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HAV Beyond Europe

October 13, 2026

Viral Hepatitis Prevention Board Meeting,
Antwerp, Belgium

Noele Nelson, MD, PhD, MPH

Professor of Practice

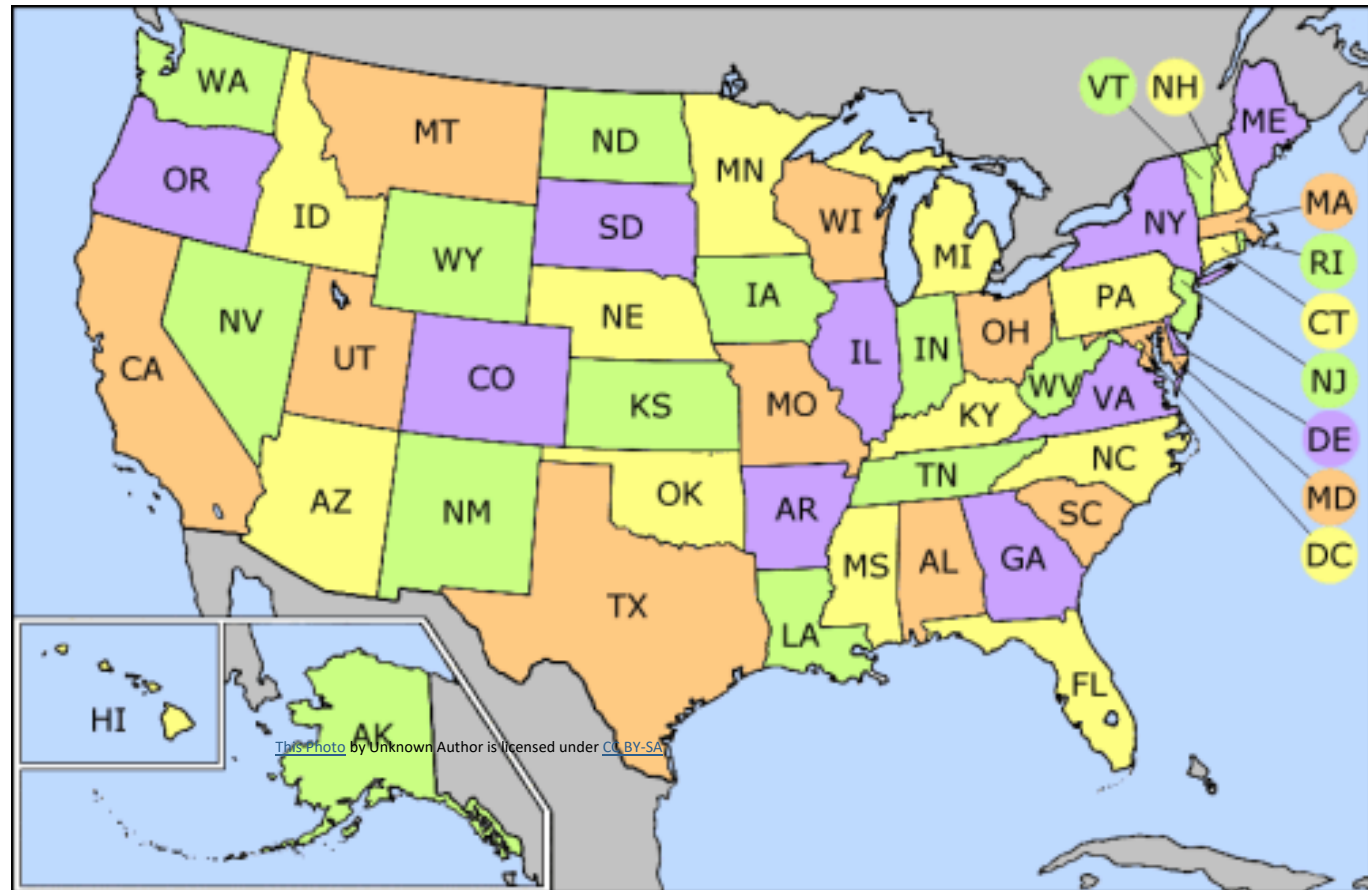
Department of Public and Ecosystem Health

Cornell Public Health

Cornell University

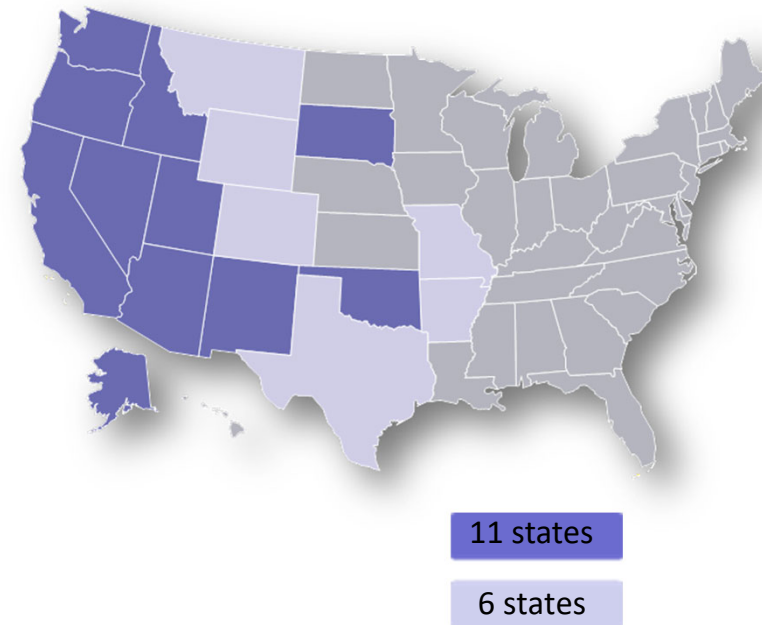
United States

Hepatitis A



Advisory Committee on Immunization Practices (ACIP)- Hepatitis A Vaccine Recommendations

- **Targeted vaccination, 1996-1999**
 - **1996**
 - Children at age 2 years in communities with high rates of disease
 - Children through teen years in outbreaks
 - **1999**
 - Recommended in 11 states with rates 2x the national average
 - Considered in 6 states with rates above the national average
- **Universal childhood vaccination, 2006**
 - Recommended for use at age 12-23 months in all states
 - **No routine catch-up** recommendation for children ages >23 months
- **Risk based recommendations for adults**

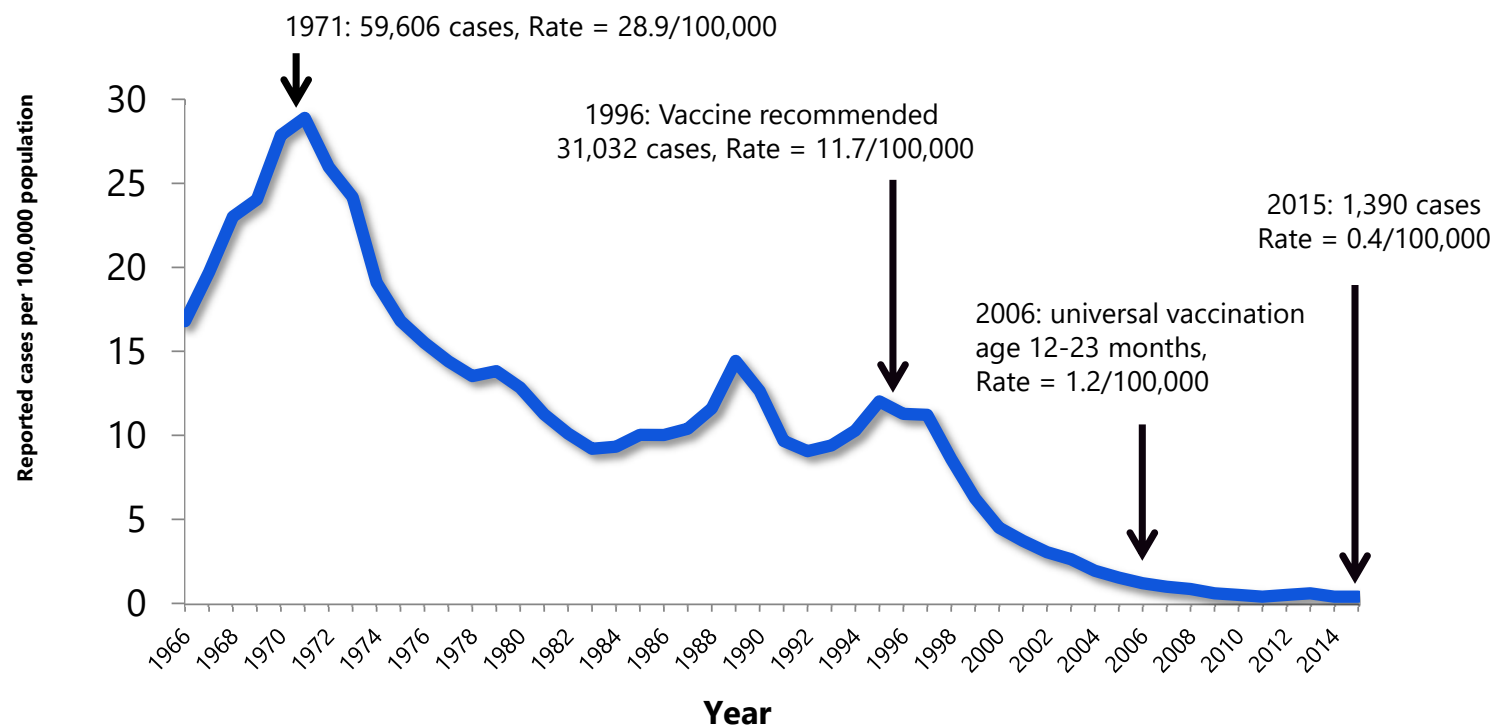


MMWR Recomm Rep 1996; **45**: 1–30. <https://www.cdc.gov/mmwr/preview/mmwrhtml/00048084.htm>

MMWR Recomm Rep 1999; **48**: 1–37. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr4812a1.htm>

MMWR Recomm Rep 2006; **55**: 1–23. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5507a1.htm>

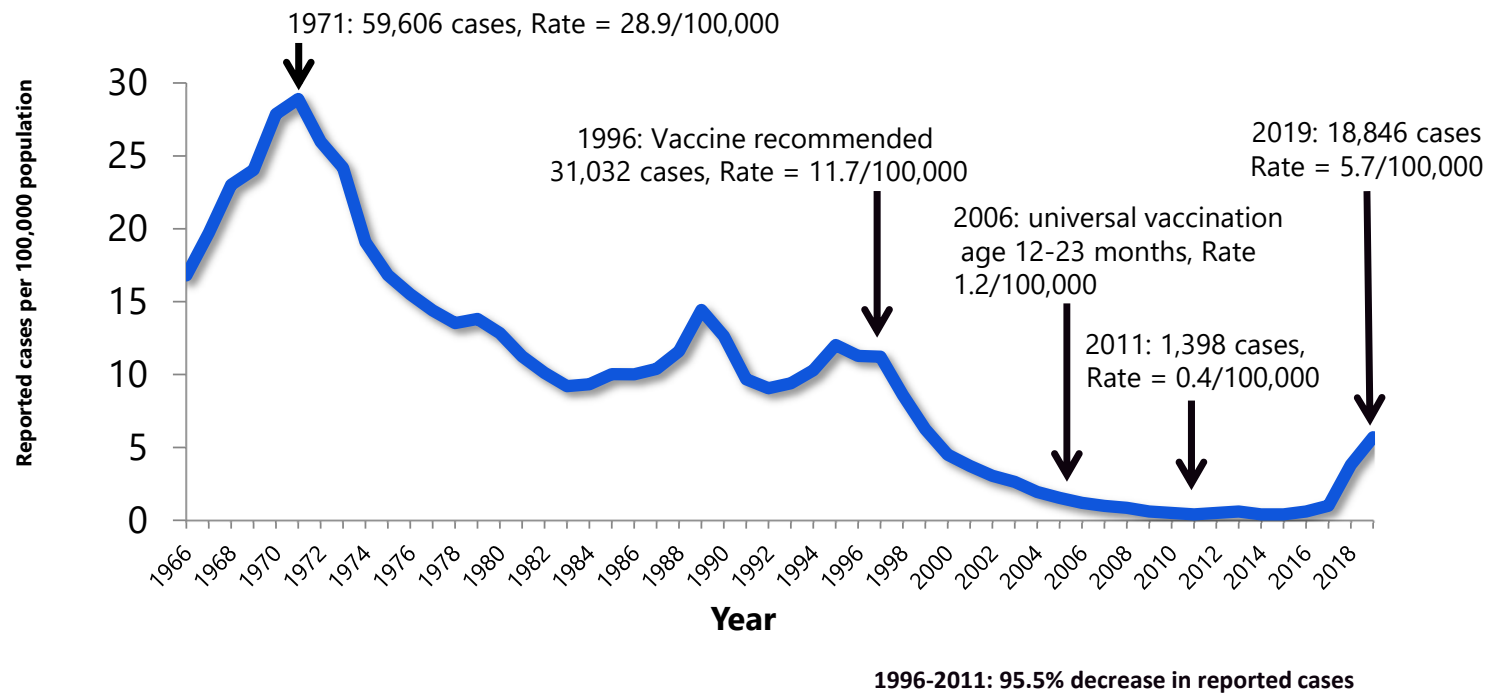
Rates of Reported Acute Hepatitis A Cases — United States, 1966 – 2015



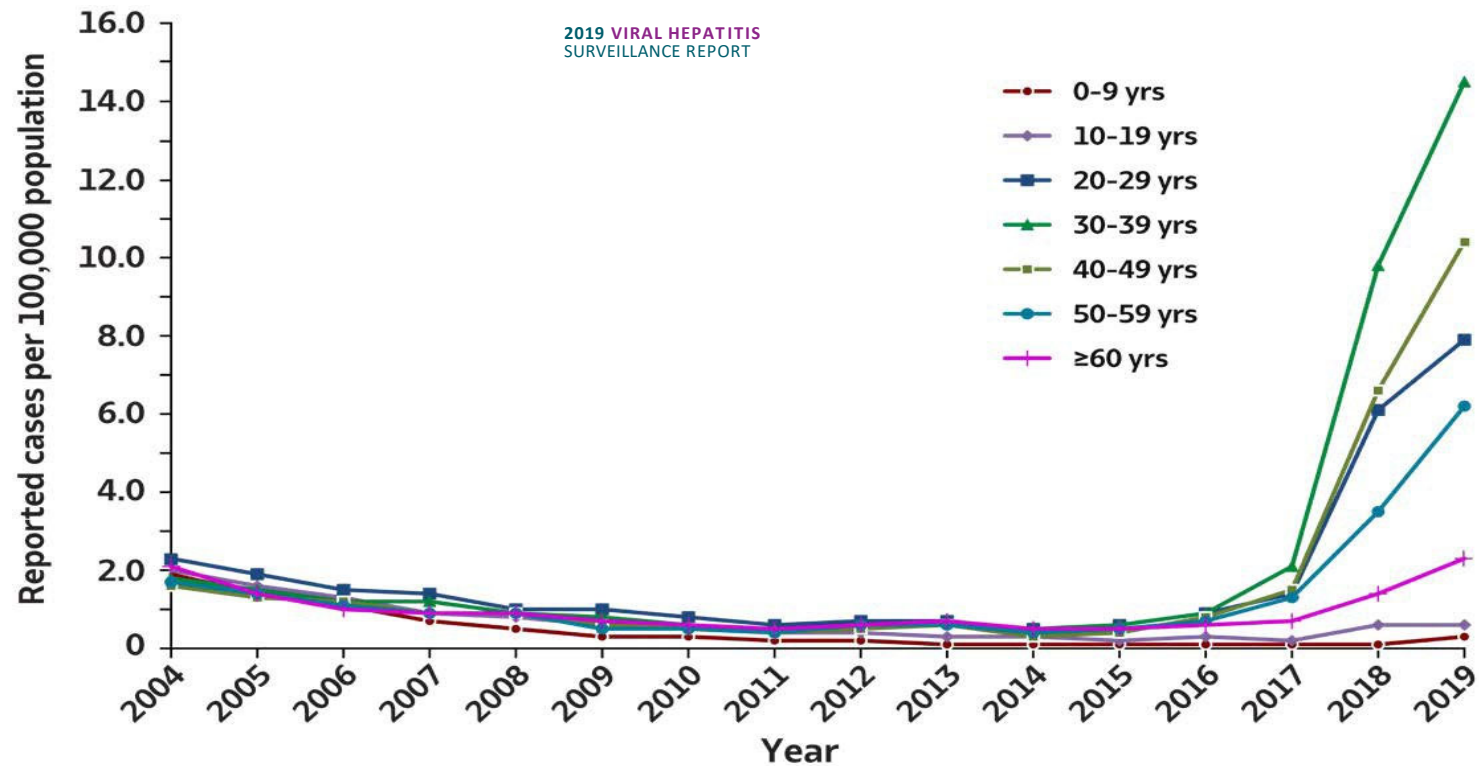
By 2011, with the implementation of the national recommendations, **hepatitis A rates declined to the lowest ever recorded (0.4 cases per 100 000 population)**

1996-2011: 95.5% decrease in reported cases

Rates of Reported Acute Hepatitis A Cases – United States, 1966 – 2015

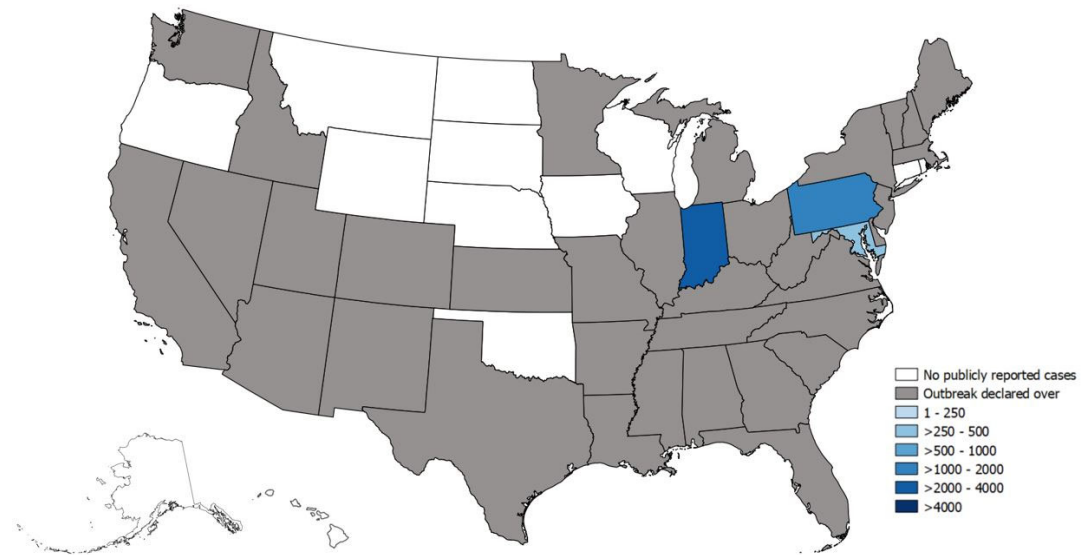


Rates of reported hepatitis A virus infection, by age group — United States, 2004–2019



Person-to-Person Hepatitis A Outbreaks in Multiple States: Summary Statistics

- As of April 30, 2024:
- States: **37 states** (Active in IN, MD, and PA; declared over in AL, AZ, AR, CA, CO, DE, FL, GA, ID, IL, KS, KY, LA, ME, MA, MI, MN, MS, MO, NV, NH, NJ, NM, NY, NC, OH, SC, TN, TX, UT, VT, VA, WA, and WV)
- **Confirmed cases: 44,937**
- **Hospitalizations: 27,461 (~61%)**
- **Deaths: 424**
- Populations most affected:
 - **People who use drugs**
 - **People experiencing homelessness**



Why did the outbreaks occur?

Nelson NP and Murphy TV Clinical Liver Disease 2013.
Collier MG, et al. Hepatology 2015.
Ly KN and Klevens RM. JID 2015.
Epson EE, et al. Public Health 2015.
Murphy TV, et al. MMWR 2016
Yin S, et al. CID 2020
Peng-Jun L, et al. MMWR Surveill Summ 2021.

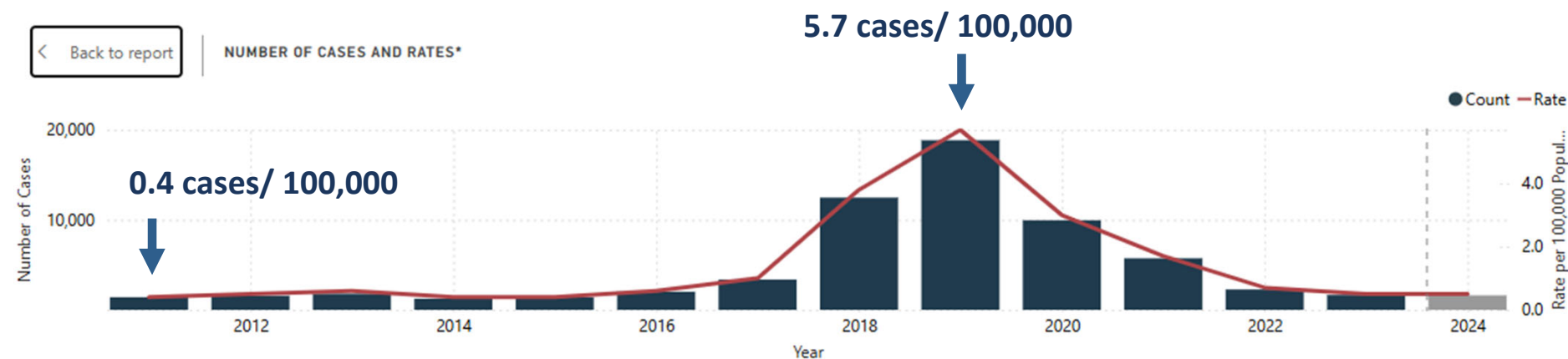
- **Low vaccination coverage among adults with risk factors**
 - In 2018, ≥ 2 dose coverage was 11.9% for adults ≥ 19 years
- **A large proportion of susceptible adults based on anti-HAV**
 - During 2015-2016, 72.8% of U.S. adults ≥ 20 years old were susceptible
 - Persons aged 30–59 years highest susceptibility (~80%)

No routine catch-up vaccination for unvaccinated children*

- Cohort of children vaccinated in 2006 at age 1 year had not reached adolescence by 2016
- Cohort of children vaccinated in 1996 at age 2 years reached early adulthood (Western states)

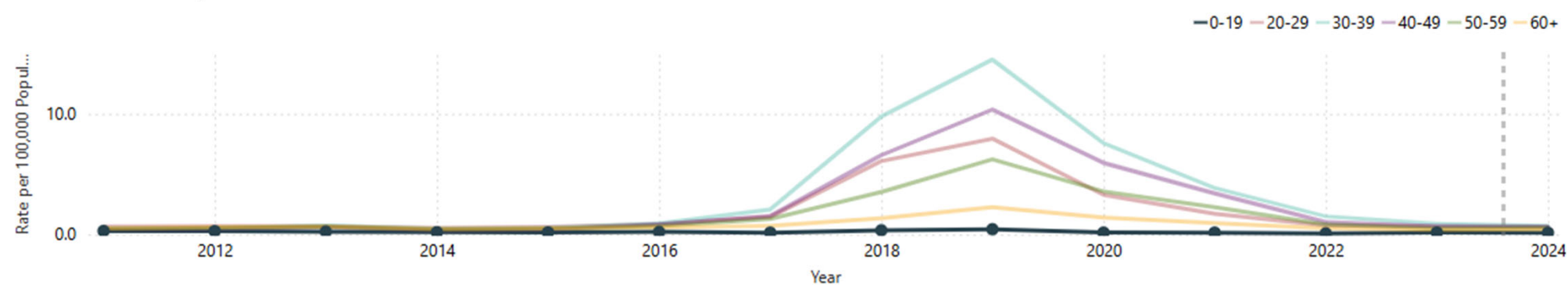
*Catch-up recommended in 2020 for unvaccinated children age 2-18 years

Hepatitis A Cases and Rates, 2011– 2024



Year	Count	Rate	A_CurrentYr
2016	2,007	0.6	(2016)
2017	3,366	1.0	(2017)
2018	12,474	3.8	(2018)
2019	18,846	5.7	(2019)
2020	9,952	3.0	(2020)
2021	5,728	1.7	(2021)
2022	2,265	0.7	(2022)
2023	1,648	0.5	(2023)
2024	1,607	0.5	(2024, Provisional)

Hepatitis A Cases and Rates by Age, 2017 – 2024



Age Group	0-19		20-29		30-39		40-49		50-59		60+	
Year	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count
2017	0.2	126	1.4	659	2.1	893	1.5	621	1.3	554	0.7	509
2018	0.3	285	6.1	2,763	9.8	4,268	6.6	2,658	3.5	1,509	1.4	987
2019	0.4	358	7.9	3,582	14.5	6,400	10.4	4,177	6.2	2,635	2.3	1,691
2020	0.2	129	3.3	1,476	7.6	3,381	5.9	2,389	3.6	1,497	1.4	1,077
2021	0.2	129	1.7	757	3.9	1,749	3.4	1,391	2.3	964	1.0	736
2022	0.1	79	0.7	330	1.5	687	1.0	420	0.8	346	0.5	403
2023	0.2	134	0.7	292	0.9	407	0.7	292	0.5	213	0.4	310
2024	0.1	118	0.7	298	0.7	337	0.6	267	0.5	222	0.4	364

Reported Hepatitis A Cases, United States, 2011-2024

Number of Reported Cases
during 2011-2024

65,263

Number of Reported Cases
during 2024

1,607

Rate* of Reported Cases
during 2024

0.5

Rates* by State
(2024, Provisional)

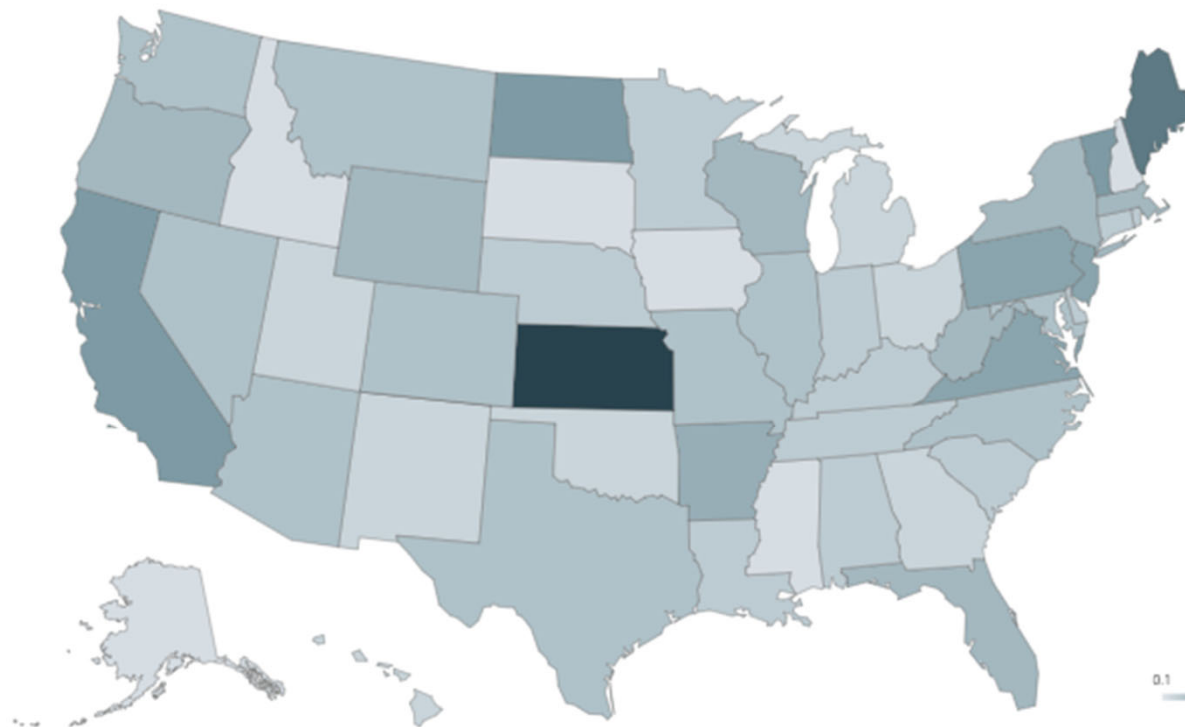
Select a Condition

☒ Hepatitis A
 ☐ Cases
 ☐ Mortality
☐ Hepatitis B
☐ Hepatitis C

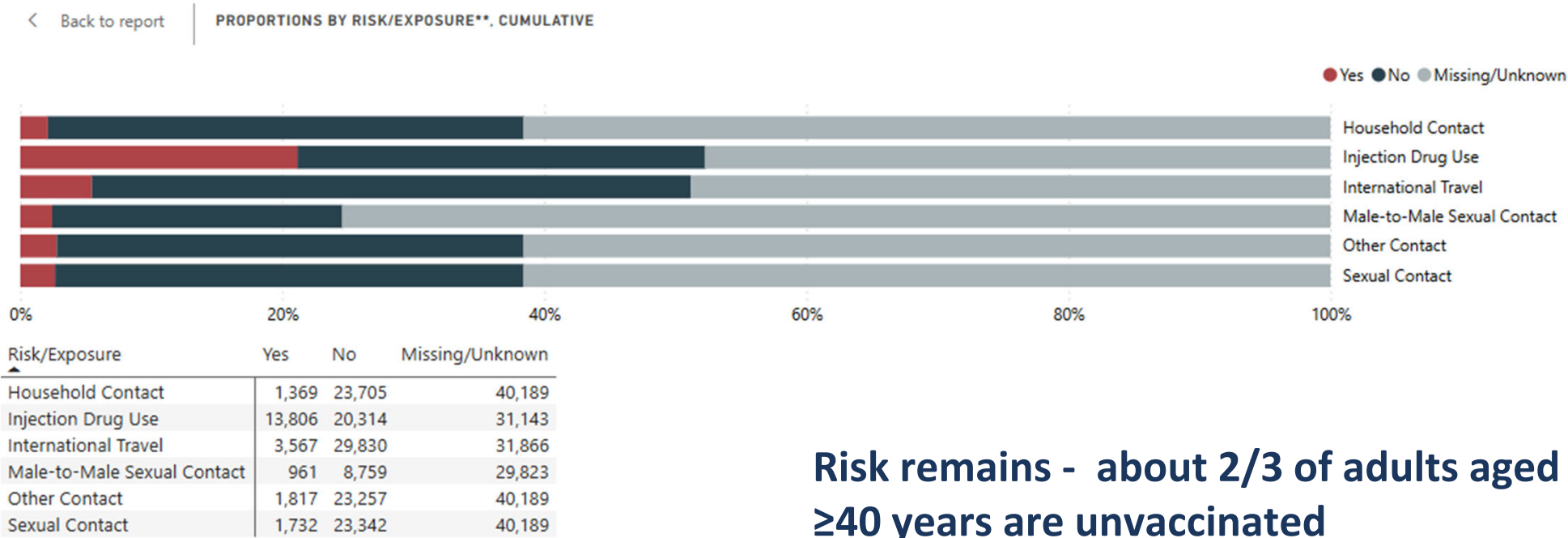
Select Year Range

☒ 2011 ☐ 2024

[← Main Page](#)



Hepatitis A Risk Data



Risk remains - about 2/3 of adults aged ≥40 years are unvaccinated

Recent Foodborne Outbreaks

- Hepatitis A Outbreak in 2026 Potentially Linked to Frozen Clams
 - CDC received reports of 37 cases linked to this outbreak, 30 (80%) hospitalizations, 0 deaths, 4 states
 - Imported from Ecuador
- Hepatitis A Outbreak in 2023 Linked to Frozen Organic Strawberries
 - CDC received reports of 10 cases of hepatitis A linked to this multistate outbreak; 4(40%) hospitalizations, 0 deaths, 4 states
 - Imported from Mexico
- Hepatitis A Outbreak in 2022 Linked to Fresh Organic Strawberries
 - CDC received reports of 19 cases of hepatitis A linked to this multistate outbreak; 13 (68%) hospitalizations, 0 deaths, 4 states
 - Imported from Mexico



South America

Hepatitis A



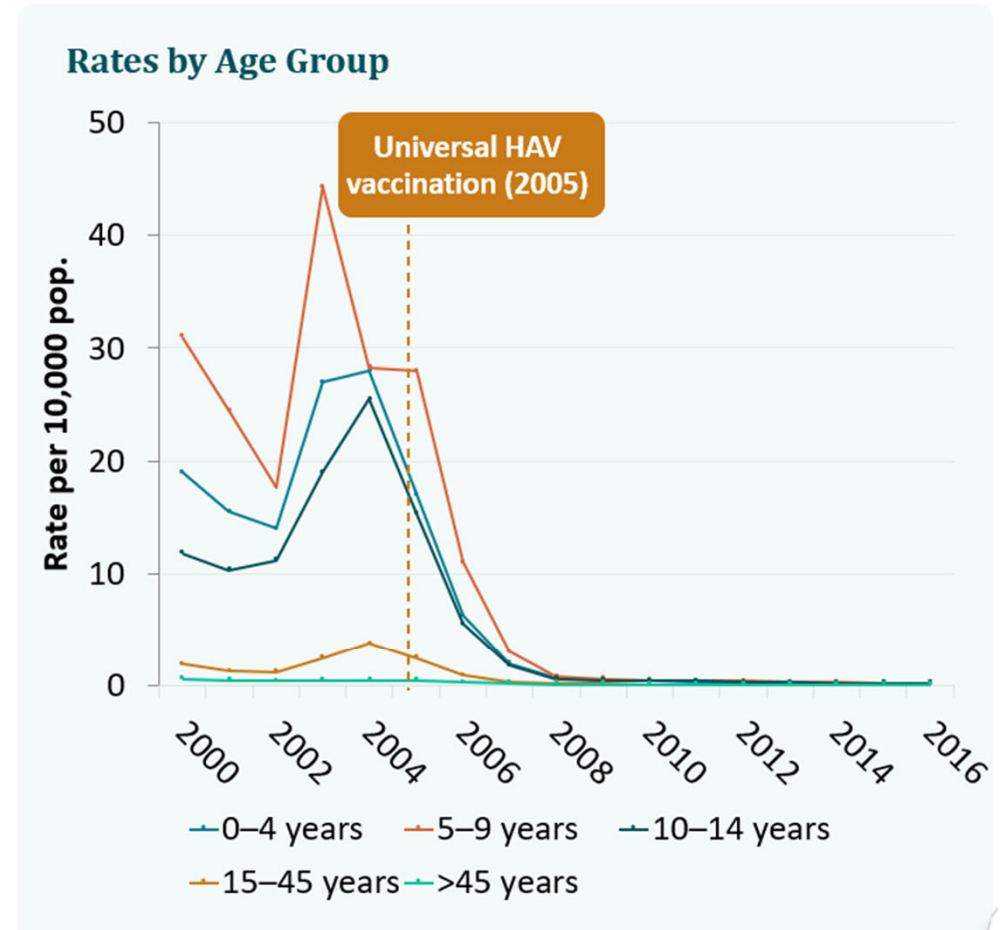
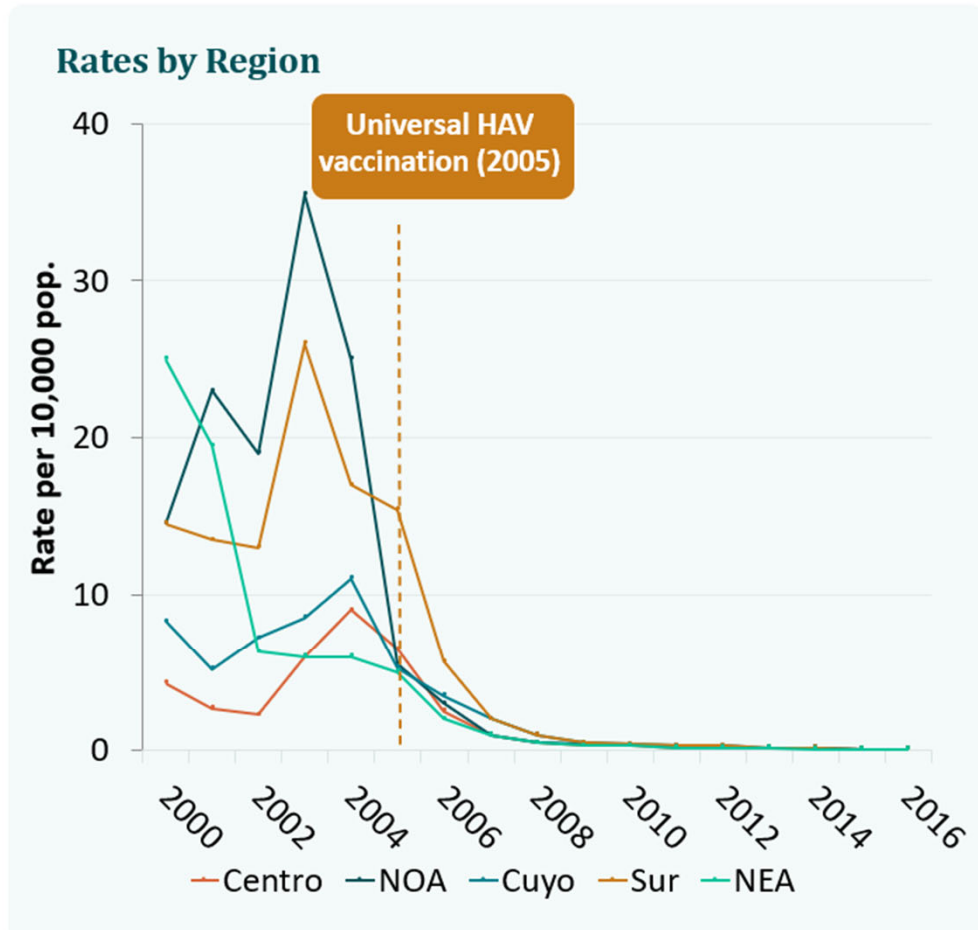
Argentina

- Hepatitis A vaccine incorporated into the National Immunization Schedule in 2005
 - HAV was the leading cause of fulminant hepatic failure in children under 10 years of age until that year.
- Implementation of routine vaccination at 12 months of age reduced the incidence and morbidity and mortality rates, moving Argentina to a low-endemic status
- Outbreaks have been recorded in specific populations and in some jurisdictions.

Hepatitis A rates: by region and age group

Argentina, 2000–2016

Universal Single-Dose Strategy Drove an ~88%+ Collapse in HAV Rates (2000–2016)



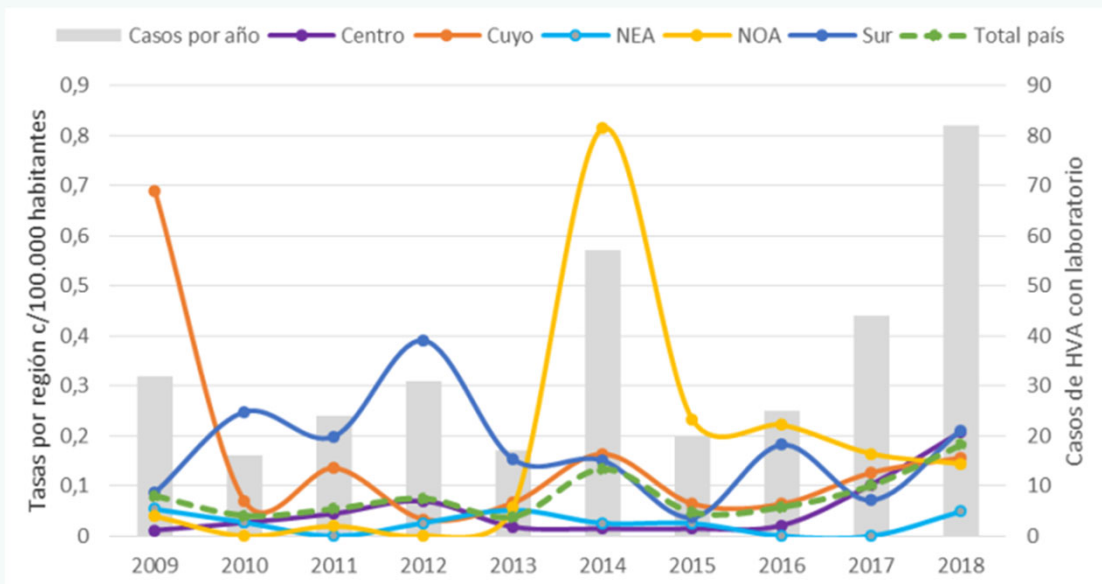
Slide provided by Dr. **Analía Urueña**, Hospital Municipal Ciudad De Boulogne

Hepatitis A: Surveillance Trends

Slide provided by Dr. Analía Urueña, Hospital Municipal Ciudad De Boulogne

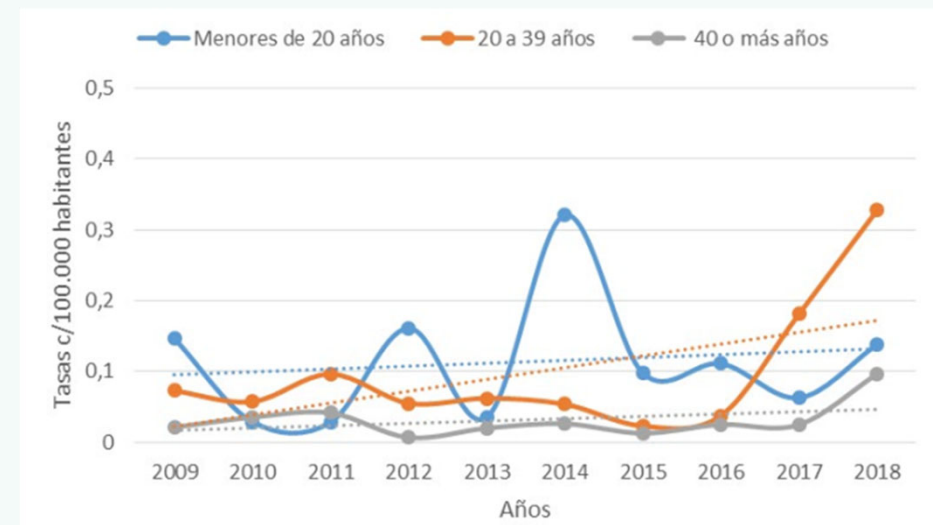
Argentina, 2009–2018 — national case counts and rates by region and age group

Cases & Rates by Region



Source: Boletín integrado de vigilancia

Rates by Age Group



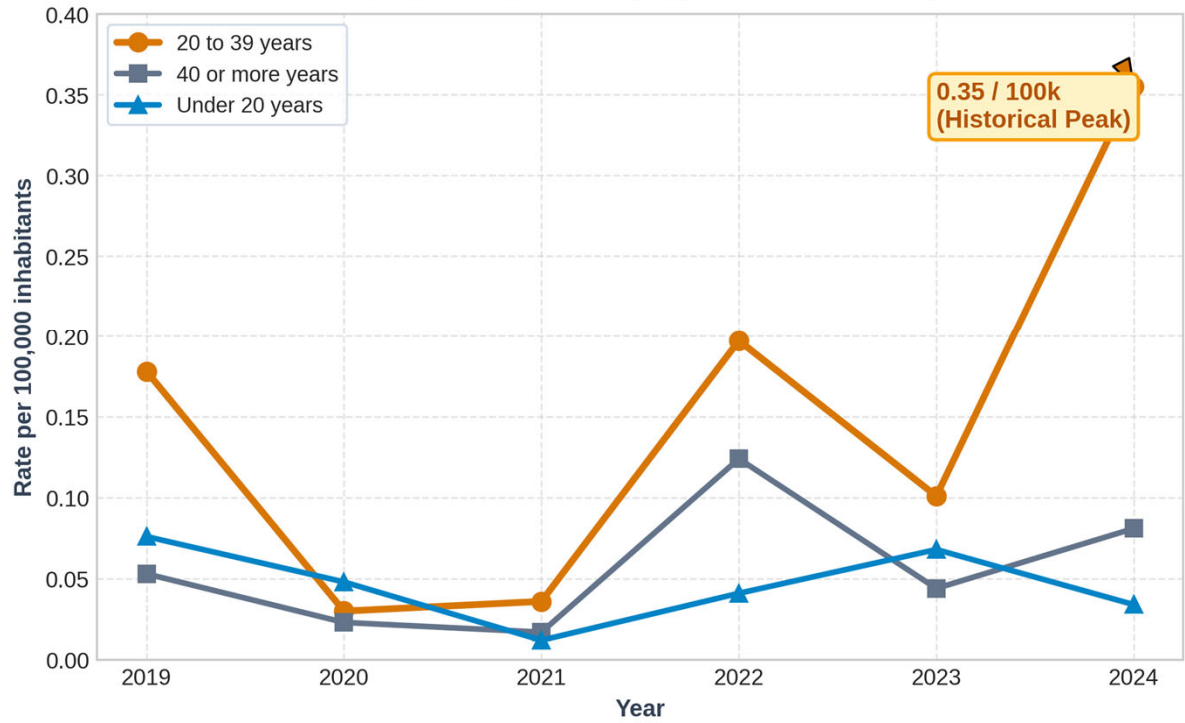
Source: Boletín integrado de vigilancia

No cases in vaccinated individuals

Current Epidemiological Situation: Recent HAV Re-emergence & Age Shift

Epidemiological Communication (Feb 2025): 2019–2025 case evolution, age distribution, and pediatric vaccination status

Hepatitis A Notification Rate per 100,000 Inhabitants by Age Group & Year (Argentina, 2019–2024)



Male predominance: 70% of total cases

Epidemiological Surveillance & Case Escalation (2019–2025)

- 2019–2023 Baseline: Averaged 31 annual cases (min 10 in 2021, max 55 in 2022).
- 2024 Increase: 69 confirmed cases recorded, exceeding alert thresholds from EW 39.

Age Shift (2019–2024)

- **Primary Affected Cohort:** 20–39 years group concentrated **55%** of total cases (n=123), reaching a peak rate of 0.35 / 100k hab in 2024.
- Older Adults: 40+ years group represented **27%** of cases (n=61).

Pediatric Cases (<20 Yrs) & Immunization Background

- Unvaccinated Profile: **3 of the 5** cases had **NO** prior **HAV vaccination** (including 1 foreign national).
- Vaccinated Cases: 1 received a 1-dose in 2019 under malnutrition (unverified); 1 received recent post-exposure ring vaccination.

Source: Ministry of Health of Argentina, Epidemiological Communication – Hepatitis A Case Increase (Feb 19, 2025). Data extracted from SNVS 2.0.

Slide provided by Dr. **Analía Urueña**, Hospital Municipal Ciudad De Boulogne

Argentina

- Evolution of the hepatitis A epidemiological situation - not due to decreased effectiveness of the universal immunization program
- Shift in transmission patterns (Buenos Aires area); diversification of lineages and entry routes
 - Adults
 - Travel
 - Clade/subgenotype
- Introduction and amplification of Clade C (subgenotype IA); closely linked to sexual transmission networks
- Regional circulation and importation from neighboring countries (particularly Bolivia) persist via Clade A, affect both pediatric and adult populations
- Introduction of other variants (Clades B and D, and subgenotype IB) resulting from outbound tourism to the Caribbean and other regional destinations
- Importance of molecular surveillance, mapping transmission networks, evaluating control measures and vaccination policies

Brazil

- In 2014, single-dose universal vaccination was adopted by the National Immunization Program of Brazil for children aged 15–24 months and resulted in a significant decrease in HAV cases among children aged <5 years by 2017
- This decision addressed the low to intermediate endemicity status of hepatitis A across Brazil and the high rate of infection in children and adolescents between 5 and 19 years old

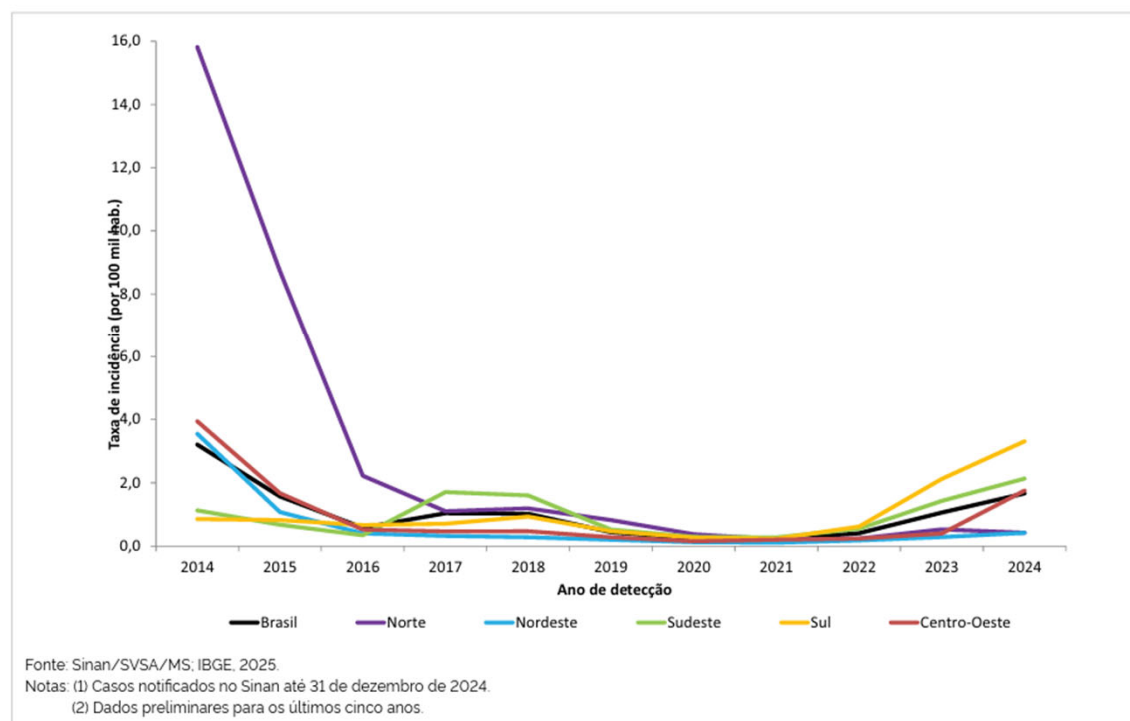
Souto FJD, de Brito WI, Fontes CJF. Impact of the single-dose universal mass vaccination strategy against hepatitis A in Brazil. *Vaccine*. 2019 Feb 4;37(6):771-775. doi: 10.1016/j.vaccine.2018.12.054. Epub 2019 Jan 11. PMID: 30639462.

Brazil

- In 2024, most Federation Units had hepatitis A incidence rates of ~0.5 cases per 100,000 population.
- Some states had higher rates
 - Mato Grosso do Sul (6.0)
 - Paraná (5.7)
 - Rio de Janeiro (2.8)
 - Distrito Federal (2.8)
 - São Paulo (2.5)
 - Goiás (1.8)
 - Santa Catarina (2.0)
 - Rio Grande do Sul (1.8)
 - Minas Gerais (1.2)
 - Acre (1.0)

Rate of hepatitis A incidence (per 100,000 inhabitants) by region of residence and year of detection, Brazil, 2014 to 2024

FIGURA 4 Taxa de incidência de hepatite A (por 100.000 habitantes) segundo região de residência e ano de detecção. Brasil, 2014 a 2024^(1,2)

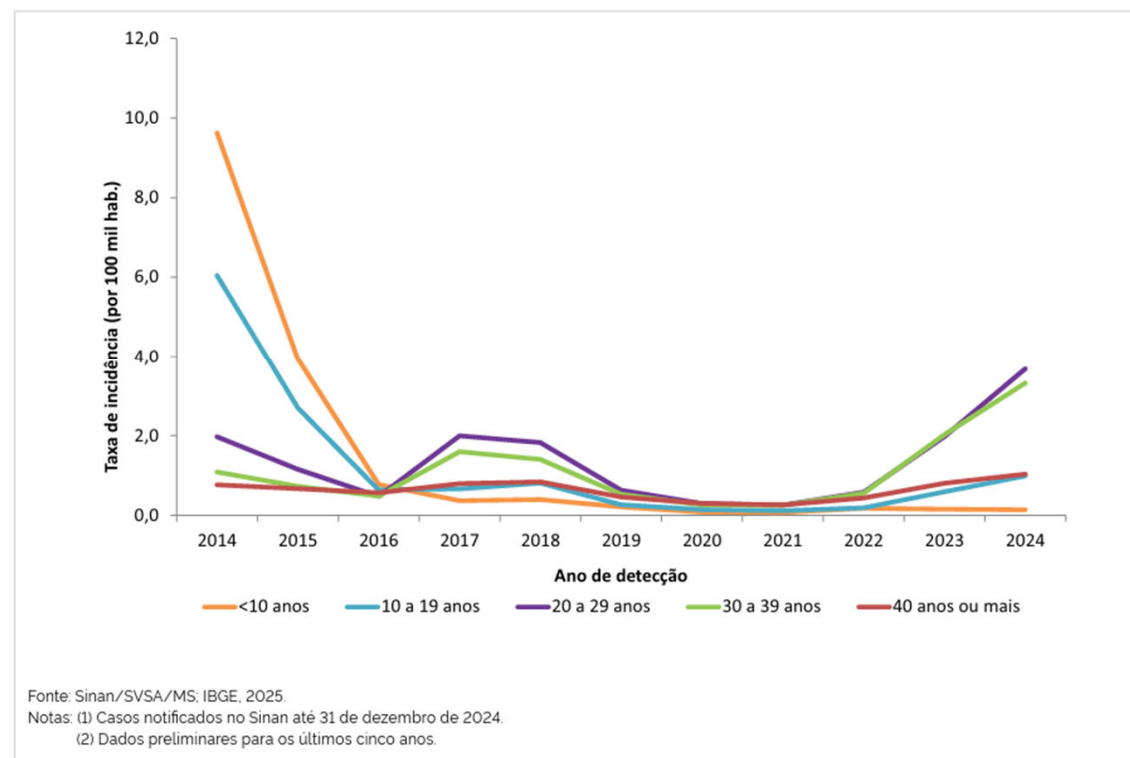


Brazil

- Hepatitis A incidence decreased 47% between 2014 and 2024.
- From 2014–2024, reduction of 99.9% in the rate of hepatitis incidence among children <5 years of age and among those between 5 and 9 years of age
- Incidence from 2023–2024 increased 54.5%, from 1.1 to 1.7 cases/100,000 population.

Incidence rate of hepatitis A cases (per 100,000 inhabitants) according to age group and year of detection, Brazil 2014 to 2024

FIGURA 7 Taxa de incidência de casos de hepatite A (por 100.000 habitantes) segundo faixa etária e ano de detecção. Brasil, 2014 a 2024^(1,2)



Brazil

- Reduced exposure in urban populations
- Concentration of infections in vulnerable groups, like incarcerated individuals, rural residents, and outbreaks (MSM populations)
- Hepatitis A seroprevalence
 - General population ranged from 33.3–67.8%.
 - Incarcerated populations (88.1%), immigrants (87.4%) and transgender individuals (75.6%)
- In Latin American countries in general where access to clean water, improved sanitary conditions, and hepatitis A immunization programs have been implemented, remarkable decline in hepatitis A cases among children
- Paradoxical shift has occurred, with a shift in disease burden increasing among young adults, leading to a rise in severe cases and outbreaks

Australia

Hepatitis A



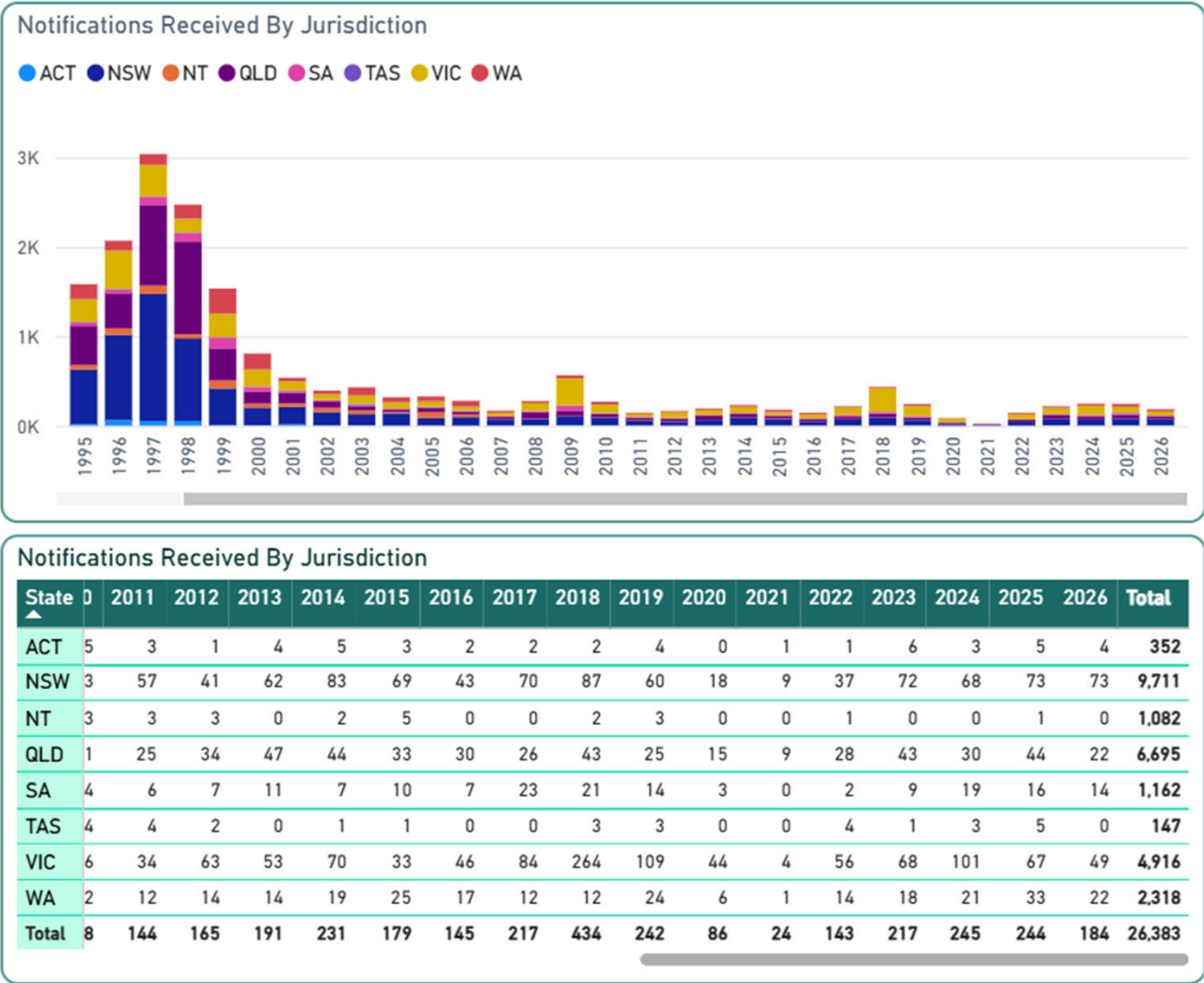
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Australia

- Hepatitis A vaccination is recommended for:
 - Aboriginal and Torres Strait Islander children living in:
 - the Northern Territory, Queensland, South Australia, Western Australia
 - People with medical risk factors
 - People whose occupation or lifestyle increases their risk
 - People who travel to areas where hepatitis A is endemic.
- Recommendations for high-risk groups started in 1990s
- Recommendations for aboriginal and Torres Strait children in 1999 in north Queensland, expanded in 2005
 - 1st dose at 18 months of age
 - 2nd dose at 4 years of age

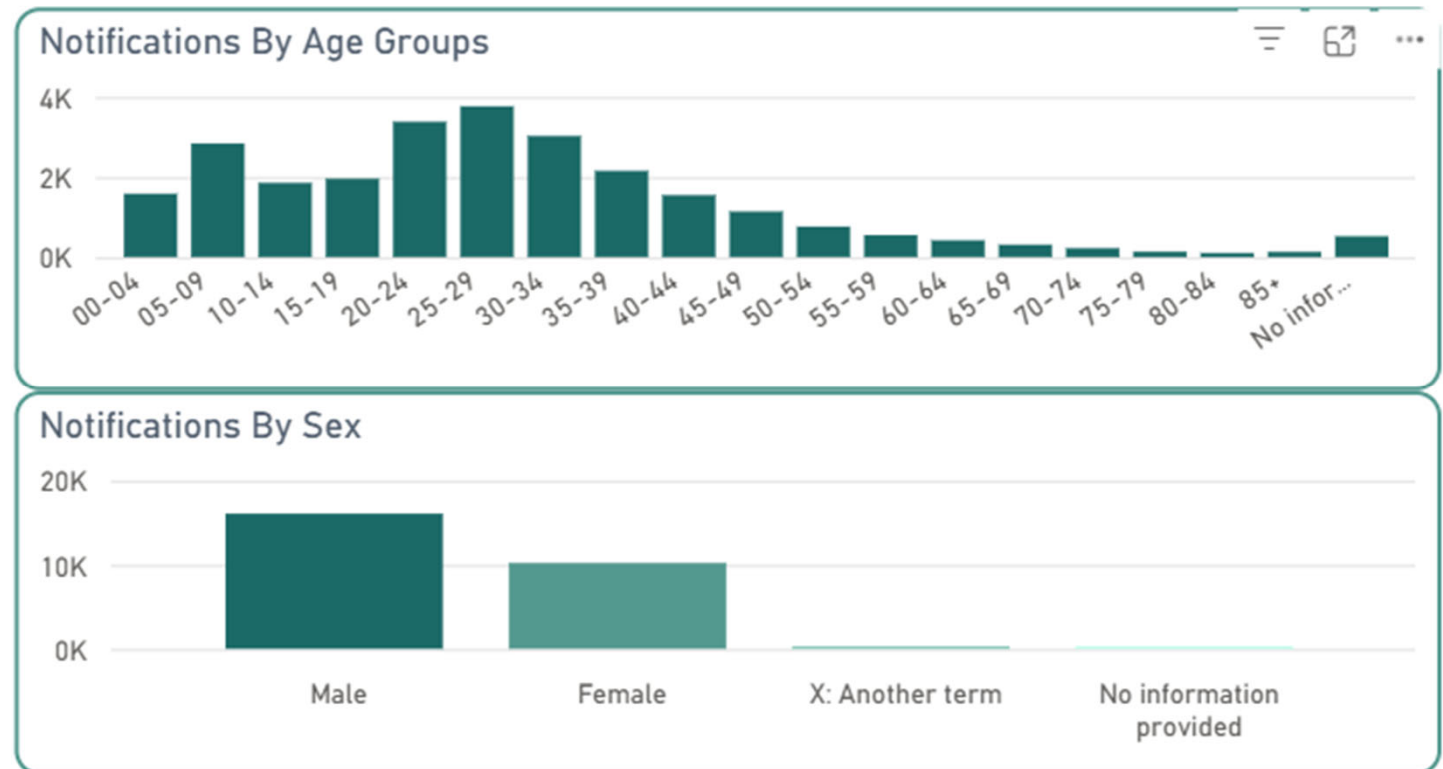
Australia

- 2024
 - 245 case notifications
- 2025
 - 244 case notifications



Australia

- Predominant age groups
 - Age 20–24 years
 - Age 25–29 years
 - Age 30–34 years
- Sex (male > female)



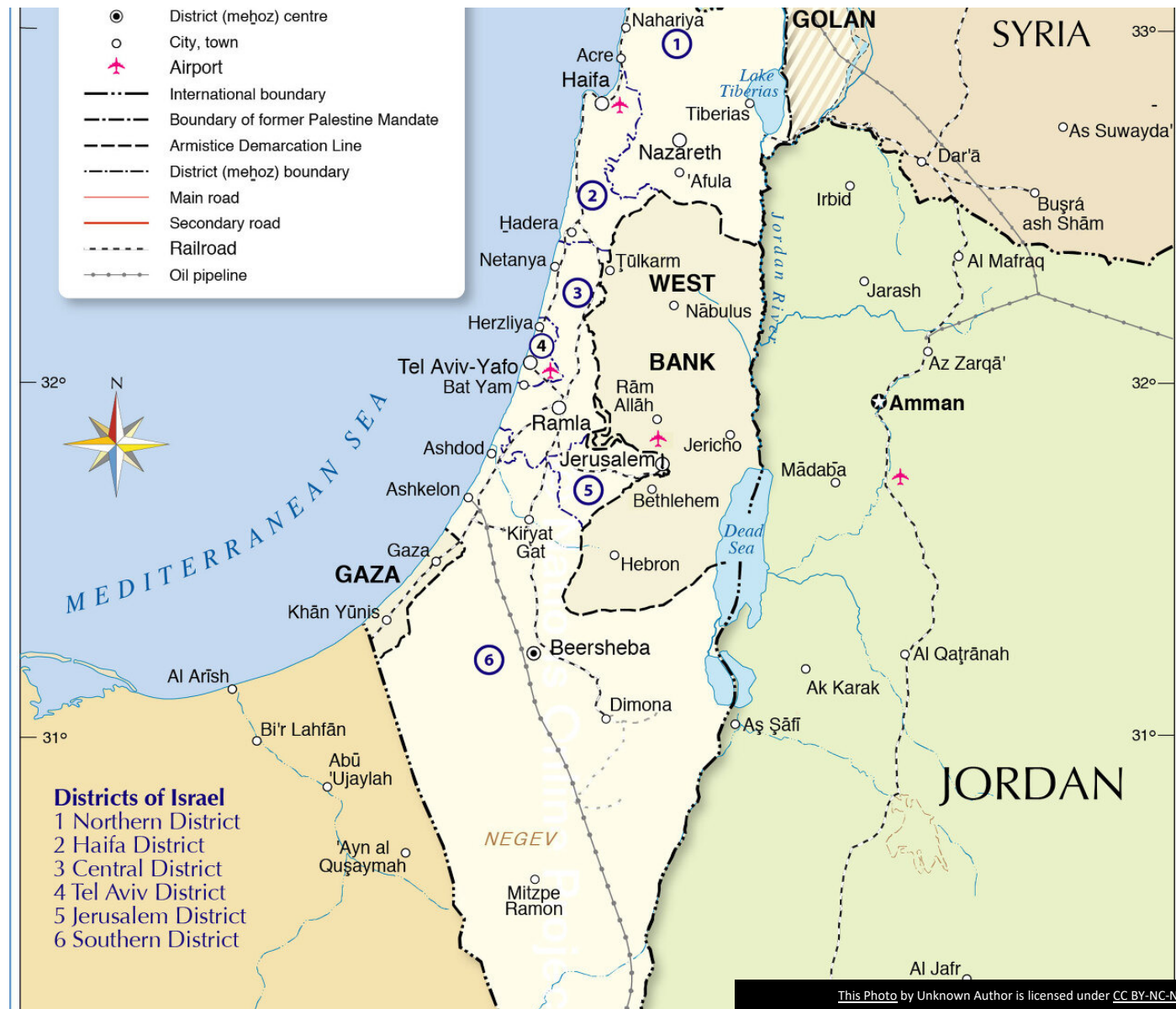
Australia

- Recent data illustrates that the number of cases in Indigenous peoples now is far less than other populations, as an effect of the national immunization policy. (Per communication with Dr. Nick Walsh, Viral Hepatitis expert, Australia)
- Hepatitis A outbreak in Australia linked to imported Medjool dates, June–September 2021
 - Six cases, two jurisdictions
 - Genotype 1B



Israel

Hepatitis A



Israel

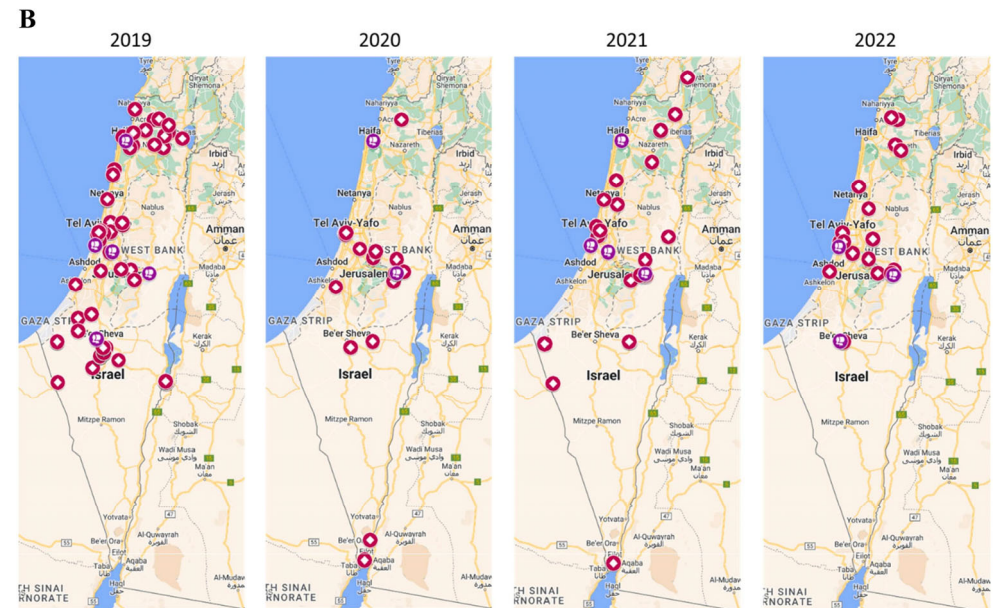
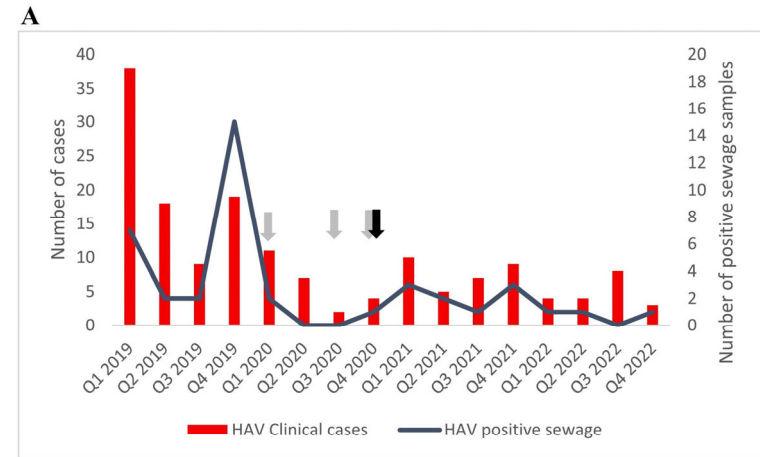
Hepatitis A number of cases and rates per 100,000 population 1998-2024

- 1999 introduction of hepatitis A vaccine into the routine immunization program
- Schedule: 2 doses for children at 18 and 24 months of age
- Since the end of the 1990s, improvements in sanitation and introduction of vaccines decreased the prevalence of hepatitis A in Israel by ~99% from thousands a year to <100 per year



Israel

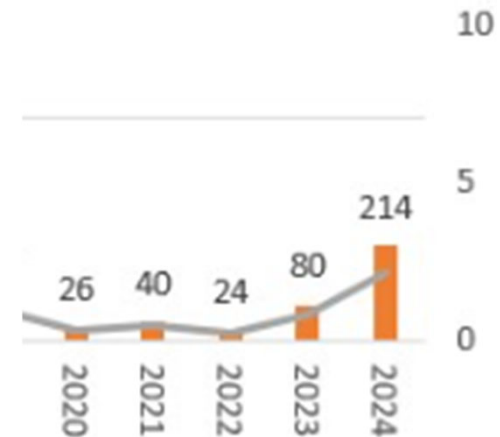
- Pre-COVID-19 pandemic average number of reported HAV cases was 58 in 2017, 68 in 2018, 84 in 2019
- In 2020, a significant decline in the number of HAV cases was documented ($n = 24$)
 - Trend of low numbers of cases persisted in subsequent years (2022)
- 2019–2022 - Majority of HAV infections among unvaccinated
 - 2019 - Among locally born cases, 46% among persons who are Arab, majority persons residing in Bedouin villages across Southern Israel (lack of sanitation)
 - 8.9 % of cases among unvaccinated foreign workers (Philippines and Thailand)



Israel

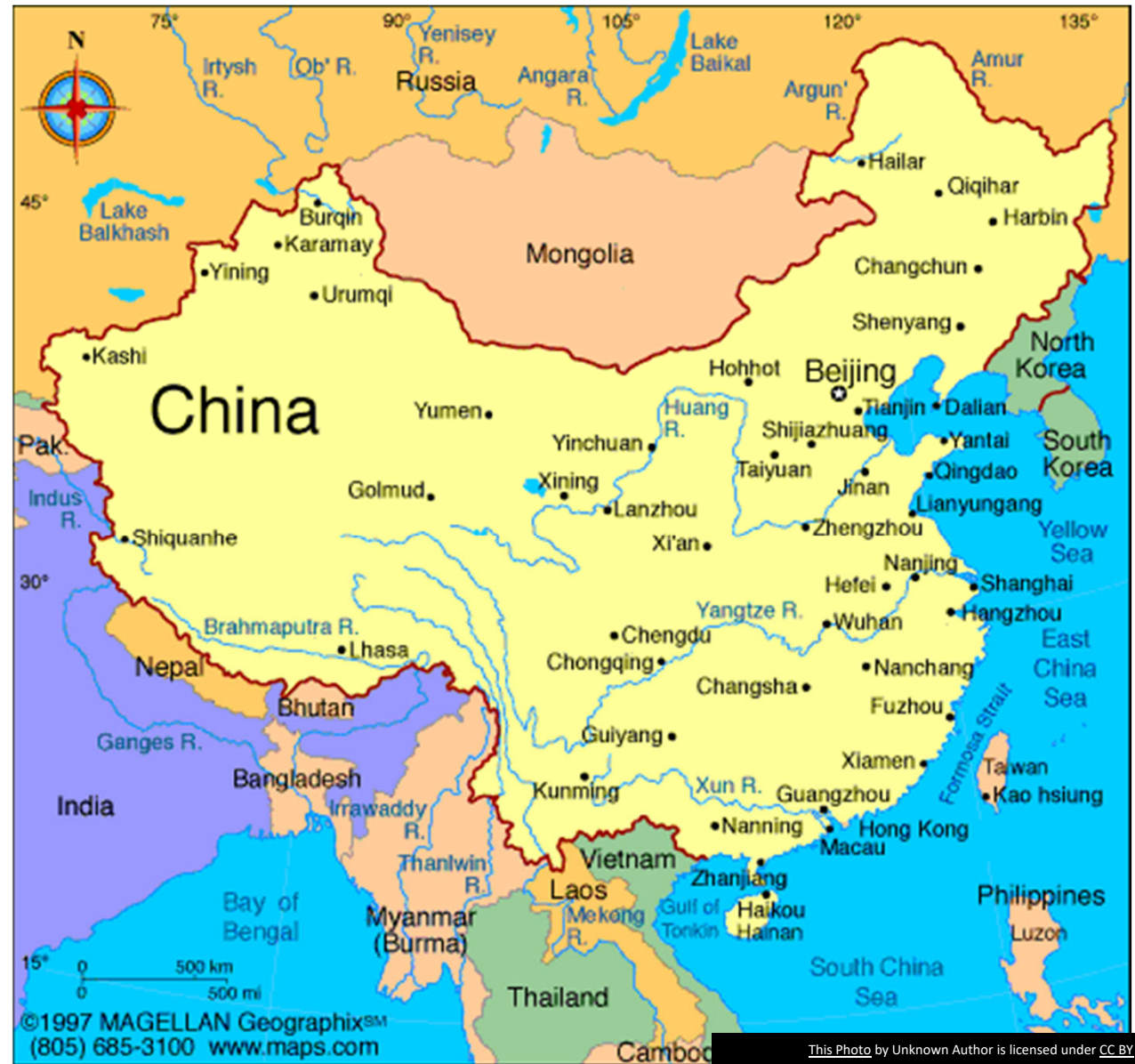
- In 2024, unexpected spike in hepatitis A cases
 - 196 confirmed cases, highest count since 2004
- Primarily among unvaccinated
- Most cases sporadic with clusters
- Outbreak concentrated in three regions:
 - Bedouin communities in the south
 - Jewish communities in Samaria
 - Lower level of immunity
 - The Shuafat area in Jerusalem

Hepatitis A number of cases and rates per 100,000 population 1998-2024



China

Hepatitis A



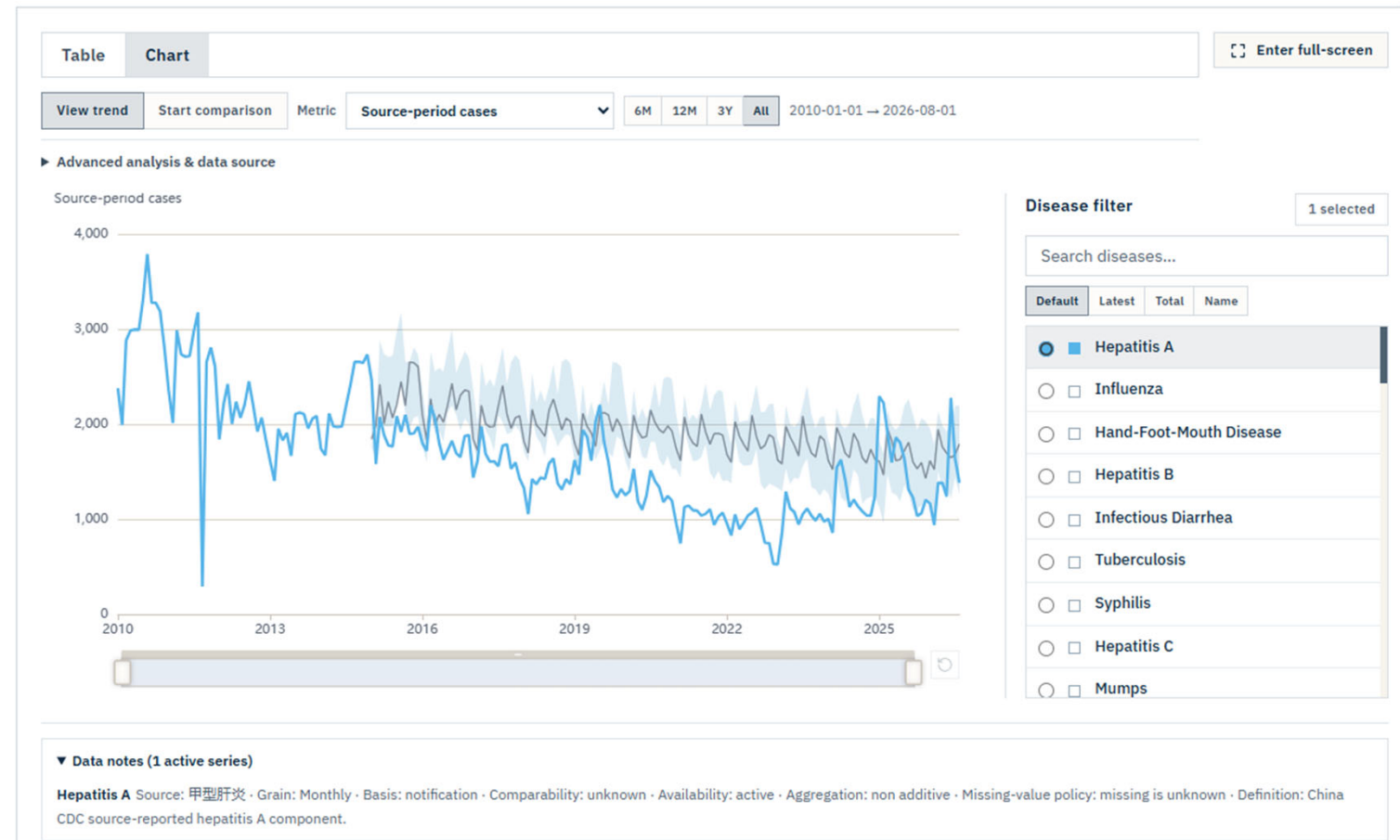
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China

Surveillance trends by disease

Start with one surveillance series and its historical reference. Comparison mode restricts series to their common observed window and separates unlike reporting cadences; outbreak mode is available only for daily or weekly onset-time data.

- Hepatitis A Vaccine introduced in 1992
- Expanded in 1998 to all infants at age 18 months without cost



<https://globalinfectiousdisease.com/countries/cn/>

Wu Y, Wang P, Huang Y, Chen J, Chang Y, Li J, et al. Assessing the effectiveness of the expanded hepatitis A vaccination program in China: an interrupted time series design. *BMJ Global Health*. 2024;9:e013444. <https://doi.org/10.1136/bmjgh-2023-013444>

Thank you!

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