symptoms



Most commonly reported injury diagnoses



Distribution of Reason for Health Service Visit at a Boy Scout Camp, 2012-2013, 19,771 Camp Participants

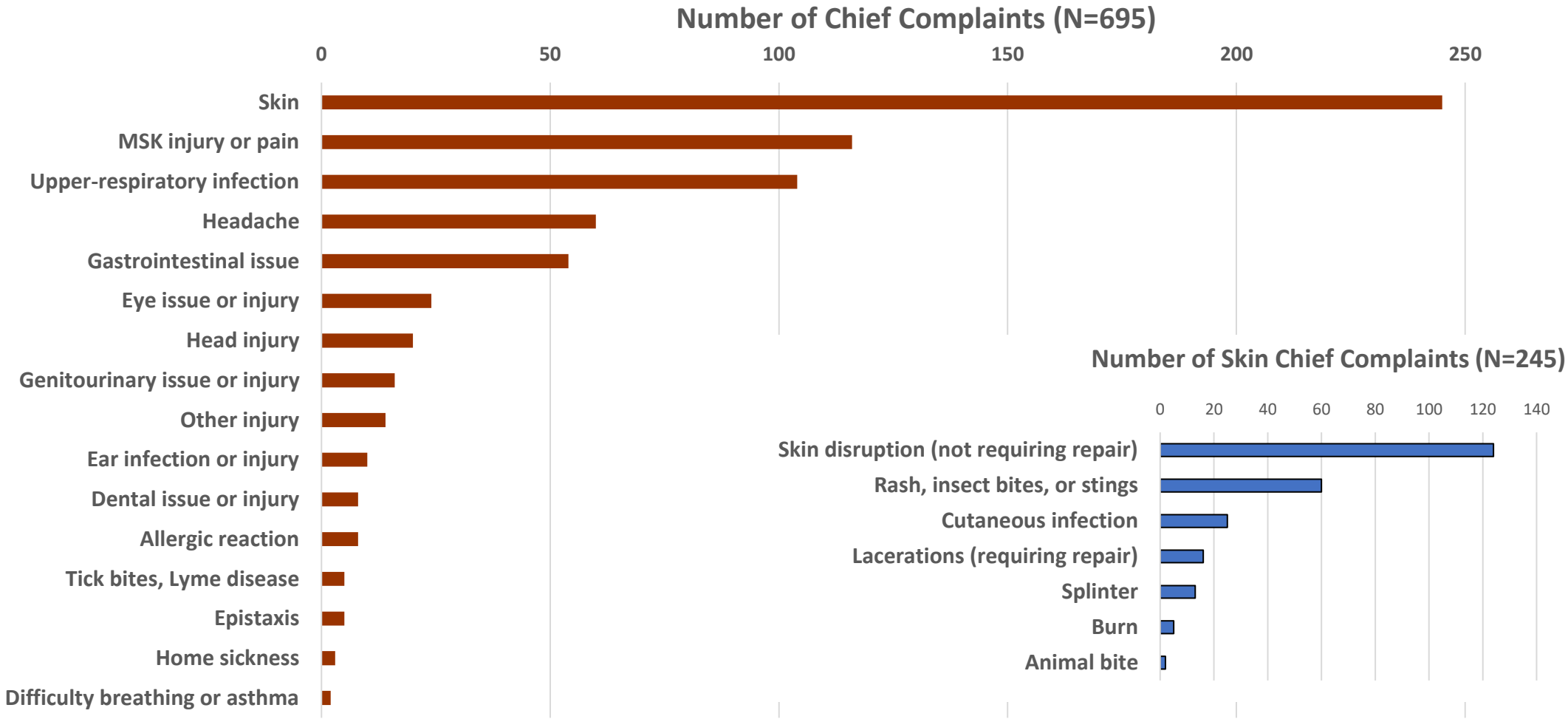
Miller RT, Barth BE. Wilderness & Environmental Medicine. 2016;27(4):482-491.

Reason for visit	No. of Visits	% of Subset Visits	% of Total Visits
Illness			
Boy Scouts	620	58.3	39.1
Staff	302	28.4	19.0
Adult leaders	141	13.3	8.9
Subtotal	1063	100%	67.0%
Injury			
Boy Scouts	196	67.8	12.4
Staff	67	23.2	4.2
Adult leaders	26	9.0	1.6
Subtotal	289	100%	18.2%
Medicine administration	19	-	1.2
Follow-up	215	-	13.6
Total	1586	-	100%

	All camp participants	Boy Scouts	Staff	Leaders
Total in camp	19,771	12,006	1166	6599
Total health center visits	1586 (8.0%)	956 (8.0%)	443 (38.0%)	187 (2.8%)
Visits per 1000 camper days	6.20	7.96	6.33	2.83

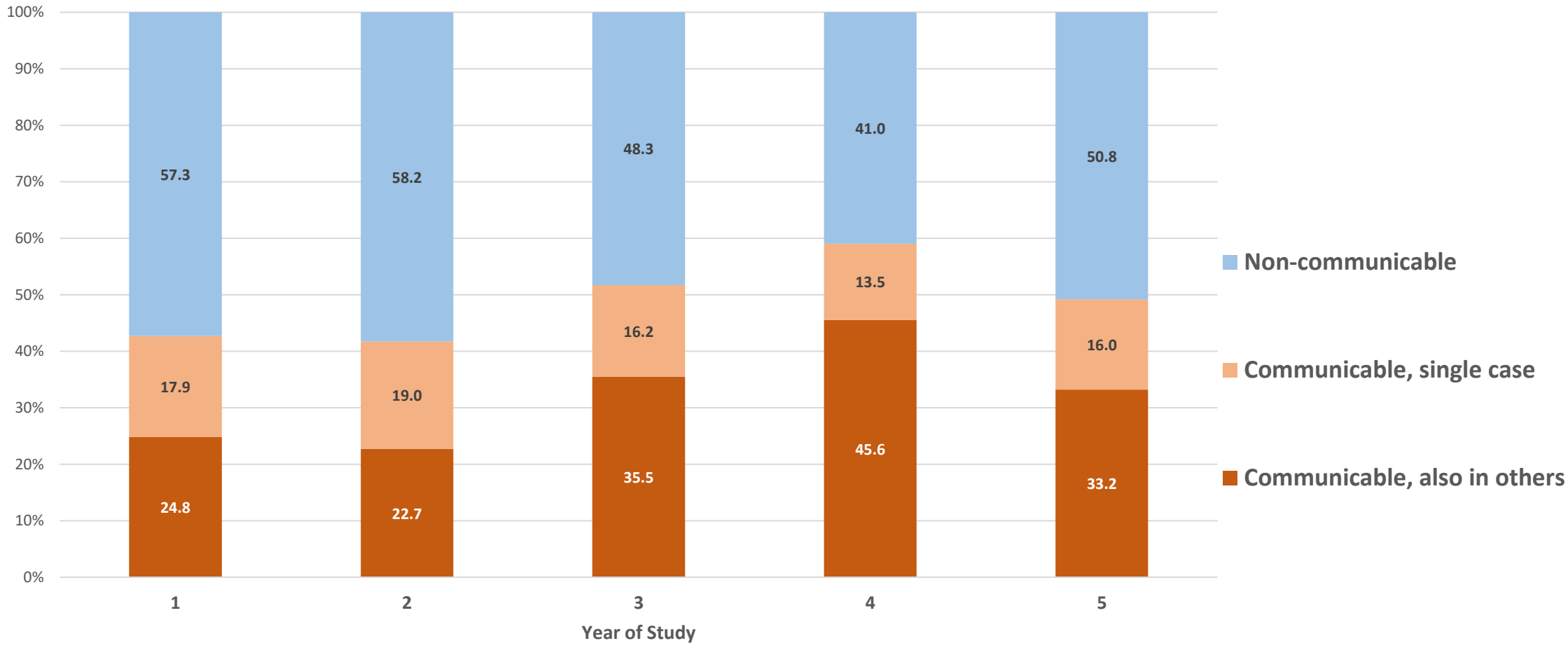
Illnesses and Injuries at a Remote American Residential Summer Camp Over 3 Seasons

Schlaudecker et al. Wilderness & Environmental Medicine 2023; 34: 284-288



Percent of Illness Communicability among Campers and Staff in Day and Resident Camps (140-180 camps)

Garst B, Erceg L, Walton E. Injury and Illness Benchmarking and Prevention for Children and Staff Attending U.S. Camps: Promising Practices and Policy Implications, J Appl Res on Children 2013; Vol. 4: Iss. 2, Article 5



Injury Rates* for Youth Participating in Day and Resident Camps Compared with Injury Rates for Youth Participating in High School Sports

(Garst B, Erceg L, Walton E. J Appl Res on Children 2013; Vol. 4: Iss. 2, Article 5)

Youth Activity	Injury Rates**
Resident Camp	*0.50*
Day Camp	*0.44*
Boys' Football	4.36
Boys' Wrestling	2.50
Boys' Soccer	2.43
Girls' Soccer	2.36
Girls' Basketball	2.01
Boys' Basketball	1.89
Girls' Volleyball	1.64
Boys' Baseball	1.19
Girls' Softball	1.13

* Rate for camps = chance of 1 child in 1,000 becoming injured during one 24-hour period at camp; Rate for sports= chance of 1 child in 1,000 becoming injured during a practice or competition.

** Centers for Disease Control and Prevention[43]

Activities Associated with Injury in Day and Resident Camp

(Garst B, Erceg L, Walton E. J Appl Res on Children 2013; Vol. 4: Iss. 2, Article 5)

Campers		Staff	
Playing a sport/game	21%	Playing a sport/game	17%
Sleeping/sitting	14%	Walking	12%
Walking	10%	Sleeping/sitting	11%
Routine action	10%	Routine action	11%
Water-related (non-swimming)	9%	Horse-related	7%
Running/jogging	8%	Water-related (non-swimming)	6%
Horse-related	4%	Instructing/supervising	5%
Biking	4%	Chore/task	5%
Prohibited activity/horseplay	4%	Using knife (food prep, arts/crafts)	3%

Military Recruit Outbreaks

- Young adults from disparate parts of the country brought together in close quarters under stress and exertion
  - Outbreaks of acute respiratory illness, pneumonia, meningitis, group A streptococcal infection, acute gastroenteritis consistently observed
- Random population of recruits colonized with different pathogen strains and differing degrees of immunity depending on different past infection experience
- Commission on Acute Respiratory Diseases in World War II
  - Studied seasonality and other patterns
  - Highest risk in the first weeks
- Addressed with immunization as available vaccines exist

Summer camp populations are not random populations.

Enterovirus Disease

- Fever, coryza, cough, myalgia, rash, oral lesions, mild gastroenteritis
- Hand, foot and mouth disease
- Viral meningitis
- Conjunctivitis
- Myocarditis, pericarditis
- Meningitis
- Encephalitis
- Acute flaccid paralysis

Univariate Analysis of Potential Risk Factors for Illness Due to Echovirus 18 Among Residents at a Summer Camp in Alaska, 2001

McLaughlin JB, et al. Association of regulatory issues with an echovirus 18 meningitis outbreak at a children's summer camp in Alaska. Ped Infect Dis J 2004; 23:875-877.

	Ill	At Risk	Attack Rate %	RR	95% CI
All camp residents	29	113	26		
Age					
<18 yr	27	78	35	6.1	1.52–24.08
>18 yr	2	35	6	Ref.	
Crowdedness of dwelling					
Overcrowded	23	59	39	3.5	1.55–7.96
Not crowded	6	54	11	Ref.	
Latest session attended					
July 23–30	17	50	34	3.2	0.82–12.67
July 16–23	10	44	23	2.2	0.52–8.93
July 9–16	2	19	11	Ref.	
Shared housing with a case-patient					
Yes	21	65	32	1.9	0.94–4.00
No	8	48	17	Ref.	
Sex					
Female	21	66	32	1.9	0.91–3.85
Male	8	47	17	Ref.	
No. of sessions attended/person					
2 or more	9	24	38	1.7	0.88–3.18
1	20	89	22	Ref.	

RR indicates relative risk.

Common Foodborne Pathogens

- Campylobacter jejuni
- Clostridium perfringens
- Salmonella spp.
- Escherichia coli
- E. coli enterohemorrhagic (O157:H7, EHEC)
- Bacillus cereus
- Listeria monocytogenes
- Shigella spp.
- Staphylococcus aureus
- Streptococcus
- Vibrio cholerae, including O1 and non-O1
- Vibrio parahaemolyticus
- Vibrio vulnificus
- Yersinia enterocolitica, Y. pseudotuberculosis
- Norovirus

Distribution of Etiologic Agents Among 226 Youth Camp Outbreaks of Gastroenteritis Reported to CDC, 2009-2016

Acute Gastroenteritis Outbreaks

Anita K Kambhampati, Zachary A Marsh, Michele C Hlavsa, Virginia A Roberts, Antonio R Vieira, Jonathan S Yoder, Aron J Hall

Journal of the Pediatric Infectious Diseases Society, Volume 8, Issue 5, November 2019, Pages 392–399, https://doi.org/10.1093/jpids/piy068
Published: 02 August 2018 **Article history**

Abstract

Background

Approximately 14 million children attend more than 14000 US camps every year. Shared accommodations and activities can facilitate acute gastroenteritis (AGE) outbreaks.

Methods

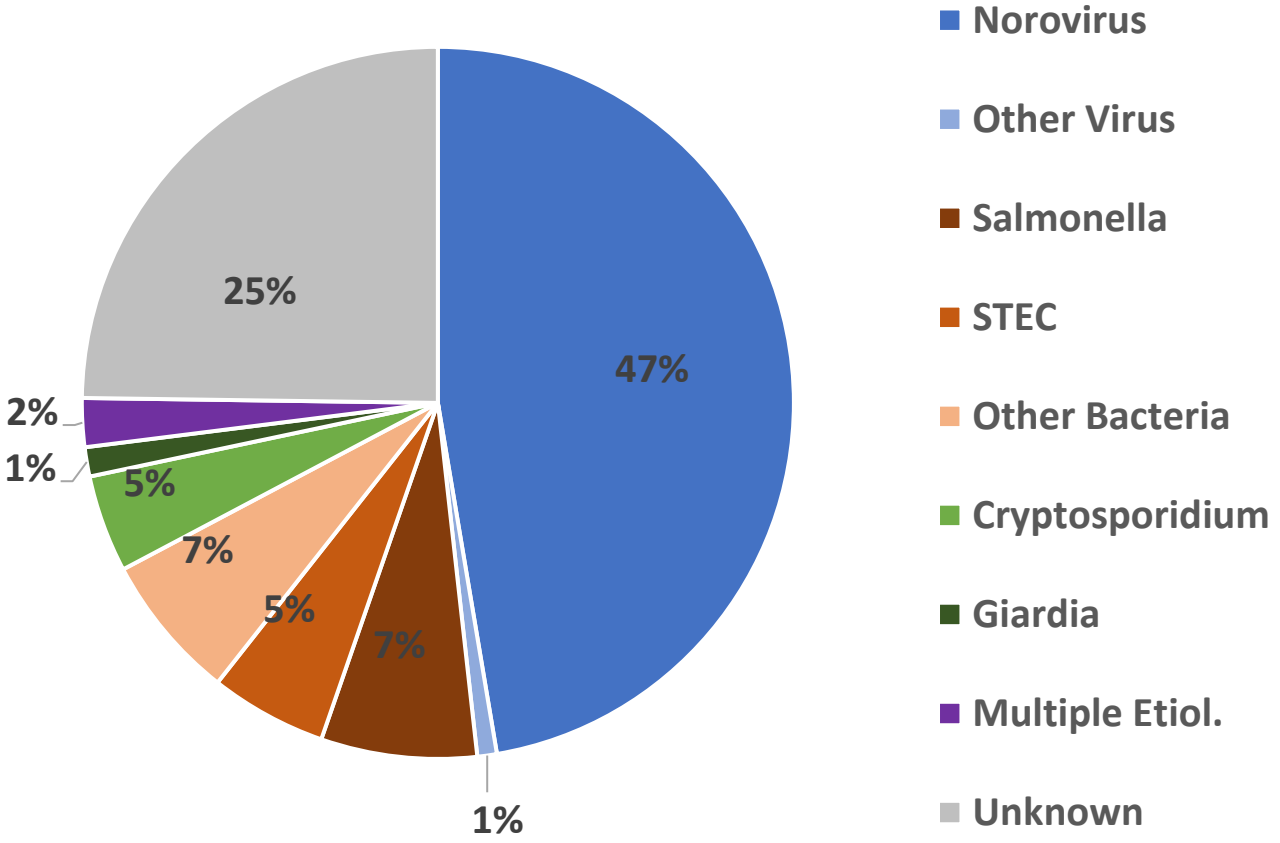
We analyzed data from the National Outbreak Reporting System on US youth camp–associated AGE outbreaks that occurred between 2009 and 2016. We also conducted a systematic literature search of youth camp–associated AGE outbreaks that have occurred around the world and a gray literature search for existing recommendations on outbreak prevention and control at camps worldwide.

Results

Thirty-nine US jurisdictions reported a total of 229 youth camp–associated AGE outbreaks to the National Outbreak Reporting System. Of the 226 outbreaks included in our analyses, 120 (53%) were reported to have resulted from person-to-person transmission, 42 (19%) from an unknown transmission mode, 38 (17%) from foodborne transmission, 19 (8%) from waterborne transmission, 5 (2%) from animal contact, and 2 (<1%) from environmental contamination. Among 170 (75%) outbreaks with a single suspected or confirmed etiology, norovirus (107 [63%] outbreaks), *Salmonella* spp (16 [9%]), and Shiga-toxin producing *Escherichia coli* (12 [7%]) were implicated most frequently. We identified 43 additional youth camp–associated AGE outbreaks in the literature that occurred in various countries between 1938 and 2014. Control measures identified through the literature search included camp closure, separation of ill campers, environmental disinfection, and education on food preparation and hand hygiene.

Conclusions

Youth camp–associated AGE outbreaks are caused by numerous pathogens every year. These outbreaks are facilitated by factors that include improper food preparation, inadequate cleaning and disinfection, shared accommodations, and contact with animals. Health education focused on proper hygiene and preventing disease transmission could help control or prevent these outbreaks.



Kambhampati, et al. J Pediatric Infect Dis Soc. 2019 November 06; 8(5): 392–399.

TABLE 1 Raw and adjusted odds ratios of the association between the variables considered and the risk of becoming ill in all outbreaks

Variable	Ill	Not ill	Total	OR[a]	95% CI	aOR[b]	95% CI
Sex							
Male	188	61	249	2.06	1.45–2.93	1.67	1.10–2.52
Female	232	155	387	1		1	
School level							
Infant (>2 and <7 yrs)	183	70	253	1		1	
Primary (≥7 and <13 yrs)	106	6	112	6.76	2.84–16.09	6.95	2.69–17.94
Secondary and higher (≥13 and <19 yrs)	63	17	80	1.42	0.78–2.59	1.51	0.71–3.22
Adults (≥19 yrs)	68	123	191	0.21	0.14–0.32	0.23	0.14–0.37
Center							
School	237	147	384	1		1	
Summer camp	183	69	252	1.18	1.06–1.31	3.55	1.96–6.44
Season							
Warm months	164	108	272	1		1	
Cold months	256	108	364	1.56	1.12–2.17	1.67	1.09–2.56
Reporting delay							
≤ 2 days	143	99	242	1		1	
>2 days and ≤4 days	74	44	118	1.16	0.74–1.83	3.08	1.60–5.92
>4 days and ≤9 days	119	46	165	1.79	1.17–2.74	5.25	2.88–9.58
>9 days	84	27	111	2.15	1.30–3.56	7.11	3.62-13.95
Type of transmission							
Common source	133	90	223	0.65	0.46–0.91		
Person-person	287	126	413	1			

[a]OR, raw odds ratios.
[b]aOR, adjusted odds ratios.

Parrón I, et al. Outbreaks of Gastroenteritis Due to Norovirus in Schools and Summer Camps in Catalonia, 2017-2019. Microbiol Spectr. 2022 Jun 29;10(3):e0011922.

CDC Preventing Norovirus at Youth Camps

https://www.cdc.gov/norovirus/prevention/healthy-camping.html

Campers' Diarrhea Outbreak Traced to Water-Sewage Link

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CHARLES E. HALEY, MD
HELAINE J. FISHER, BA

When this study was conducted, Dr. Starko was Epidemic Intelligence Service Officer with the Field Services Division, Epidemiology Program Office, Centers for Disease Control (CDC), Atlanta, GA, and assigned to the Bureau of Disease Prevention and Epidemiology, Arizona Department of Health Services, Phoenix. Mr. Lippy was Sanitary Engineer, Health Effects Research Laboratory, Environmental Protection Agency, Cincinnati, OH. Mr. Dominguez was Health Program Manager, and Ms. Fisher was Research and Statistical Analyst with the Arizona Department of Health Services' Bureau of Disease Prevention and Epidemiology. Dr. Haley was Medical Epidemiologist, Enteric Diseases Branch, Bacterial Diseases Division, Center for Infectious Diseases, CDC, Atlanta.

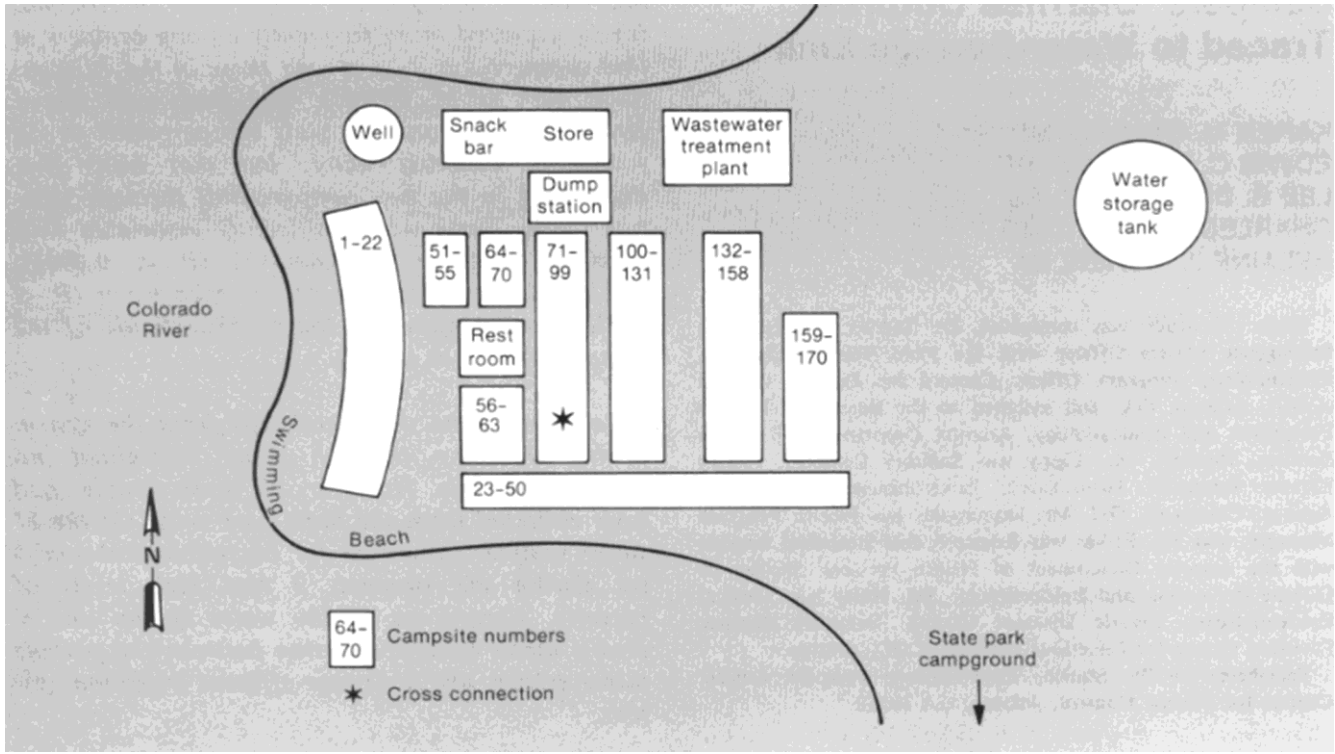
Tearsheets to Dr. Starko, Epidemiology Program Office, Centers for Disease Control, Atlanta, GA 30333.

Synopsis

From June through September 1979, diarrheal illness occurred in an estimated 1,850 persons who had camped at a private campground in Arizona. Illness occurred more frequently among campers at that campground than among those in the adjacent State park ($P < 0.0001$). The same well served both the private and the State campgrounds as the source of drinking water, but that water was distributed to the two campgrounds through separate lines. Illness was significantly associated with drinking water at the campsite ($P < 0.0001$), drinking larger quantities of campsite water ($P < 0.001$), and camping on the southwest side of the campground ($P < 0.001$).

Samples of the water collected from the system during January through June contained no coliform bacteria. However, all those samples had been collected from the State park only. Of the 11 water samples submitted for bacteriological analyses during the summer, 3 had high levels of bacteria. Excavation of the water system uncovered a direct cross connection between the potable water system and a sewage-effluent irrigation system.

This outbreak calls attention to the importance of designing, maintaining, and monitoring potable water systems properly, especially those proximate to wastewater re-use systems.



Public Health Rep. 1986 Sep-Oct;101(5):527-31.

Waterborne Pathogens

- Campylobacter sp.
- Vibrio cholera
- V. vulnificus
- Shigella
- Salmonella
- Legionella
- Leptospirosis
- Norovirus
- Hepatitis A
- Hepatitis E
- Adenoviruses
- Enteroviruses
- Cryptosporidium
- Giardia

Recommendations for the Prevention and Control of Youth Camp–Associated Outbreaks of Acute Gastroenteritis (AGE)

J Pediatric Infect Dis Soc. 2019 November 06; 8(5): 392–399.

- **Parents sign a pre-camp arrival agreement requiring campers to be healthy on arrival and requesting the pick-up of ill campers when necessary**
- **After vomiting/diarrheal incidents, affected areas should be cleaned thoroughly and then disinfected by trained individuals wearing proper personal protective equipment (eg, gloves) and using proper disinfectants of sufficient concentration**
- **Campers and staff with AGE symptoms (ie, diarrhea or vomiting) should be isolated and provided designated dining and restroom facilities until at least 48 hours after their symptoms have resolved**
- **At the start of the camp session, campers and staff should be instructed on proper hand-washing practices; hand-washing facilities should be equipped with soap, running water, and disposable towels**
- **Before the camp session, food handlers should be trained in food safety and preparation practices and use gloves and utensils when handling or preparing ready-to-eat foods, beverages, or ice**
- **Food handlers and campers with AGE symptoms should be excluded from food service areas until at least 48 hours after their symptoms have resolved**
- **Campers and staff should not consume or cook with untreated water**
- **Campers with AGE symptoms should not swim or participate in recreational water activities until at least 1 week after their symptoms have resolved**

2024 Model Aquatic Health Code

Code Language

CDC

5th Edition, December 2024

CS349805-A

Morbidity and Mortality Weekly Report

Multicomponent Strategies to Prevent SARS-CoV-2 Transmission — Nine Overnight Youth Summer Camps, United States, June–August 2021

Kim Van Naarden Braun, PhD[1,2]; Mark Drexler, MD[1,2,3]; Ranna A. Rozenfeld, MD[1,4]; Eytan Deener-Agus[1]; Rebecca Greenstein[1]; Michael Agus, MD[1,2,5]; Mark Joffe, MD[1,2,6]; Andrea Kasowitz, DO[1,2]; Philip Levy, MD[1,2,5]; Cliff Nerwen, MD[1,2,7]

MMWR Morb Mortal Wkly Rep. 2021 Oct 8;70(40):1425–1426.

The increased number of outbreaks and cases observed in Louisiana youth summer camps in 2021 compared with the previous year coincided with the widespread circulation of the highly transmissible Delta variant. This period also coincided with apparent underutilization of preventive measures such as vaccination, masking, and physical distancing. Multicomponent prevention measures, including vaccination of all eligible adults and adolescents, wearing masks indoors, regular screening testing, physical distancing and cohorting, and increasing ventilation can help prevent transmission of SARS-CoV-2 in settings with youths who cannot be vaccinated

Previous studies have demonstrated the importance of prevention strategies to reduce SARS-CoV-2 transmission in overnight camps.

What is added by this report?

During June–August 2021, a total of 7,173 campers and staff members attended nine U.S. overnight camps that implemented multiple prevention strategies including high vaccination coverage (>93% among eligible persons aged ≥12 years); prearrival and frequent screening testing (38,059 tests); and additional concomitant prevention measures. Nine laboratory-confirmed COVID-19 cases and no secondary infections were detected.

What are the implications for public health practice?

Implementation of high vaccination coverage coupled with multiple prevention strategies is critical to averting COVID-19 outbreaks in congregate settings, including overnight camps. These findings highlight important guiding principles for school and youth-based COVID-19 prevention protocols.

TABLE. Camp-associated COVID-19 outbreaks and cases reported, by week of symptom onset and percentage of SARS-CoV-2 B.1.617.2 (Delta) variant circulating — Louisiana, June–July 2021.

Week beginning	% SARS-CoV-2 Delta variant circulating in Louisiana*,†	No. of outbreaks reported	No. of outbreak-associated cases reported (average no. of cases per outbreak)
Jun 1	N/A	0	0 (—)
Jun 6	N/A	0	0 (—)
Jun 13	38.7	1	11 (—)
Jun 20	54.2	3	30 (10.0)
Jun 27	70.1	4	25 (6.3)
Jul 4	81.3	9	118 (13.1)
Jul 11	84.3	4	41 (10.3)
Jul 18	93.5	6	92 (15.3)
Jul 25	96.4	1	4 (—)
Total	**—**	**28**	**321§ (11.5)**

ENVIRONMENTAL HEALTH
& ENGINEERING, INC.

FIELD GUIDE FOR CAMPS ON IMPLEMENTATION OF CDC GUIDANCE

Prepared For:
American Camp Association and YMCA of the USA

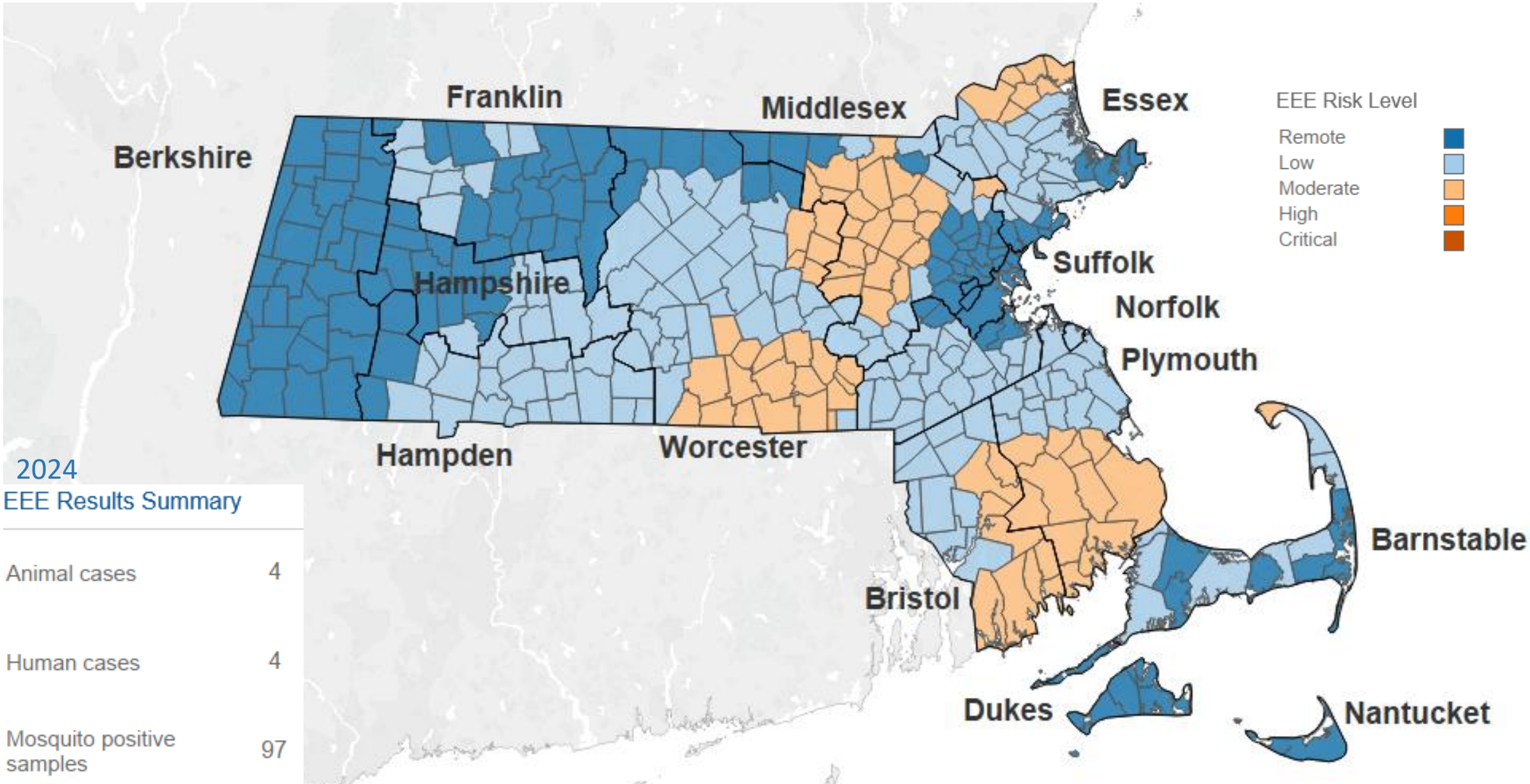
Prepared By:
Environmental Health & Engineering, Inc.
180 Wells Avenue, Suite 200, Newton, MA 02459-3328
800-825-5343

January 21, 2021

EH&E Project #24206

https://www.acacamps.org/resources/covid-19/field-guide-camps

EEE Risk Level by Town

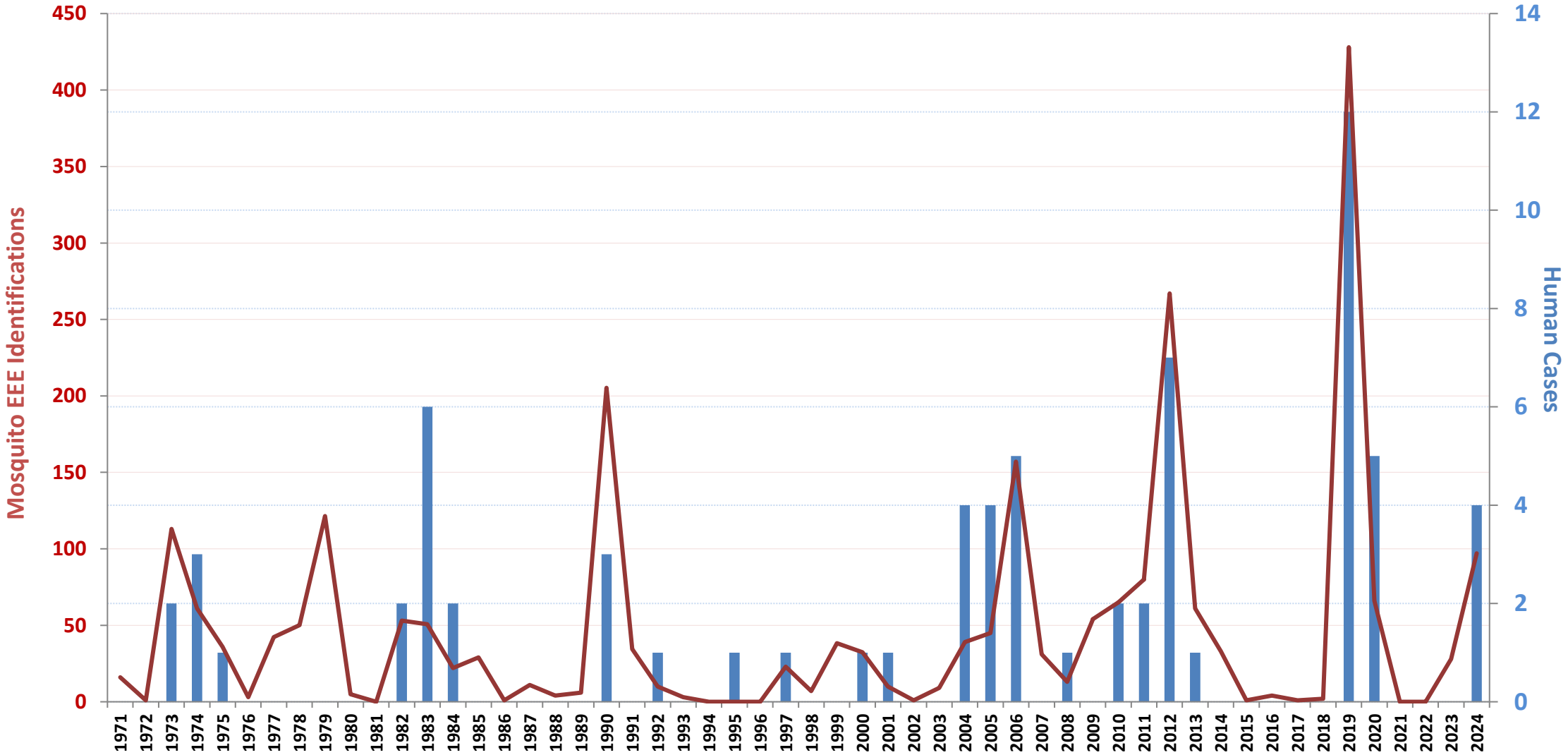


2024

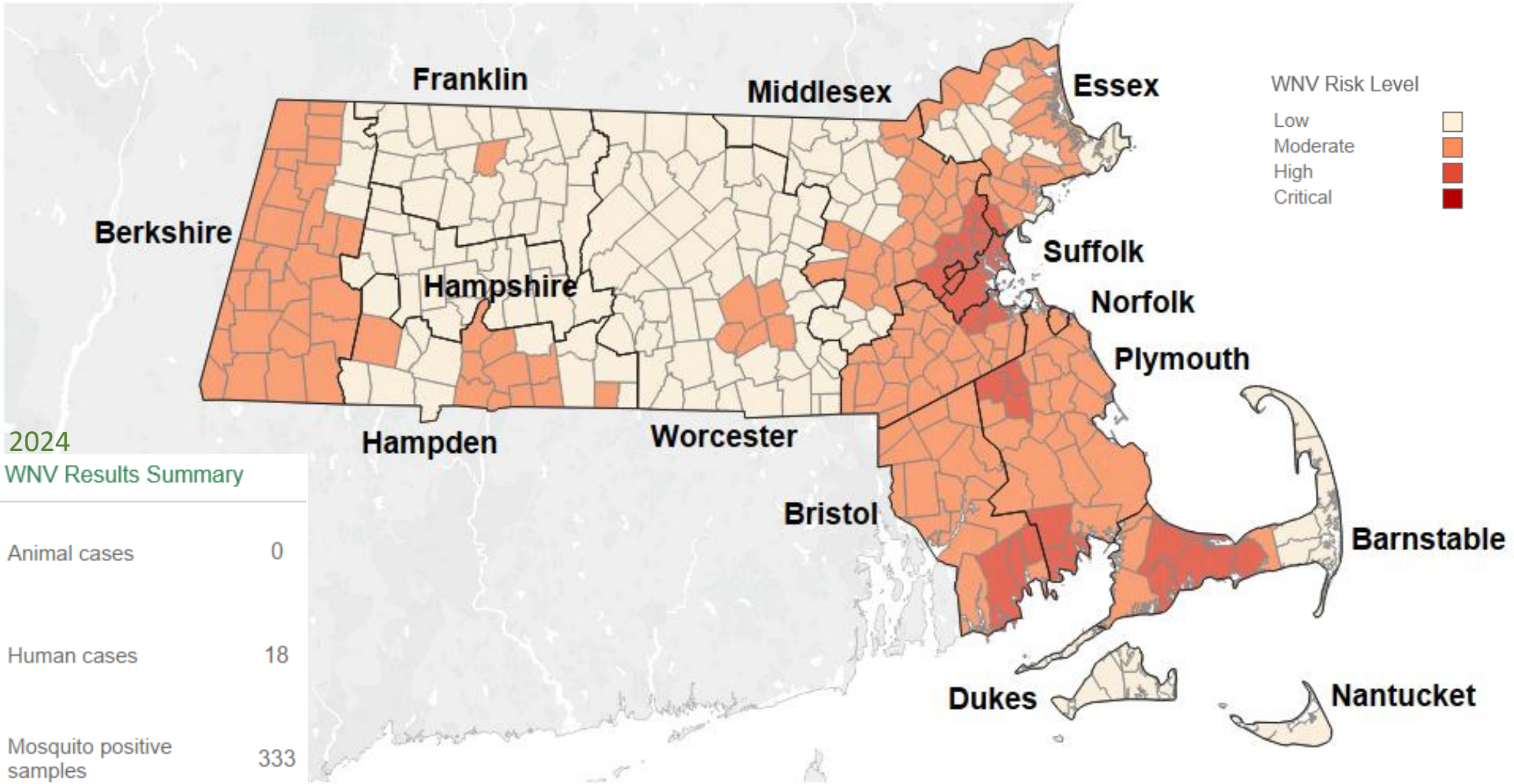
EEE Results Summary

Animal cases	4
Human cases	4
Mosquito positive samples	97

Massachusetts 1970-2024
Human EEE and EEEV Mosquito Isolates



WNV Risk Level by Town



2024

WNV Results Summary

Animal cases	0
Human cases	18
Mosquito positive samples	333

Outbreak at a Boys Scout Camp

- 5 children (12-13 years old) at Boy Scout camp develop headache, chills, nausea, abdominal pain, dilated pupils and tachycardia during the night and are transported to area hospitals
- By morning, 4 more cases
  - One of the four with nosebleed only
- Group of 150 students from a local school
- Outdoors all day – swimming, sports, etc.
- Barbecue dinner
- Evening dance and moon bounce
- Onsets of illness 9:30 PM through 1:00 AM


RED SOX

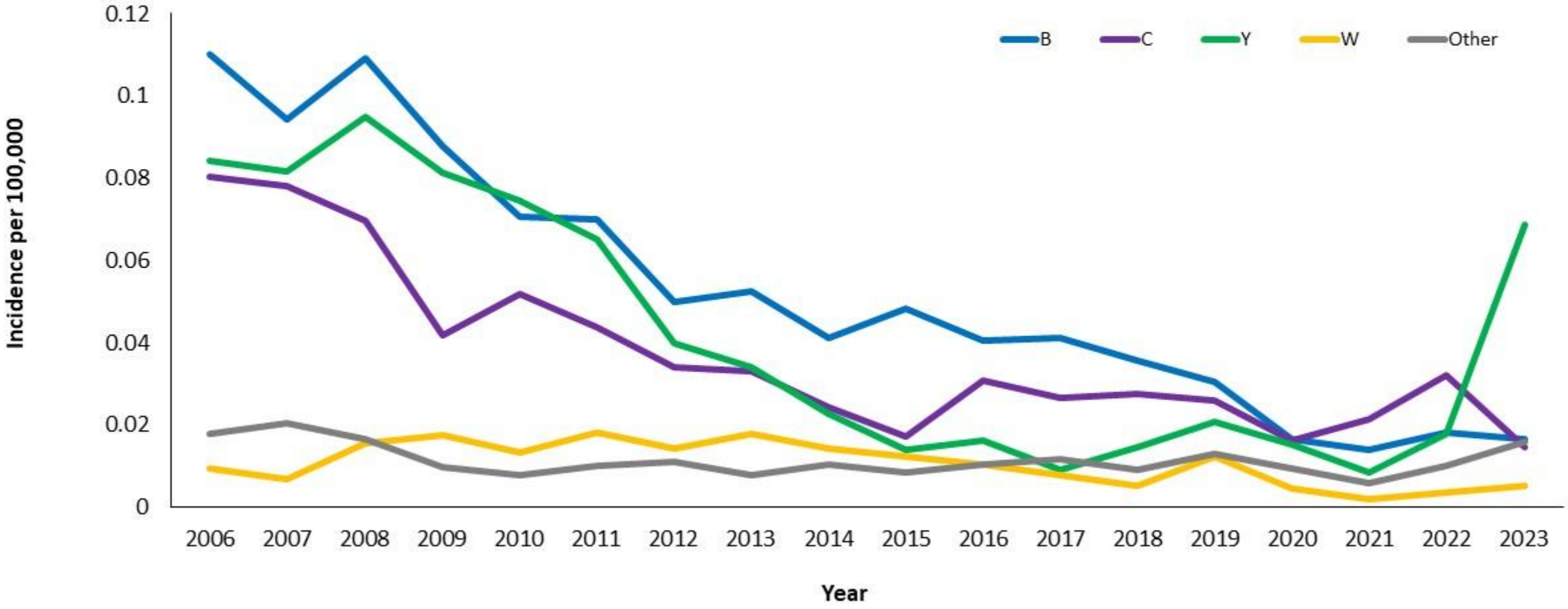
The Camp

- **350 acre camp offering swimming, boating, fishing, crafts, hiking, biking, nature study, games, field sports, team building activities, archery, and BB gun shooting**
- **Family/cafeteria-style meals in the dining hall**
- **All programs comply with regulations of the Massachusetts Department of Public Health (105 CMR 430.000), and licensed by the local health department**

Differential Diagnosis

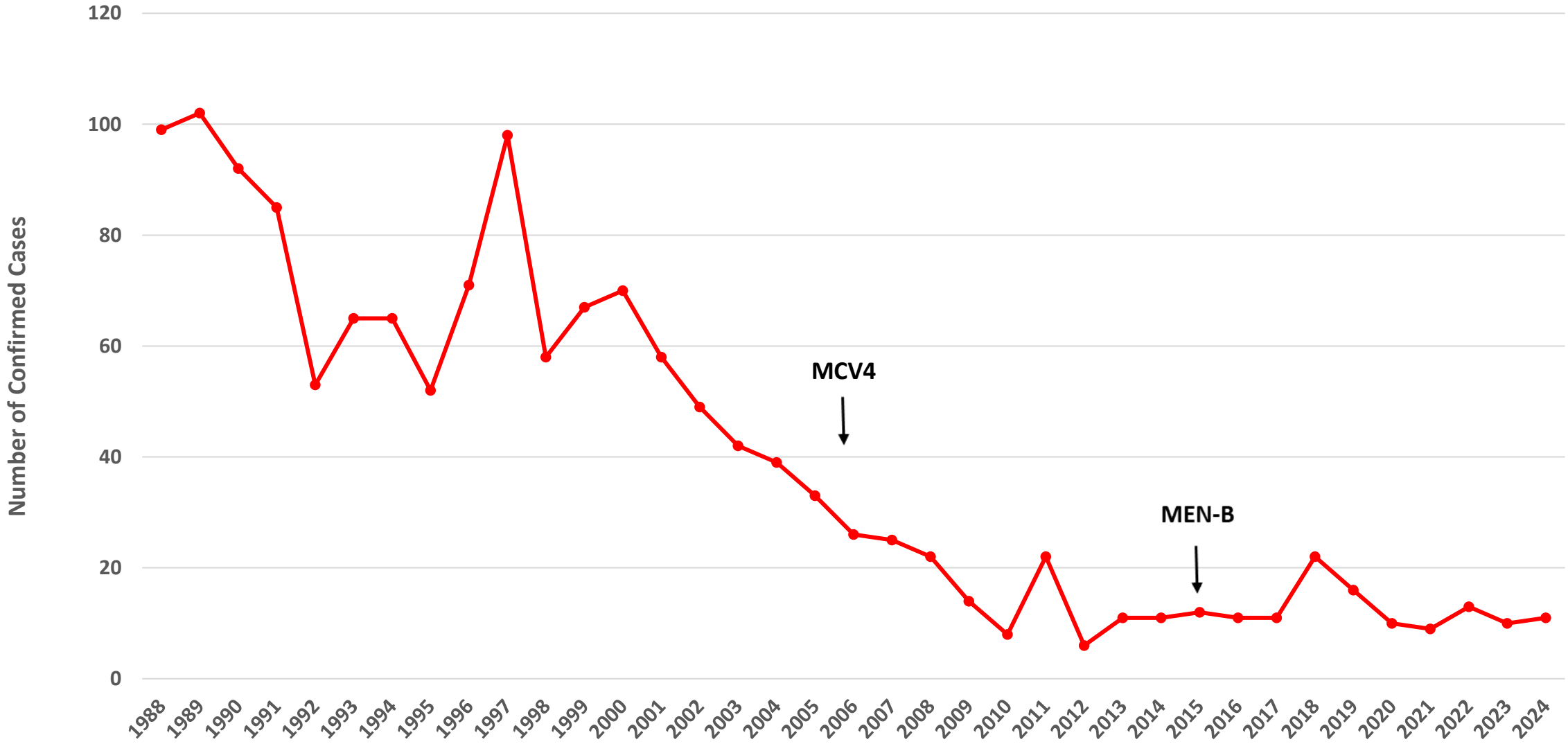
- **Infection**
  - **Foodborne**
- **Intoxication**
  - **Pesticide**
    - **Not SLUDGE syndrome – mydriasis, not miosis**
  - **Toxic glycoalkaloid**
    - ***Solanaceae*, Jimson weed, nicotine**
  - **Mushrooms**
  - **Drugs**
    - **Psychoactive agents**
    - **Pseudephedrine, ephedrine**
  - **Carbon monoxide**

Trends in Meningococcal Disease Incidence by Serogroup – United States, 2006–2023*



Source: NNDSS data with additional serogroup data from Active Bacterial Core surveillance (ABCs) and state health departments
*2023 data are preliminary

Number of Confirmed Cases of Invasive Meningococcal Disease Reported in Massachusetts, by Year



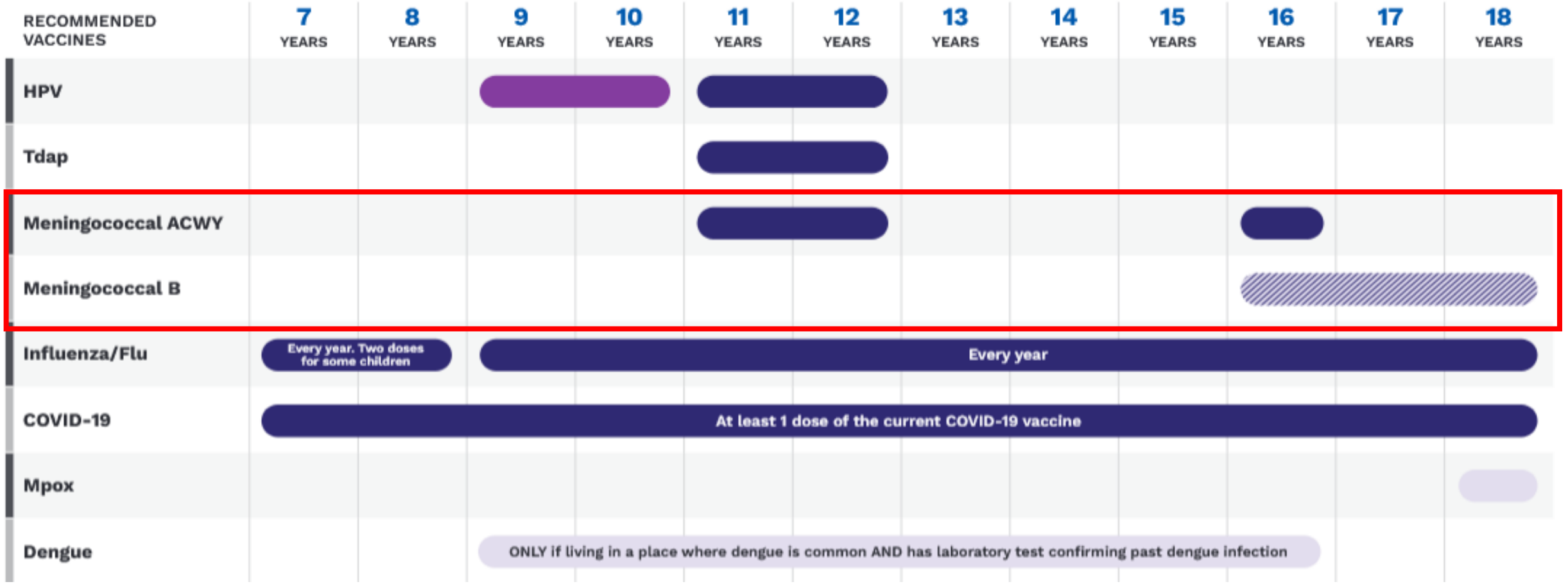
2017-2018, Outbreak of Serogroup B Meningococcal Disease, 5 Colleges

Meningococcal Vaccines Licensed in the US

There are 3 meningococcal vaccines available in the United States

- **Three conjugate vaccines are quadrivalent (4 serogroups: A, C, W, and Y)**
- **Two recombinant protein vaccines are monovalent (1 serogroup: B)**
- **One conjugate and recombinant protein vaccine is pentavalent (5 serogroups: A, B, C, W, and Y)**

2025 ACIP Meningococcal Vaccine Recommendations



Recommended Chemoprophylaxis Regimens for Close Contacts of Persons with Invasive Meningococcal Disease (CDC)

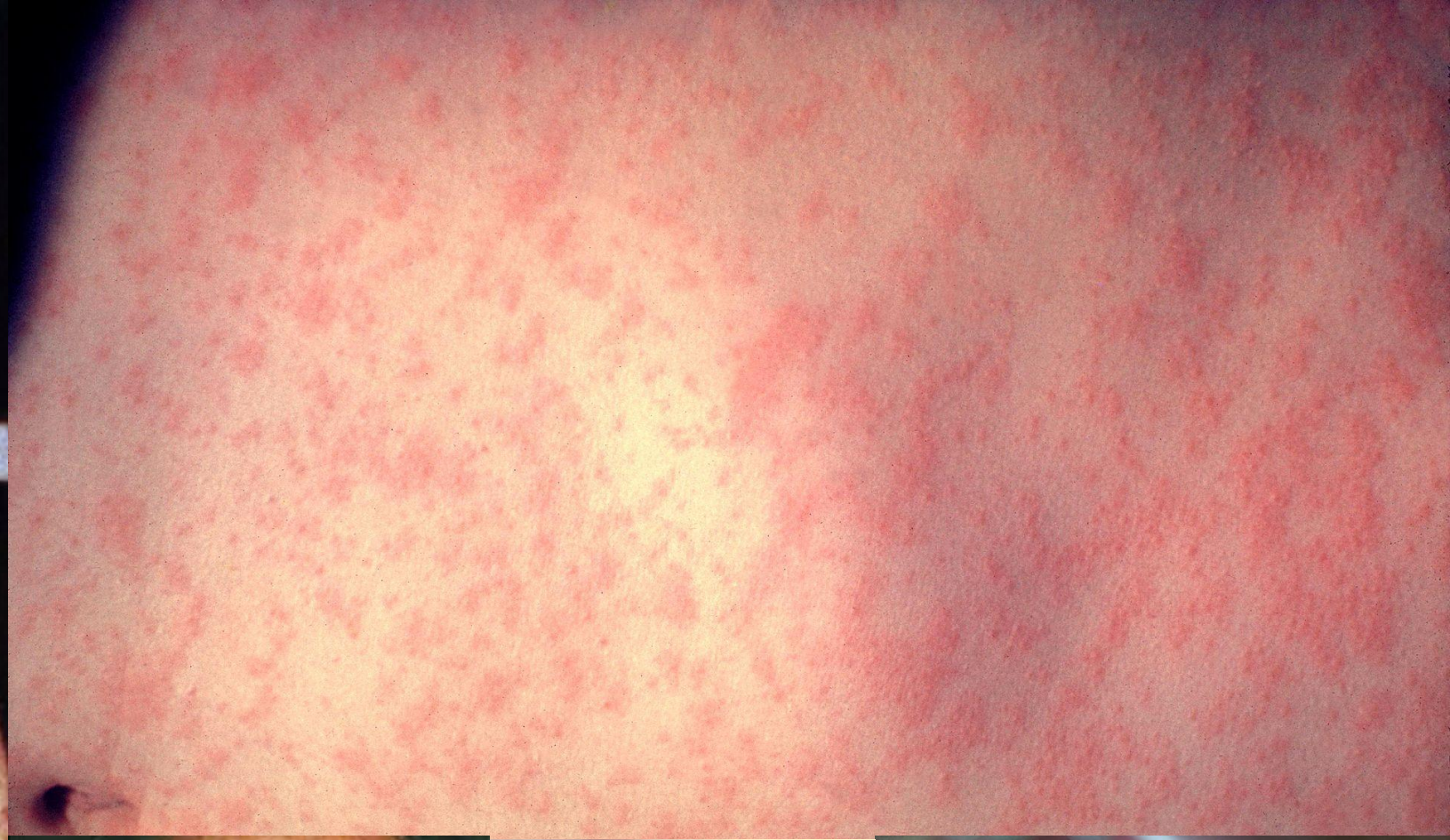
Drug	Age	Dose	Duration	Efficacy (%)	Cautions
Rifampin	<1 month	5 mg/kg, orally, every 12 hours	2 days		Discussion with an expert for infants <1 month
	≥1 month	10 mg/kg (maximum 600 mg), orally, every 12 hours	2 days	90–95	Can interfere with efficacy of oral contraceptives and some seizure prevention and anticoagulant medications; may stain soft contact lenses. Not recommended for pregnant women.
Ceftriaxone	<15 years	125 mg, intramuscularly	Single dose	90–95	To decrease pain at injection site, dilute with 1% lidocaine.
	≥15 years	250 mg, intramuscularly	Single dose	90–95	
Ciprofloxacin[a]	≥1 month	20mg/kg (maximum 500 mg), orally	Single dose	90-95	Not recommended for pregnant women.
Azithromycin		10 mg/kg (maximum 500 mg)	Single dose	90	Not recommended routinely. Equivalent to rifampin for eradication of *N. meningitidis* from nasopharynx in one study

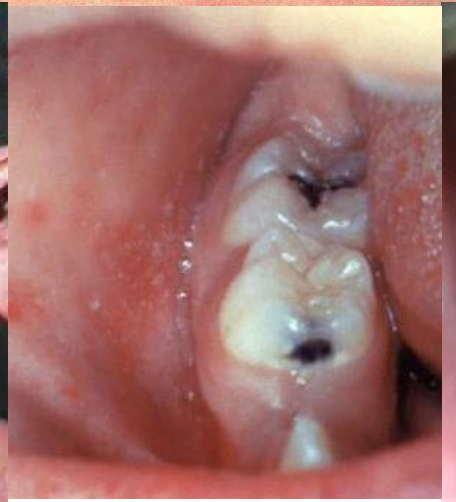
[a] Use only if fluoroquinolone-resistant strains of *N. meningitidis* have not been identified in the community.


Measles

Measles

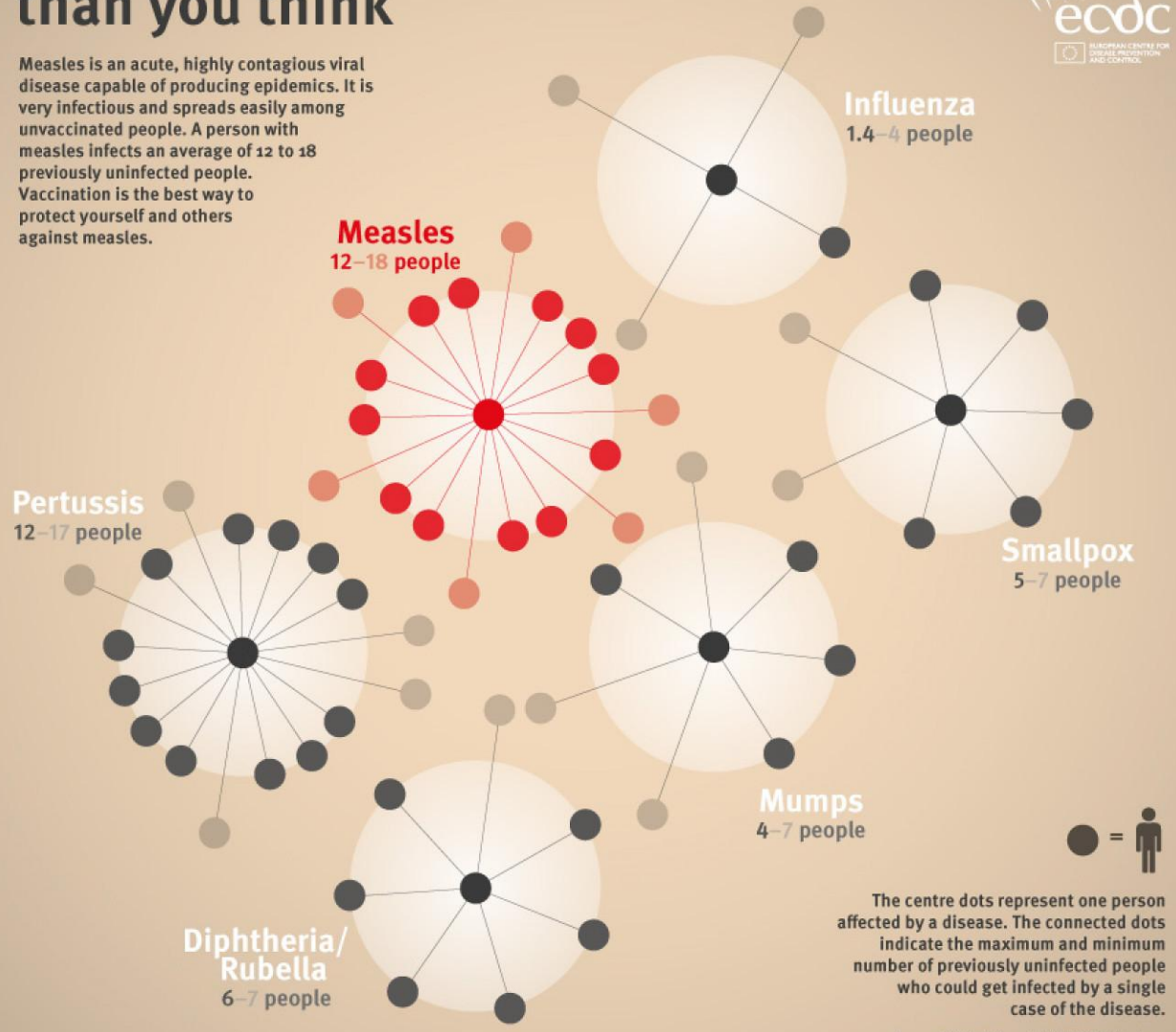
- Incubation period 10-12 days
- Initial fever (often 40°C), cough, coryza and conjunctivitis
- Koplik's spots at day 2-3 of illness
- Rash begins at day 3-5 – face and neck to trunk and extremities
- Complications
  - Diarrhea (8%)
  - Otitis media (7%)
  - Pneumonia (6%)
  - Seizures
  - Blindness
  - Encephalitis
  - Subacute sclerosing panencephalitis (SSPE) – years after infection
- Infectious 4 days before and 4 days after day of rash onset (total 9 days)





Measles is more contagious than you think

Measles is an acute, highly contagious viral disease capable of producing epidemics. It is very infectious and spreads easily among unvaccinated people. A person with measles infects an average of 12 to 18 previously uninfected people. Vaccination is the best way to protect yourself and others against measles.



● =

The centre dots represent one person affected by a disease. The connected dots indicate the maximum and minimum number of previously uninfected people who could get infected by a single case of the disease.

Source: Plotkin S, Orenstein W, Offit P. Vaccines. Fifth Edition, 2008, Elsevier Inc.

Upper Room UVGI Effect on Measles in Day Schools

Wells, Am J Hygiene, 35:97-121, 1942

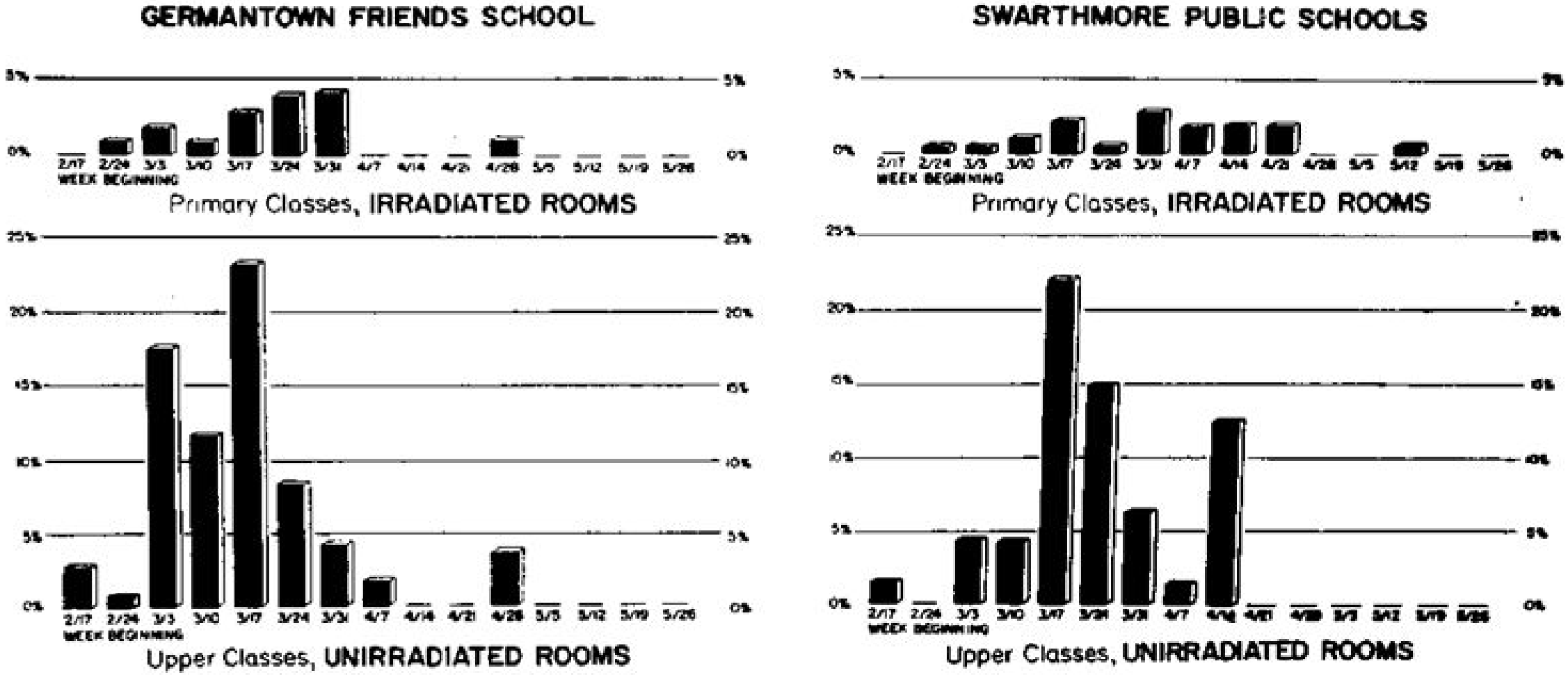
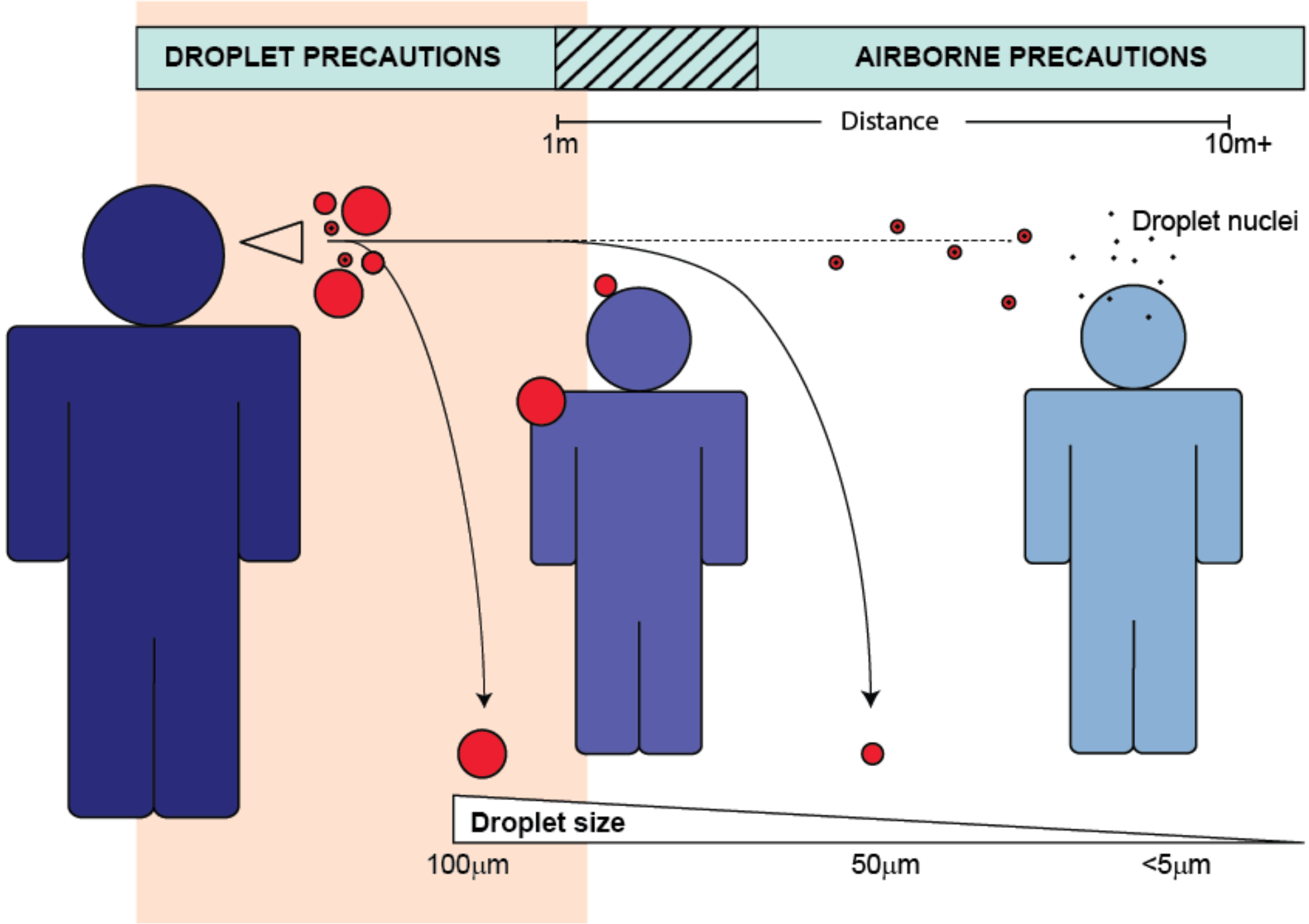
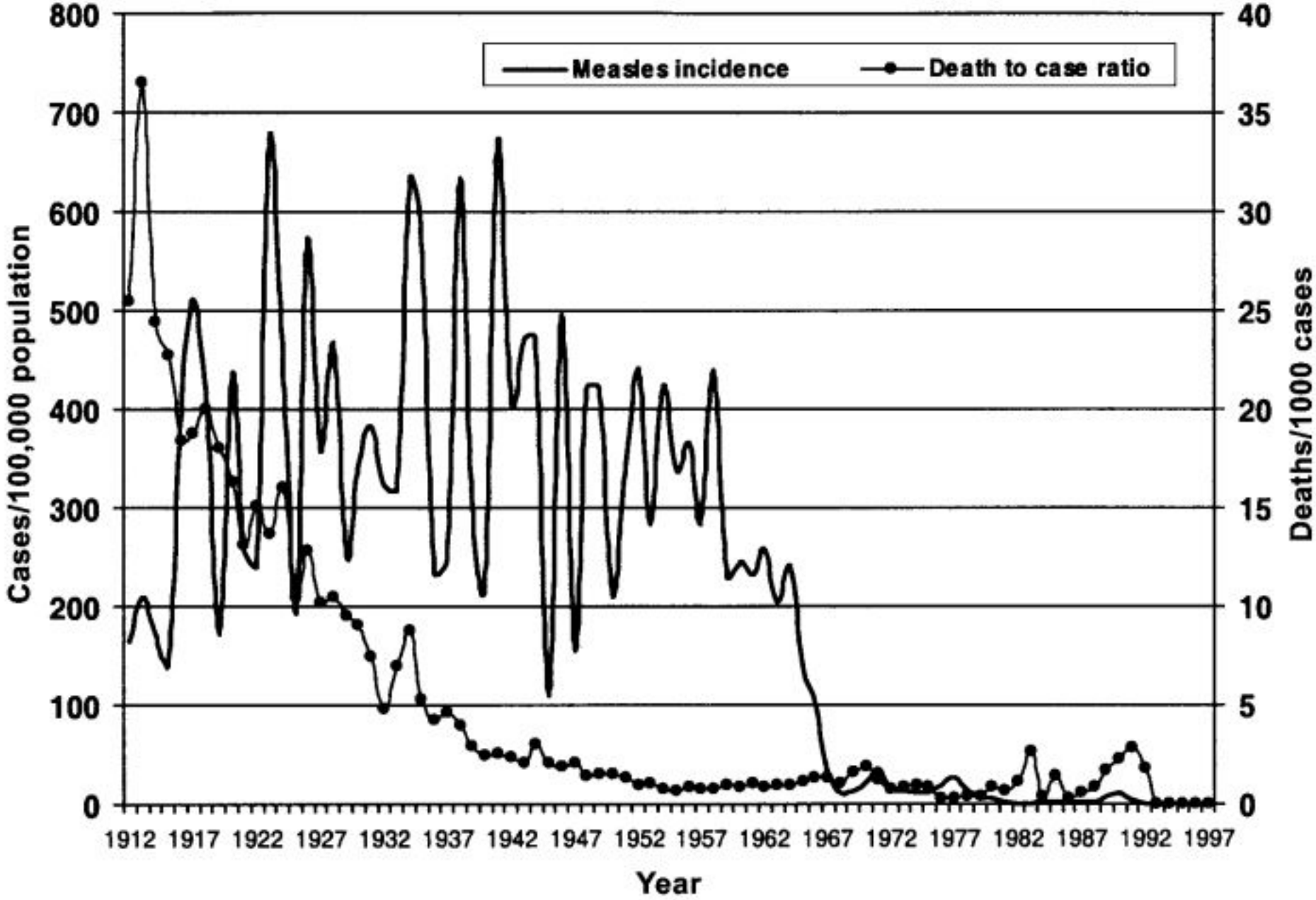
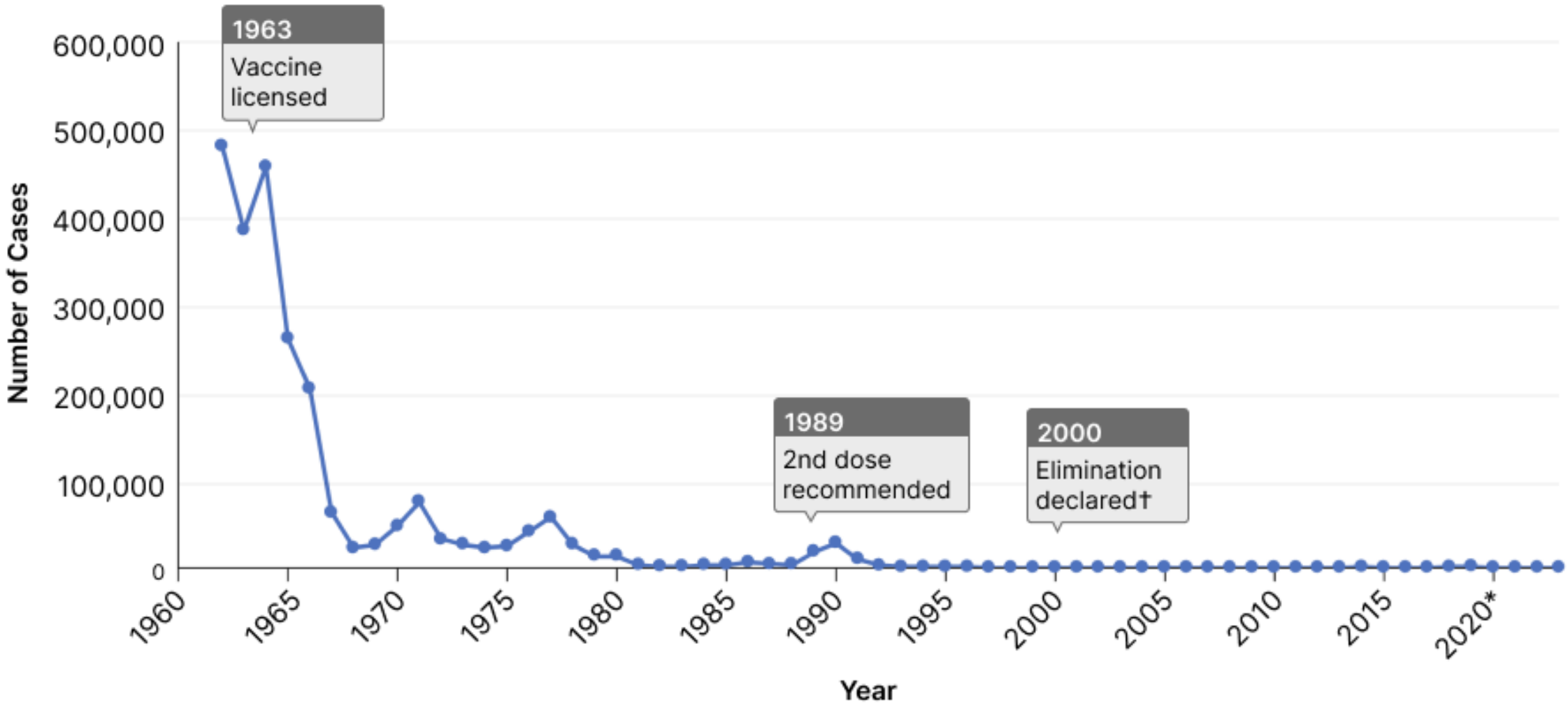


FIGURE 1. Measles epidemic in Philadelphia, 1941. Weekly attack rate among susceptibles (home secondaries excluded).

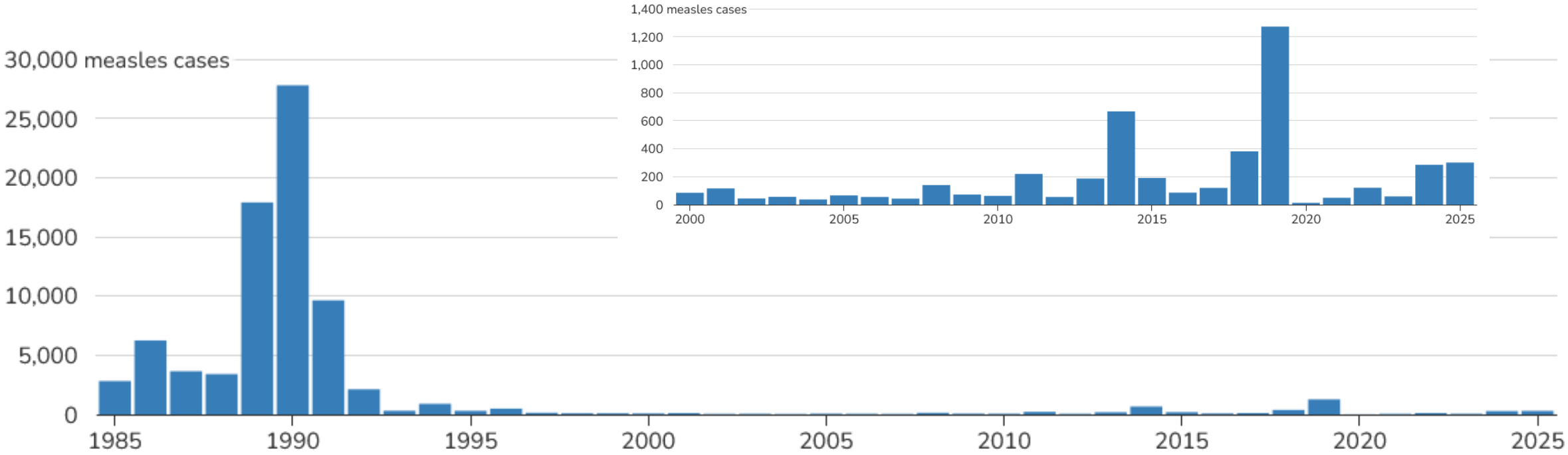

DROPLET PRECAUTIONS
AIRBORNE PRECAUTIONS
Distance
1m
10m+
Droplet nuclei
Droplet size
100μm
50μm
<5μm

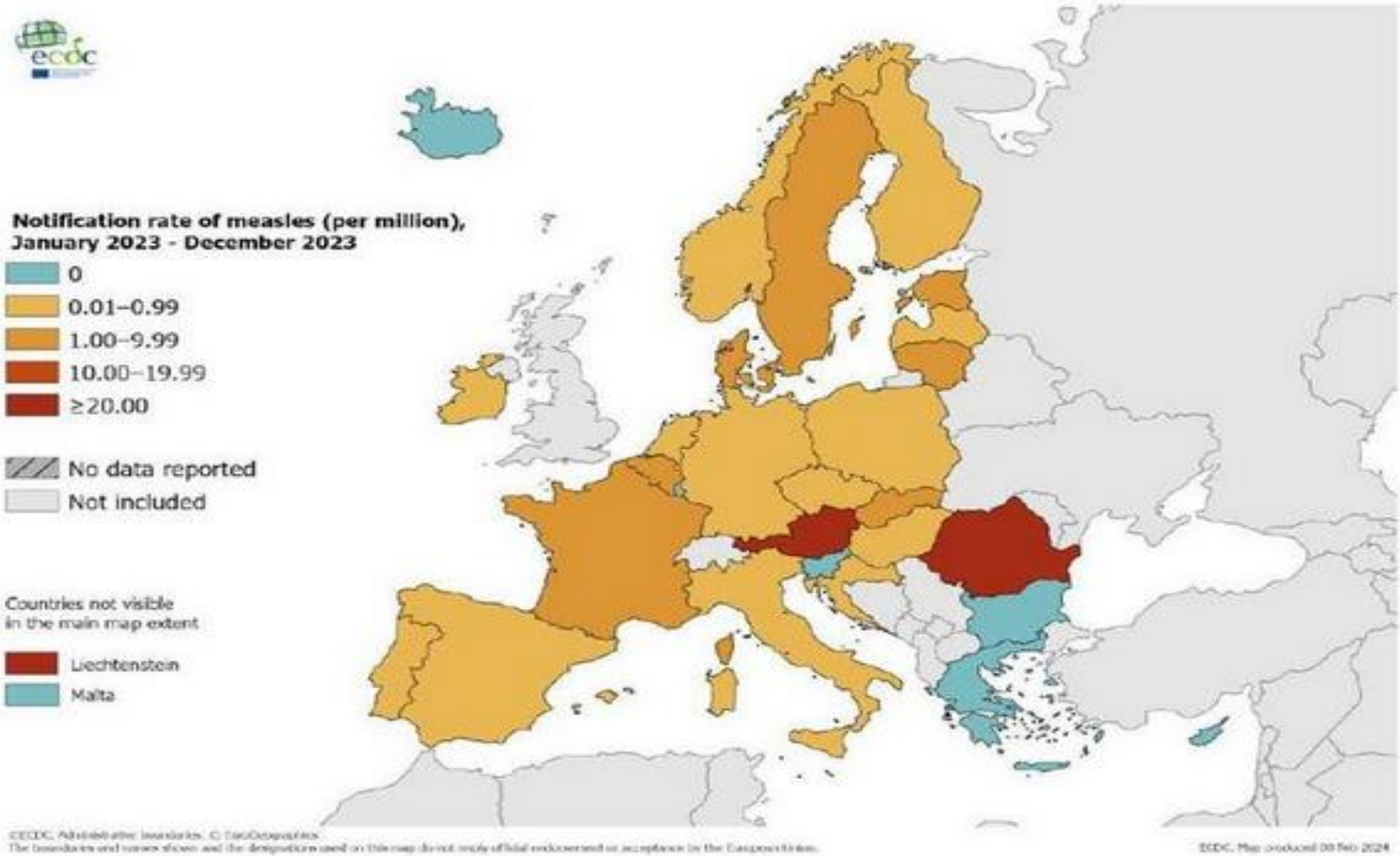

Measles incidence
Death to case ratio
Cases/100,000 population
Deaths/1000 cases
Year
800
700
600
500
400
300
200
100
0
40
35
30
25
20
15
10
5
0
1912 1917 1922 1927 1932 1937 1942 1947 1952 1957 1962 1967 1972 1977 1982 1987 1992 1997

Reported Measles Cases in the United States from 1962 – 2023*

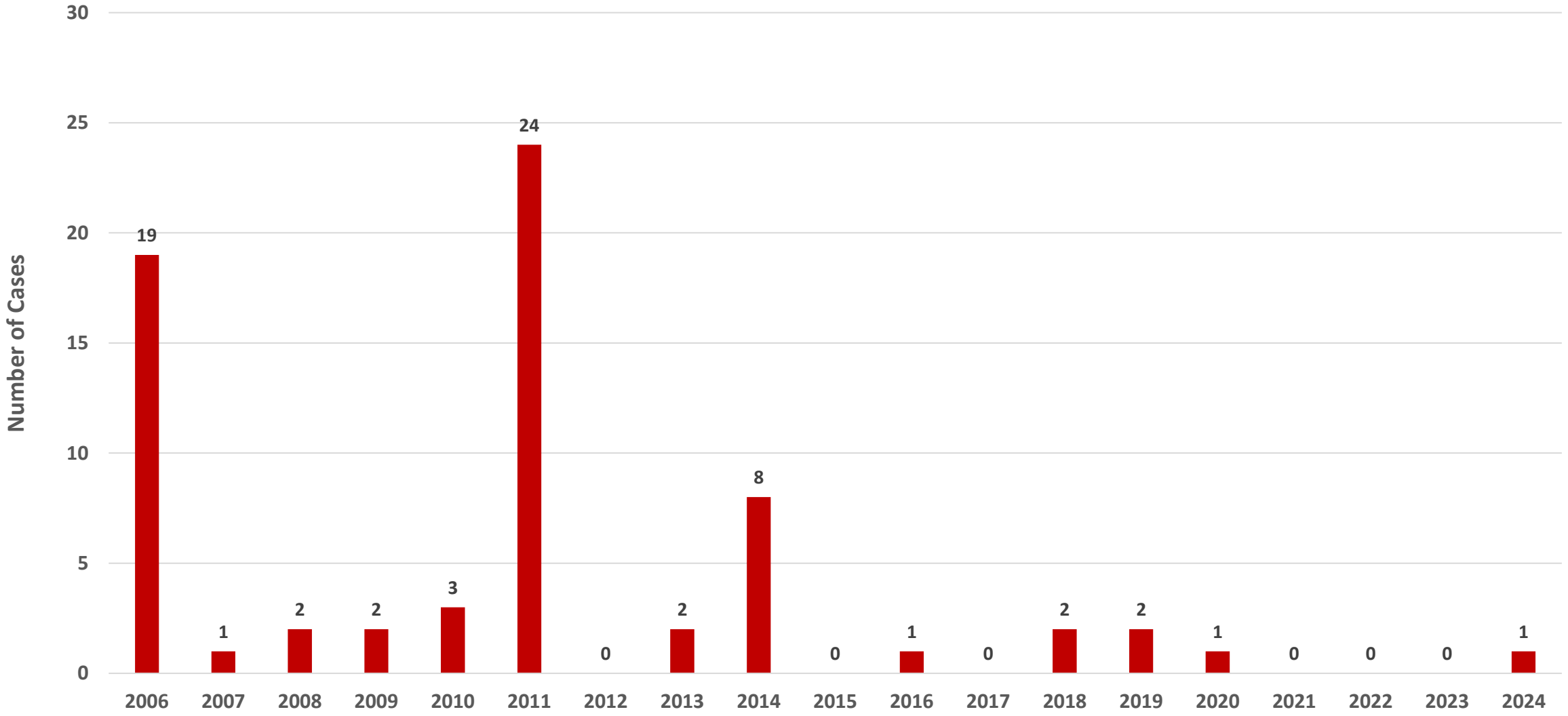


Measles Cases in the U.S.




Notification rate of measles (per million), January 2023 - December 2023
0
0.01–0.99
1.00–9.99
10.00–19.99
≥20.00
No data reported
Not included
Countries not visible in the main map extent
Liechtenstein
Malta

Measles Cases Reported in Massachusetts



Imported Measles Cases in Massachusetts August 2013

- **Patient 1: unvaccinated infant <12 months, just moved to U.S. from overseas and developed classic measles symptoms shortly after arrival.**

- **Patient 2: non-US born, adult, unclear vaccination history, returned from three weeks of international travel and experienced fever and headache followed by rash**

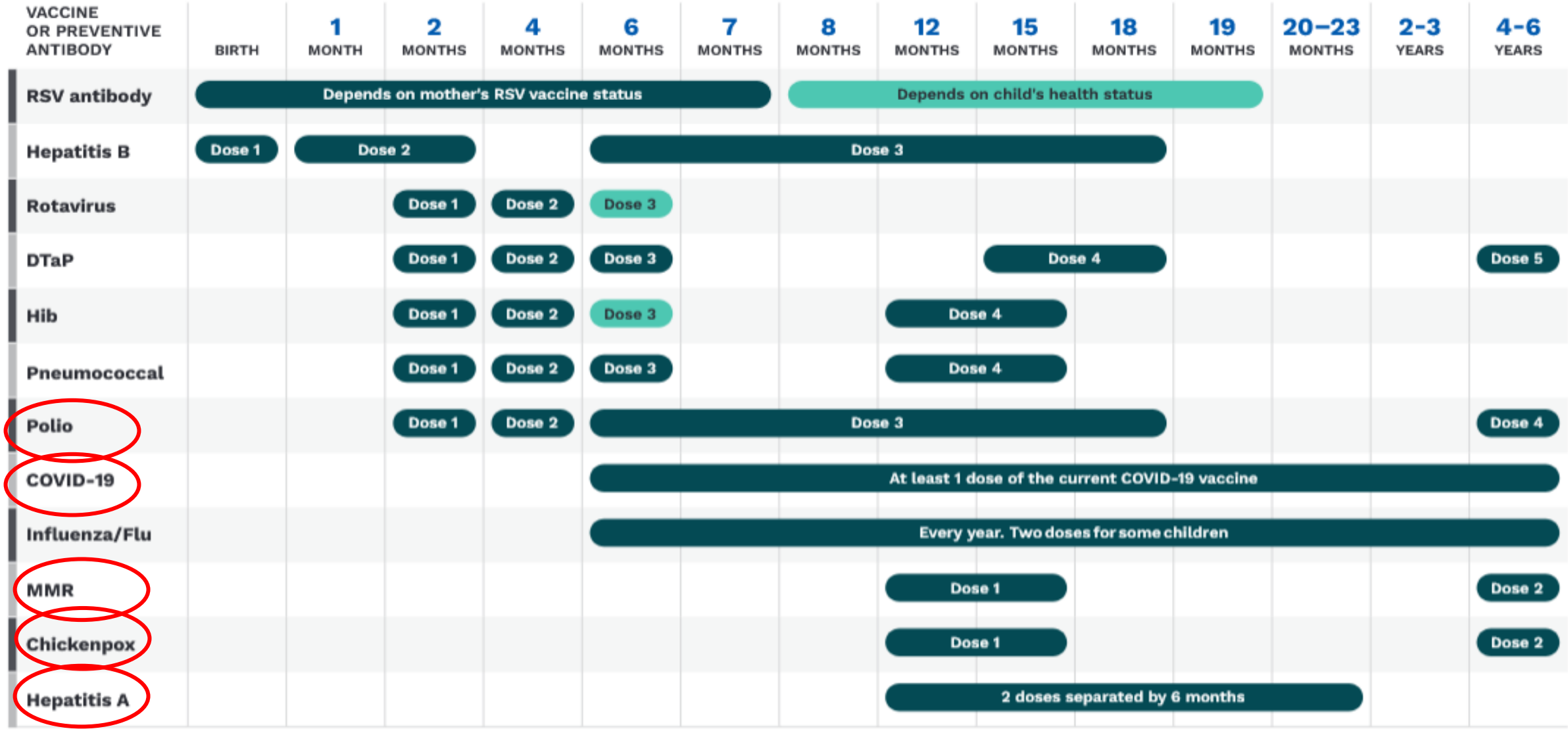
Exposures

- >400 people (non-HCPs) exposed
- >250 HCPs exposed at one facility
  - Three were excluded from work
- >75 HCPs exposed at 2nd facility
  - Facility evaluated evidence of immunity of 4500 staff in whole agency. 263 did not have evidence of immunity (most were born before 1957)
- >400 people contacted by state and local health
  - Those without evidence of immunity were excluded in some settings; others got a first or second dose of MMR and returned to normal activities
- No additional cases seen

Your child needs vaccines as they grow!

2025 Recommended Immunizations for Birth Through 6 Years Old

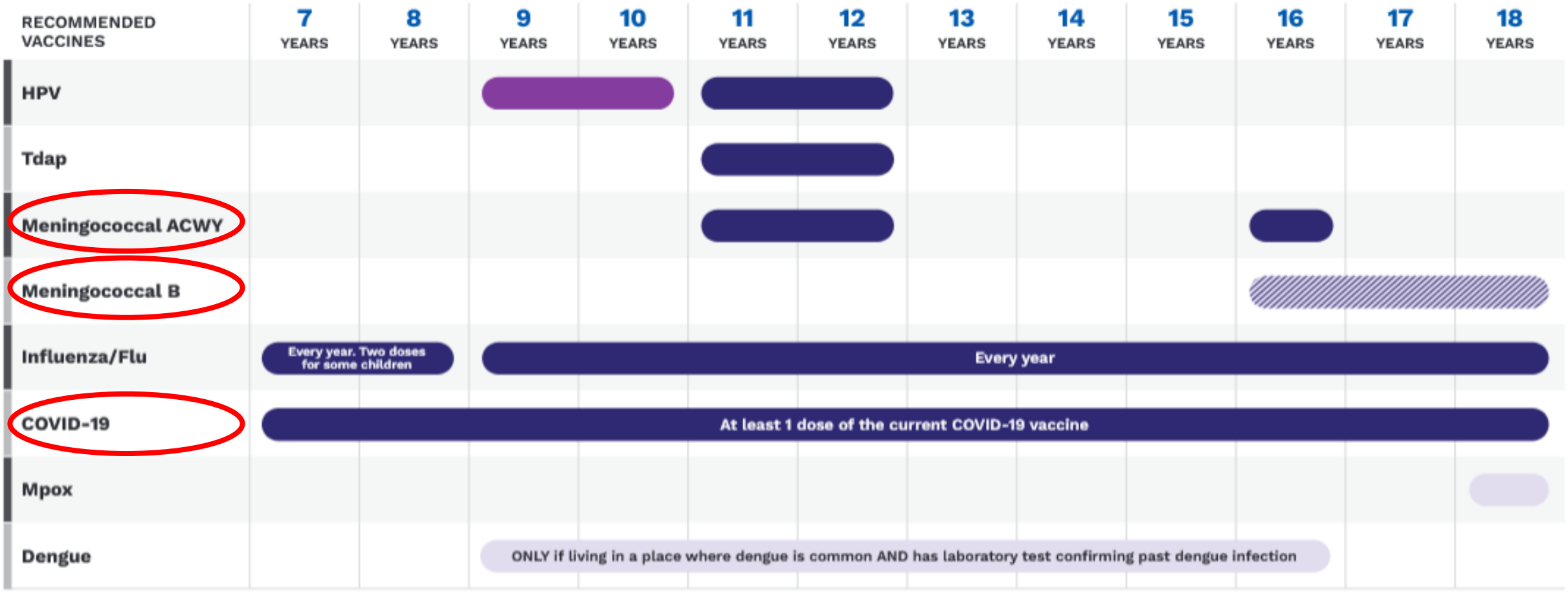
Want to learn more?
Scan this QR code to find out which vaccines your child might need. Or visit **www2.cdc.gov/vaccines/childquiz/**



Older children and teens need vaccines too!

2025 Recommended Immunizations for Children 7–18 Years Old

Want to learn more?
Scan this QR code to find out which vaccines your child might need. Or visit **www2.cdc.gov/vaccines/childquiz/**



Regulatory Science

- **Regulatory science is defined as science and research intended to inform decision making in a regulatory framework**

- **Studies demonstrate that aiming for 100% compliance might be counter-productive in some circumstances**
  - **Regulated entities may focus on correcting minor deficiencies and not pay enough attention to more critical deficiencies**

NATIONAL CAMP
ACCREDITATION PROGRAM

National Camp Standards

Scouting America

https://www.scouting.org/wp-content/uploads/2024/10/430-05625-NCAP_WEB.pdf

National Camp Accreditation Committee · National Council, Scouting America

ACH

The Scope & Standards of Camp Nursing Practice

Fourth Edition, 2024

Alliance for Camp Health
www.allianceforcamphealth.org

MDPH

- https://www.mass.gov/handbook/guide-to-surveillance-reporting-and-control

- https://www.mass.gov/lists/recreational-camps-for-children-community-sanitation


SMOKEY
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