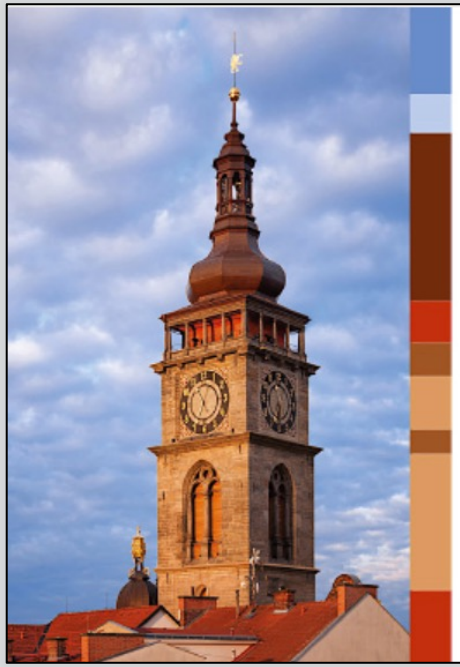


XVIII. HRADECKÉ VAKCINOLOGICKÉ DNY

5.–7. 10. 2023
Kongresové centrum Aldis
Hradec Králové

ČESKÁ VAKCINOLOGICKÁ SPOLEČNOST ČLS JEP

Optimalizace pediatrické vakcinace

Co zaznělo na kongresu ESPID 2023

MUDr. Hana Cabrnochová, MBA

Optimalizace pediatrické vakcinace

Nově dostupná očkování, RSV profylaxe

Změna přístupu ke stávajícím očkováním (vícevalení vakcíny, počty dávek apod.)

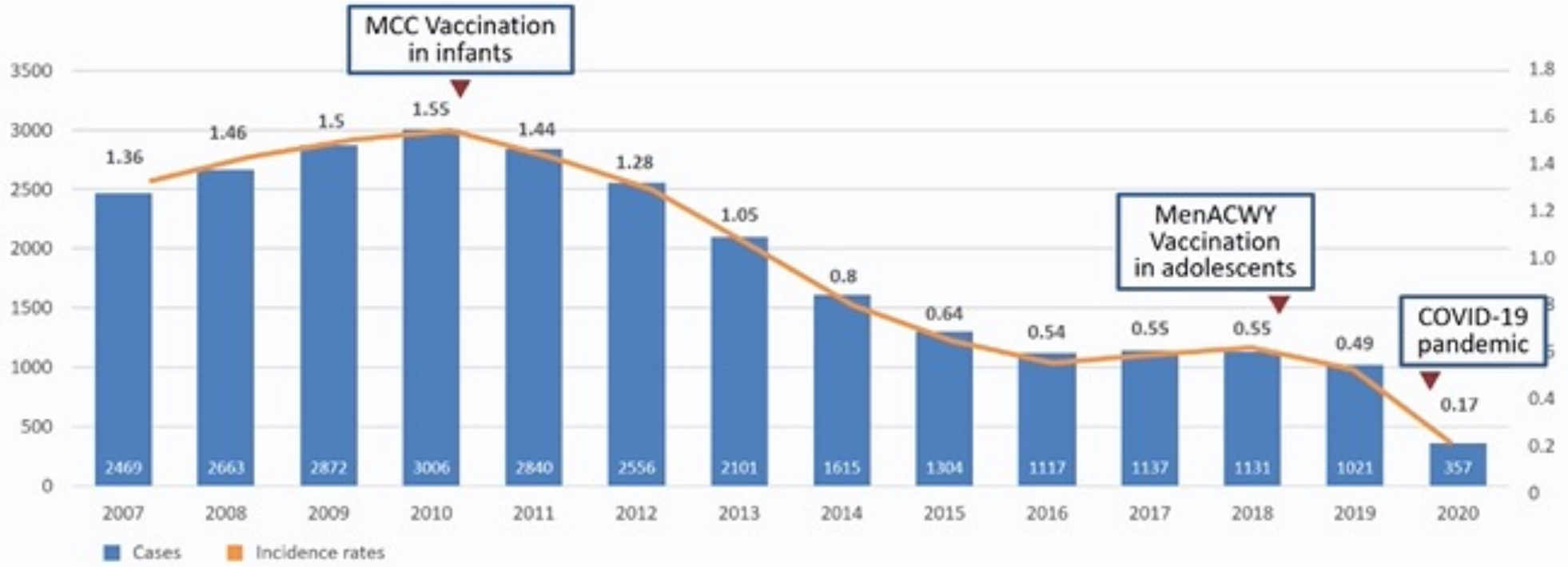
Nově zaváděná očkování a nové přístupy v jednotlivých zemích

Dopady pandemie covid-19 (pokles proočkovanosti, incidence onemocnění mimo covid-19)

COVID-19 PANDEMIC

IMD

Meningitis: Confirmed cases notified in the notifiable diseases information system of Brazil



Alderson MR, et al. Surveillance and control of meningococcal disease in the COVID-19 era: A Global Meningococcal Initiative review J Infect. 84 (2022) 289–296.
Sistema de informação de agravos de notificação – ministério de Saúde, Brazil. Available at http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sinannet/cnv/meninbr.def [Accessed April 2023]

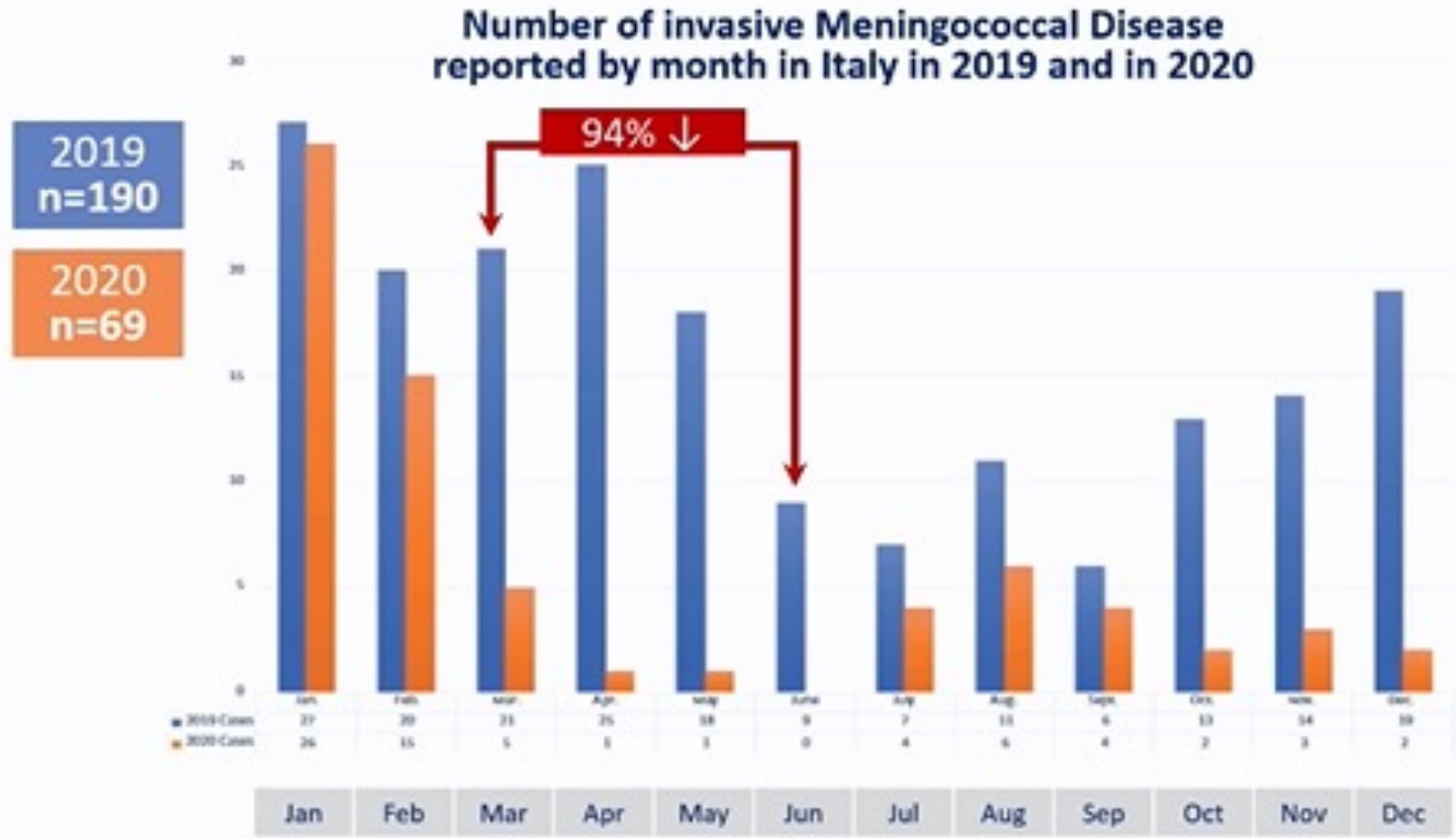
MAT-GLB-2301140 v1.0
April 2023

Zdroj: ESPID 2023

INVASIVE MENINGOCOCCAL DISEASE

ITALY

COVID-19 PANDEMIC



Stefanelli P, et al. Did social distancing measures deployed for SARS CoV-2/COVID-19 control have an impact on invasive meningococcal disease? Pathog Glob Health 2022;116:263–265.

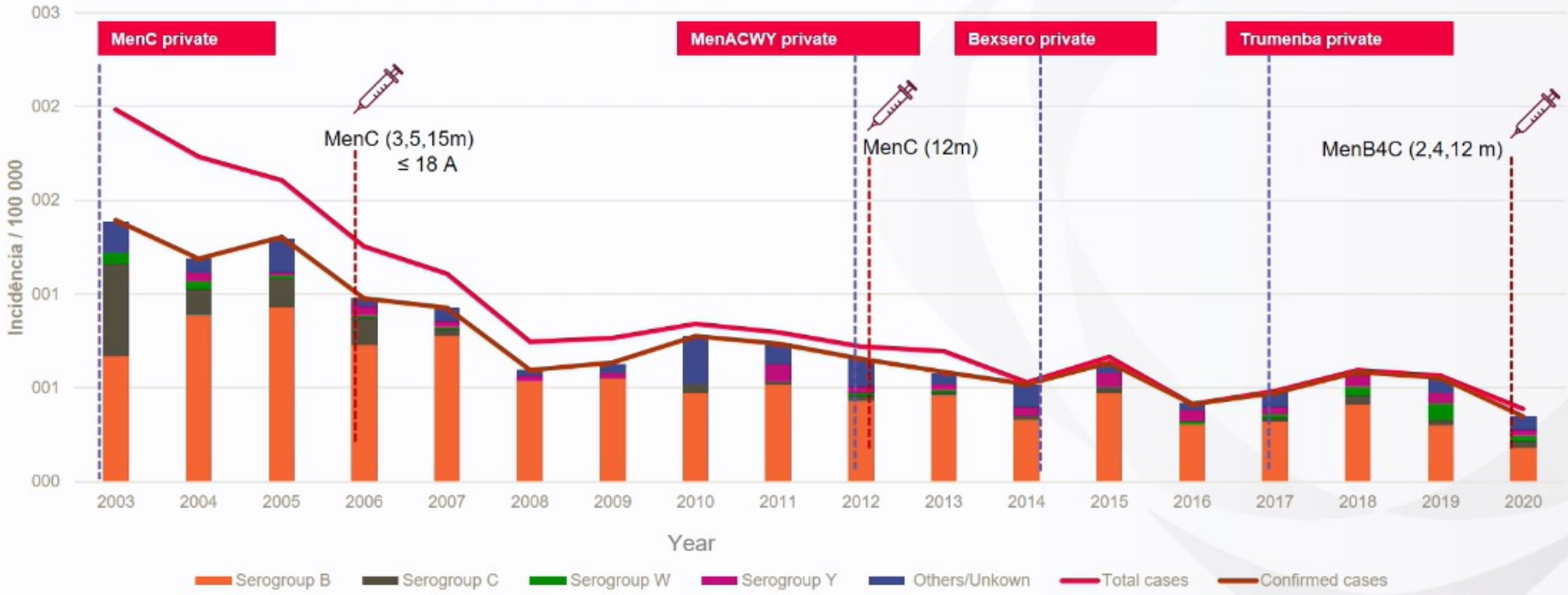
MAT-GLB-2301140 v1.0
April 2023

Zdroj: ESPID 2023

Epidemiology of IMD in Portugal (2003-2020)[1]

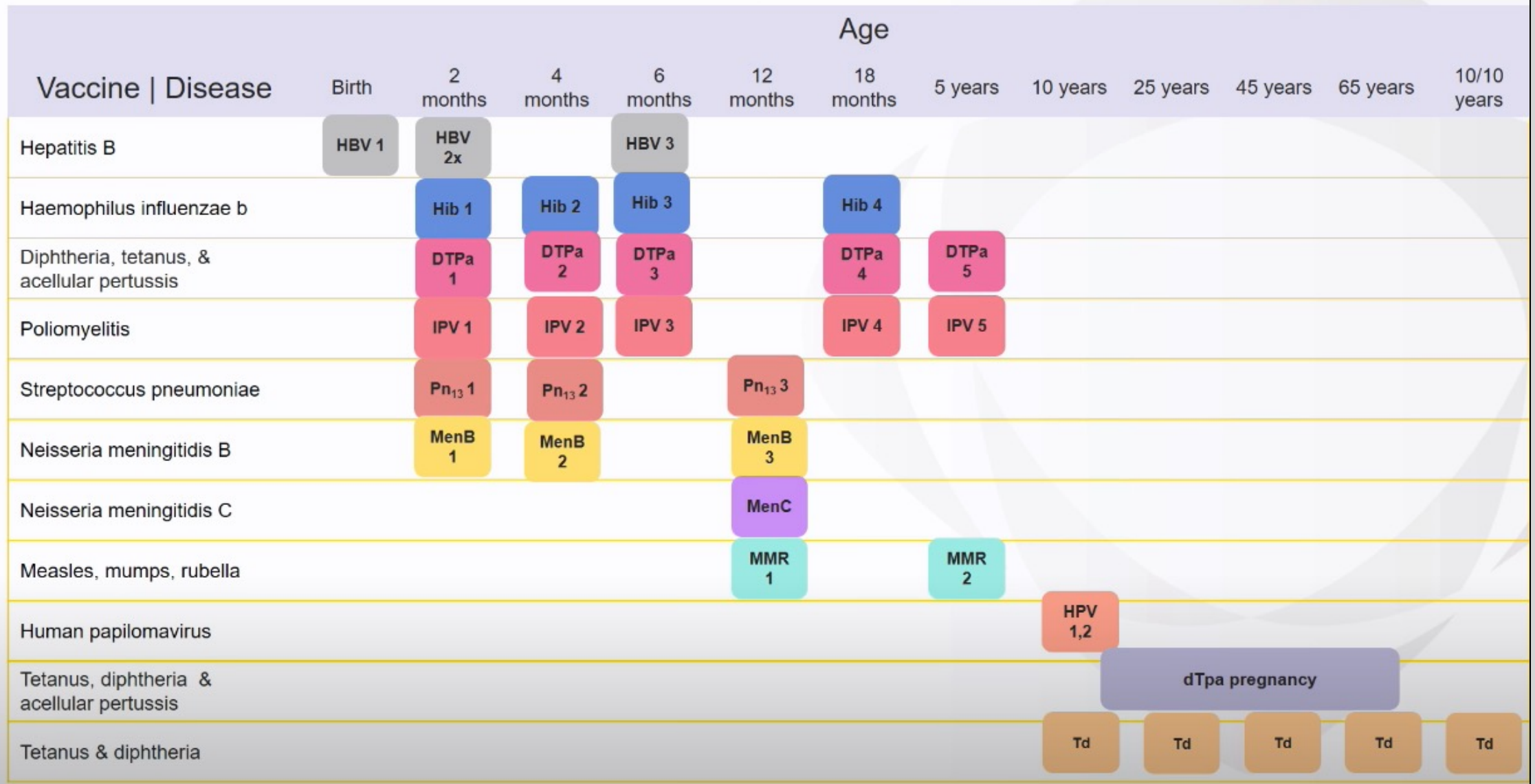
Global and Serogroup Incidence of IMD in Portugal (2003-2020):

Europe (2015-2018):	>0,60/100 000
Portugal: (2020):	0,39/100.00



Zdroj: ESPID 2023

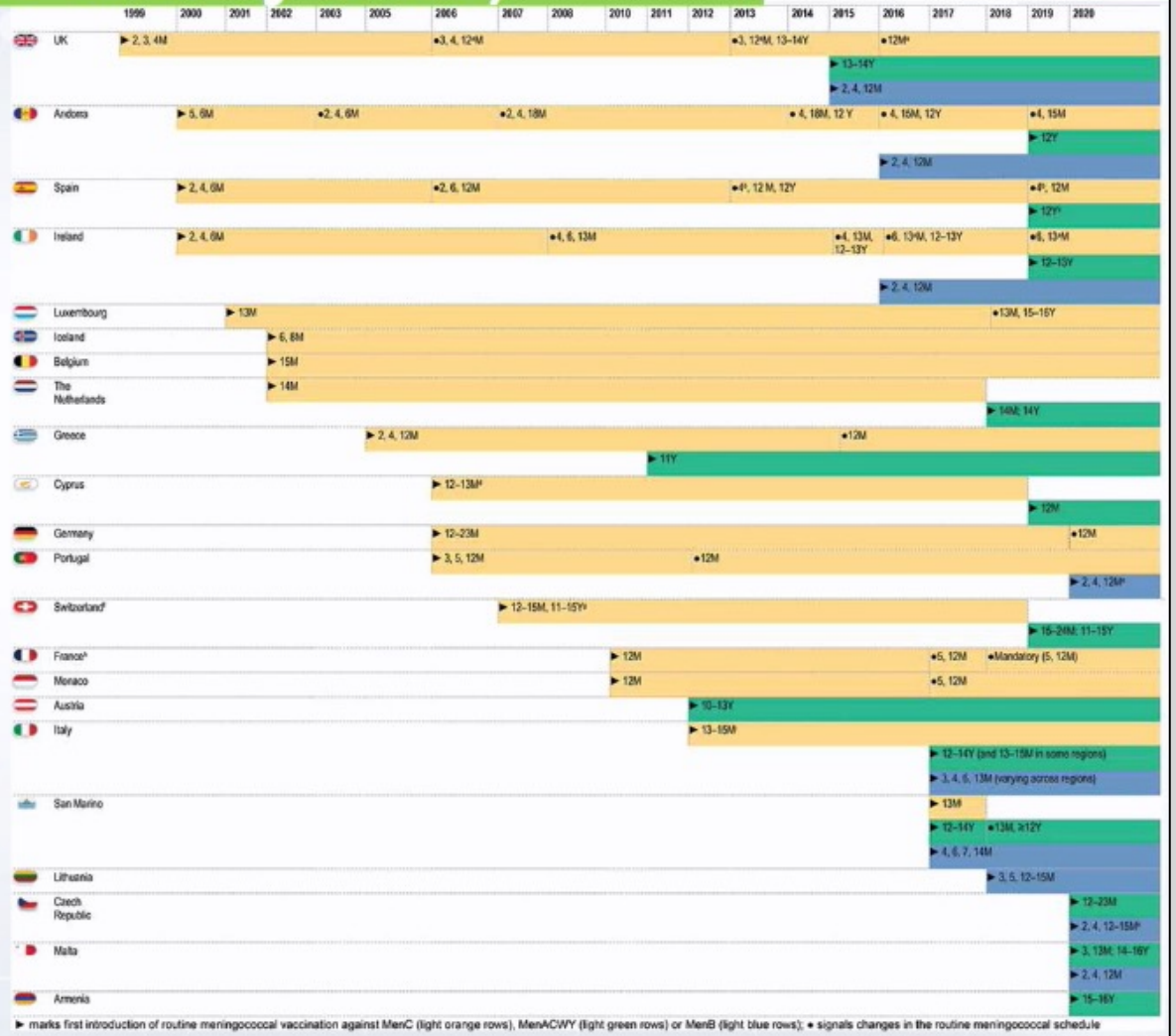
National Immunization Program | Portugal 2020[3]



Zdroj: ESPID 2023

Meningococcal vaccination strategies in European countries (as of July 2021)

Most European countries implement MenC vaccination in infants, MenACWY in adolescents, and a growing number, MenB in infants. Only Malta has introduced MenACWY vaccination in infants, and several countries reimburse immunization of toddlers. The UK, Italy, Ireland, Malta, France, Portugal, Andorra, and San Marino recommend MenB vaccination in infants and MenACWY vaccination in adolescents, targeting the most prevalent serogroups in the most impacted age groups.

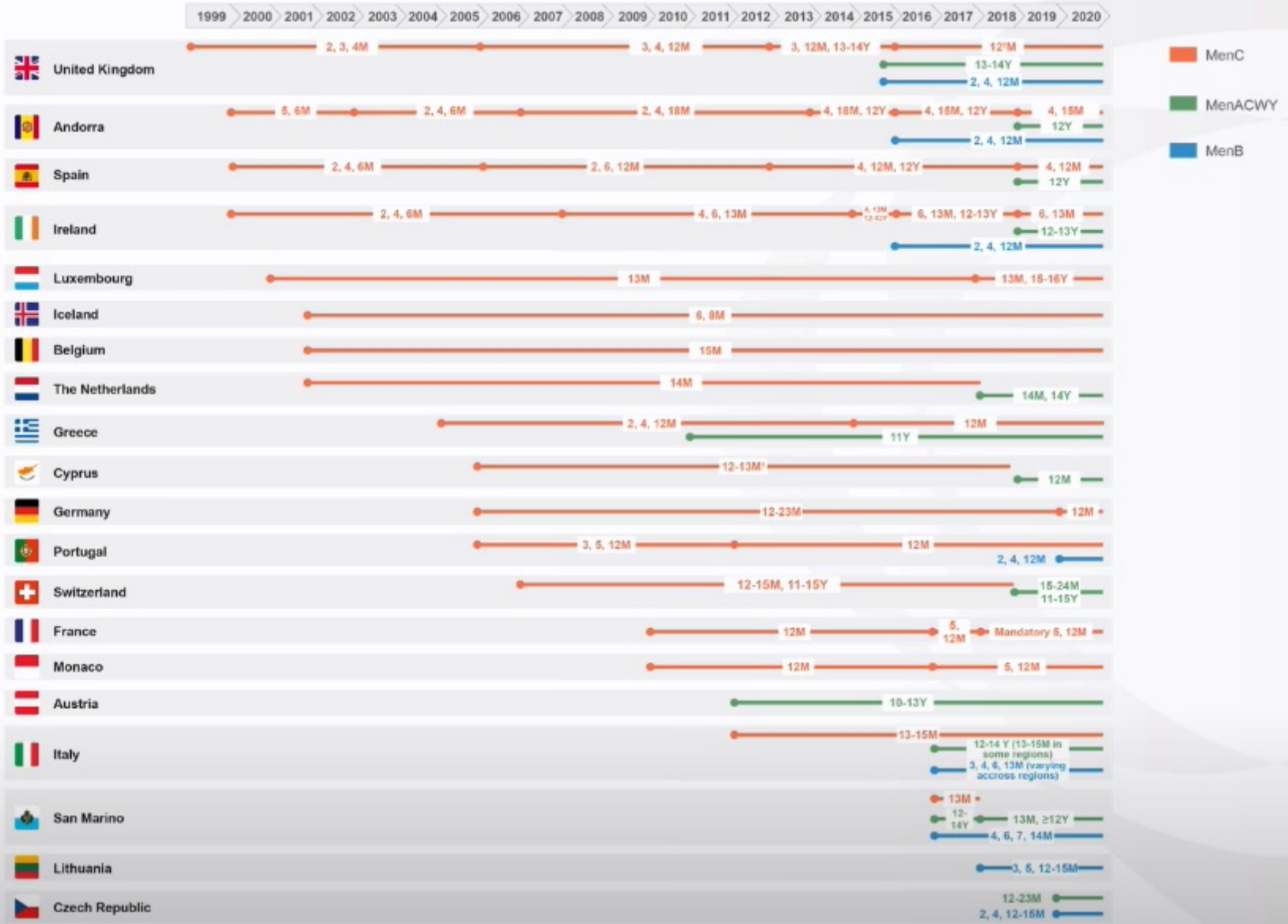


First published in Martinón-Torres F;Pathogens and Global Health;2021;1-15. Used with permission of the author

@fedemartinon, GENVIP 2023

Zdroj: ESPID 2023

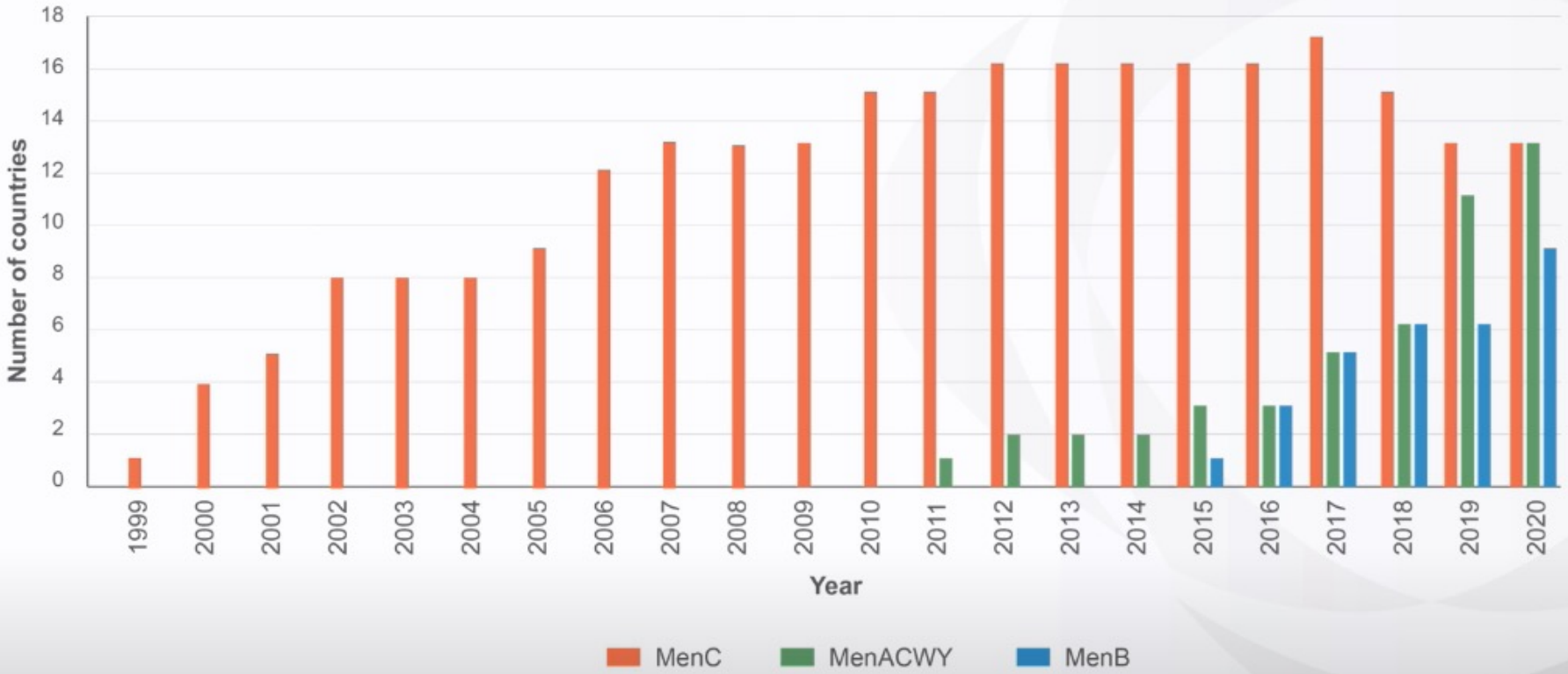
Vaccine strategies in Europe[2]



Zdroj: ESPID 2023

Vaccine strategies in Europe

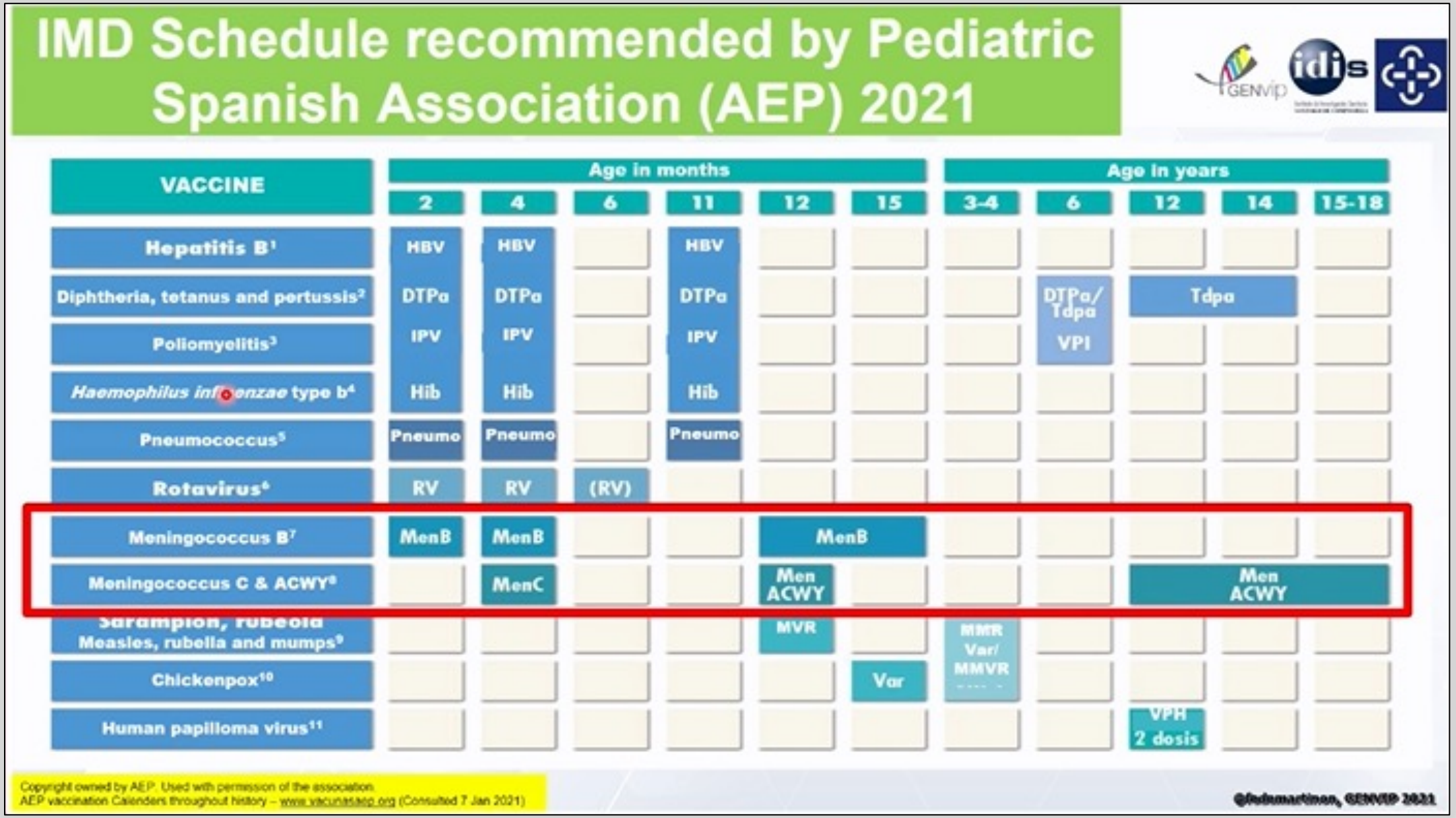
Evolution of the number of countries that include MenC, MenACWY and MenB vaccine in their NIP[2]



Data sourced from Martinón-Torres, *et al. Pathogens and Global Health* 2022;116:2, 85-98.

Men, meningococcal serogroup; NIP, national immunisation program

Zdroj: ESPID 2023



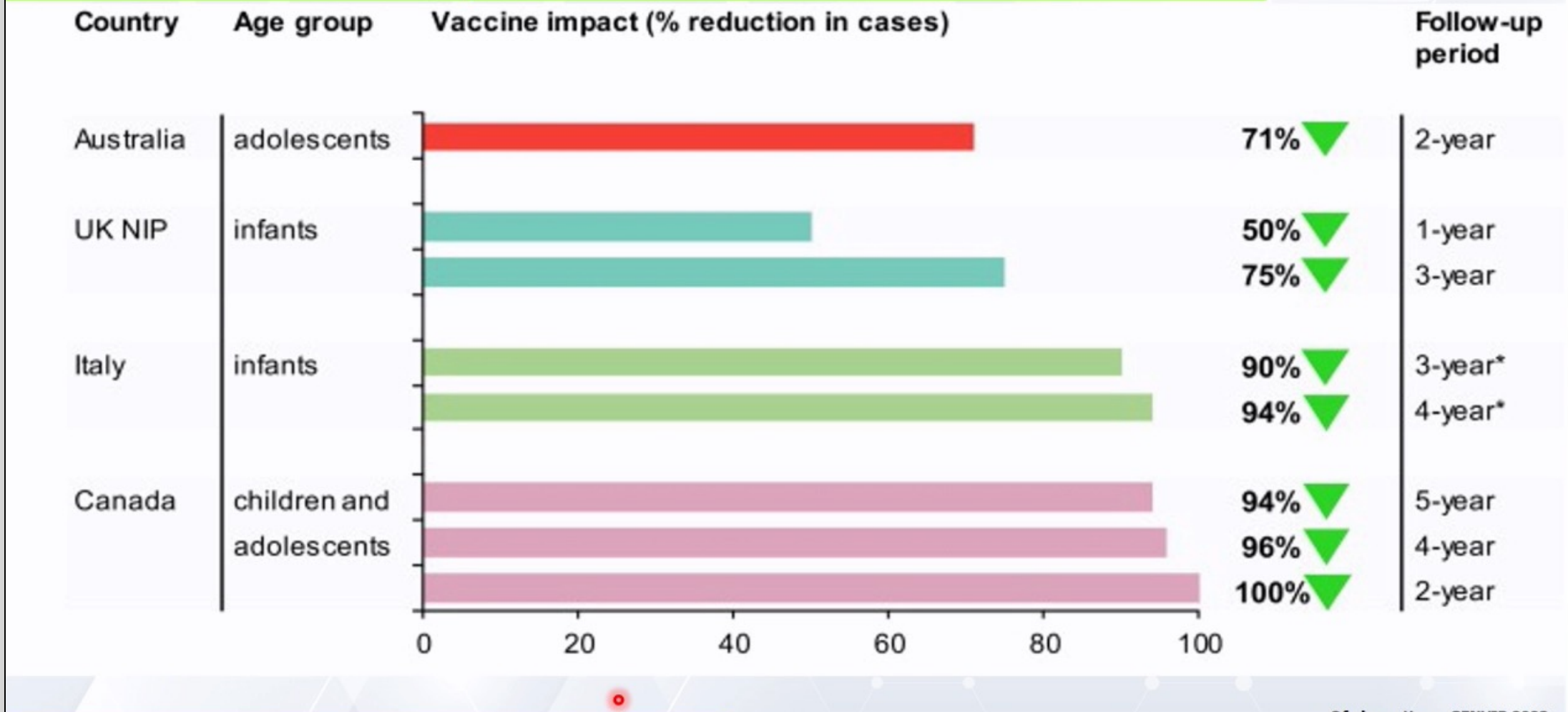
Zdroj: ESPID 2023

REAL MENINGOCOCCAL VACCINE SCHEDULE IN SPAIN: 4 DIFFERENT REGIONAL RECOMMENDATIONS

	Men C	4 months
	Men ACWY	12 months and 12 years of age
	Men B	2-4-12 months
	Men C	4 and 12 months
	Men ACWY	12 years of age
	Men C	4 and 12 months
	Men B	2-4-12 months
	Men ACWY	12 years of age
	Men C	4 months
	Men ACWY	12 months and 12 years of age

Zdroj: ESPID 2023

Summary of 4CMenB vaccine impact worldwide



1. Martinón-Torres F, Banzhoff A, Azzari C, De Wals P, Marlow R, Marshall H, Pizza M, Rappuoli R. J Infect. 2021 Apr 29

@fedemartinon, GENVIP 2023

Zdroj: ESPID 2023

Real world evidence of meningococcal B vaccine (4CMenB) in different scenarios: effectiveness profile

England[2]	Italy[3]	Portugal[4]	Quebec[1]	Australia[5]
Infant NIP	Regional IP	Endemic setting	Outbreak control	State-wide study
75% Vaccine Impact	**>90% Vaccine Effectiveness**	**79% Vaccine Effectiveness**	**96% reduced disease incidence**	**71% Vaccine Impact**
1 case averted every 4 days				
Disease reduction: 75% (95% CI: 64, 81%) in vaccine-eligible children after 3 years, irrespective of vaccination status or predicted strain coverage	Tuscany VE: 93.6% (95% CI: 55.4, 99.1%) Veneto VE 91% (95% CI: 59.9, 97.9%)	Appropriate for age VE: 79% (95% CI: 45 to 92%) from case–control study in individuals aged 2 months to 18 years	Disease reduction: 96% (p=0.0013) Ages: 2 months to 20 years ~50,000 individuals had ≥1 dose Overall VI: 86% [95% CI: –2%,98%]	VI: 71% (95% CI: 14 to 90%) Ages: 16–19 years with ~28,000 individuals had 2 doses No MenB cases in vaccinated individuals

1. Deceuninck G *et al. Vaccine* 2019;37:4243–4245; 2. Ladhani SN *et al. N Engl J Med* 2020;382:309–317; 3. Azzari C *et al. Vaccines* 2020;8:E469; 4. Rodrigues F. *JAMA* 2020;2187-2194; 5. McMillan M *et al. Clinical Infectious Diseases* 2020, in press

@fedemartinon, GENVIP 2023

Zdroj: ESPID 2023

Our journey to the reimbursement of IMD vaccination (non-mandatory)[4]

2012

1st Recommendations of the Czech Vaccinology Society(ČVS JEP) for Vaccination against IMD*[15]

2013

4CMenB vaccine first licensed in the EU[16]

2014

4CMenB vaccine available in Czech Republic

+

New Recommendations of the ČVS JEP for Vaccination against IMD*[17]

May 2020

NIP Infant

+

Update of the Recommendation of the ČVS JEP for Vaccination against IMD*[18,19]

January 2022

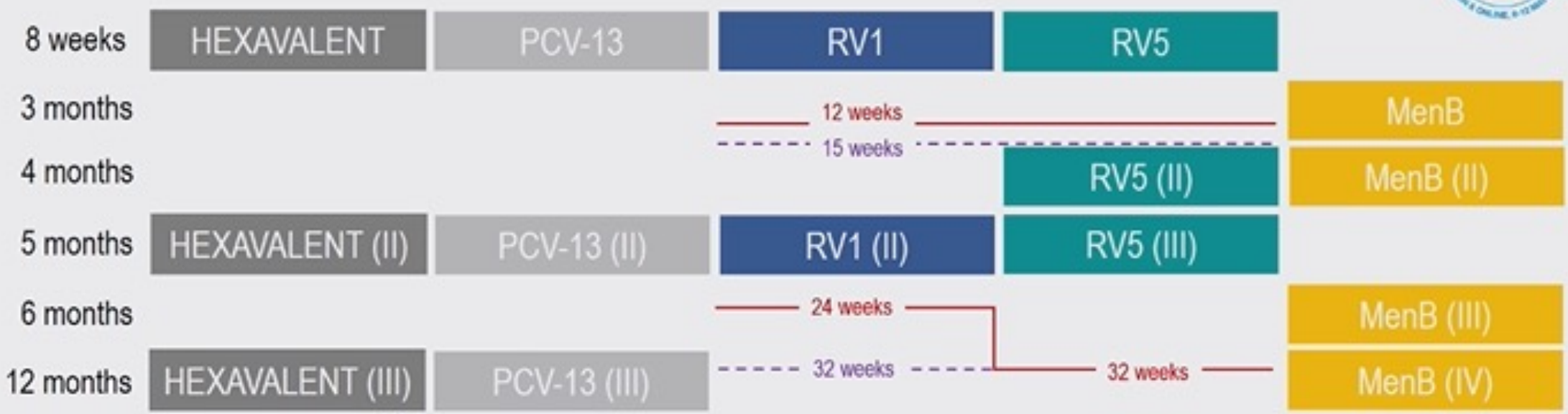
+ NIP Adolescent[20]

March 2023

Update of the Recommendation of the ČVS JEP for Vaccination against IMD*[21]

Zdroj: ESPID 2023

RV vaccines scheduled in the Italian National Immunization Plan



Anecdotal MenB/RV co-administration during clinical trials of MenB vaccine showed comparable reactogenicity and safety profiles in children receiving or not RV vaccine (O'Ryan 2014)

The UK's NIP approved the co-administration of MenB/RV vaccines since 2018, and no safety issues has been reported in large cohort of > 600,000 children (Pereira 2020, Bryan 2018)

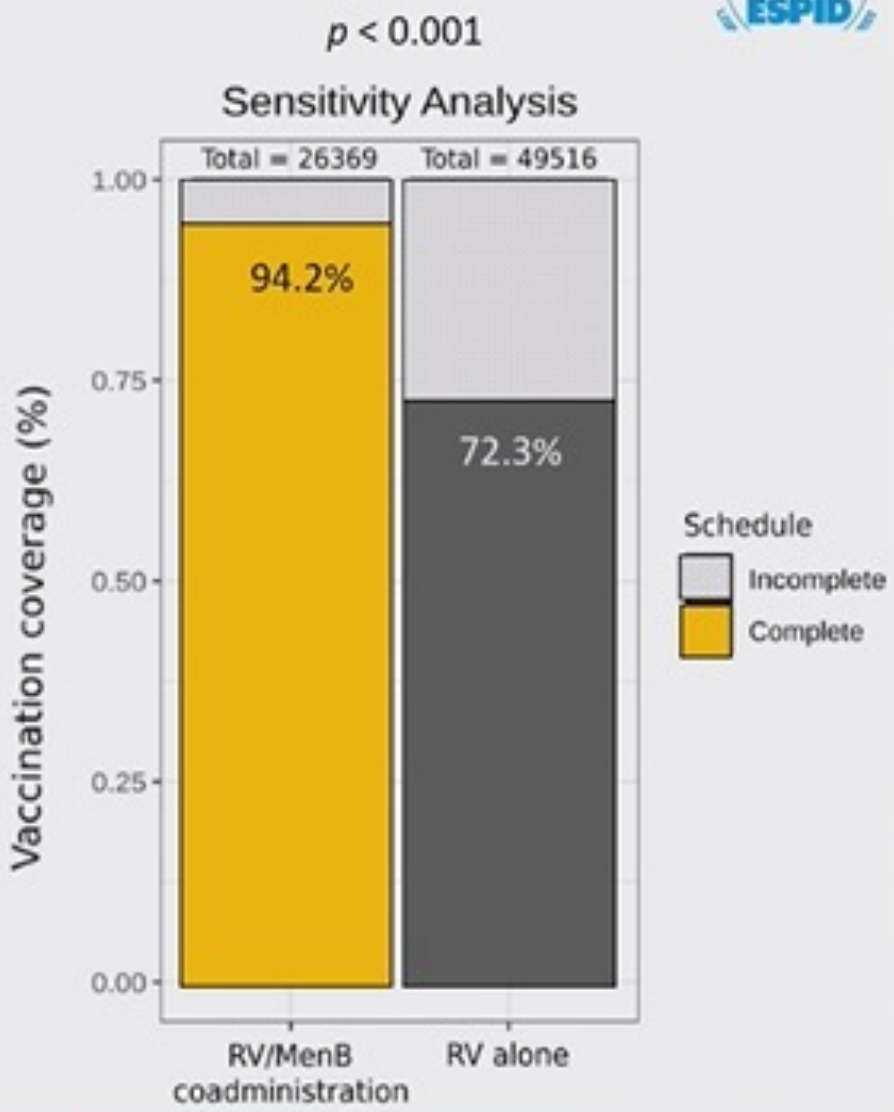
Zdroj: ESPID 2023

Co-administration of RV vaccination

	RV vaccination dose 1st	2nd	3rd
Children receiving RV vaccination	75.885	71.091	55.783
Number (%) of children receiving			
Co-administration with Hexavalent	60.757 (80.1)	30.988 (43.6)	23.507 (42.1)
Co-administration with Men-B	26.369 (**34.8**)	26.369 (**37.1**)	24.211 (**43.4**)

Increased over time
- 0.7% in 2016
- 46.9% in 2020

Differs according to product
- RV5 (27175, 91.7%)
- RV1 (823, 3.12%)



#ESPID2023 espidmeeting.org

Zdroj: ESPID 2023

Conclusions

- ✓ RV immunization coverage in Campania Region (Southern Italy) is increasing (57%), but it is still far from the target

- ✓ **Timing issues**:
  - 6% of RV vaccine's doses is administered behind the recommended timeframe
  - First and second dose are administered about 8 weeks apart (rather than 4)
  - More than 20% of subjects who receive the first dose do no complete the schedule

- ✓ The **extended timing** for the 1st dose administration (12-15w) allowed additional 13.660 children (about 6% of the regional population) to access the RV vaccination schedule

- ✓ The implementation of **MenB/RV vaccine co-administration** increased the chance to timely complete RV schedule by 30%, and may be a key tool to increase vaccine uptake

Zdroj: ESPID 2023

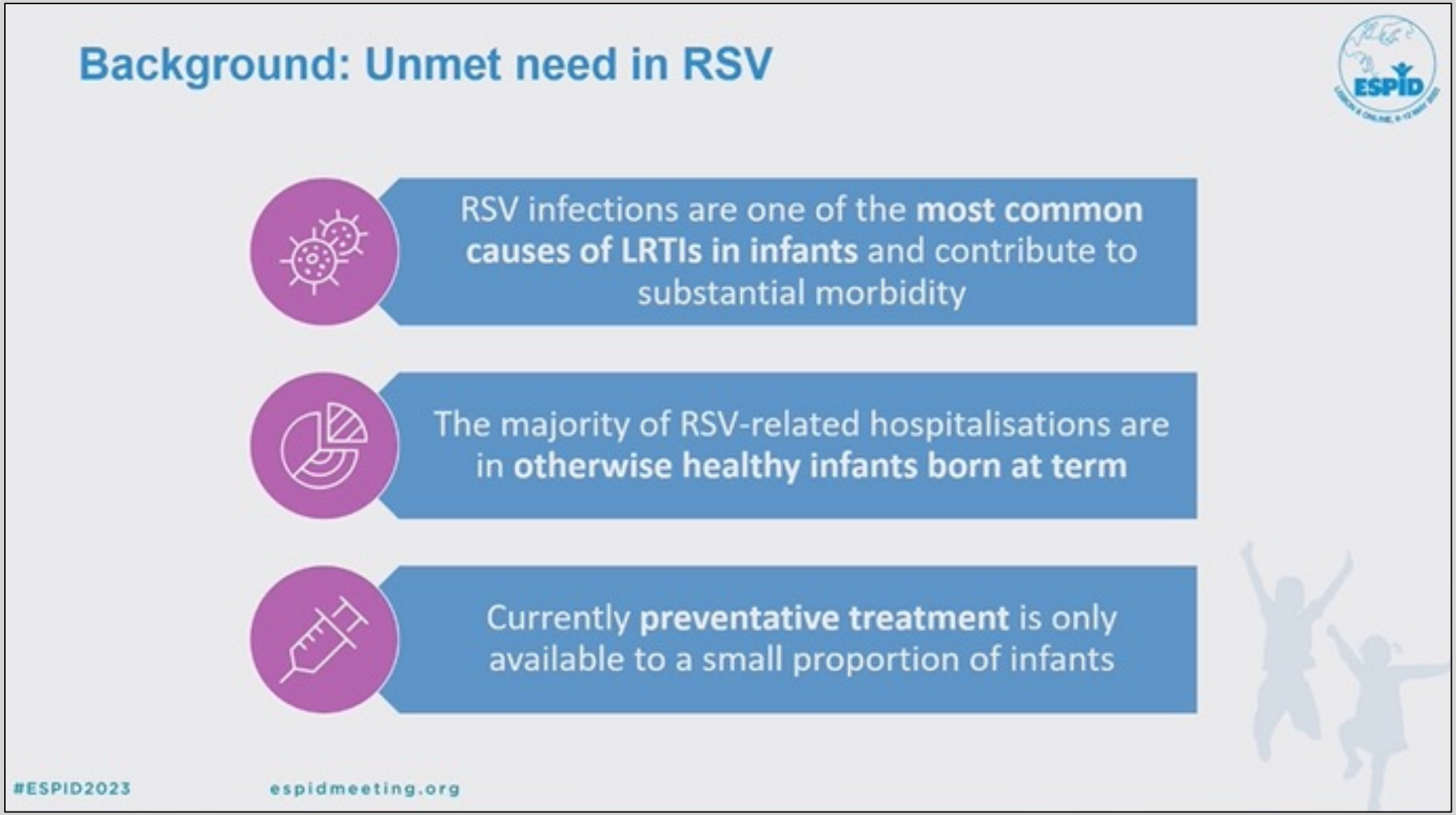
A Phase 3 randomized open-label study of nirsevimab (versus no intervention) in preventing hospitalizations due to respiratory syncytial virus (RSV) in infants (HARMONIE)

SB Drysdale, K Cathie, F Flamein, M Knuf, A Collins, H Hill, F Kaiser, R Cohen, C Felter, NC Vassilouthis, J Jin, M Bangert, S Royal, SN Faust and P Tissieres on behalf of the HARMONIE investigators.

41ST ANNUAL MEETING OF THE
EUROPEAN SOCIETY FOR
PAEDIATRIC INFECTIOUS DISEASES
Organised jointly by ESPID and the ESPID Foundation
#ESPID2023 espidmeeting.org

Zdroj: ESPID 2023

Background: Unmet need in RSV



Zdroj: ESPID 2023

Key Conclusions

- Nirsevimab efficacy in preventing RSV hospitalizations of 83.2%
- Nirsevimab efficacy in preventing severe RSV disease of 75.7%
- HARMONIE shows 58.0% reduction in all cause LRTI hospitalisations
- HARMONIE has demonstrated the significant impact of nirsevimab on RSV LRTI, implemented in close to real life conditions, in an all infant cohort
- Consistent with data from the pivotal trials, the safety profile of nirsevimab in HARMONIE was favourable with no apparent safety concerns

Zdroj: ESPID 2023

World Health Organization Preferred Product Characteristics for Passive Immunisation against RSV in Infants

Safety
Comparable safety and reactogenicity to other vaccines recommended by WHO given at the same age

Efficacy
≥70% efficacy against RSV-confirmed severe disease for 5 months following administration

Coadministration
Interference with any current coadministered childhood vaccines is not anticipated for RSV mAbs

Schedule
High **preference for a 1-dose regimen** given as a birth dose or during the first 6 months of life at any health care visit

Target Population
All infants in the first 6 months of life

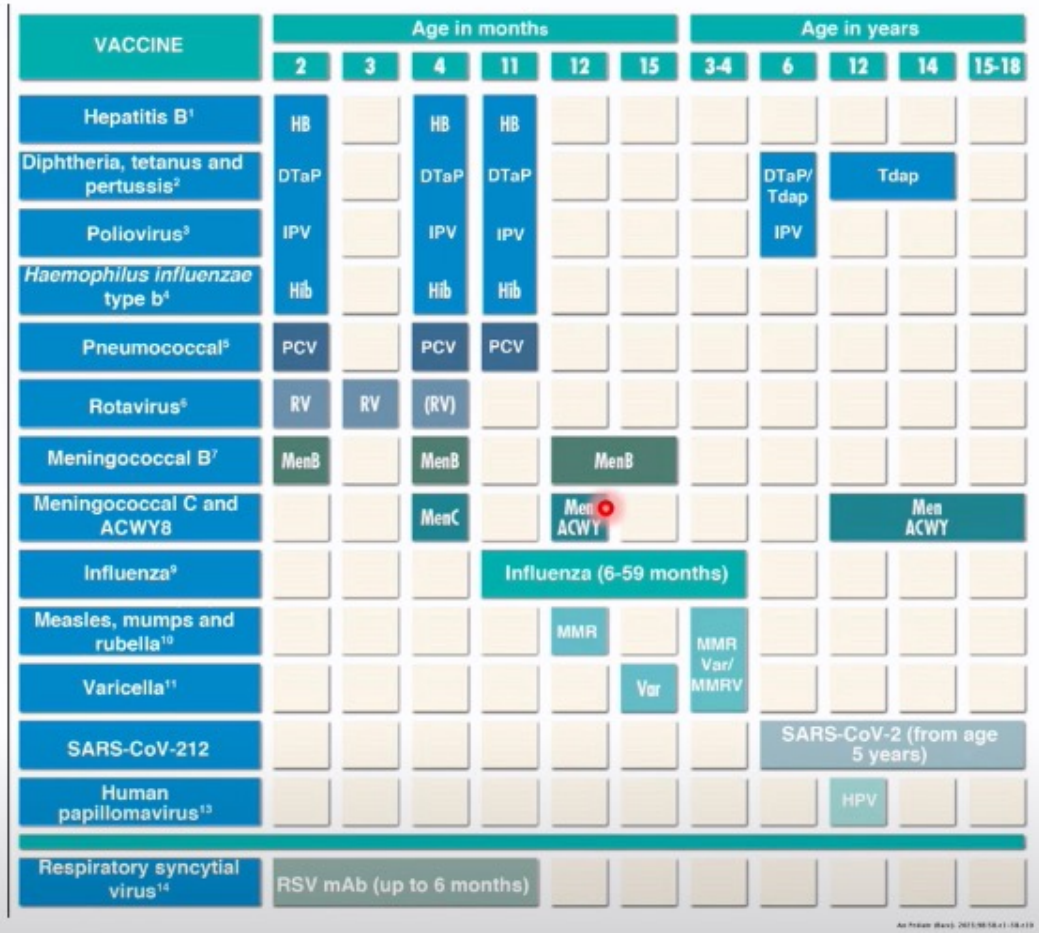
WHO Infant Immunisation Preferred Product Characteristics

MAT-GLB-2301795 (v1.0) May 2023

LMIC, low- and middle-income countries; mAb, monoclonal antibody; PPC, preferred product characteristic; RSV, respiratory syncytial virus; WHO, World Health Organization.
Sparrow E, et al. *Vaccine*. 2022;40(26):3506-3510

Zdroj: ESPID 2023

Spanish Recommendations for Nirsevimab



The **Comité Asesor de Vacunas de la Asociación Española de Pediatría** recommends administration of nirsevimab to all newborns and infants aged less than 6 months, in addition to yearly administration to children aged less than 2 years with underlying diseases that increase the risk of severe RSV infection.[1]

Note: the February 2023 nirsevimab SmPC states that nirsevimab is indicated for the prevention of RSV lower respiratory tract disease in neonates and infants during their first RSV season.[2]

Sanofi does not advocate use of products outside the recommended approved labelling.

MAT-GLB-2301795 (v1.0) May 2023

1. Álvarez García FJ, et al. *An Pediatr* (Engl Ed). 2023;98(1):58.e1-58.e10. **2.** BEYFORTUS (SmPC). 2023.

Zdroj: ESPID 2023

ESPID 2023 – European Society for Paediatric Infectious Diseases
41st Annual Meeting
May 8–12, 2023

Phase 3, Randomized, Active-Controlled Trial Demonstrates Noninferiority of Pentavalent Meningococcal MenABCWY Vaccine to MenB-fHbp + MenACWY-CRM, Providing a High Degree of Protective Immunity in Healthy 10- to 25-Year-Olds

Lars Ostergaard, MD, PhD,[a] Hanna Czajka, MD, PhD,[b] Lilia Roque-Guerrero, MD,[c] Jason D. Maguire, MD,[d] Jean-Louis Pregaldien, MS,[e] **Lefteris Zolotas, MD,**[f] Beth Moughan, MD,[d] Roger Maansson, MS,[d] Robert O'Neil, PhD,[g] Paul Balmer, PhD,[h] Luis Jodar, PhD,[h] William C. Gruber, MD,[g] Annaliesa S. Anderson, PhD,[g] Daniel A. Scott, MD,[d] Johannes Beeslaar, MD[f]

[a]Department of Infectious Diseases, Aarhus University Hospital, Skejby, Denmark; [b]College of Medical Sciences, University of Rzeszow, Rzeszow, and Infectious Diseases Outpatient Clinic, The St. Louis Regional Specialised Children's Hospital, Krakow, Poland; [c]Nicklaus Children's Hospital, Miami, FL, USA; [d]Pfizer Vaccine Research and Development, Collegeville, PA, USA; [e]Pfizer Vaccine Research and Development, Brussels, Belgium; [f]Pfizer Vaccine Research and Development, Hurley, UK; [g]Pfizer Vaccine Research and Development, Pearl River, NY, USA; [h]Pfizer Vaccines/Antivirals and Evidence Generation, Collegeville, PA, USA

Zdroj: ESPID 2023

Background and Aim

- Serogroups A, B, C, W, Y responsible for the vast majority of global IMD[1]
  - Serogroup B predominant cause of IMD in many regions, including Europe[1]
- Peak IMD incidence observed in infants/toddlers, with secondary peak in adolescence/early adulthood[1]
  - Adolescents/young adults are primary reservoirs and transmitters of *Neisseria meningitidis*[2]
- IMD preventive strategies currently rely on separate MenACWY and MenB vaccines[3]
- Pentavalent MenABCWY could simplify IMD immunization and ensure protection against all 5 prevalent IMD-causing serogroups
- MenABCWY phase 2 in adolescents/young adults showed vaccine was safe and immunogenic[4]
  - MenABCWY comprised of licensed vaccines MenACWY-TT and MenB-fHbp

This phase 3 study aimed to further characterize immunogenicity and safety of the MenABCWY vaccine and assess immunologic noninferiority compared with currently licensed MenACWY and MenB vaccines

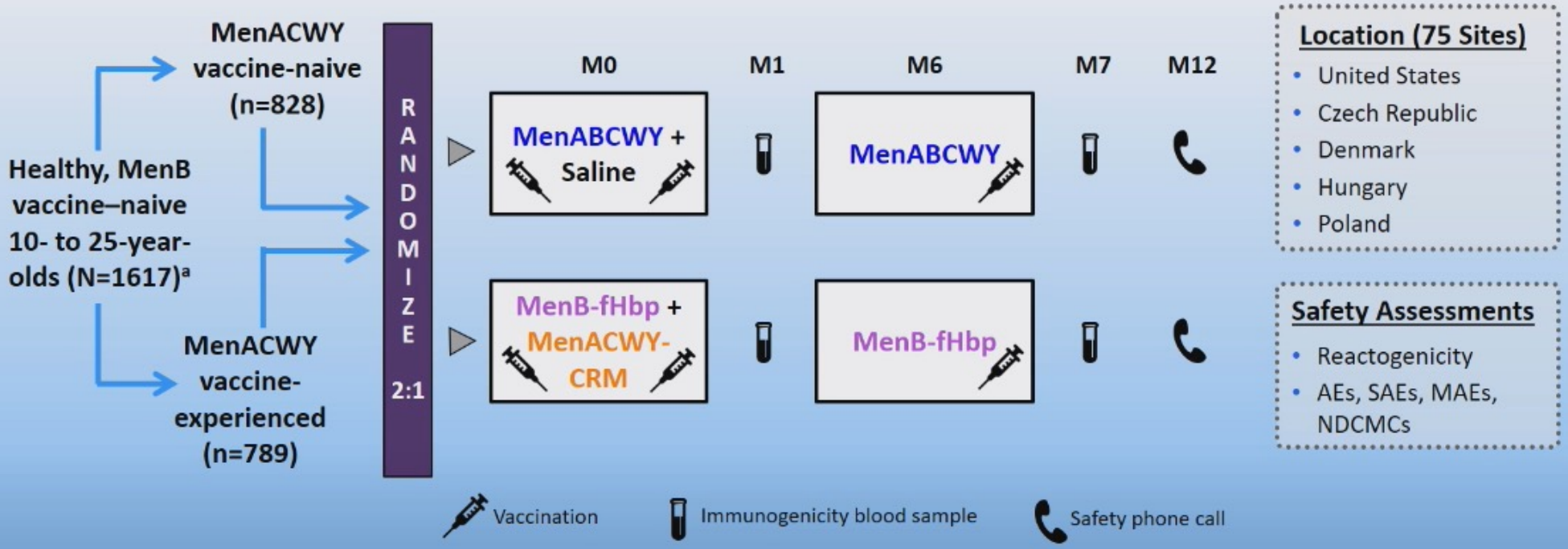
IMD=invasive meningococcal disease; MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY=meningococcal serogroups A, C, W, and Y; MenACWY-TT=Nimenrix®, quadrivalent meningococcal tetanus toxoid conjugate vaccine; MenB=meningococcal serogroup B; MenB-fHbp=Trumenba®, bivalent rLP2086.

[1]de Santayana et al. *Epidemiol Infect* 2023;1-31. [2]Vetter et al. *Expert Rev Vaccines* 2016;15:641-658. [3]Pizza et al. *Microorganisms* 2020;8:1521. [4]Peterson et al. *Open Forum Infect Dis* 2020;7:S25-S26.

Zdroj: ESPID 2023

Study Design and Assessments

Phase 3, randomized, observer-blinded study (NCT04440163)



Location (75 Sites)

- United States
- Czech Republic
- Denmark
- Hungary
- Poland

Safety Assessments

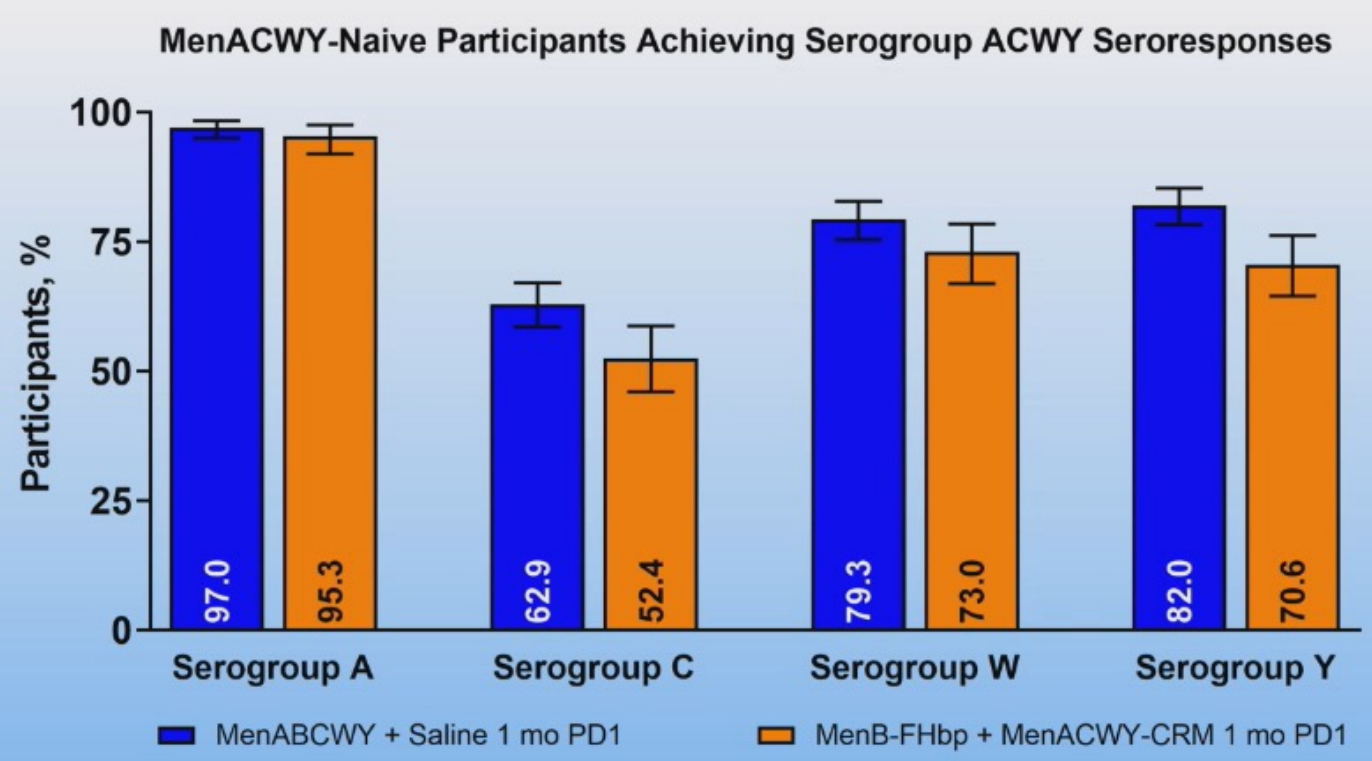
- Reactogenicity
- AEs, SAEs, MAEs, NDCMCs

AE=adverse event; M=month; MAE=medically-attended adverse event; MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY=meningococcal serogroups A, C, W, and Y; MenACWY-CRM=Menveo®, quadrivalent meningococcal CRM conjugate vaccine; MenB-fHbp=Trumenba®, bivalent rLP2086; NDCMC=newly diagnosed chronic medical condition; SAE=serious adverse event.

[a]An additional 4 groups identical to those shown here but with different allocation ratios, comprising 814 participants in total, contributed additional safety data.

Zdroj: ESPID 2023

After 1 MenABCWY Dose, Percentages of Participants with Serogroup ACWY Seroresponses Were Noninferior to Those After 1 MenACWY-CRM Dose, and a High Percentage Were Seroprotected

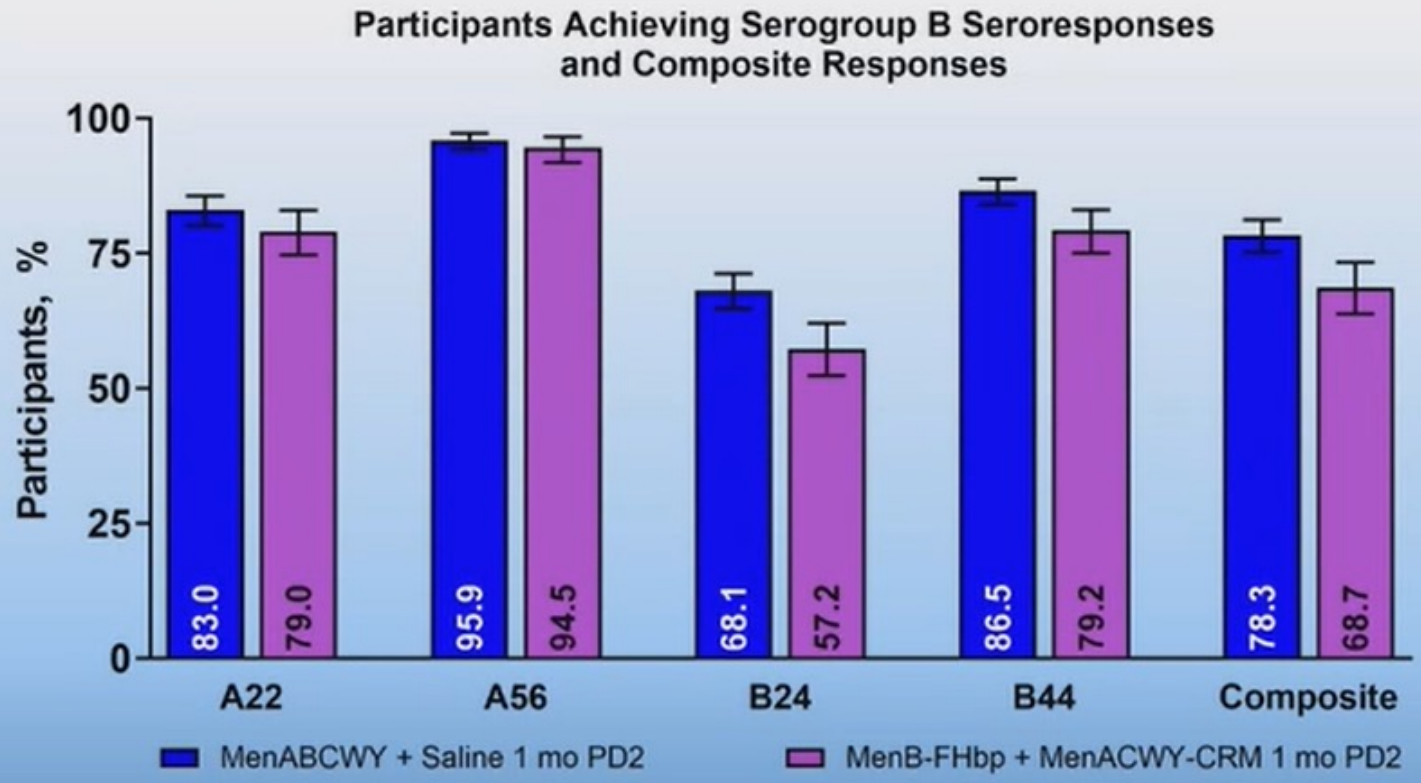


- **MenACWY-experienced participants**
  - ACWY **seroresponse** rates **93.4%–97.4%** across groups
- **Regardless of ACWY experience**
  - ACWY **seroresponse** rates were noninferior to MenACWY-CRM at the 10% margin

hSBA=serum bactericidal assay using human complement; LLOQ=lower limit of quantitation; MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY=meningococcal serogroups A, C, W, and Y; MenACWY-CRM=Menveo®, quadrivalent meningococcal CRM conjugate vaccine; MenB-fHbp=Trumenba®,bivalent rLP2086; PD1=postdose 1.

Zdroj: ESPID 2023

After 2 MenABCWY Doses, Percentages of Participants with Serogroup B Seroresponses or Composite Responses Were Noninferior to Those After 2 MenB-fHbp Doses, and a High Percentage Were Seroprotected

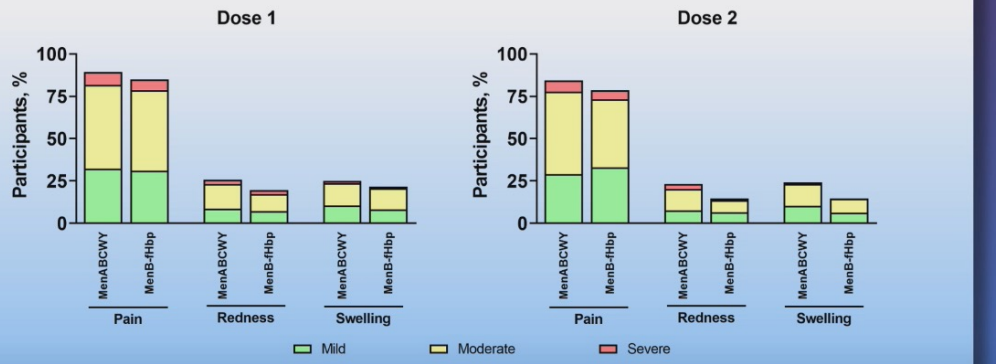


- Serogroup B test strain MenABCWY seroresponse rates were noninferior to MenB-fHbp at the 10% margin
  - Noninferiority criterion also met for composite response

fHbp=factor H binding protein; hSBA=serum bactericidal assay using human complement; LLOQ=lower limit of quantitation; MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY-CRM=Menveo®, quadrivalent meningococcal CRM conjugate vaccine; MenB-fHbp=Trumenba®, bivalent rLP2086; PD2=postdose 2.

Zdroj: ESPID 2023

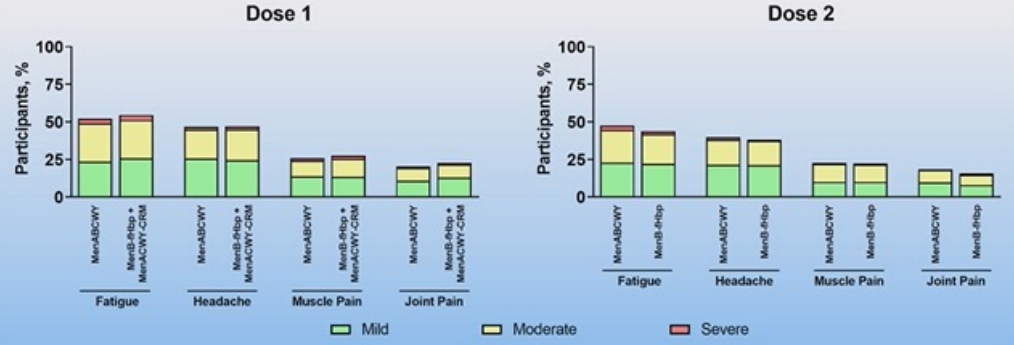
Local Reactions Were Reported by Similar Percentages of Participants Across Groups Within 7 Days After Each Dose



- Local reactions were reported by similar percentages of MenACWY-naive and -experienced participants

MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY=meningococcal serogroups A, C, W, and Y; MenB-fHbp=Trumenba®, bivalent rLP2086.

Systemic Events Were Reported by Similar Percentages of Participants Across Groups Within 7 Days After Each Dose



- Systemic events were reported by similar percentages of MenACWY-naive and -experienced participants

MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY=meningococcal serogroups A, C, W, and Y; MenACWY-CRM=Menveo®, quadrivalent meningococcal CRM conjugate vaccine; MenB-fHbp=Trumenba®, bivalent rLP2086.

Zdroj: ESPID 2023

Conclusions

- MenABCWY induced robust, protective immune responses against all 5 *N meningitidis* serogroups
  - **Noninferior** to MenACWY-CRM regardless of previous MenACWY vaccine exposure
  - **Noninferior** to MenB-fHbp
  - Statistically greater than MenACWY-CRM or MenB-fHbp in some cases
- MenABCWY was **well tolerated**, with reactogenicity unaffected by previous MenACWY vaccine exposure
  - Reactogenicity profile was similar to that of MenB-fHbp + MenACWY-CRM
- MenABCWY safety profile was generally consistent with observations from an earlier phase 2 study[1]
  - No safety concerns were identified
- Overall study findings support the use of MenABCWY to **simplify protective vaccination strategy** for IMD among adolescents and young adults and potentially raise MenB vaccination rates in this age group

IMD=invasive meningococcal disease; MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY=meningococcal serogroups A, C, W, and Y; MenACWY-CRM=Menveo®, quadrivalent meningococcal CRM conjugate vaccine; MenB=meningococcal serogroup B; MenB-fHbp=Trumenba®, bivalent rLP2086.

[1]Peterson et al. *Open Forum Infect Dis* 2020;7:S25-S26.

Zdroj: ESPID 2023

EFFECTIVENESS, IMMUNOGENICITY AND SAFETY OF A PENTAVALENT MENINGOCOCCAL ABCWY VACCINE IN ADOLESCENTS AND YOUNG ADULTS: RESULTS FROM A PHASE 3, RANDOMIZED, CONTROLLED CLINICAL STUDY

Terry Nolan: Peter Doherty Institute for Infection & Immunity at University of Melbourne and Murdoch Children's Research Institute, Melbourne, Victoria, Australia

41ST ANNUAL MEETING OF THE
EUROPEAN SOCIETY FOR PAEDIATRIC INFECTIOUS DISEASES
Organised jointly by ESPID and the ESPID Foundation

http://tago.ca/espid-8
#ESPID2023
espidmeeting.org

Phase 3, randomized, controlled, observer-blind clinical study of MenABCWY vaccine

- GSK MenABCWY vaccine contains the antigenic components of licensed vaccines MenACWY-CRM and 4CMenB
- Phase 2/2b studies showed the MenABCWY vaccine was immunogenic with a clinically acceptable safety profile in adolescents and young adults[1-5]
- This Phase 3 study assessed the safety, immunogenicity and immunologically-defined vaccine effectiveness (immunological VE) of MenABCWY against a panel of 110 diverse meningococcal serogroup B (MenB) strains

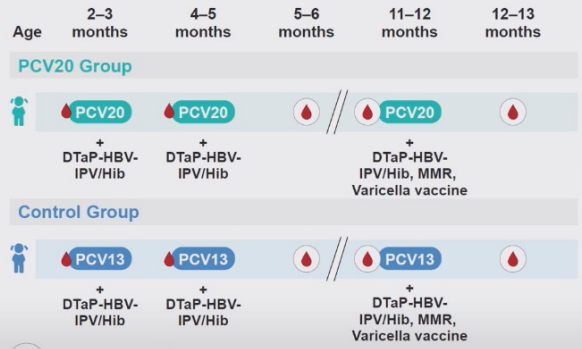
4CMenB, 4-component meningococcal serogroup B vaccine; Men, meningococcal serogroup; VE, vaccine effectiveness

1. Block et al. Vaccine. 2015;33(21):2500-2510; 2. Sáez-Llorens et al. Hum Vaccin Immunother. 2015;11(6): 1507-1517; 3. Sáez-Llorens et al. Hum Vaccin Immunother. 2018;14(5):1161-1174; 4. Vesikari et al. Hum Vaccin Immunother. 2021;17(11):4689-4700; 5. Welsch et al. Vaccine. 2018;36(35):5309-5317.

Zdroj: ESPID 2023

Study Design of Phase 3 Study in Infants

Multicenter, Randomized, Double-Blind Study (NCT04546425) in Europe and Australia (n=1207)[a]



Inclusion Criteria

- Healthy infants aged ~2 months (42–112 days)
- Born at >36 weeks' gestation

Exclusion Criteria

- History of severe adverse reaction to a vaccine or severe allergic reaction to PCV20 or PCV13 components
- Significant neurologic disorder or history of seizure
- Congenital malformation or serious chronic disorder
- Known or suspected immunodeficiency

- Concomitant influenza and rotavirus vaccines permitted at any time during trial

DTaP-HBV-IPV/Hib=diphtheria, tetanus, pertussis, hepatitis B virus, inactivated poliovirus, and *Haemophilus influenzae* type b; MMR=measles, mumps, and rubella; PCV13=13-valent pneumococcal conjugate vaccine; PCV20=20-valent pneumococcal conjugate vaccine.

[a]This phase 3, randomized, double-blind study was conducted in Europe, Australia, and Russia. Methods and Results for the Russian cohort are not reported here.

Phase 3 Safety and Immunogenicity Study of a 20-Valent Pneumococcal Conjugate Vaccine (PCV20) Administered in a 3-Dose Infant Immunization Series

Piotr Korbal, MD,[1] Jacek Wysocki, MD, PhD,[2] Noor Tamimi, MD,[3*] Mary Kline, MD,[3] Jelena Drozd, MS,[3] Lanyu Lei, PhD,[4] Yahong Peng, PhD,[3] Peter C. Giardina, PhD,[4] William C. Gruber, MD,[4] Daniel A. Scott, MD,[3] Wendy Watson, MD[3]

[1]Department of Neonatology, University Hospital No. 2 im. Dr Jana Biziela, Bydgoszcz, Poland
[2]Department of Preventive Medicine, Poznań University of Medical Sciences, Poznań, Poland
[3]Vaccine Research and Development, Pfizer Inc, Collegeville, PA, USA
[4]Vaccine Research and Development, Pfizer Inc, Pearl River, NY, USA

*Presenting author (Noor.Tamimi@pfizer.com)

The European Society for Paediatric Infectious Diseases (ESPID) 2023
Lisbon, Portugal, and Online
8–12 May 2023

Zdroj: ESPID 2023

SAVE THE DATE

TEL AVIV & ONLINE, 20-24 MAY 2024

TEL AVIV
& ONLINE
20-24 MAY
2024

42ND ANNUAL MEETING OF THE

EUROPEAN SOCIETY FOR PAEDIATRIC INFECTIOUS DISEASES

Organised jointly by ESPID and the ESPID Foundation

#ESPID2024

espidmeeting.org