

**Lessons and impact for meningitis in the  
COVID-19 era:  
Findings from the IRIS initiative, with a focus  
on Brazil, and commenting on the situation in  
Latin America**

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# Disclosure Statement

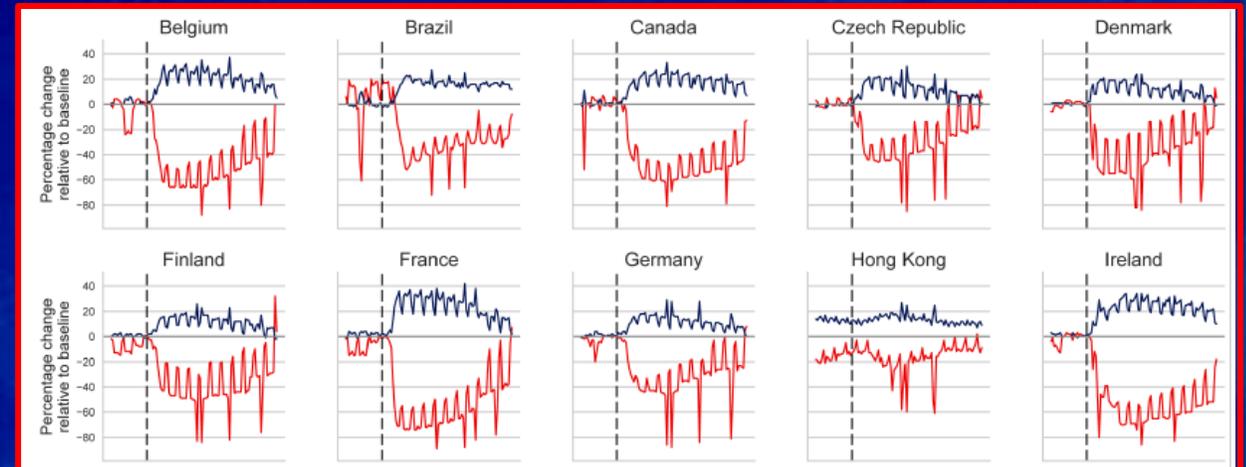
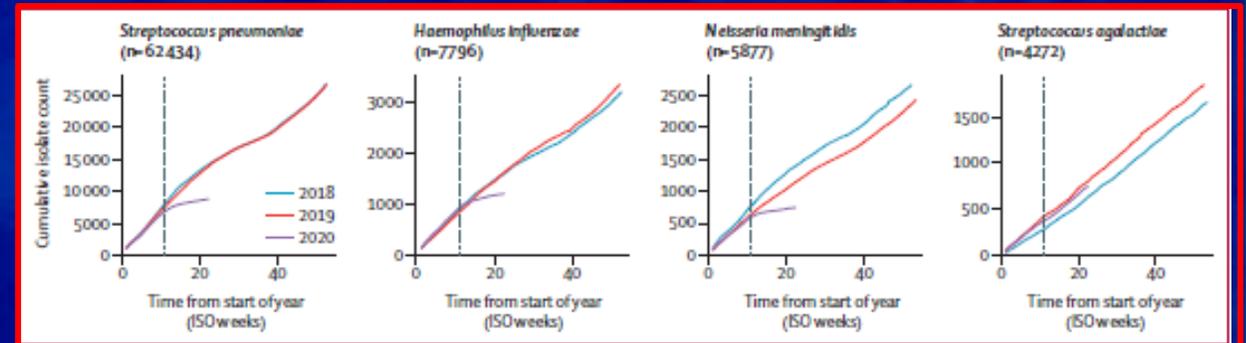
## Marco Aurélio Sáfadi MD, PhD

- Consultant for SAGE from the WHO
- Consultant AdHoc for ANVISA
- Member of the CEPI Scientific Committee.
- Member of the Brazilian NIP Advisory Committee for the Ministry of Health
- Research grants, speaker's fee and participation in *advisory boards* from Pfizer, GSK and Sanofi.
- I don't own shares of any of these pharmaceutical companies.
- My prerequisites for participating in these activities are the autonomy of scientific thought, the independence of opinions and freedom of expression.

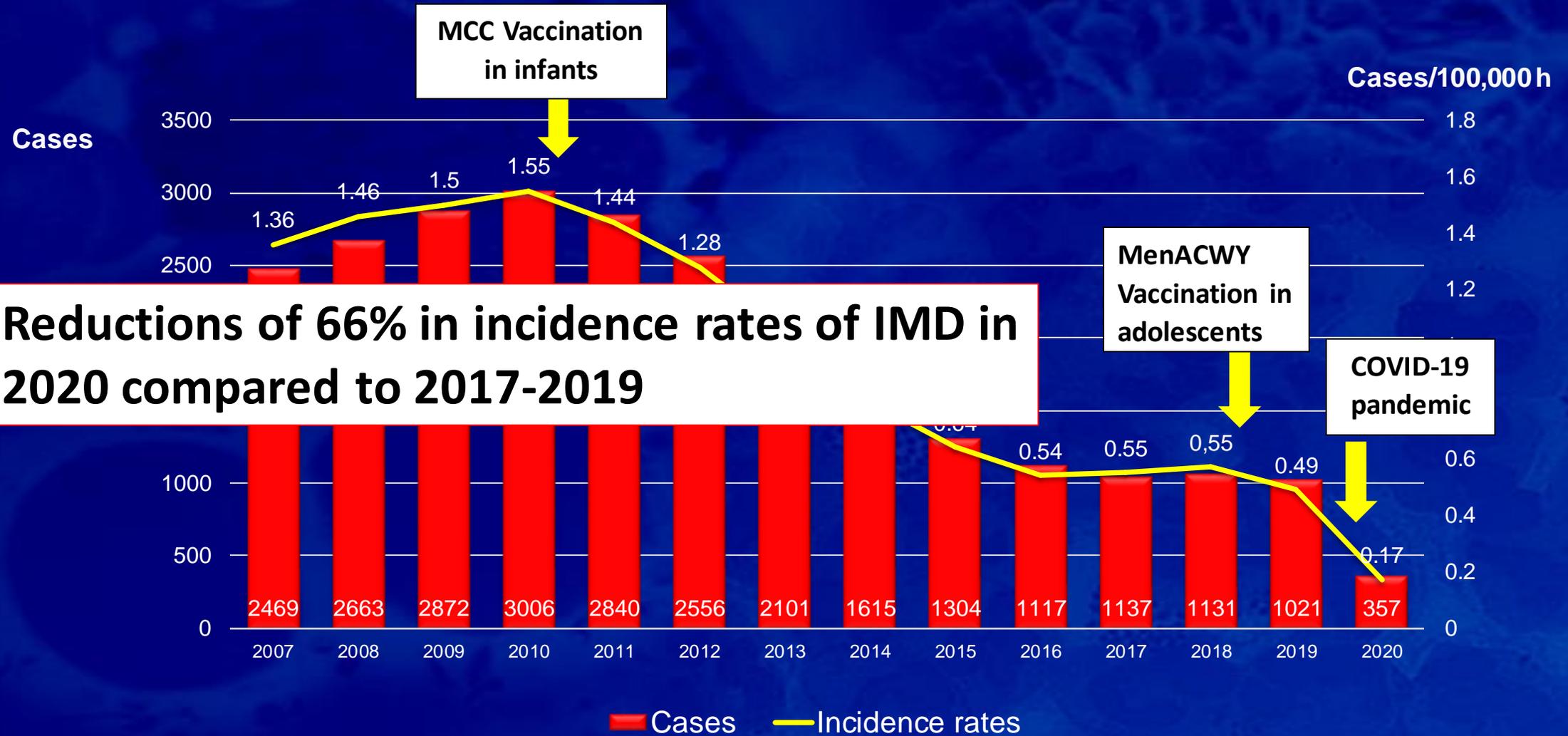
# Significant reductions in invasive bacterial infections during the COVID-19 pandemic.

Laboratories in 26 countries across six continents submitted data on cases of invasive disease due to *S pneumoniae*, *H influenzae* and *N meningitidis* from 1 January 2018 to 31 May 2020

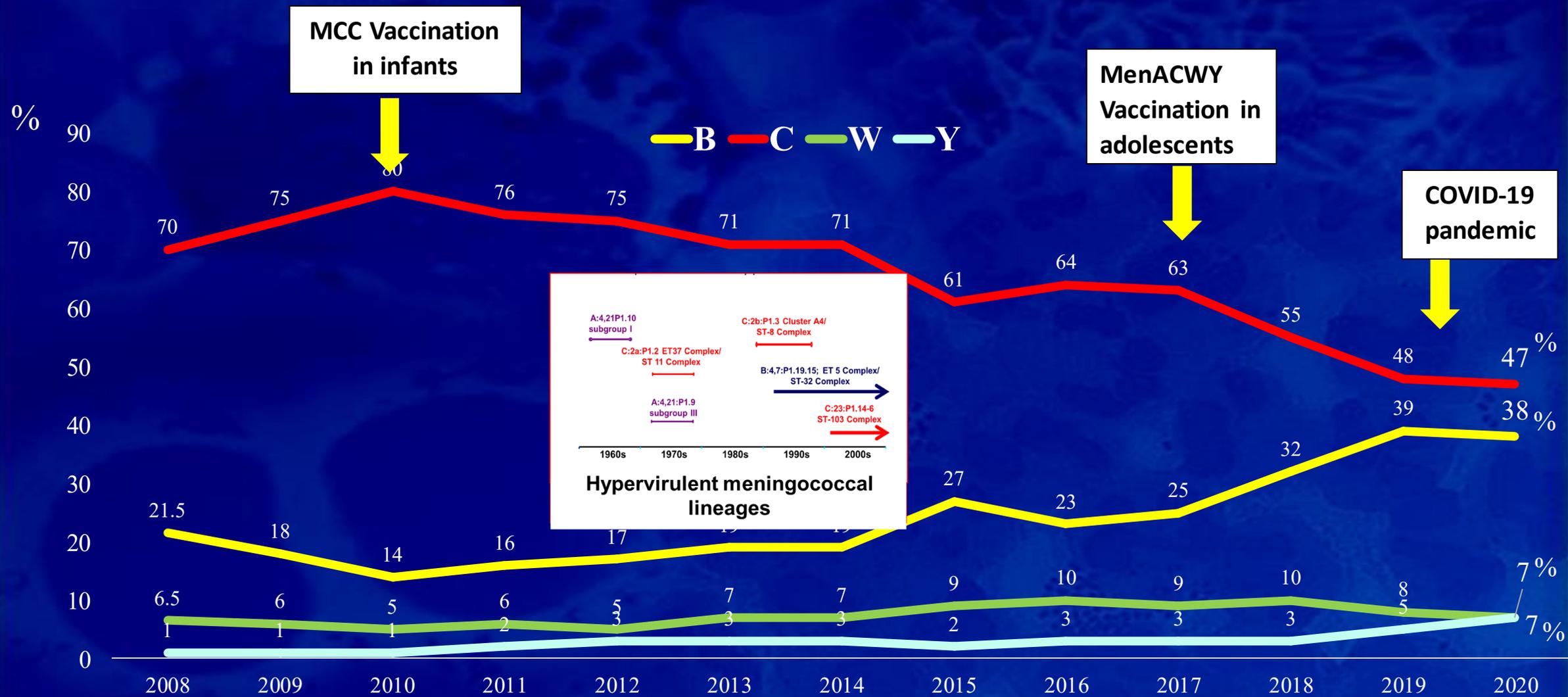
- All countries experienced a significant, sustained reduction in invasive diseases due to *S pneumoniae*, *H influenzae* and *N meningitidis*, but not *S agalactiae*, in early 2020, coinciding with the COVID-19 containment measures.
- There was no evidence of a specific effect due to enforced school closures.



# Number of cases and Incidence Rates of IMD. Brazil, 2007-2020



# Serogroup distribution of IMD. Brazil, 2008-2020.

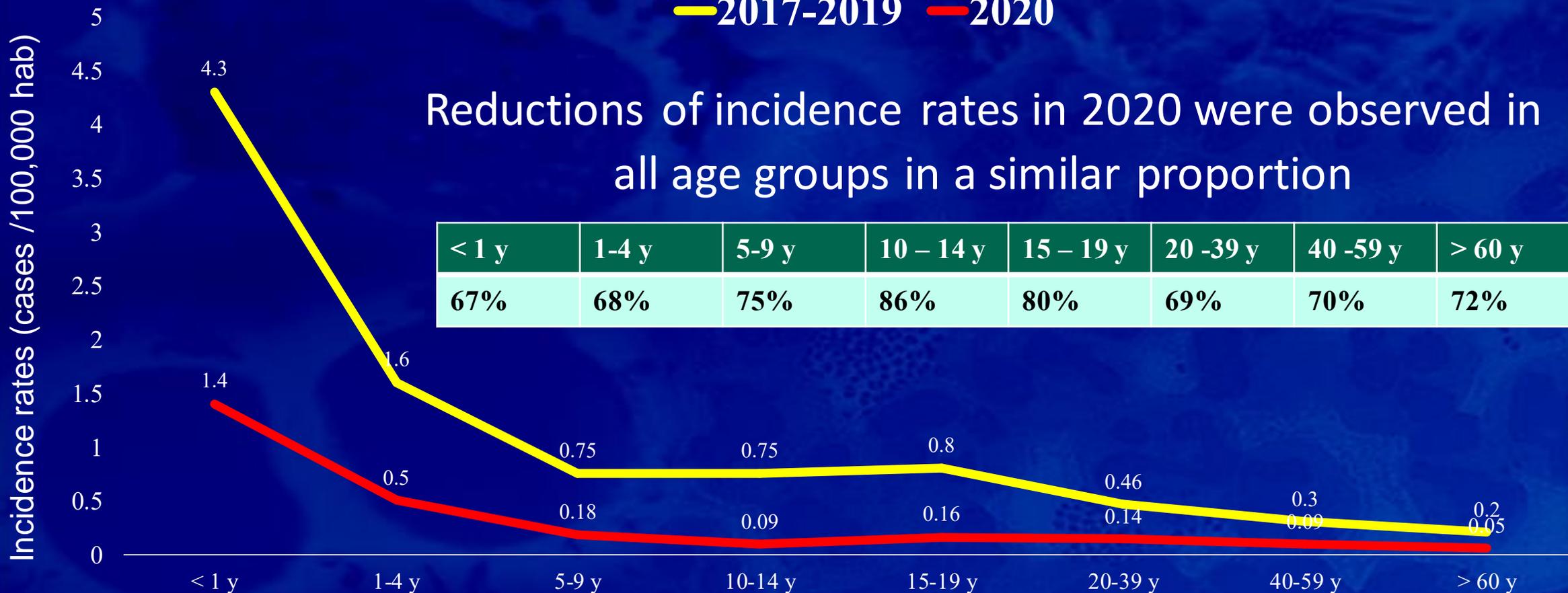


# Impact of the COVID-19 on incidence rates of IMD according to age groups. Brazil.

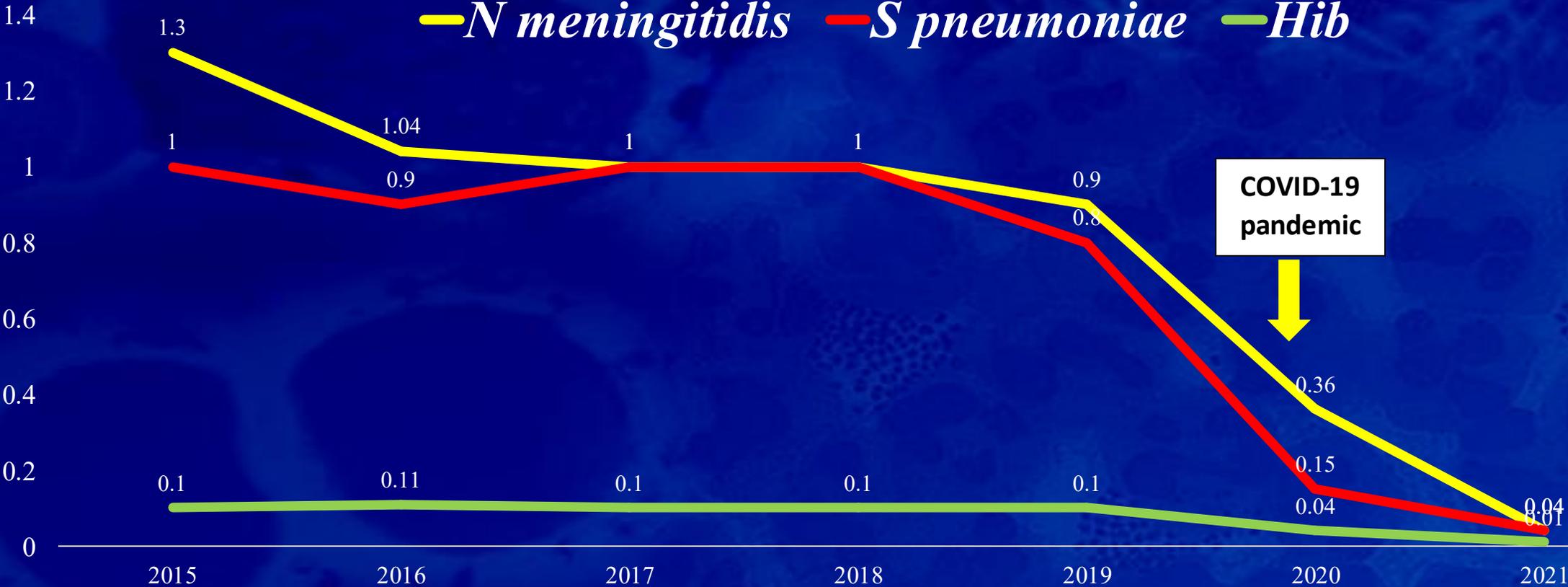
— 2017-2019 — 2020

Reductions of incidence rates in 2020 were observed in all age groups in a similar proportion

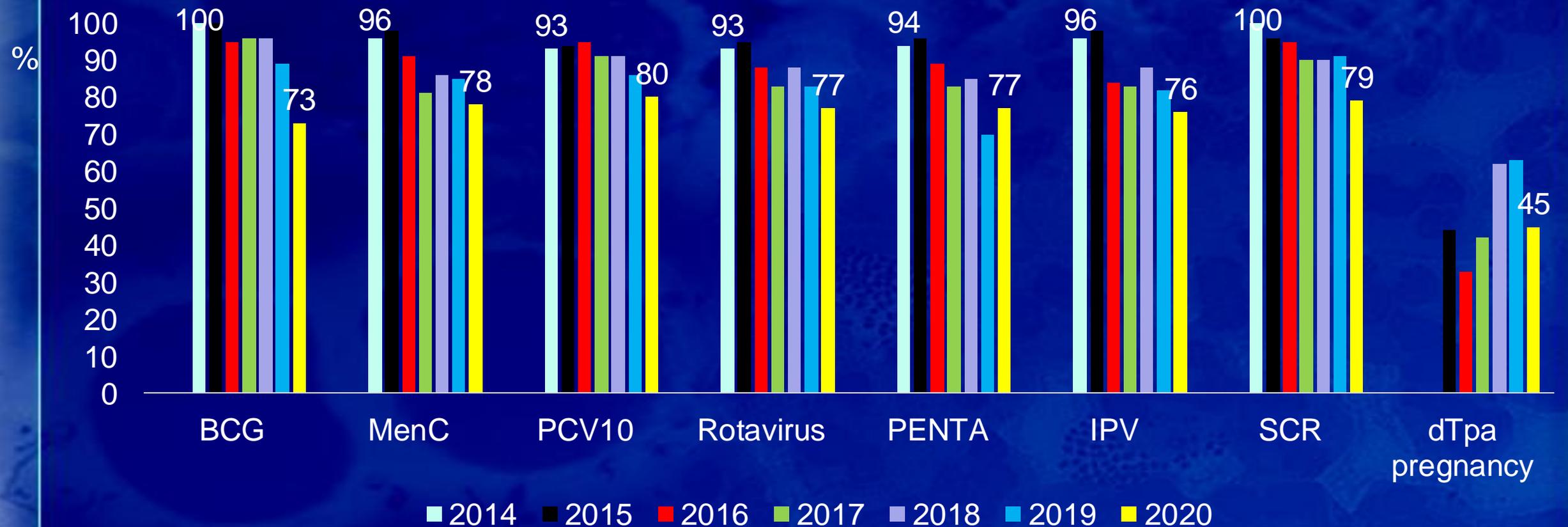
< 1 y	1-4 y	5-9 y	10 – 14 y	15 – 19 y	20 -39 y	40 -59 y	> 60 y
67%	68%	75%	86%	80%	69%	70%	72%



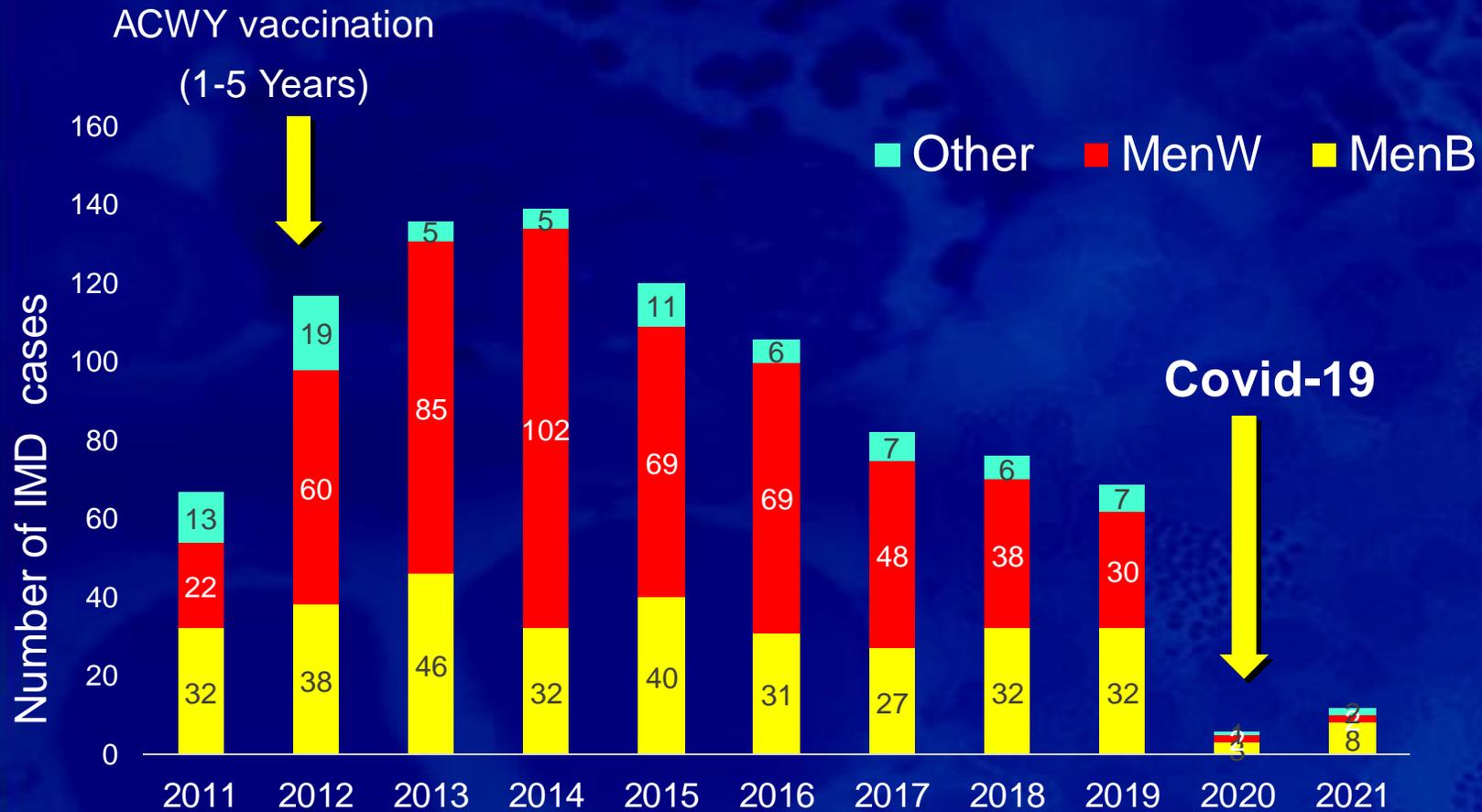
# Incidence rates of bacterial meningitis. Sao Paulo, 2008-2021.



# Coverage rates of vaccines. Brazil 2014-2020



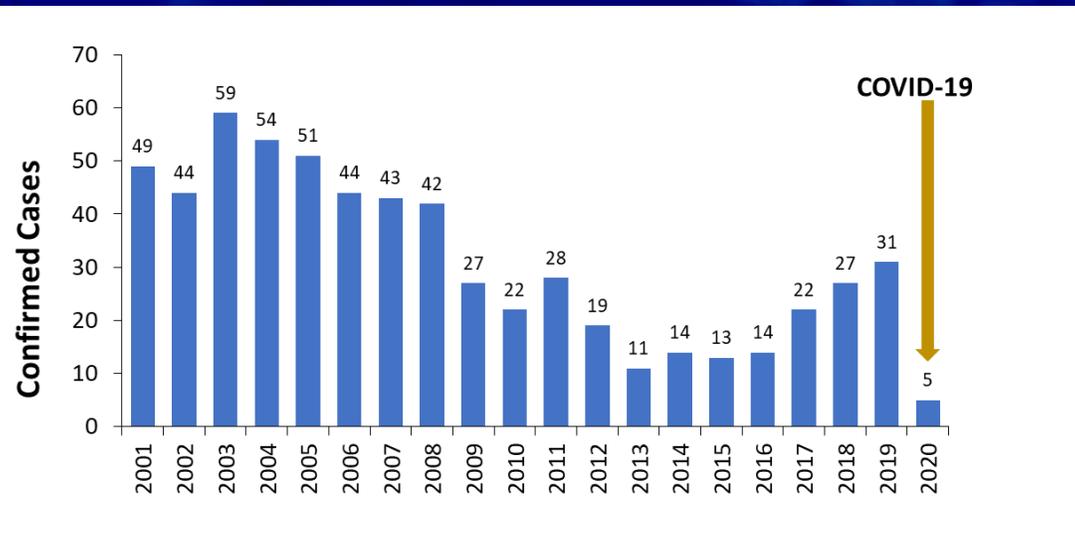
# IMD cases by serogroup in Chile, 2011-2021



- REDUCTION IN IMD CASES IN 2020 AND 2021.
- SIMILAR SEROGROUP DISTRIBUTION

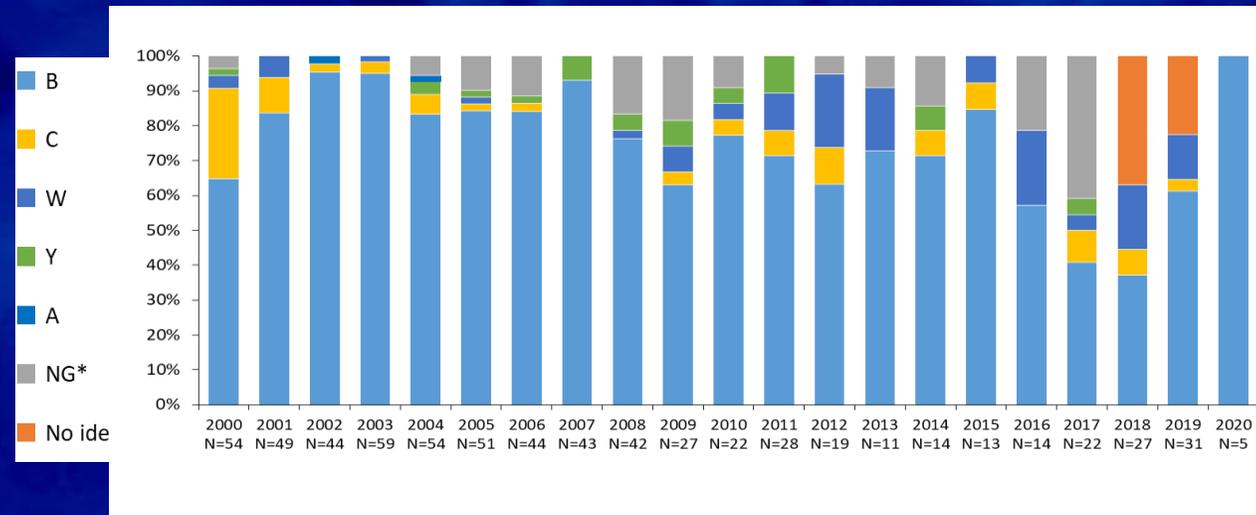
# Meningococcal Disease in Uruguay. 2001-2020

Number of annual confirmed cases of IMD



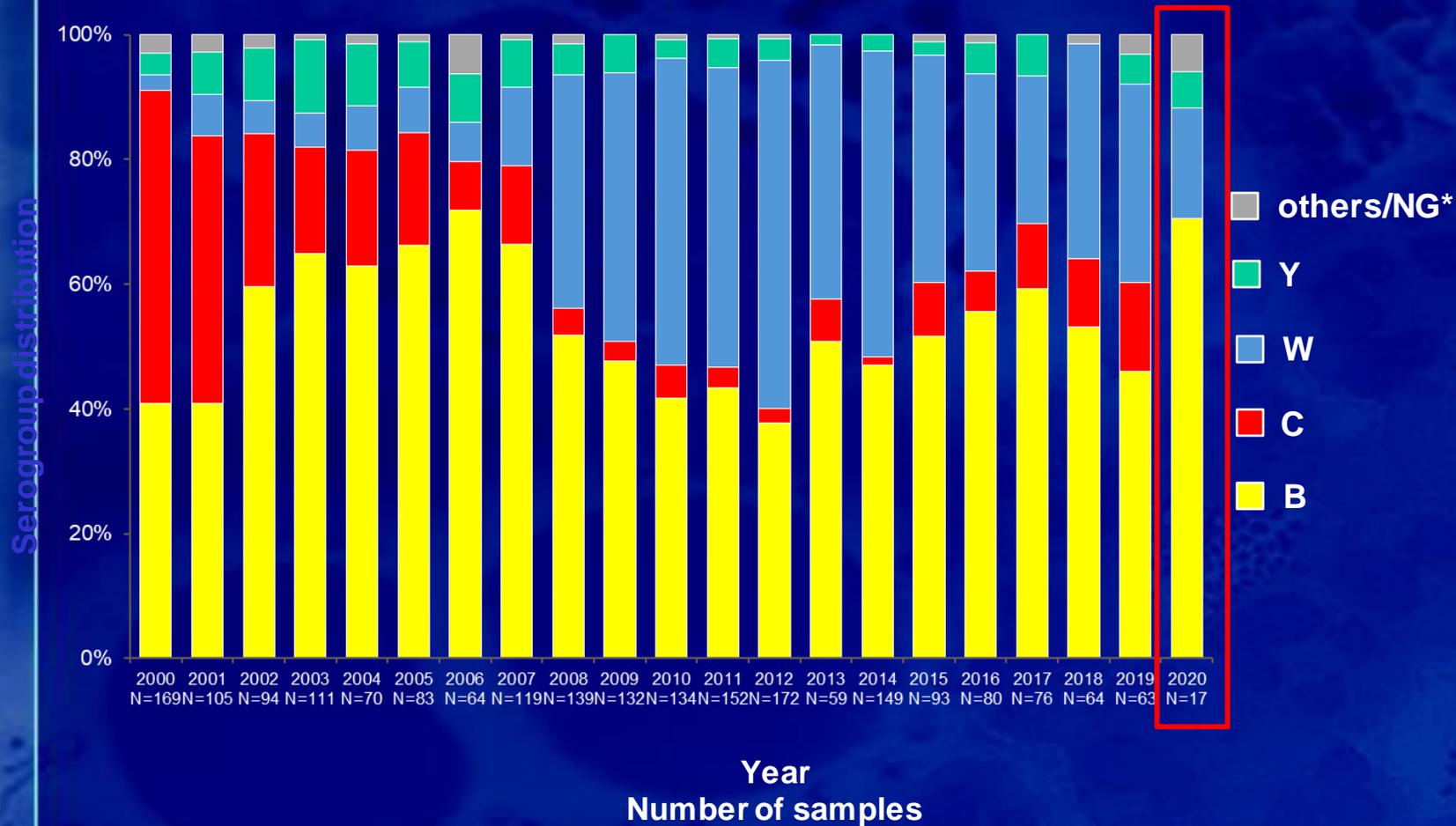
**A 72% reduction was observed in 2020 comparing to the period between 2013-2019**

Serogroup distribution of IMD



**MenB, the predominant serogroup causing IMD, was responsible for all identified cases in 2020**

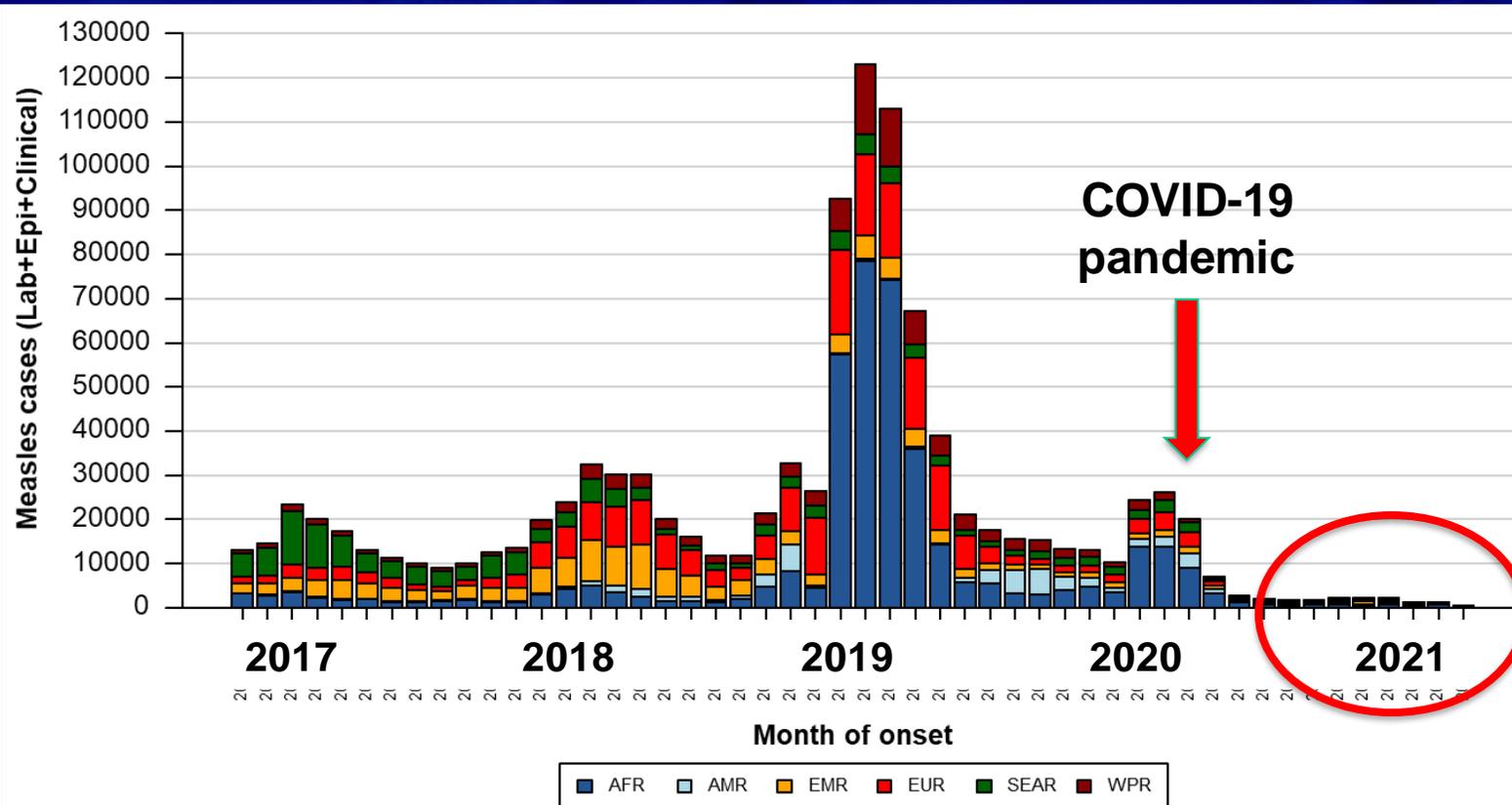
# Serogroup distribution of IMD cases in Argentina



Only 17 isolates of *N meningitidis* in 2020, against an average of 76 [63-149] in the period between 2014-2019.

No changes in the serogroup distribution.

# Measles case distribution by month and WHO Region (2017-2021\*)



Reported annual cases in 2019 were the highest number since 1996:

2017: 173,457

**2018: 360,296**

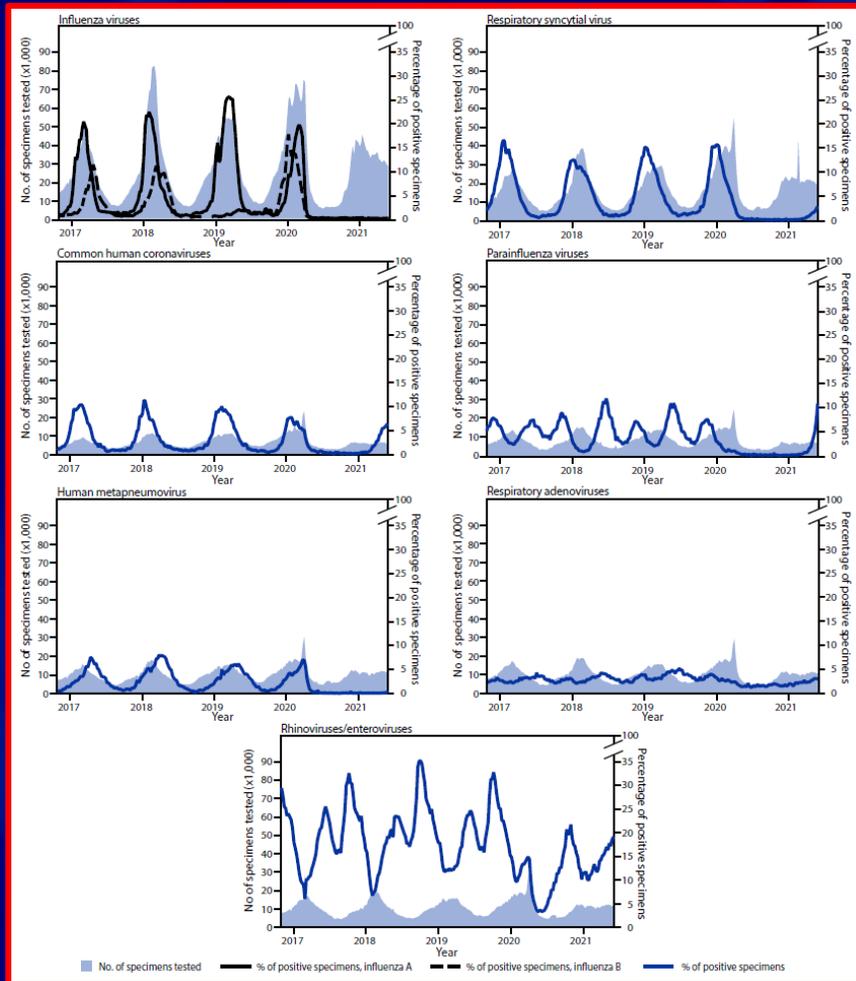
**2019: 872,872**

2020: 87,992

In 2020, the notification of suspected measles and rubella cases in the Americas region decreased in 73% in comparison with 2019. The low notification trend continues, with a median of 132 cases for the first semester of 2021.

# Changes in Influenza and Other Respiratory Virus Activity During the COVID-19 Pandemic — United States, 2020–2021

Number of specimens tested and the percentage of positive tests for influenza, RSV, common human coronaviruses, parainfluenza viruses, HMP, respiratory adenoviruses, and rhinoviruses/enteroviruses



## Summary

What is already known about this topic?

Nonpharmaceutical interventions introduced to mitigate the impact of COVID-19 reduced transmission of common respiratory viruses in the United States.

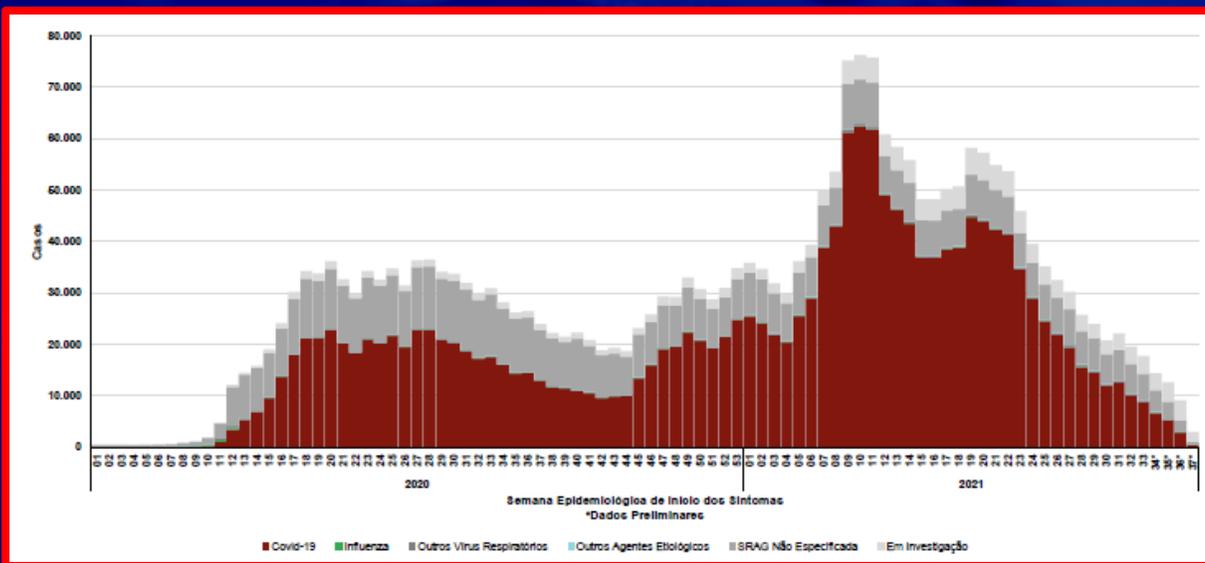
What is added by this report?

Influenza viruses and human metapneumovirus circulated at historic lows through May 2021. In April 2021, respiratory syncytial virus activity increased. Common human coronaviruses, parainfluenza viruses, and respiratory adenoviruses have been increasing since January or February 2021. Rhinoviruses and enteroviruses began to increase in June 2020.

What are the implications for public health practice?

Clinicians should be aware of increased circulation, sometimes off season, of some respiratory viruses and consider multipathogen testing. In addition to recommended preventive actions, fall influenza vaccination campaigns are important as schools and workplaces resume in-person activities with relaxed COVID-19 mitigation practices.

# Hospitalizations and deaths from Severe Acute Respiratory Syndrome. Brazil, 2020 to 2021, until SE 37



Faixa etária (em anos)	Óbitos por Síndrome Respiratória Aguda Grave (SRAG)						Total
	covid-19	Influenza	Outros vírus respiratórios	Outros agentes etiológicos	Não especificado	Em Investigação	
<1	360	1	74	4	428	25	892
1 a 5	181	0	30	7	217	3	438
6 a 19	704	0	19	10	350	18	1.101
20 a 29	5.383	3	8	26	751	39	6.210
30 a 39	19.306	5	10	51	1.550	106	21.028
40 a 49	39.556	18	18	56	2.841	213	42.702
50 a 59	66.473	25	26	64	4.778	353	71.719
60 a 69	81.415	34	34	103	7.515	418	89.519
70 a 79	73.257	24	59	119	8.813	439	82.711
80 a 89	46.173	23	43	93	7.961	362	54.655
90 ou mais	13.746	6	22	38	3.239	142	17.193
<b>Sexo</b>							
Masculino	192.346	82	179	348	20.435	1.143	214.533
Feminino	154.166	57	164	223	18.003	974	173.587
Ignorado	42	0	0	0	5	1	48
<b>Total geral</b>	<b>346.554</b>	<b>139</b>	<b>343</b>	<b>571</b>	<b>38.443</b>	<b>2.118</b>	<b>388.168</b>

Hospitalizations	TOTAL 2021 (até SE 37)	
	n	%
Covid-19	1.093.423	73,5%
Influenza	940	0,1%
Outros Vírus Respiratórios	10.751	0,7%
Outros Agentes Etiológico	3.182	0,2%
Não Especificada	247.149	16,6%
Em Investigação	132.057	8,9%
<b>TOTAL</b>	<b>1.487.502</b>	<b>100,0%</b>

Deaths	TOTAL 2021 (até SE 37)	
	n	%
Covid-19	346.554	89,3%
Influenza	139	0,0%
Outros vírus respiratórios	343	0,1%
Outros agentes etiológicos	571	0,1%
Não especificada	38.443	9,9%
Em investigação	2.118	0,5%
<b>TOTAL</b>	<b>388.168</b>	<b>100,0%</b>

## Key Learnings

- A dramatic reduction in incidence rates of invasive diseases caused by pathogens of respiratory transmission
- Despite a unique opportunity to further control of IMD, Vaccination coverage rates are dramatically decreased representing a potential risk not only of a rebound in the IMD rates, but also of resurgence of diseases that were reduced, controlled, or even eliminated in the region.
- IMD was not eliminated from these regions, highlighting the need of maintaining surveillance system to inform health authorities on the current burden of these invasive diseases, including data on carriage rates.



**Obrigado!  
Thank You!**

