



U.S. FOOD & DRUG
ADMINISTRATION



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Core Childhood Vaccination Schedules: An International Perspective with focus on the US & Denmark

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45 peer reviewed
publications-last 5
years focus on
infectious disease
epidemiology &
vaccines

Before FDA was at
MIT Sloan &
practicing physician



Core Childhood
Vaccines – as of
January 2025
(assumes DTaP,
HiB, IPV given
separately)

	TOTAL VACCINE DOSES	DISEASES TARGETED
 UNITED STATES	72	18
 DENMARK	11	10
 UNITED KINGDOM	17	12
 GERMANY	22	15
 JAPAN	28	14

Assumes individual rather than
combined DTaP-Hib-HepB-IPV
vaccines given in US

ACIP April 2025- US international outlier in yearly COVID-19 vaccines for children

National Center for Immunization and Respiratory Diseases

Use of 2025–2026 COVID-19 Vaccines: Work Group Considerations

Lakshmi Panagiotakopoulos, MD, MPH
Advisory Committee on Immunization Practices
April 15, 2025

Summary of international COVID-19 booster* recommendations

	UK ¹	Canada ²	Australia ³	WHO	US
Older adults	≥65 years: 12 months ≥75 years and long-term care facility residents: 6 months	≥80 years and long-term care facility residents: 6 months 65-79 years: 12 months; <i>may receive every 6 months</i>	≥75 years: 6 months ≥65 years: 12 months, <i>may receive every 6 months</i>	Country dependent, often ≥75 or ≥80 years: 6–12-month interval Country dependent, often 50 or 60 years: 12-month interval	≥65 years: 6 months
Adults (routine)	Not recommended	<i>May receive every 12 months</i>	<i>May receive every 12 months</i>	Not routinely recommended Pregnant adults and adolescents: dose in each pregnancy***	12 months
High-risk adults**	12 months	12 months	<i>May receive every 12 months</i>	12 months	12 months
Immunocompromised adults	6 months	6 months	12 months, <i>may receive every 6 months</i>	6-12 months	6 months, <i>plus may receive additional doses at 2-month intervals</i>
Children (routine)	Not recommended	<i>May receive every 12 months</i>	Not recommended	Not routinely recommended	12 months
High-risk children**	12 months	12 months	Not recommended	Not routinely recommended	12 months
Immunocompromised children	6 months	6 months	Under 5 years: not recommended 5-17 years: May receive every 12 months	6-12 months	6 months, <i>plus may receive additional doses at 2-month intervals</i>

1 <https://assets.publishing.service.gov.uk/media/66e7fbf624c4f1826d81bb32/Greenbook-chapter-14a-20240916.pdf> 2 <https://www.canada.ca/en/public-health/services/publications/vaccines-immunization/national-advisory-committee-immunization-summary-guidance-covid-19-vaccines-2025-summer-2026.html> 3 <https://www.health.gov.au/our-work/covid-19-vaccines/getting-your-vaccination/booster-doses>

* Booster refers to people who have already completed an initial series. For people who are unvaccinated, more doses may be needed than are shown on this table

** Adults and children at increased risk of SARS-CoV-2 exposure or severe COVID-19 disease.

*** Ideally during in the second trimester or at any opportunity

Italics indicate discretionary/shared clinical decision-making recommendations

Core Vaccines by Country as of January, 2025

USA	Denmark
Hepatitis B	
RSV	
Rotavirus	
Diphtheria	Diphtheria
Tetanus	Tetanus
Pertussis	Pertussis
Hemophilus	Hemophilus
Pneumococcus	Pneumococcus
Polio	Polio
COVID-19	
Influenza	
Varicella	
Hepatitis A	
Meningitis	
Measles	Measles
Mumps	Mumps
Rubella	Rubella
HPV	HPV

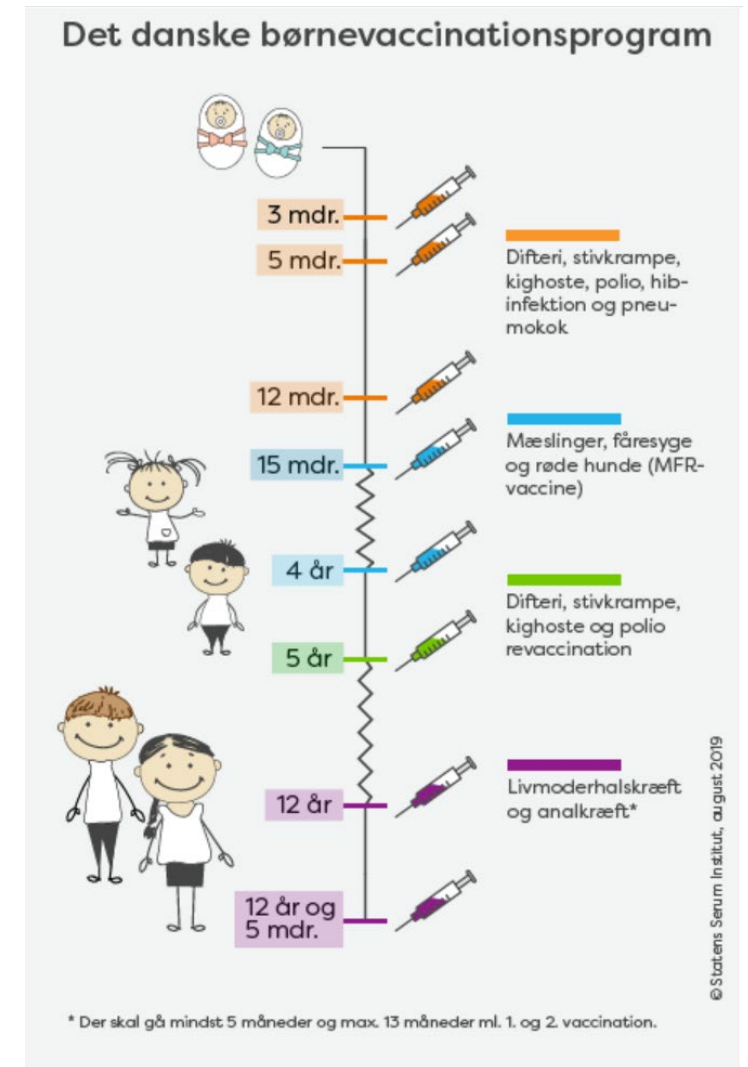


Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).

Vaccine and other Immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs		
Respiratory syncytial virus (RSV-mAb [Nirsevimab])	1 dose depending on maternal RSV vaccination status. See Notes					1 dose (8 through 19 months). See Notes													
Hepatitis B (HepB)	1 st dose	← 2 nd dose →			← 3 rd dose →														
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1 st dose	2 nd dose	See Notes														
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 st dose	2 nd dose	3 rd dose			← 4 th dose →				5 th dose							
Haemophilus influenzae type b (Hib)			1 st dose	2 nd dose	See Notes			← 3 rd or 4 th dose → See Notes											
Pneumococcal conjugate (PCV15, PCV20)			1 st dose	2 nd dose	3 rd dose			← 4 th dose →											
Inactivated poliovirus (IPV <18 yrs)			1 st dose	2 nd dose	← 3 rd dose →							4 th dose	See Notes						
COVID-19 (1vCOV-mRNA, 1vCOV-aPS)						1 or more doses of updated (2023–2024 formula) vaccine (See Notes)													
Influenza (IIV4)						Annual vaccination 1 or 2 doses								Annual vaccination 1 dose only					
OR														Annual vaccination 1 dose only					
Influenza (LAIV4)															Annual vaccination 1 dose only				
Measles, mumps, rubella (MMR)					See Notes		← 1 st dose →					2 nd dose							
Varicella (VAR)							← 1 st dose →					2 nd dose							
Hepatitis A (HepA)					See Notes		2-dose series. See Notes												
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)																			
Human papillomavirus (HPV)																	See Notes		
Meningococcal (MenACWY-CRM ≥2 mos, MenACWY-TT ≥2 years)	See Notes													1 st dose		2 nd dose			

Core Childhood Vaccines-As of January 2025

USA	Denmark	UK	Germany	Japan
Hepatitis B		Hepatitis B	Hepatitis B	Hepatitis B
RSV			RSV	
Rotavirus		Rotavirus	Rotavirus	Rotavirus
Diphtheria	Diphtheria	Diphtheria	Diphtheria	Diphtheria
Tetanus	Tetanus	Tetanus	Tetanus	Tetanus
Pertussis	Pertussis	Pertussis	Pertussis	Pertussis
Hemophilus	Hemophilus	Hemophilus	Hemophilus	Hemophilus
Pneumococcus	Pneumococcus	Pneumococcus	Pneumococcus	Pneumococcus
Polio	Polio	Polio	Polio	Polio
COVID-19				
Influenza				
Varicella			Varicella	Varicella
Hepatitis A				
Meningitis		Meningitis	Meningitis	
Measles	Measles	Measles	Measles	Measles
Mumps	Mumps	Mumps	Mumps	
Rubella	Rubella	Rubella	Rubella	Rubella
HPV	HPV	HPV	HPV	HPV
				Tuberculosis
				Japanese Encephalitis

	TOTAL ALUMINUM BY AGE 2	TOTAL ALUMINUM BY AGE 18
 UNITED STATES	5.9 mg	8.0 mg
 DENMARK	1.4 mg	2.9 mg
 UNITED KINGDOM	4.3 mg	5.5 mg
 GERMANY	4.8 mg	7.0mg
 JAPAN	2.6 mg	5.1 mg

Aluminum exposure in childhood

- Assumes individual rather than combined DTaP-Hib-HepB-IPV vaccines given in US
- What is the “safe” bolus dose of parenteral aluminum in infancy?

What do we owe to our children?

Science-based recommendations

- Understand potential for absolute benefit in low risk populations
- Understand the limitations in our knowledge about adverse effects
- Perform proper randomized, placebo-controlled studies
- Continually monitor safety and update our recommendations based on evolving knowledge
- Vaccines treated like all medical products; may not be right for all children

What do we owe to our children?

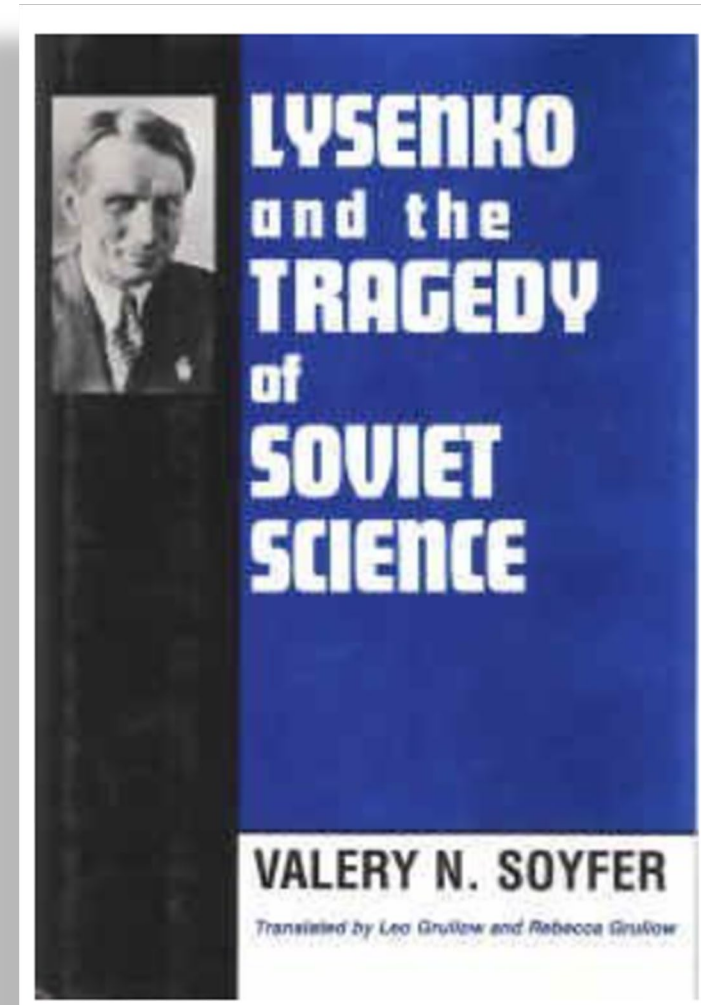
Avoid overmedicalizing childhood

- Time in pediatricians' offices can be spent differently
- Less focus on medical products; more focus on healthy living
- Decreases overdiagnosis and overtreatment

What do we owe to our children?

Recommendations based on data and not politics

- Manipulating data for political reasons can be deadly
- Neo-Lamarkism/acquired genetics
- Silencing of opposing views
- Resulted in the death of potentially millions in the Chinese famine



USA - Political Polarization



Deaths
due to
polio,
measles



Deaths and
injuries due
to vaccines



Denmark



- Multi-party system
- Culture of Debate
- Transparent decision making
- Research culture (RCTs)
- Extensive documentation of decision making about vaccines
- Acknowledge Unknowns
- Promptly reverse recommendations

Higher level of trust in
Public Health Authorities

Undeniably a healthier
population

Does the US
have a good
track record in
terms of child
health?

	Childhood Obesity
 UNITED STATES	18.6%
 DENMARK	3.1%
 UNITED KINGDOM	7.6%
 GERMANY	4.4%
 JAPAN	3.9%

Health Conditions-mental health disorders

Prevalences by Country in Children Aged 5-14 Years in 2023 from Global Burden of Diseases Database

Cause	Germany (%)	Japan (%)	UK (%)	Denmark (%)	USA (%)
Attention Deficit Hyperactivity Disorder	1.01	4.60	2.76	2.86	3.65
Depressive disorders	1.97	2.15	2.70	1.94	2.24

Because the US has a larger high-risk population, should the core childhood vaccination schedule be larger ?

- Should healthy children in the US receive different vaccines than healthy children in Denmark?
- Root cause of diseases

Core Childhood Vaccines-As of January 2025

What can we learn from other countries?

	TOTAL VACCINE DOSES	DISEASES TARGETED
 UNITED STATES	72	18
 DENMARK	11	10
 SWEDEN	19	11
 GERMANY	22	15
 JAPAN	28	14

Why do the US and Denmark have such different core vaccination schedules?

Misconception:

Because of differences in disease prevalences

How do incidences and prevalences of diseases compare?

US vs Denmark

Hepatitis B: incidence in mothers & prevalence of chronic Hepatitis B

Disease Incidence & Prevalence – Hepatitis B, per data available in 2020-2021	Incidence of children born to HBsAg positive mothers per 1,000 births	Prevalence of chronic Hep B among the entire population
 UNITED STATES	<5/1,000	3.5/1,000
 DENMARK	4.4/1,000	3/1,000

https://journals.lww.com/ajg/fulltext/2020/09000/prevalence_of_chronic_hepatitis_b_virus_infection.20.aspx

https://www.cdc.gov/hepatitis-b/hcp/perinatal-provider-overview/index.html#cdc_generic_section_7-infection-rates-and-trend

Clinical Overview of Perinatal Hepatitis B | Hepatitis B | CDC

Efficacy of Selective Antenatal Screening for Hepatitis B Among Pregnant Women in Denmark: Is Selective Screening Still an Acceptable Strategy in a Low-endemicity Country?: Scandinavian Journal of Infectious Diseases: Vol 35, No 6-7 XX, 202X

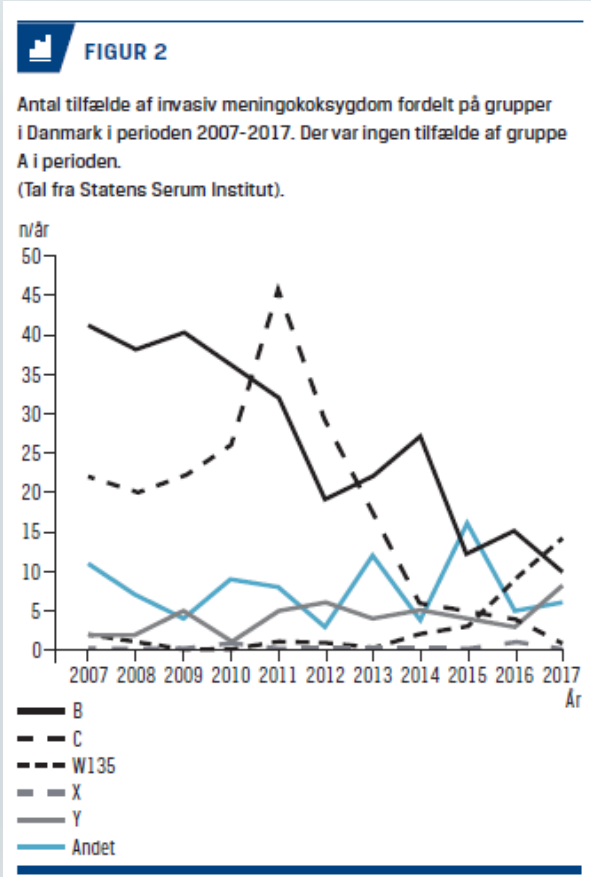
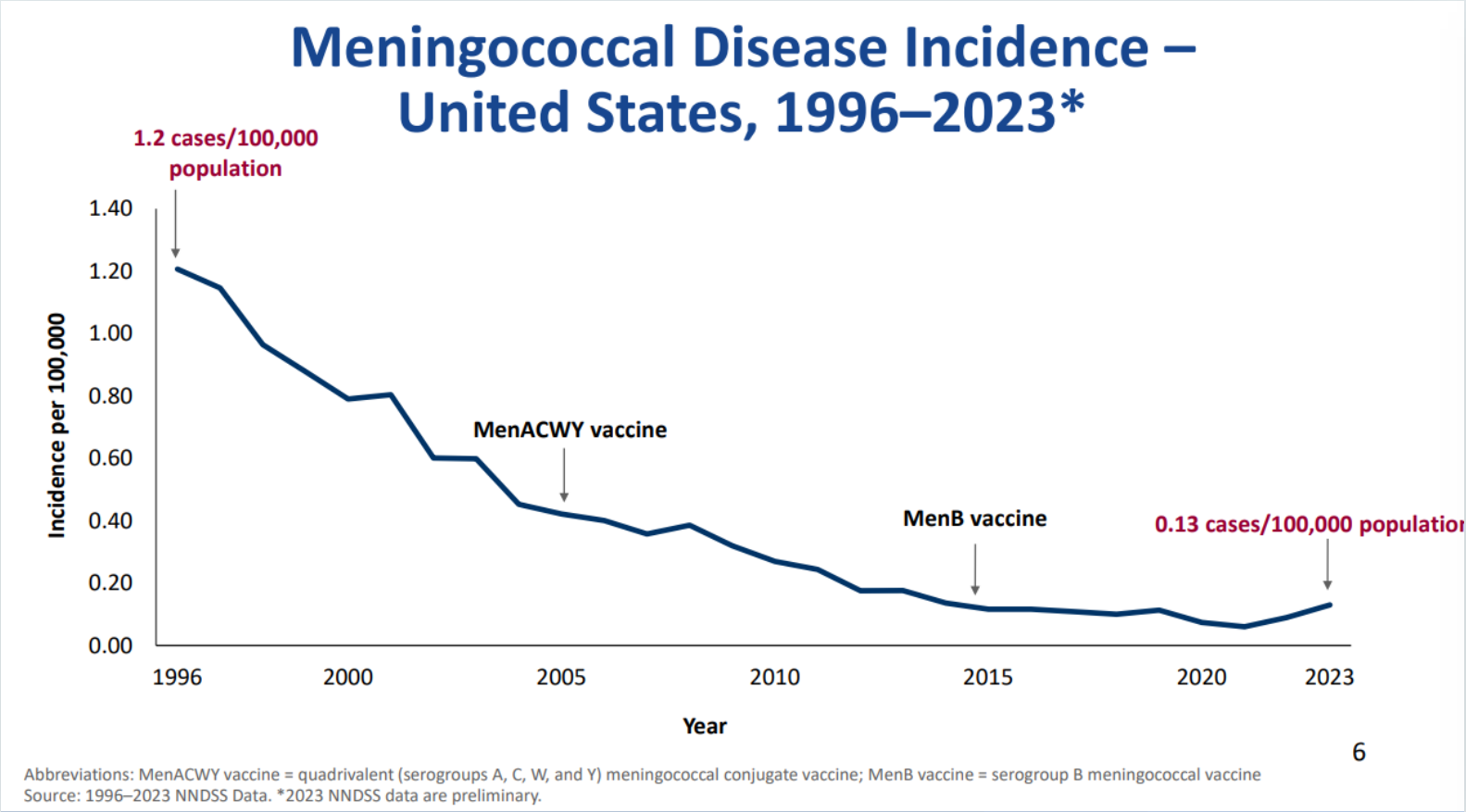
Incidence of Meningococcal Disease in 2023

Disease Incidence Rate – Meningococcus, 2023

2023 incidence rate (cases per
100,000 population)

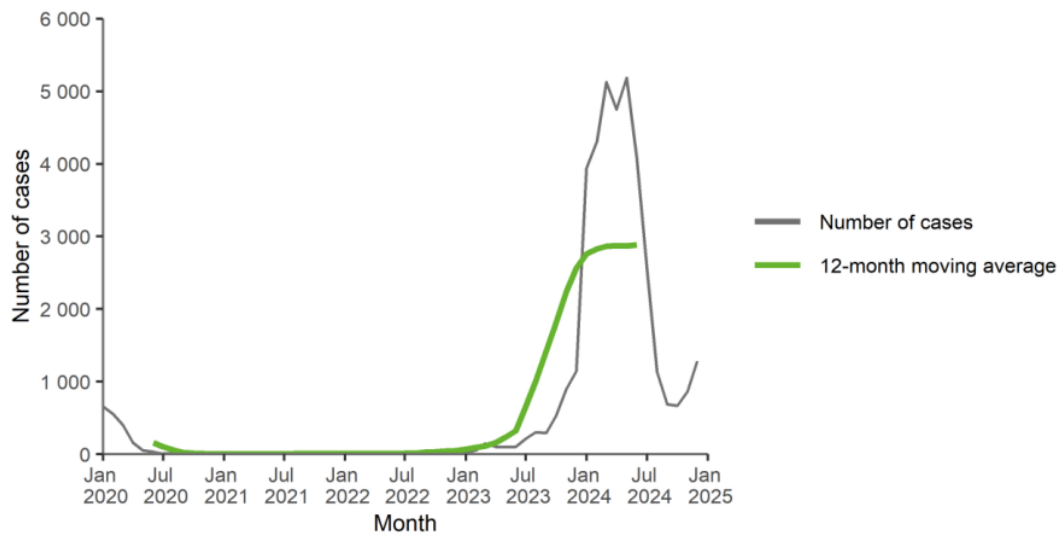
- ≤ 5 /million in both the US and Denmark

USA and Denmark Meningococcal Incidence over time

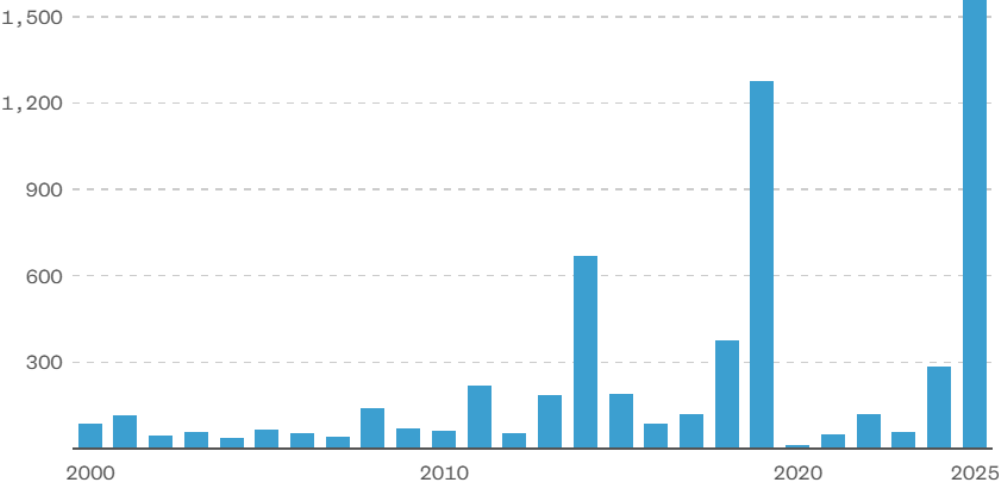


There has been an increase in Measles Cases in the US and Europe

Figure 3. Number of measles cases by month, EU/EEA, 2020–2024



Measles cases in the U.S.



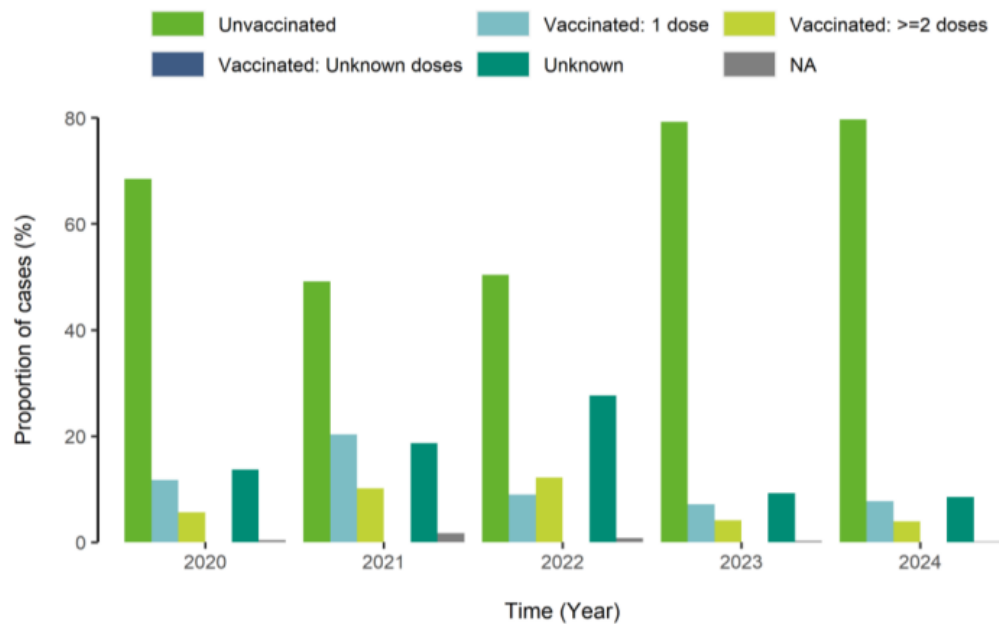
Notes: 2025 data is current as of Nov. 19.

Source: Centers for Disease Control and Prevention, CDC via Statista

Graphic: Joe Murphy / NBC News

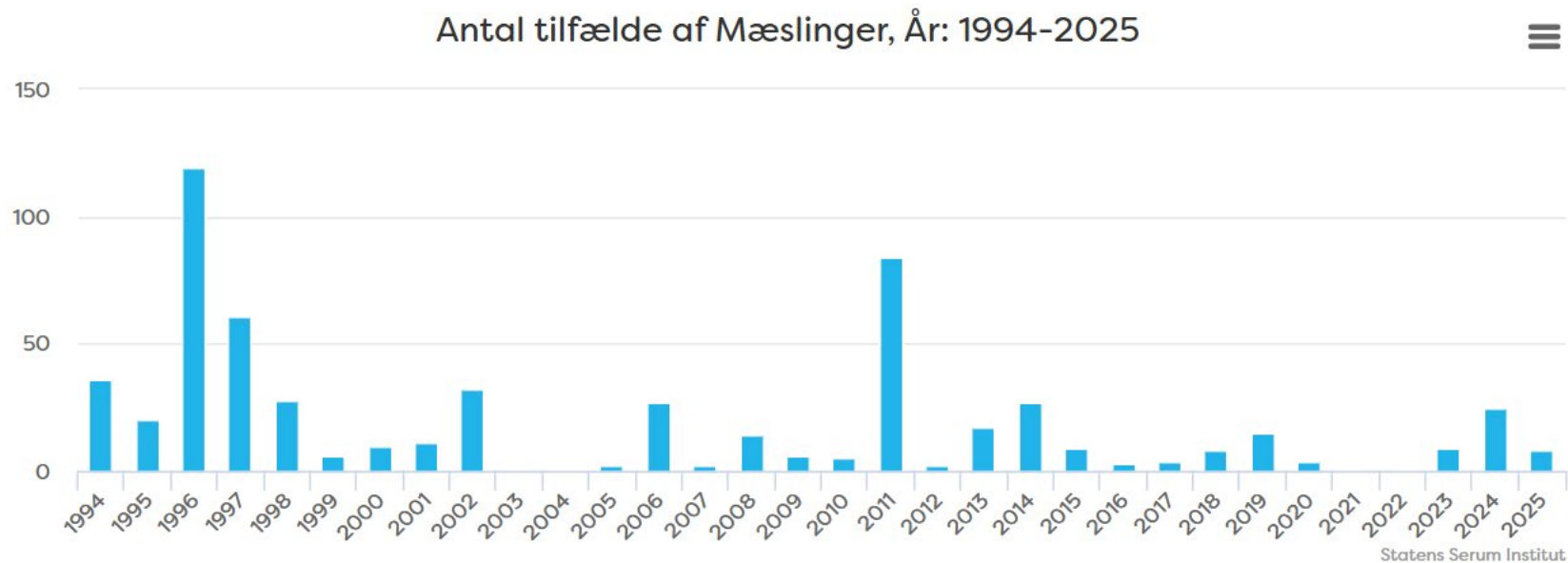
Measles Cases by Vaccination Status in Europe

Figure 6. Proportion of measles cases by vaccination status, EU/EEA, 2020-2024



Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Measles Cases in Denmark Over Time



Vaccination Rates by Age 5 in 2024

Vaccine Uptake by Kindergarten/Age 5	TDaP-Hib-IPV [Denmark] / DTaP [U.S.]	MMR
 UNITED STATES	92%	92.5%
 DENMARK	92%	93%

2024 MMR vaccination rates by state

The estimated critical minimum vaccination threshold to prevent measles outbreaks is around 90%

https://publichealth.jhu.edu/sites/default/files/2024-09/Measles-Risk-Assessment-Methodology_9.19.24.pdf

Measles, mumps and rubella vaccination rates

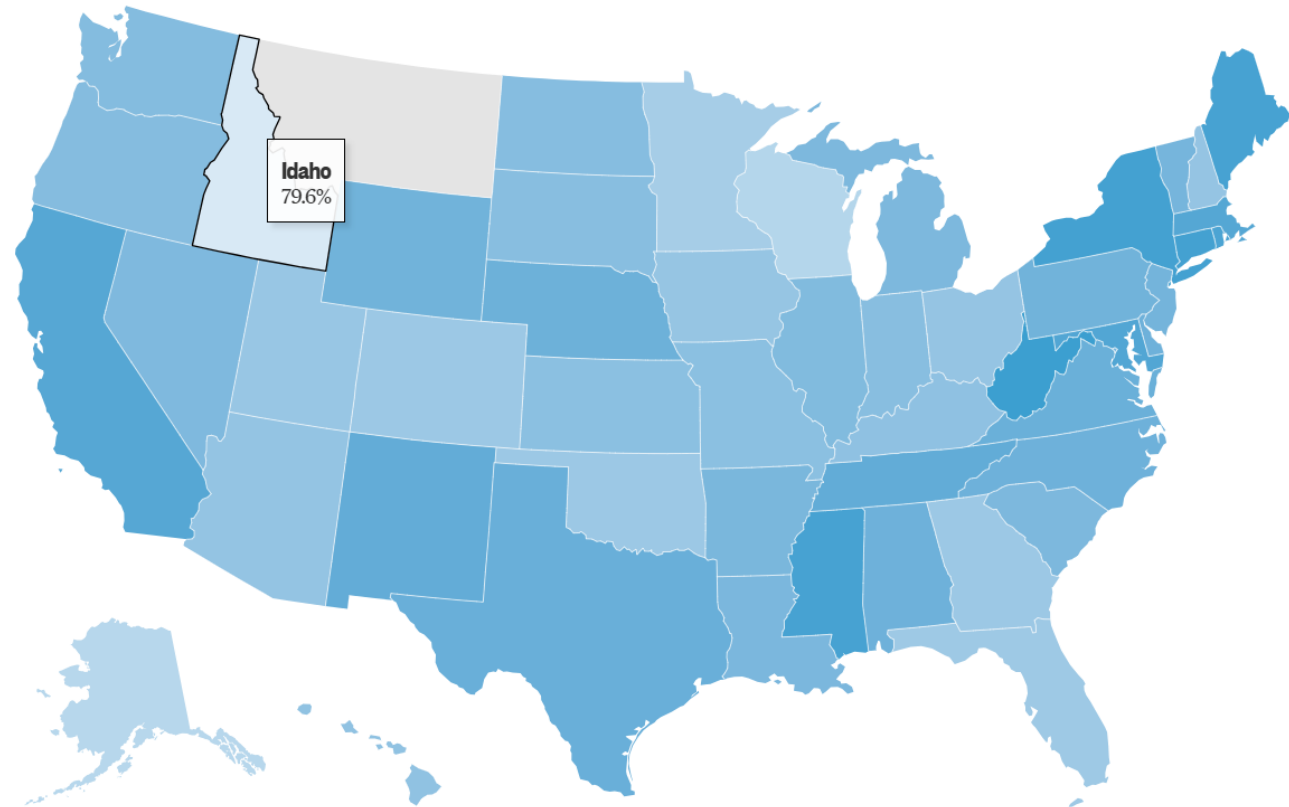
MAP

EXEMPTIONS

EXEMPTION LAWS

VACCINATIONS

80% 98%



Notes: Data collected among kindergarteners during the 2023-2024 school year. Vaccination rates determined by the percentage with 2 MMR doses.

Source: CDC

Graphic: Ash Reynolds / NBC News

November 2025

Canada loses its measles elimination status. Will the U.S. be next?

The virus has been spreading for nearly a year in the U.S. – a key factor in determining whether a country loses its measles elimination status.

Which countries
have or are at risk
of loss of measles
elimination
status?

	DISEASES TARGETED	AGE OF FIRST VACCINE
 UNITED STATES	17	Birth
 DENMARK	10	3 months
 SWEDEN	11	6 weeks
 CANADA	16	Birth
 JAPAN	14	3 months

When and why do
citizens not trust
core childhood
vaccination
recommendations?

Current numbers

	DISEASES TARGETED	AGE OF FIRST VACCINE
 UNITED STATES	17	Birth
 DENMARK	10	3 months
 SWEDEN	11	6 weeks
 CANADA	16	Birth
 JAPAN	14	3 months

Rubella

- Rubella can cause congenital rubella syndrome
- Has a community immunity threshold of 83-85%
- Some pockets of America and entire states, such as Idaho and Wisconsin, with average vaccination rates below this, at risk of rubella outbreaks.



Original Investigation | Public Health

Trust in Physicians and Hospitals During the COVID-19 Pandemic in a 50-State Survey of US Adults

Roy H. Perlis, MD, MSc; Katherine Ognyanova, PhD; Ata Uslu, MS; Kristin Lunz Trujillo, PhD; Mauricio Santillana, PhD; James N. Druckman, PhD; Matthew A. Baum, PhD; David Lazer, PhD

Trust in US
healthcare
decreased from
72% to 40%

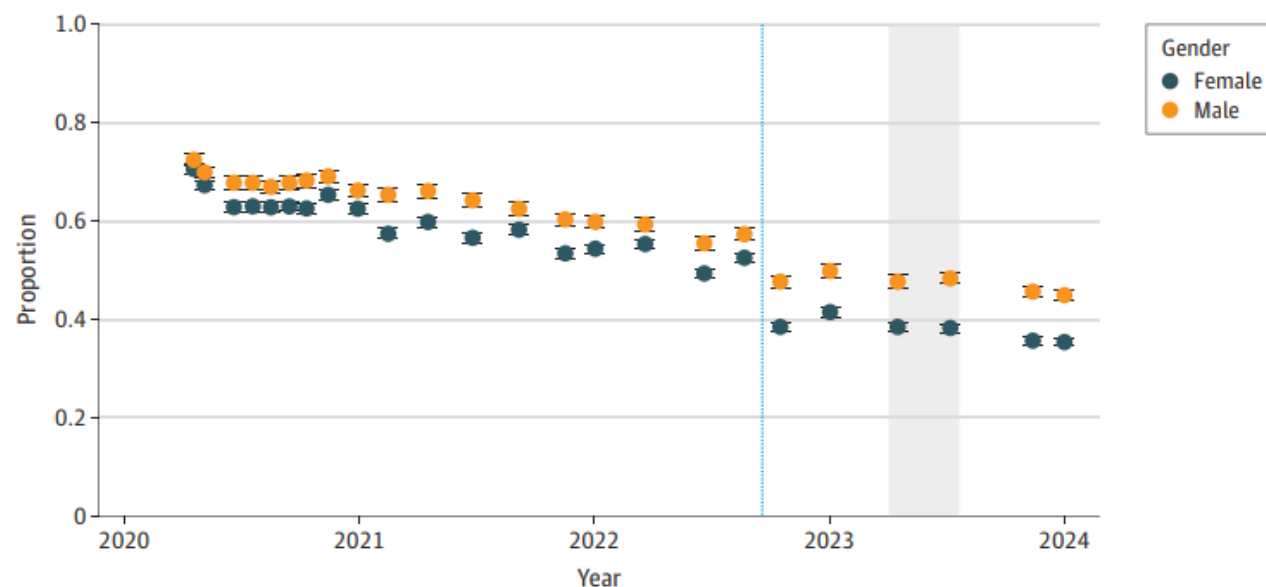
Findings In every sociodemographic group in this survey study among 443 455 unique respondents aged 18 years or older residing in the US, trust in physicians and hospitals decreased substantially over the course of the pandemic, from 71.5% in April 2020 to 40.1% in January 2024. Individuals with lower levels of trust were less likely to have been vaccinated or received boosters for COVID-19.

Trust decreased from 72% to 40%

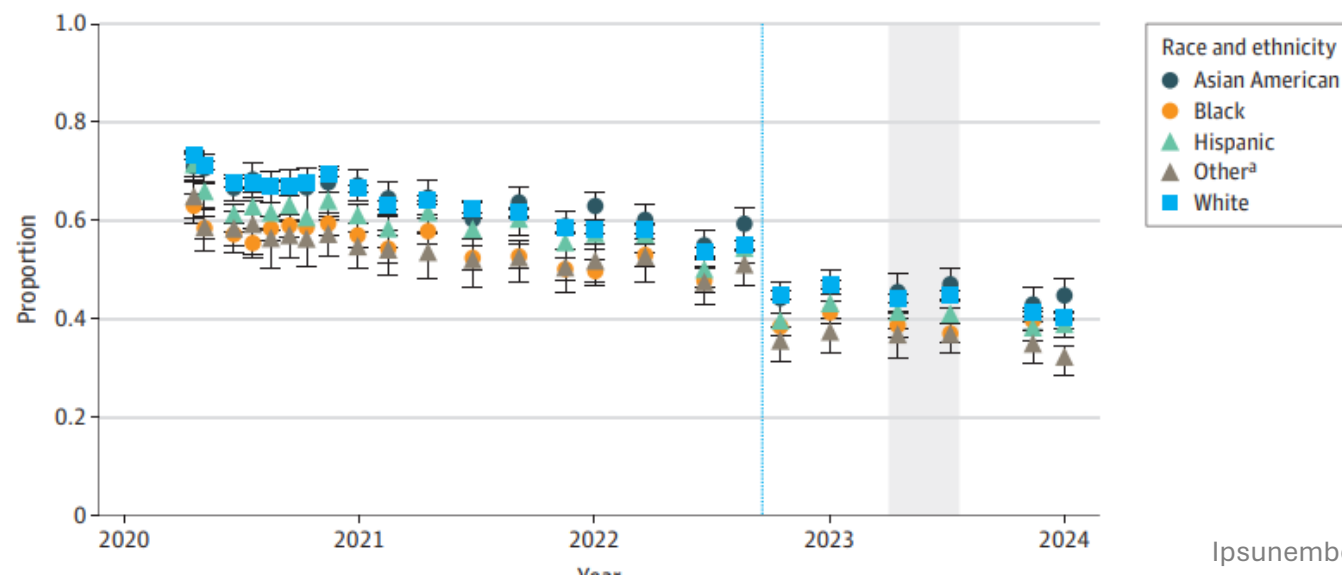
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Figure 1. Trust in Physicians and Hospitals Over Time, Stratified by Gender, Race and Ethnicity, and Age

A Proportion indicating a lot of trust, by gender



B Proportion indicating a lot of trust, by race and ethnicity



School based vaccine mandates?

CHILDHOOD VACCINE MANDATES



UNITED STATES

YES



DENMARK

NO



UNITED KINGDOM

NO



GERMANY

NO



JAPAN

NO

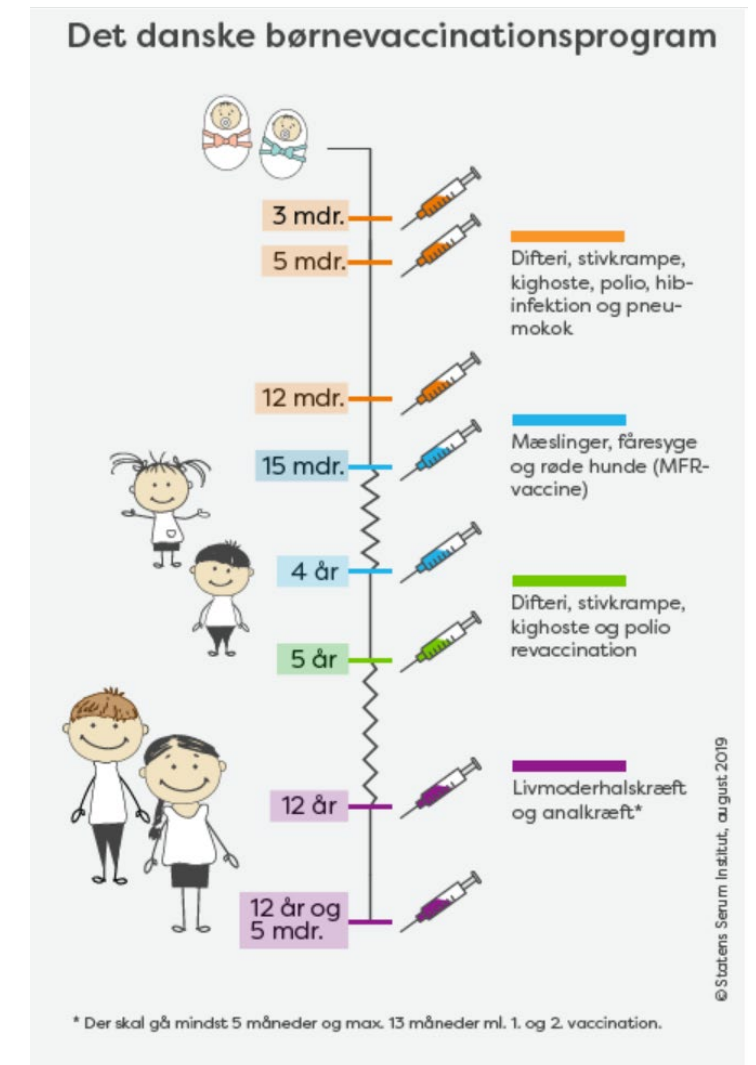


Focus on Denmark

The Current Core Childhood Vaccination Schedule

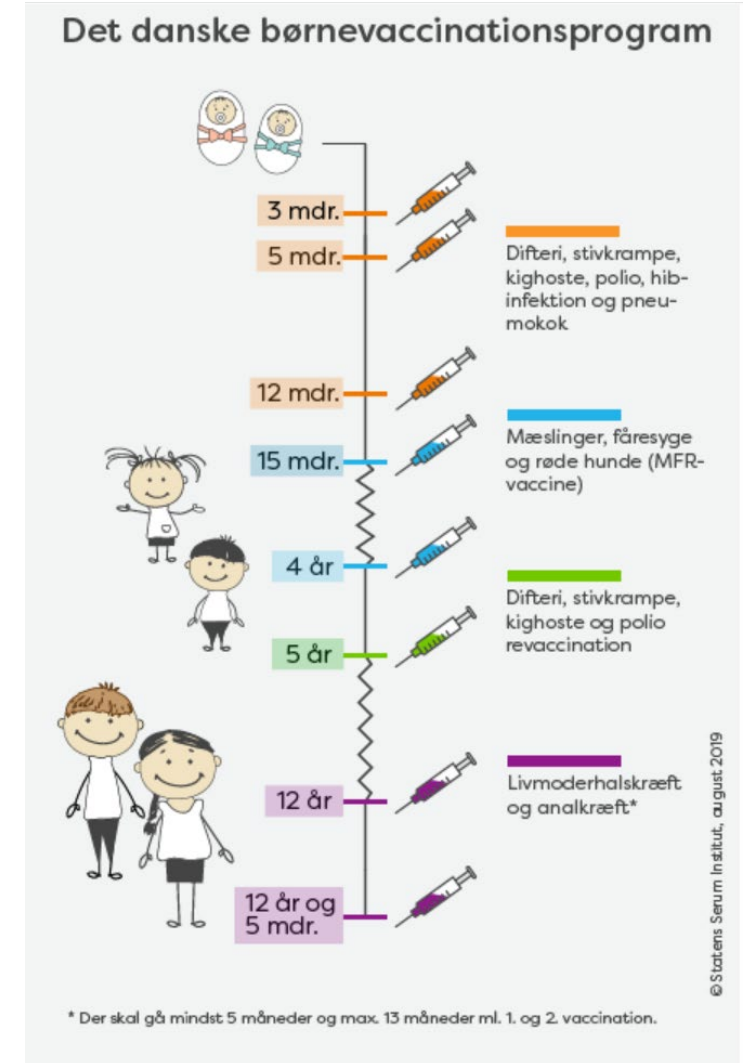
Denmark Core Childhood Vaccines

Alder	Vaccination
3 måneder.	Difteri, stivkrampe, kighoste, polio, Hib og pneumokok (1)
5 måneder ¹	Difteri, stivkrampe, kighoste, polio, Hib og pneumokok (2)
12 måneder ¹	Difteri, stivkrampe, kighoste, polio, Hib og pneumokok (3)
15 måneder	Mæslinger, fåresyge, røde hunde (MFR 1)
4 år ¹	Mæslinger, fåresyge, røde hunde (MFR 2)
5 år ¹	Revaccination: difteri, stivkrampe, kighoste, polio
12 år	Human papillomavirus (HPV) mod livmoderhalskræft og kønsvorter (2 doser).



Core Vaccines by Country as of January, 2025

USA	Denmark
Hepatitis B	
RSV	
Rotavirus	
Diphtheria	Diphtheria
Tetanus	Tetanus
Pertussis	Pertussis
Hemophilus	Hemophilus
Pneumococcus	Pneumococcus
Polio	Polio
COVID-19	
Influenza	
Varicella	
Hepatitis A	
Meningitis	
Measles	Measles
Mumps	Mumps
Rubella	Rubella
HPV	HPV



Evolution of the Core Vaccine Schedule in USA

Year	Shots by Age 18	Target Diseases	Key Interim Vaccine Additions
1980	11	7	MMR, DTP, Polio
1991	20	9	Hib, Hep B
2000	24	12	Varicella, PCV7
2010	49	14	Influenza, HPV, Rotavirus, Hep A
2020	51	15	PCV13, MenACWY-TT
2024	72	18	PCV20, COVID-19, RSV

Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).

Vaccine and other Immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs	
Respiratory syncytial virus (RSV-mAb [Nirsevimab])	1 dose depending on maternal RSV vaccination status. See Notes					1 dose (8 through 19 months). See Notes												
Hepatitis B (HepB)	1 st dose	← 2 nd dose →			← 3 rd dose →													
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1 st dose	2 nd dose	See Notes													
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 st dose	2 nd dose	3 rd dose			← 4 th dose →				5 th dose						
Haemophilus influenzae type b (Hib)			1 st dose	2 nd dose	See Notes			← 3 rd or 4 th dose, See Notes →										
Pneumococcal conjugate (PCV15, PCV20)			1 st dose	2 nd dose	3 rd dose			← 4 th dose →										
Inactivated poliovirus (IPV <18 yrs)			1 st dose	2 nd dose	← 3 rd dose →							4 th dose					See Notes	
COVID-19 (1vCOV-mRNA, 1vCOV-aPS)						1 or more doses of updated (2023–2024 formula) vaccine (See Notes)												
Influenza (IIV4)						Annual vaccination 1 or 2 doses								Annual vaccination 1 dose only				
OR														Annual vaccination 1 dose only				
Influenza (LAIV4)													Annual vaccination 1 dose only					
Measles, mumps, rubella (MMR)					See Notes	← 1 st dose →					2 nd dose							
Varicella (VAR)							← 1 st dose →					2 nd dose						
Hepatitis A (HepA)					See Notes	2-dose series. See Notes												
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)																		
Human papillomavirus (HPV)														See Notes				
Meningococcal (MenACWY-CRM ≥2 mos, MenACWY-TT ≥2 years)	See Notes														1 st dose	2 nd dose		



Danish Decision Making about Childhood Vaccines

Examples of Child vaccines that were never or are no longer on the schedule



COVID-19 Vaccine

Denmark was the first high income nation to remove the COVID-19 vaccine from childhood schedule

Ahead of the international curve

Head of Danish Ministry of health stating in June of 2022 that vaccinating children for COVID-19 was a mistake



Coronavirus

Set i bakspejlet fik vi ikke meget ud af at vaccinere børnene, erkender Brostrøm

Vi er blevet klogere, og vi ville ikke gøre det samme i dag, lyder det fra Søren Brostrøm.



Coronavirus

In retrospect, we didn't get much out of vaccinating the children, admits Brostrøm.

We have become wiser, and we would not do the same thing today, says Søren Brostrøm.



Influenza Vaccine: introduction for all children ages 2-6 in 2021 was reversed in 2023

Children aged 2-6 years have been offered influenza vaccination in the last three seasons. In the 2021/22 season the uptake was 29%, in the 2022/23 season it was 22%, and in the just-ended season, there was a further decrease in uptake to 16%. Statens Serum Institut conducted a register-based study, which found that the youngest children (2-3 years) and children with chronic diseases had higher vaccination uptake. Additionally, an evaluation consisting of a questionnaire survey and qualitative interviews showed that parents in the latest season had become less concerned about influenza infection and were less willing than before to have their children vaccinated for the sake of protecting others.

Due to the declining support for the programme, the Danish Health Authority believes that there would be a need to allocate a significant amount of resources and make an extraordinary effort to increase uptake among children in order to achieve the desired effect of the influenza vaccination, and that this cannot be prioritized within the existing framework. The offer of influenza vaccination for children aged 2-6 years will therefore not be continued for healthy children without vulnerabilities in the 2024 season. Vulnerable children are still included in the programme and are encouraged to accept the offer of influenza vaccination.

Pandemrix Vaccine History

- 2009 H1N1 Pandemic Influenza vaccine
- Side effects and narcolepsy Coverup/delayed reporting
- Never recommended for children in Denmark
- Now essentially of all Europe does not recommend seasonal influenza vaccine as core childhood vaccine
- 1300 people with narcolepsy, mostly children



BMJ 2018;362:k3948 doi: 10.1136/bmj.k3948 (Published 20 September 2018)

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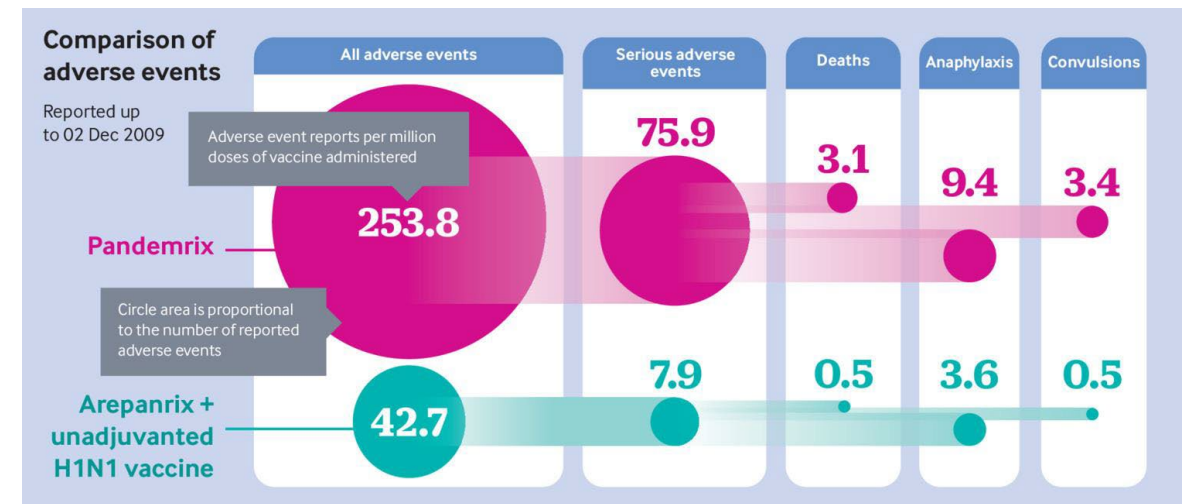


FEATURE

Pandemrix vaccine: why was the public not told of early warning signs?

Eight years after the pandemic influenza outbreak, a lawsuit alleging that GlaxoSmithKline's Pandemrix vaccine caused narcolepsy has unearthed internal reports suggesting problems with the vaccine's safety. **Peter Doshi** asks what this means for the future of transparency during public health emergencies

Peter Doshi *associate editor, The BMJ*



Hepatitis B Vaccine



Center for Evaluering og Medicinsk Teknologivurdering

Indførelse af hepatitis B vaccination som en del af børnevaccinationsprogrammet i Danmark

En medicinsk teknologivurdering

Kim Krogsgaard¹, Ida Gjørup¹, Anne Marie Plesner², Kjeld Gade Hansen³, Mads Larsen⁴, Hans Keiding⁴, Else Smith⁵, Michael Stellfeld², Jens Ole Nielsen⁶, Peter Skinhøj⁷, Carsten Heilmann⁸, Henrik B. Krarup⁹, Helmer Ring-Larsen¹⁰, Lene Flachs¹¹, Dorte Fischer¹

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10. Medicinsk afdeling A, H:S Rigshospitalet
11. Almen praksis, København

Medicinsk Teknologivurdering – puljeprojekter 2003;3 (1)

- Hvis man indfører en vaccine, som nogle vil opfatte som mindre væsentlig, vil dette kunne påvirke den generelle holdning til vaccination i negative retning.
- Resultatet heraf kunne være, at det allerede eksisterende program opnår lavere tilslutning i fremtiden.

<https://www.sst.dk/->

[/media/Udgivelser/2004/hepatitis_b_180204,-d-,pdf.ashx](https://www.sst.dk/-/media/Udgivelser/2004/hepatitis_b_180204,-d-,pdf.ashx)

Hepatitis B Vaccine



Center for Evaluering og Medicinsk Teknologivurdering

Indførelse af hepatitis B vaccination som en del af børnevaccinationsprogrammet i Danmark

En medicinsk teknologivurdering

Kim Krogsgaard¹, Ida Gjørup¹, Anne Marie Plesner², Kjeld Gade Hansen³, Mads Larsen⁴, Hans Keiding⁴, Else Smith⁵, Michael Stellfeld², Jens Ole Nielsen⁶, Peter Skinhøj⁷, Carsten Heilmann⁸, Henrik B. Krarup⁹, Helmer Ring-Larsen¹⁰, Lene Flachs¹¹, Dorte Fischer¹

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10. Medicinsk afdeling A, H:S Rigshospitalet
11. Almen praksis, København

Medicinsk Teknologivurdering – puljeprojekter 2003;3 (1)

- If one includes a vaccine which some consider less important, it could negatively affect the view of vaccines in general.
- The result of this could be that the current [vaccination] program would have lower uptake.

<https://www.sst.dk/->

[/media/Udgivelser/2004/hepatitis_b_180204,-d-,pdf.ashx](https://www.sst.dk/-/media/Udgivelser/2004/hepatitis_b_180204,-d-,pdf.ashx)



Hepatitis B Vaccine: Targeted Program

- Substantial costs of hep B vaccine coverage & low opportunity for benefit
- Population-wide vaccination could not be justified from a health economics perspective
- List of high risk groups which have vaccination coverage

People at particular risk of hepatitis B infection

The risk of becoming infected with hepatitis B in Denmark is generally very low. However, some groups have an increased risk of infection and are therefore offered free vaccination.

Last edited on August 19, 2025

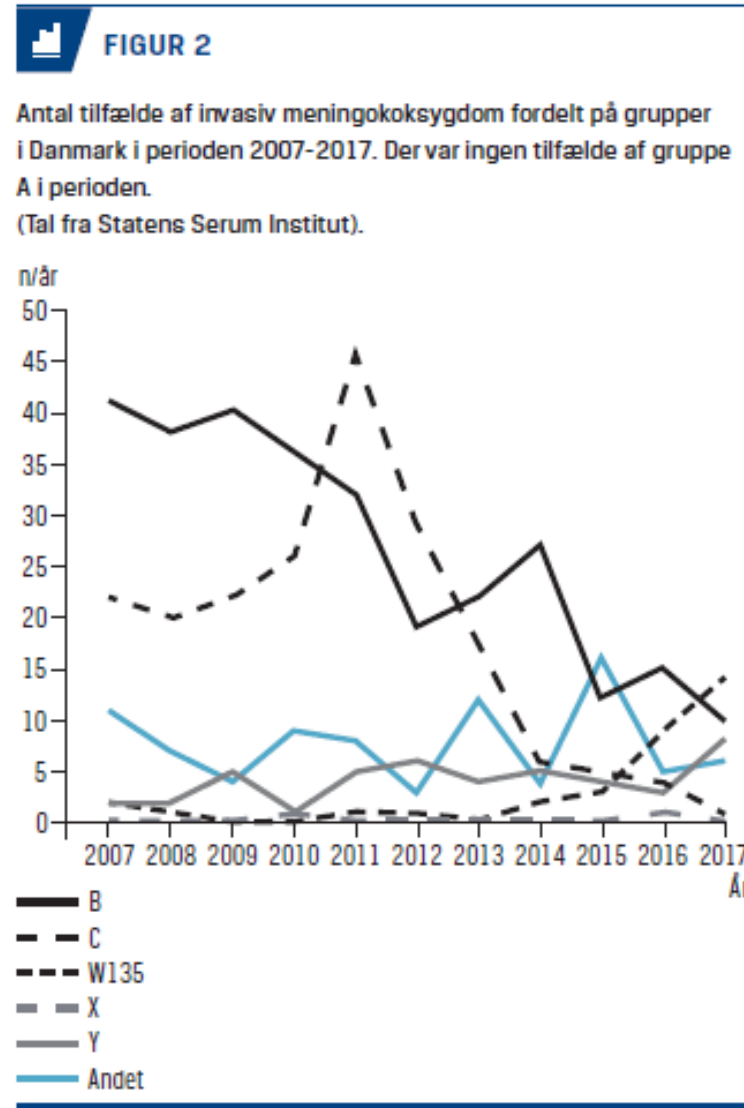
The Statens Serum Institut estimates¹ that there are approximately 14,500 people in Denmark with chronic hepatitis B, corresponding to 0.3% of the adult population. The disease occurs more frequently among people born in countries with a high prevalence of hepatitis B.

People offered free hepatitis B vaccination

The following groups are at increased risk of infection and are offered free vaccination:

- Children born to mothers with chronic hepatitis B.
- People who live with, or are regular sexual partners of, a person with chronic hepatitis B.
- Drug users who have had blood contact with others, e.g. through intravenous drug use and/or sharing sniffer tubes.
- Men who have sex with men.
- Residents and employees of institutions for the developmentally disabled.
- People in certain professions.
- Certain patient groups, e.g. dialysis patients.

Meningococcal Vaccine



Statusartikel

Vaccination til forebyggelse af meningokoksygdom

Nanna Himmelstrup¹, Cecilie Helkjær Engen¹, Lars Østergaard² & Thomas Lars Benfield^{1,3}

Se flere detaljer +

14. jan. 2019

0

13 min.

“Weekly writings for physicians”

Meningococcal Vaccine



- Opportunity for benefit among non high risk children is very low
- Uncertainty about effectiveness
- Adding additional vaccines to the core vaccine list may cause some parents to opt out of other vaccines
- If the vaccine causes fevers in infant when given with other vaccines, this could have negative consequences for physicians and parents

 UGESKRIFT
FOR LÆGER

AktueltVidenskabDebat

Statusartikel

Vaccination til forebyggelse af meningokoksygdom

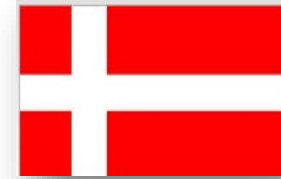
Nanna Himmelstrup¹, Cecilie Helkjær Engen¹, Lars Østergaard² & Thomas Lars Benfield^{1, 3}

Se flere detaljer +

14. jan. 2019

0 13 min.

Meningococcal Vaccine



 TABEL 2

Vaccination af personer i risiko for invasiv meningokoksygdom.

Risikosituation

Aspleni: kongenit eller erhvervet

Komplementdefekt

Ecullizumab

Ved rejse til områder med høj forekomst af meningokoksygdom, f.eks. meningitisbæltet i Afrika, Hajj o.l.

Ved udbrud af meningokoksygdom

Ved studieophold i USA: *high school* eller college, kræves vaccination

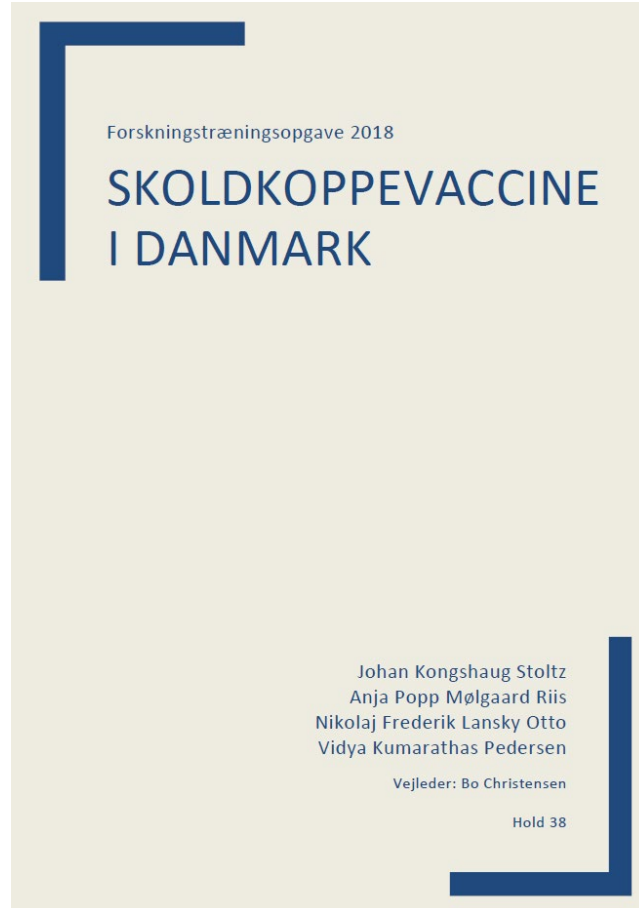
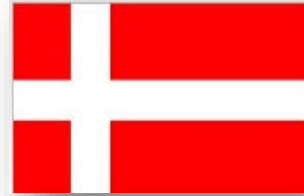
Kan overvejes til efterskoleelever

- List of high risk situations
 - Asplenia
 - Complement deficiency
 - Receiving Eculizumab (causes complement deficiency)
 - Travel to high prevalence regions
 - Meningococcal outbreak
 - Required for study in the US
 - Can be considered for student dormitory conditions

Rotavirus: rationale for not including in Child Vaccination Schedule

- 232 page document in Danish describing the decision
- Will be reviewed again in the near future
- It has until now been the message of the Danish Ministry of Health that Denmark not introduce vaccines into the child vaccination schedule just because it is an option
- The Danish child vaccination program has... a goal of protecting children from infections that can be either deadly or have long term health consequences
- Infection with rotavirus essentially never results in death or chronic consequences in a country like Denmark
- Literature review has not shown that this vaccine has an effect on children's mortality

Varicella Vaccine



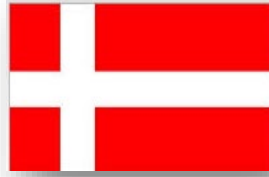
Cons

- Worry that natural immunity is stronger (they cite data supporting)
- Only 4% of general/family physicians would recommend the vaccine to healthy children
- Insufficient data about long term effects

Pros

- Denmark has a very low rate of stay-at-home parents and they would miss less work

Varicella Vaccine



- bekymring om, at immuniteten er
- svagere efter vaccine.
- 4% af de praktiserende læger synes at raske børn skal vaccineres mod skoldkopper,
- Fortsat utilstrækkelige data på langtidseffekten
- Gevinsten i Danmark kan være større end for mange andre lande, da andelen af hjemmegående mødre/fædre er lavere.

Cons

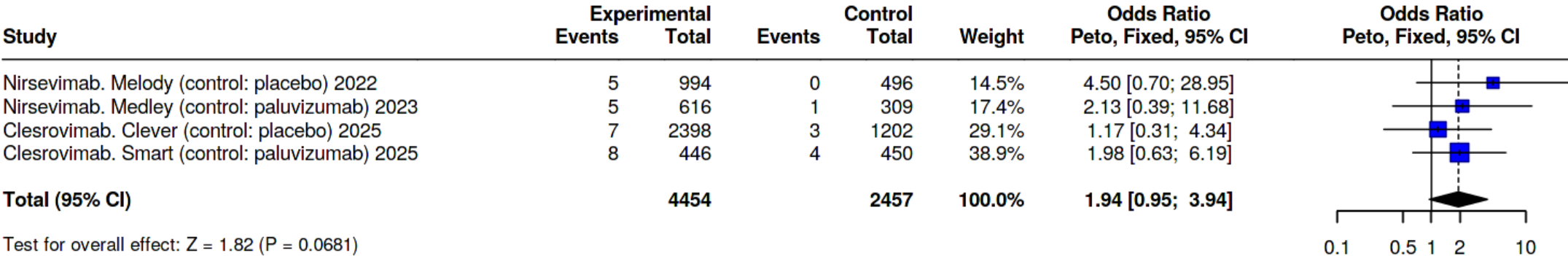
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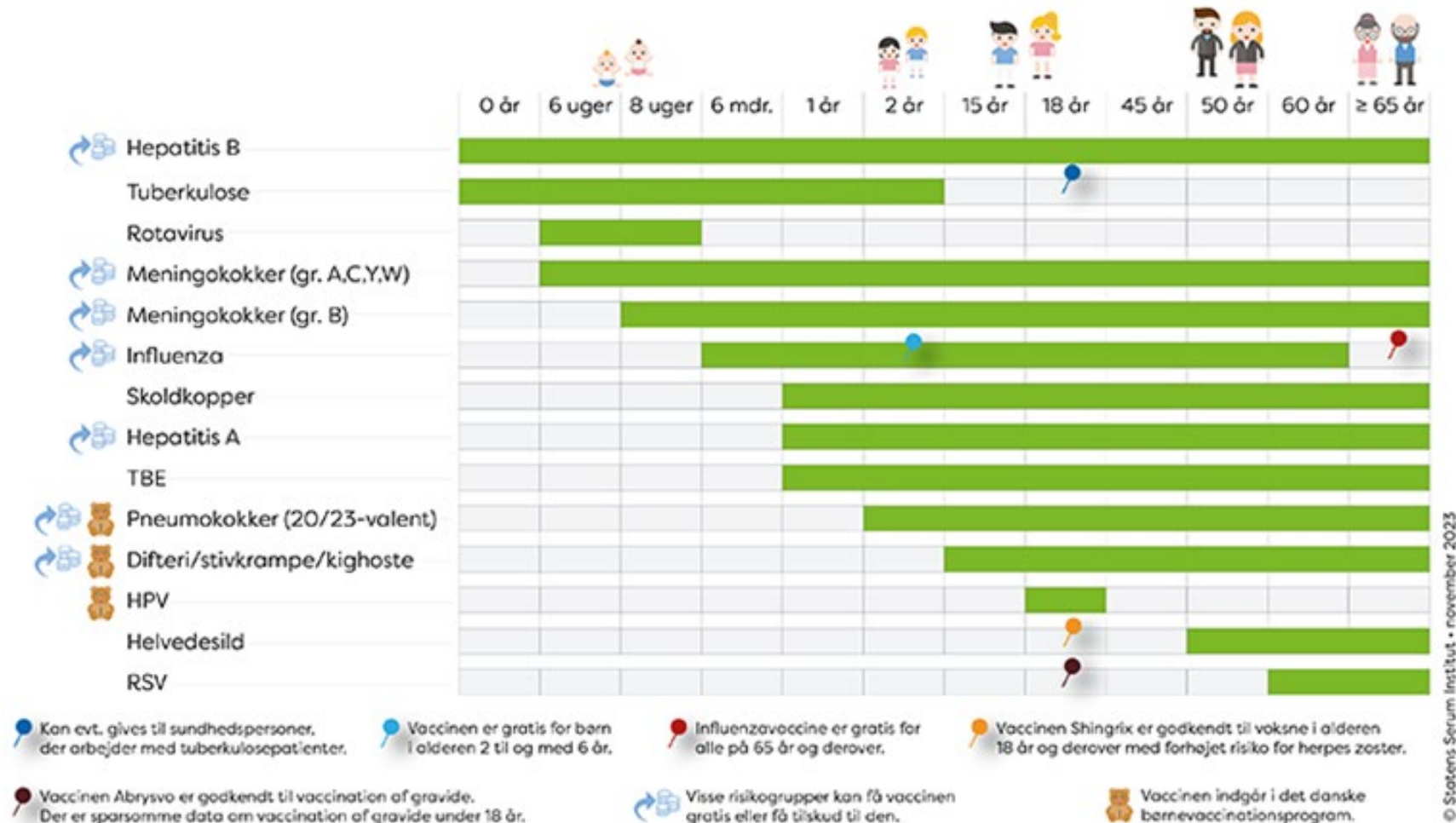
RSV Long Acting Monoclonal Antibodies

- Unfavorable imbalance in all cause mortality in all four phase 3 randomized trials of standard dose



Vacciner man selv skal betale for

Der findes en række vacciner, som ikke indgår i de offentligt betalte vaccinationsprogrammer. Det er vacciner, man kan bede sin læge om at bestille/ skrive recept på, hvorefter man selv betaler for dem. Figuren viser, hvilke vacciner med egenbetaling der kan tilvælges og i hvilke aldersgrupper.



Danish Child Vaccination Benefits

- Increase Trust in and Focus on Core Childhood Vaccines
- Based on thorough, transparent decision making and continually updated and debated
- Prevent outbreaks of most deadly vaccine preventable diseases
- Equipoise=Opportunity for research
 - Re-evaluate the evidence base for vaccines not currently on core childhood vaccine schedule in Denmark with randomized trials
 - Monitor Diseases such as Rotavirus; may be larger opportunity for absolute benefit in the US population

Danish Vaccination Schedule Benefits

- Make more time for addressing overall health at doctors' appointments/spend less time in the healthcare system/decrease the medicalization of childhood
- Opportunity to better define high risk groups to target
- Improve informed consent
- Minimize coercion

Questions about Adopting the Danish Schedule in the US

- Would it be appropriate to stop Varicella vaccine given high vaccination uptake and chance of increasing average age of chickenpox
- Perform thorough, updated Risk-Benefit analysis of evidence for 2 doses of HPV in girls and boys?

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The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Noninferiority of One HPV Vaccine Dose to Two Doses

A.R. Kreimer,¹ C. Porras,² D. Liu,¹ A. Hildesheim,¹ L.J. Carvajal,² R. Ocampo,² B. Romero,² M.H. Gail,¹ B. Cortes,² M.S. Sierra,¹ K. Coronado,² J. Sampson,¹ C. Coto,² C.L. Dagnall,³ D. Mora,² T.J. Kemp,⁴ M. Zuniga,² L.A. Pinto,⁴ G. Barrientos,² J. Schussler,⁵ Y. Estrada,² C. Montero,² C. Avila,² D. Ruggieri,⁵ J.T. Cyr,⁵ S. Chanock,¹ D.R. Lowy,⁶ J.T. Schiller,⁶ and R. Herrero^{2,7}

ABSTRACT

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