Global Health Cast 16

October 11, 2022

Dr. Melvin Sanicas

Prof. Dr. Joe Schmitt

Every Tuesday

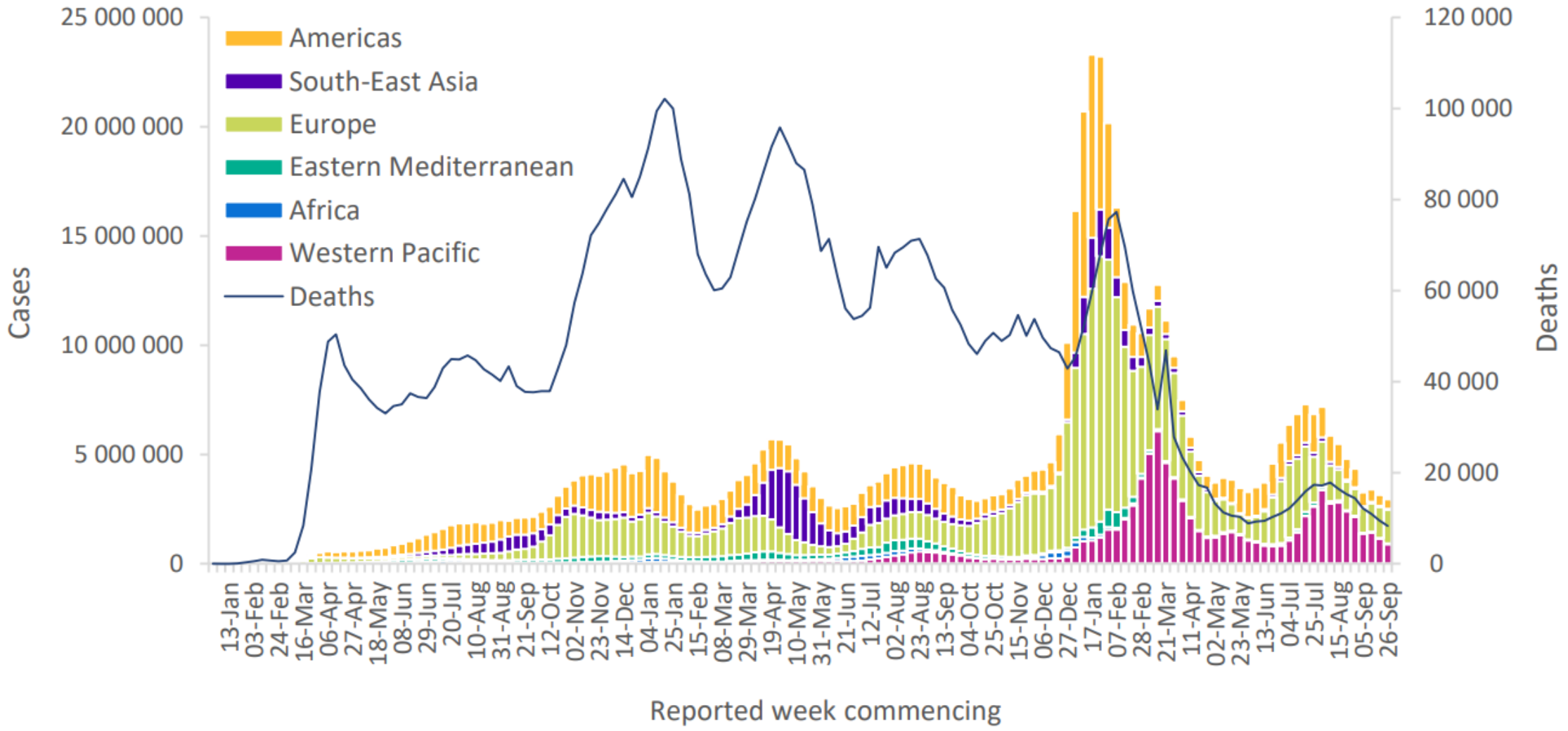
12.00 noon - CET

GLOBAL HEALTH PRESS

What we talk about today

- COVID19 update
- Nothing new on MPX?
- Excess deaths from COVID19 in US-Republican *vs*. Democrats
- Primary liver cancer – a global view
- The 2022 Nobel price in medicine
- Upcoming RSV vaccines – we are there!

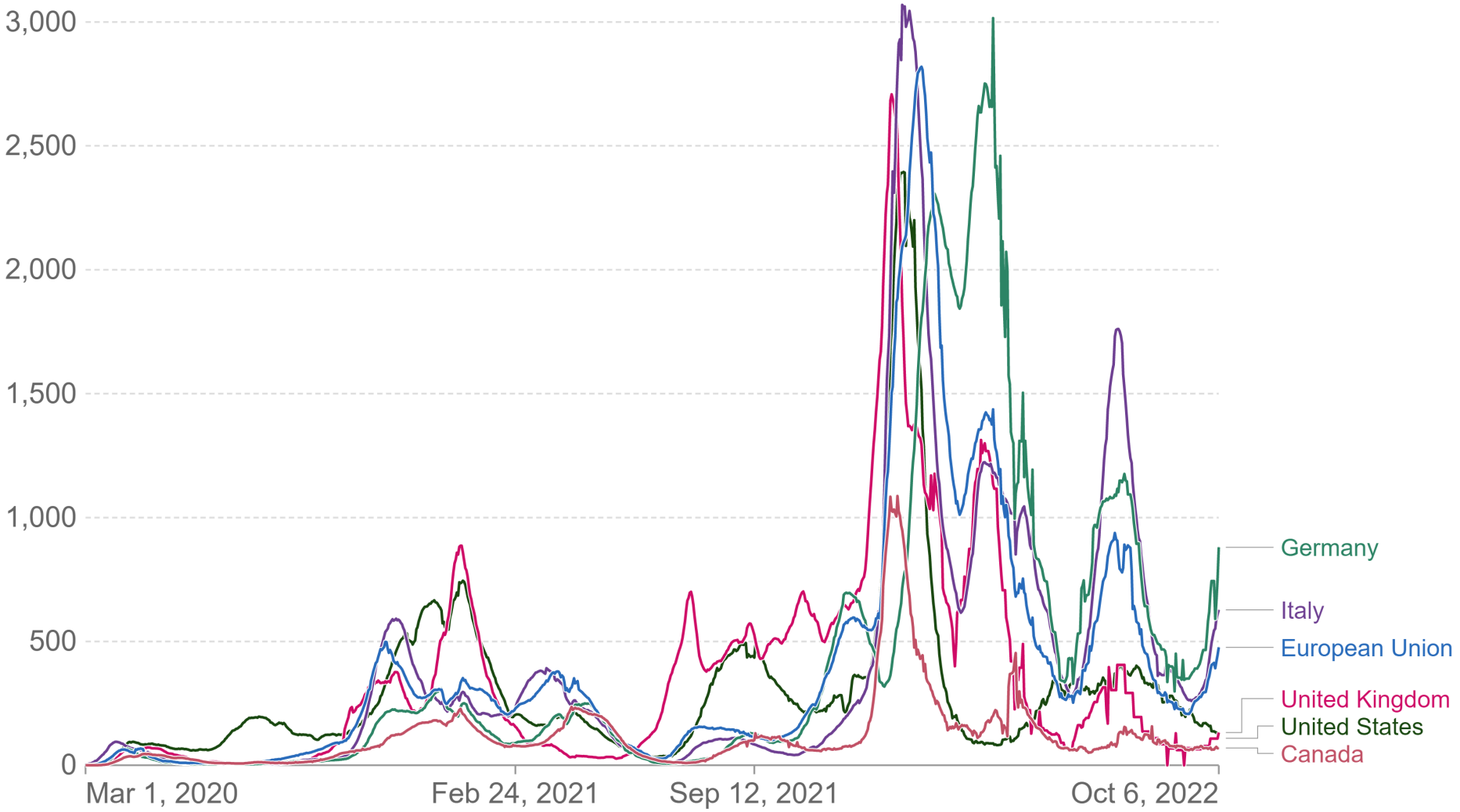
Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 2 October 2022**



Daily new confirmed COVID-19 cases per million people

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.

Our World in Data



Source: Johns Hopkins University CSSE COVID-19 Data

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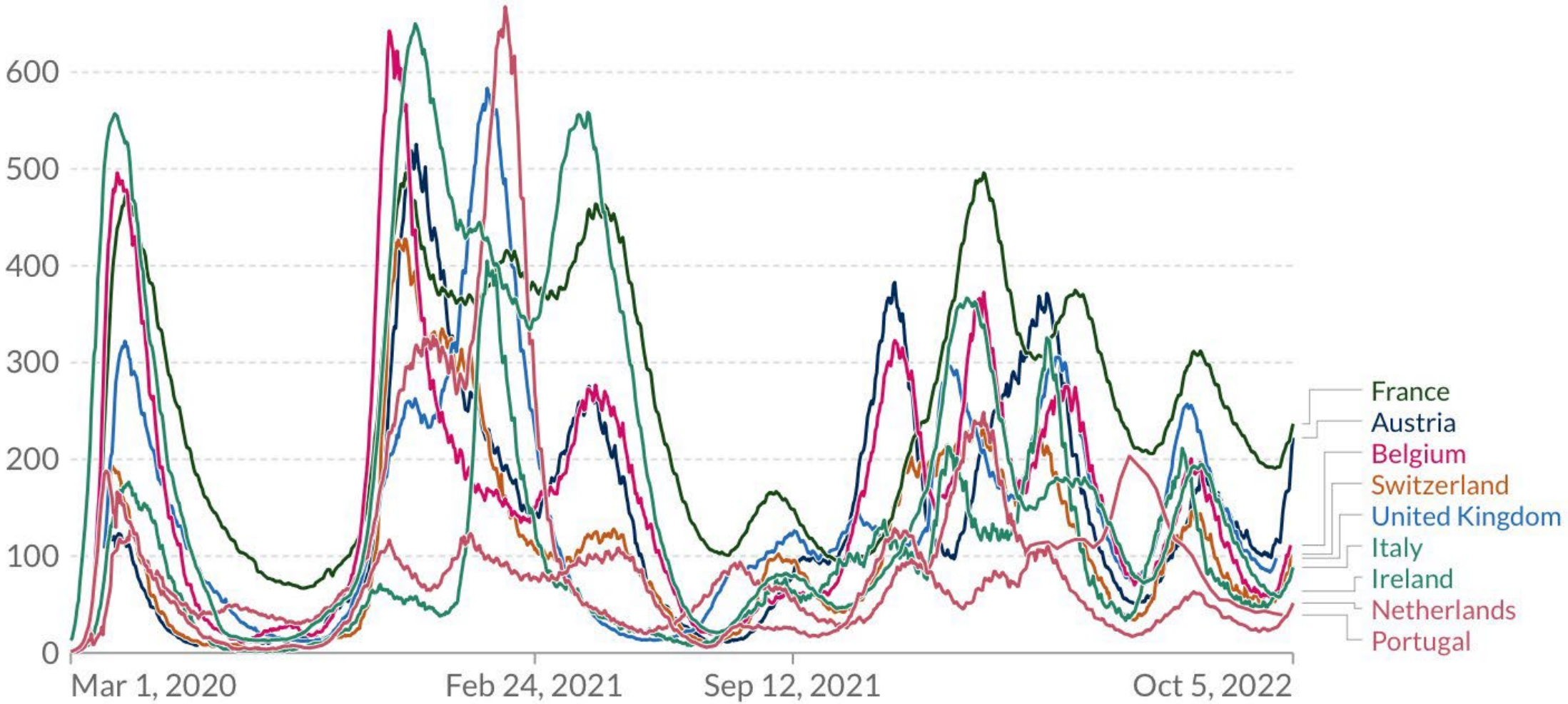
Number of COVID-19 patients in hospital per million

Our World in Data

LINEAR | LOG

Add country



Excess Death Rates for Republicans and Democrats During the COVID-19 Pandemic

Jacob Wallace, Paul Goldsmith-Pinkham, and Jason L. Schwartz

NBER Working Paper No. 30512
September 2022
JEL No. I0

ABSTRACT

Political affiliation has emerged as a potential risk factor for COVID-19, amid evidence that Republican-leaning counties have had higher COVID-19 death rates than Democrat- leaning counties and evidence of a link between political party affiliation and vaccination views. This study constructs an individual-level dataset with political affiliation and excess death rates during the COVID-19 pandemic via a linkage of 2017 voter registration in Ohio and Florida to mortality data from 2018 to 2021. We estimate substantially higher excess death rates for registered Republicans when compared to registered Democrats, with almost all of the difference concentrated in the period after vaccines were widely available in our study states. Overall, the excess death rate for Republicans was 5.4 percentage points (pp), or 76%, higher than the excess death rate for Democrats. Post- vaccines, the excess death rate gap between Republicans and Democrats widened from 1.6 pp (22% of the Democrat excess death rate) to 10.4 pp (153% of the Democrat excess death rate). The gap in excess death rates between Republicans and Democrats is concentrated in counties with low vaccination rates and only materializes after vaccines became widely available.

Global burden of primary liver cancer

905,700
people were **diagnosed** with liver cancer in 2020

830,200
people **died** from liver cancer in 2020

Liver cancer ranked among the **top 3** causes of **cancer death** in
46 countries
in 2020

The **number** of people **diagnosed** with or **dying** from liver cancer globally could
increase by more than 55%
between 2020 and 2040 if current rates do not change

Liver cancer is a major cause of death in many countries. Efforts to reduce the incidence of preventable liver cancer should be prioritised to avoid the predicted rise in people diagnosed with liver cancer.

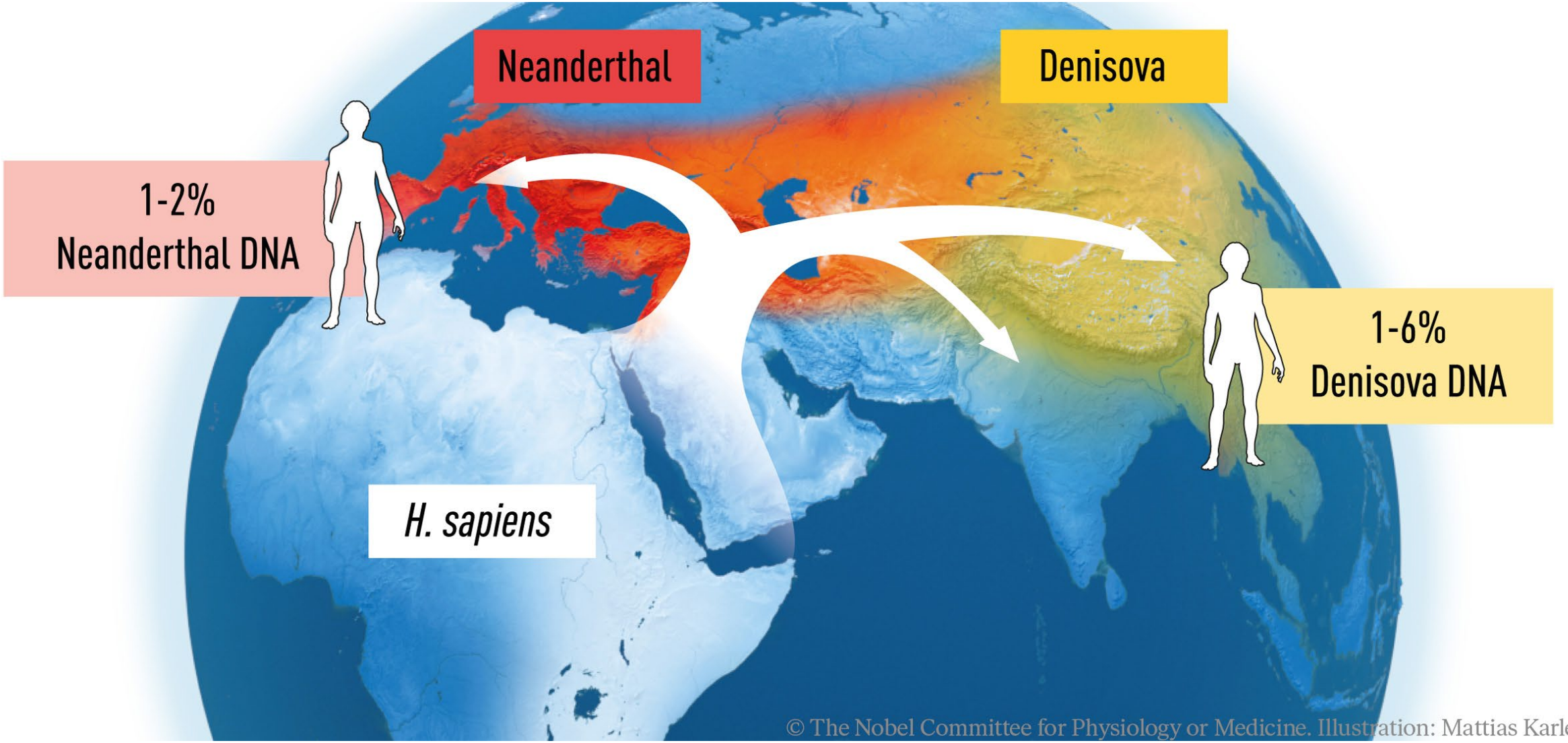
THE NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE 2022

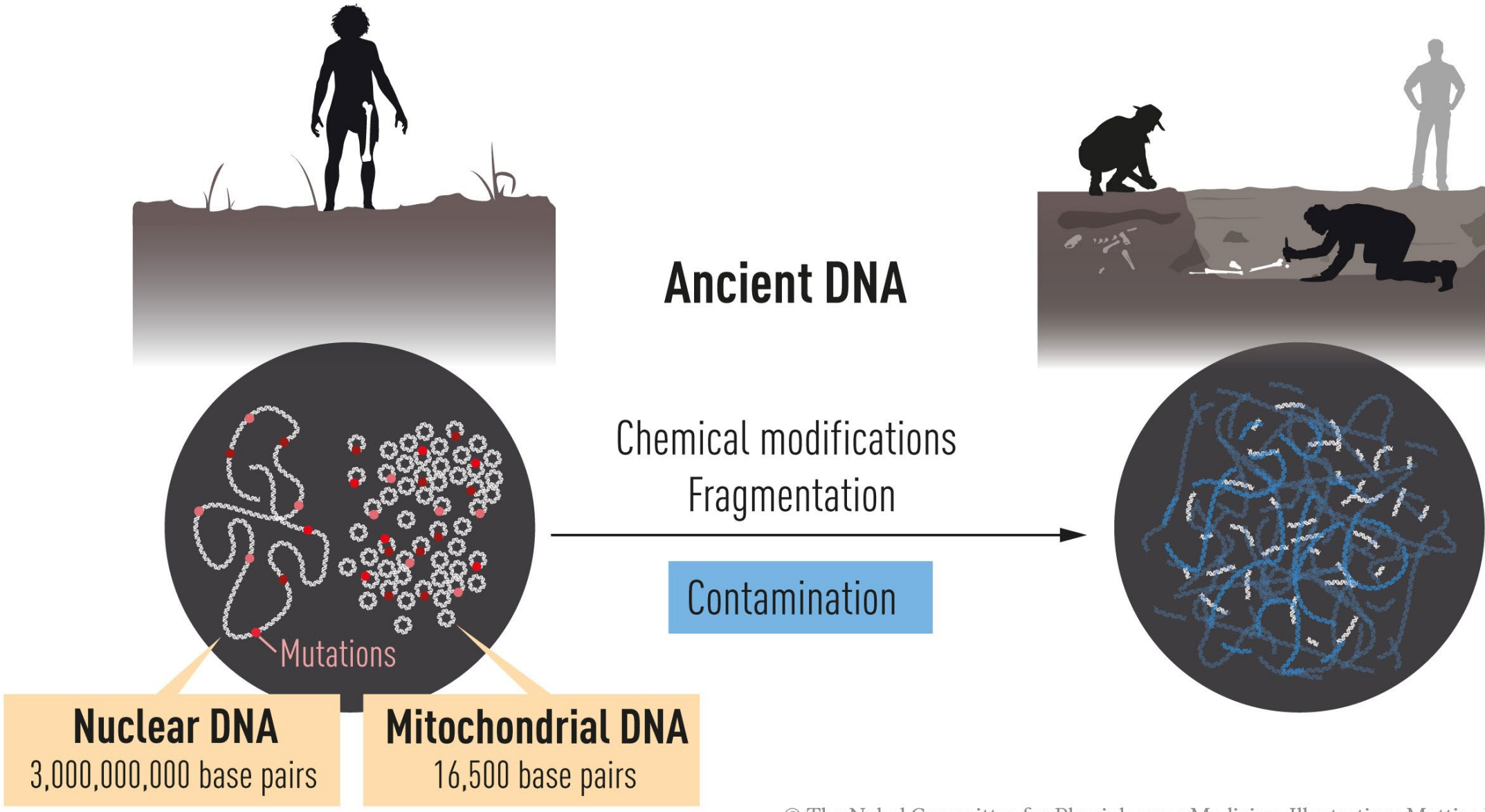
Illustration: Niklas Elmehed

Svante Pääbo

"for his discoveries concerning the genomes of extinct hominins and human evolution"

THE NOBEL ASSEMBLY AT KAROLINSKA INSTITUTET

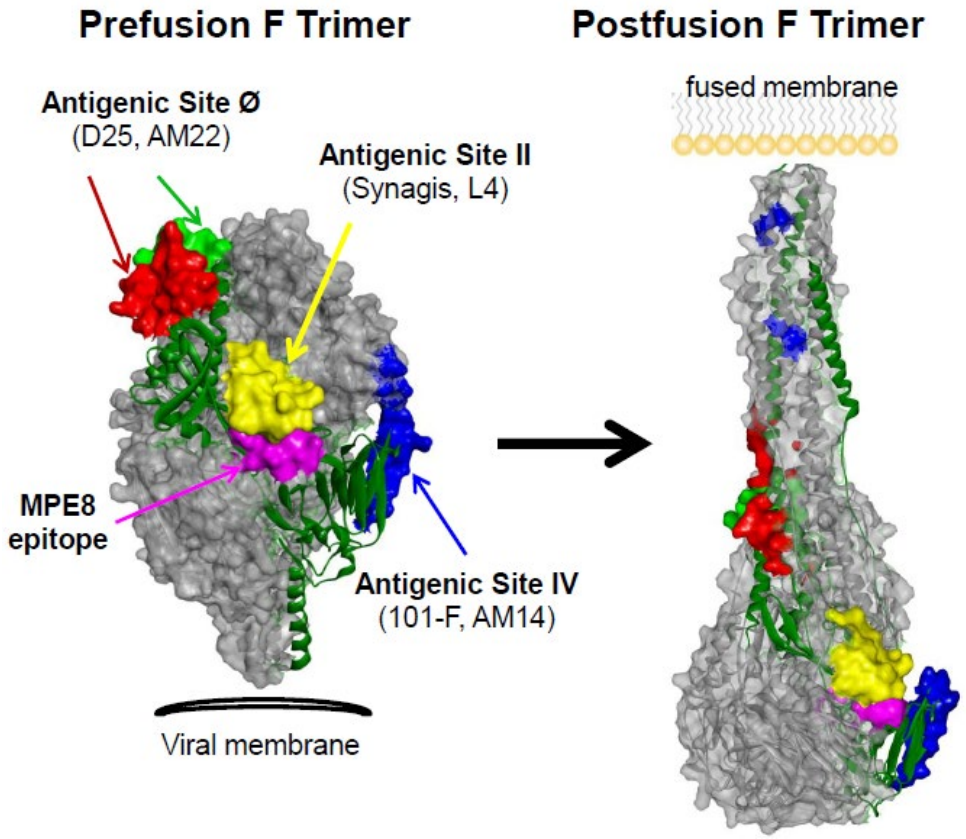




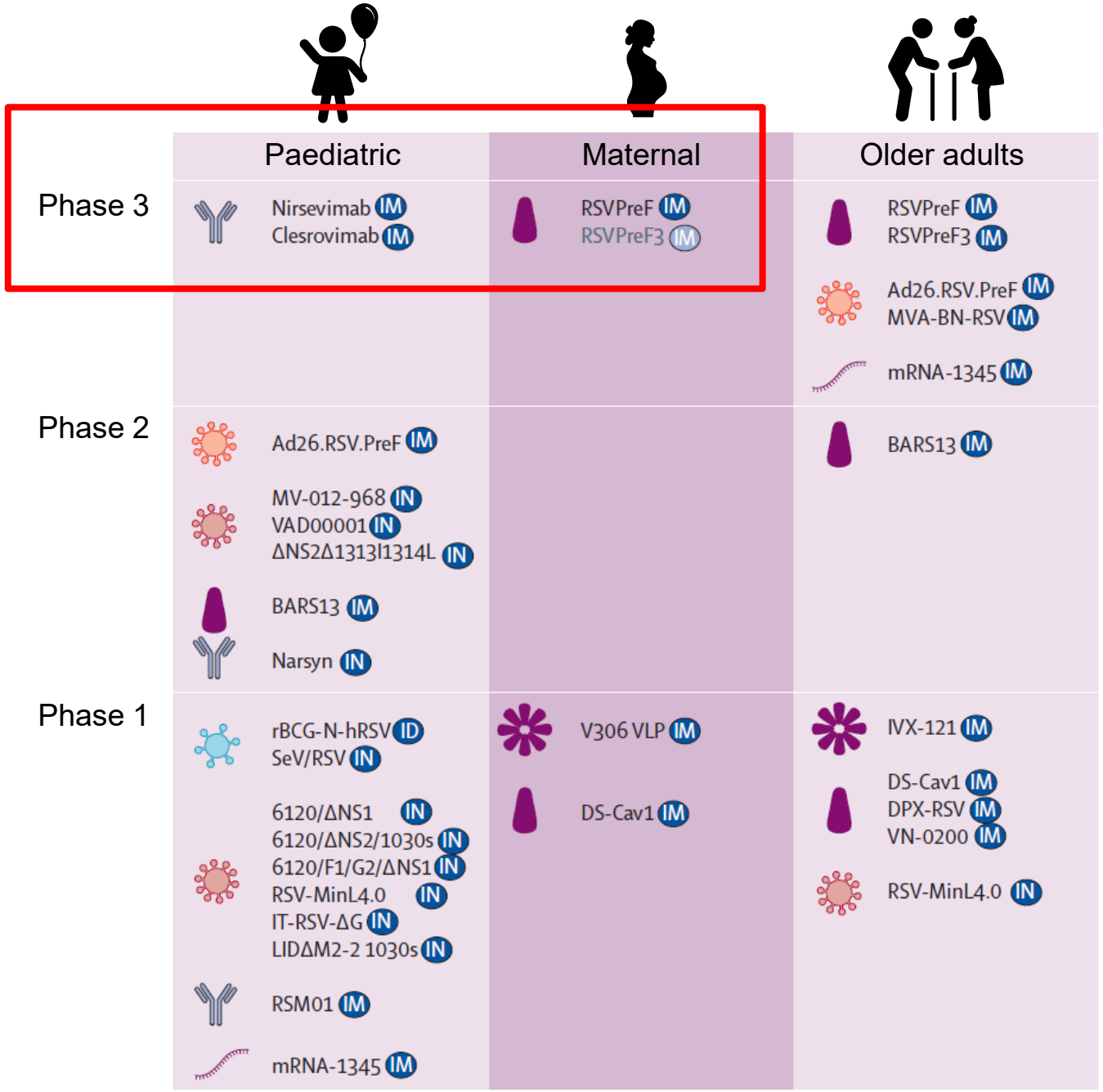
Respiratory Syncytial Virus (RSV)
Vaccines arriving now

Reapiratory Syncytial Virus (RSV): Background

- **RSV hospitalizations: 2% of infants in the USA**
  - 50% suffer 2nd infection in 2nd winter of life
  - 75% of hospitalization in those ≤6 months
- **Repeated infections throughout adult lifehood, with**
  - Illness in 3-7% of US adults ≥65years, with annually
  - 177,000 hospitalizations and
  - 14,000 deaths
- **Various Vaccine candidates failed, because**
  - Fusion protein pre-and post fusion differ
  - Only pre-fusion induces adequate neutraizing antbodies
- **Severall dozen (!) vaccines currently in clinical development**



RSV vaccine candidates and (long-acting) monoclonal antibody preparations by target population



Mazur NI et al., Lancet Infect Dis 2022 https://doi.org/10.1016/ S1473-3099(22)00291-2

RSV Vaccines and Trial Names

Late-stage RSV pipeline				
Project	**Company**	**Description**	**Details**	
Nirsevimab (SP0232)	Sanofi/ Astrazeneca	Fusion antibody	Filed; accepted under accelerated assessment in EU	Medley, Melody
GSK3844766A	Glaxosmithkline	Protein subunit vaccine, adjuvanted	Aresvi 004 in adults ≥60, data due H1 2022	Aresvi
RSVPreF3 (GSK3888550A)	Glaxosmithkline	Protein subunit vaccine, unadjuvanted	Trials on pause; Grace maternal protection trial was due to read out H2 2022	Grace
RSVpreF (PF-06928316)	Pfizer	Protein subunit vaccine	Data from Renoir (adults ≥60) and maternal protection trial due H1 2022	Renoir, Matisse
Ad26.RSV.preF	Johnson & Johnson	Adenovirus type 26 viral vector vaccine	Evergreen in adults ≥60, data due H2 2022	Evergreen
Clesrovimab (MK-1654)	Merck & Co	Fusion antibody	MK-1654-007 in high-risk infants; ph2/3 MK-1654-004 in healthy infants, data due 2022	
Rilematovir (JNJ-53718678)	Johnson & Johnson	Oral RSV F-protein fusion inhibitor	Daisy in hospitalised children; Primrose in adult outpatients; trials started late 2021	Daisy, Primrose

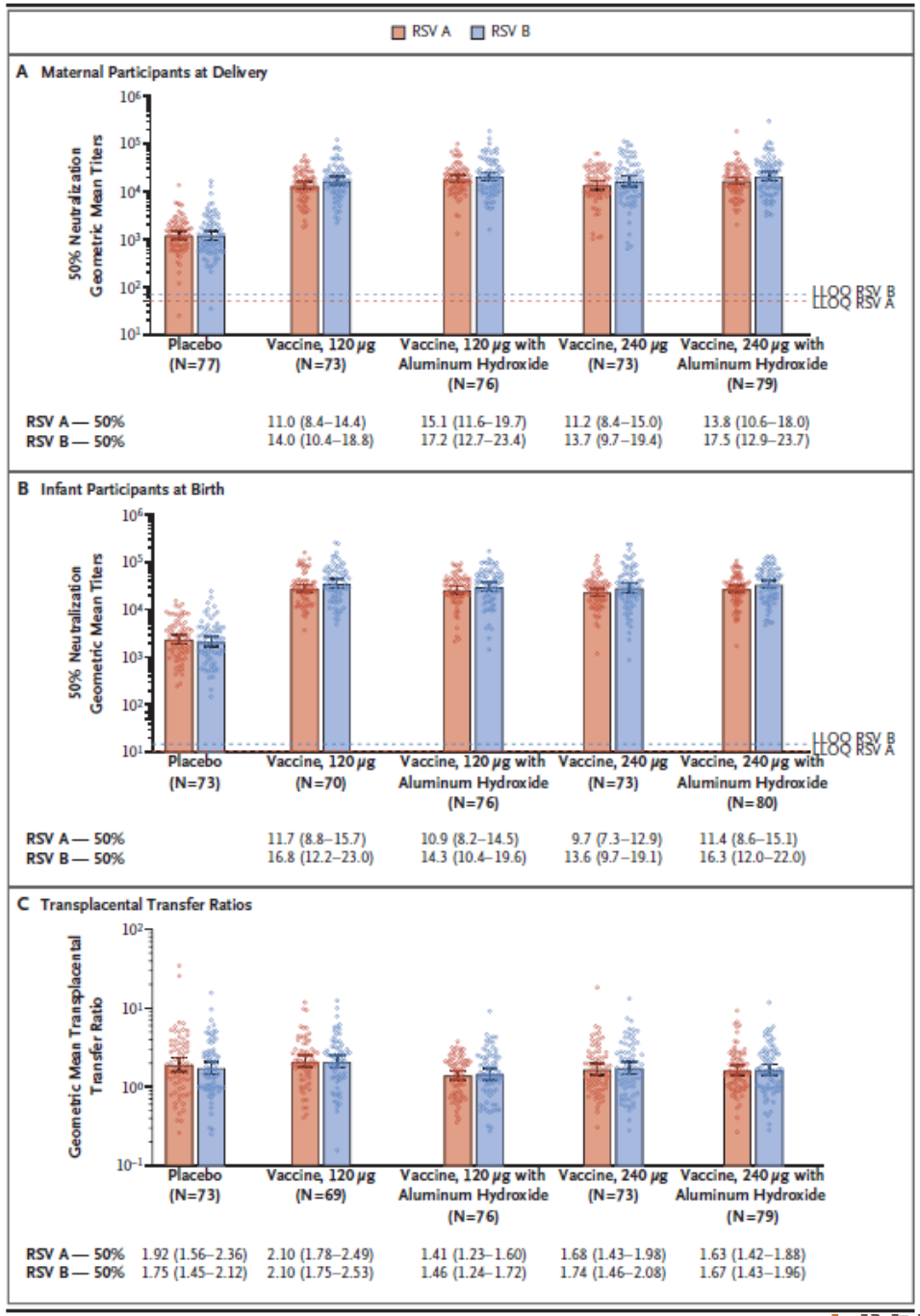
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Prefusion F Protein–Based Respiratory Syncytial Virus Immunization in Pregnancy

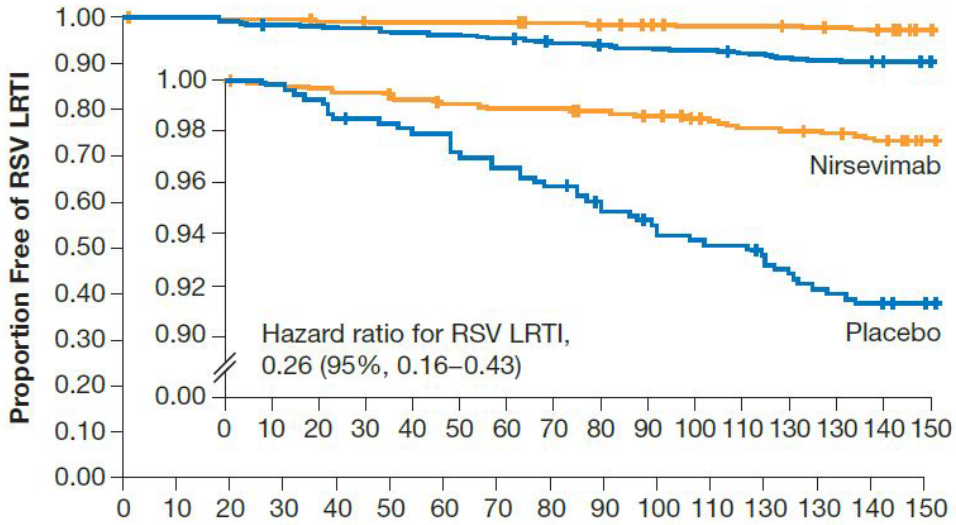
Conclusions:

RSVpreF vaccine elicited neutralizing antibody responses with efficient transplacental transfer and without evident safety concerns. (Funded by Pfizer; ClinicalTrials.gov number, NCT04032093.)

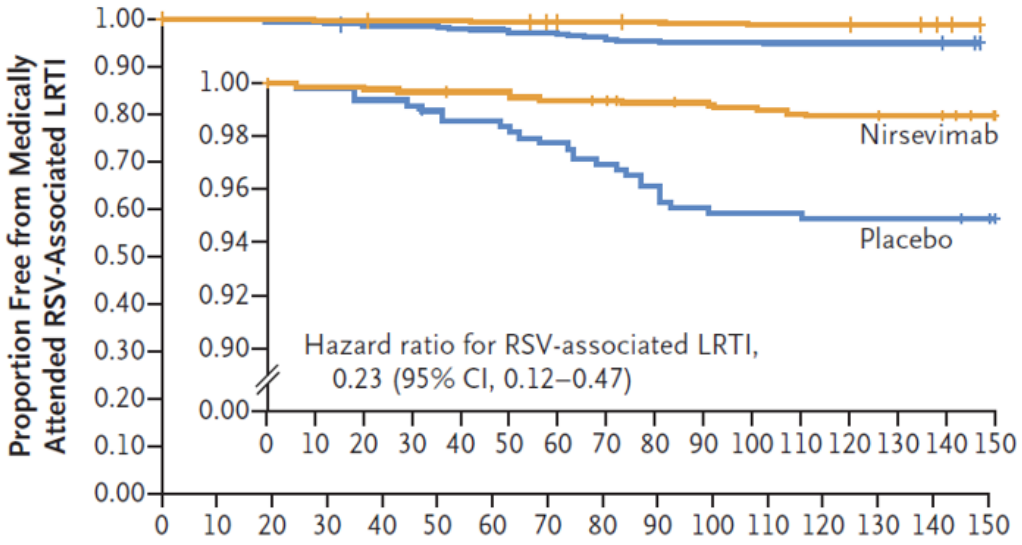


RSV-LRTIs in preterm (top) or term infants (bottom) with or without *Beyfortus®* (nirsevimab) (Sanofi/AZ)

- Two studies with similar design, definitions and procedures:
- 2:1 randomisation of infants **(1) GA 29 <35 weeks; (2) >35 weeks** to a single i.m. injection of nirsevimab or placebo before the start of an RSV season
- Primary end point was medically attended RSV-LRTI within 150 days after injection
- Secondary end point was hospitalization for RSV-associated LRTI within 150 days after the injection



VE against RSV
- medically attended **70.1%**
- hospitalization: **78.4%**



VE against RSV
- medically attended **74.5%**
- hospitalization: **62.1%**

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BEYFORTUS – EMA opinion

On 15 September 2022, the Committee for Medicinal Products for Human Use (CHMP) adopted a positive opinion, recommending the granting of a marketing authorisation for the medicinal product Beyfortus, intended for the prevention of Respiratory Syncytial Virus (RSV) lower respiratory tract disease in newborns and infants. …

Beyfortus will be available as a **50 mg and 100 mg solution** for injection. The active substance of Beyfortus is nirsevimab, an antiviral monoclonal antibody (ATC code: J06BD08) which binds to the RSV F (fusion) protein. This locks the protein in the pre-fusion conformation, thereby inhibiting entry of free virions into cells, as well as inhibiting spread of cell-associated virus by cell fusion.

The benefits of Beyfortus are the prevention of **medically attended lower respiratory tract infection** caused by RSV, **predominantly bronchiolitis and pneumonia, in term and preterm infants entering their first RSV season.** The most common side effects are rash, pyrexia and injection site reactions. …

MI versus mAb?

OPTIONS

1) MI only (alone or in combination)
2) mAb only
3) Universal MI + mAb for preterms; (ab transfer-window too short);
4) mAb for risk-children (1st + ?? 2nd winter);
5) Active toddler-vaccine?

KEY POINTS FOR DECISION

1) Benefit (hospitalization! Herd protection not possible)
2) Price / annual cost / strategy
3) Product availability
4) Availability of **RSV-surveillance
5) Time from birth to LAmAb-dosing
6) Logistics, implementation (OB-GYN, Ped)

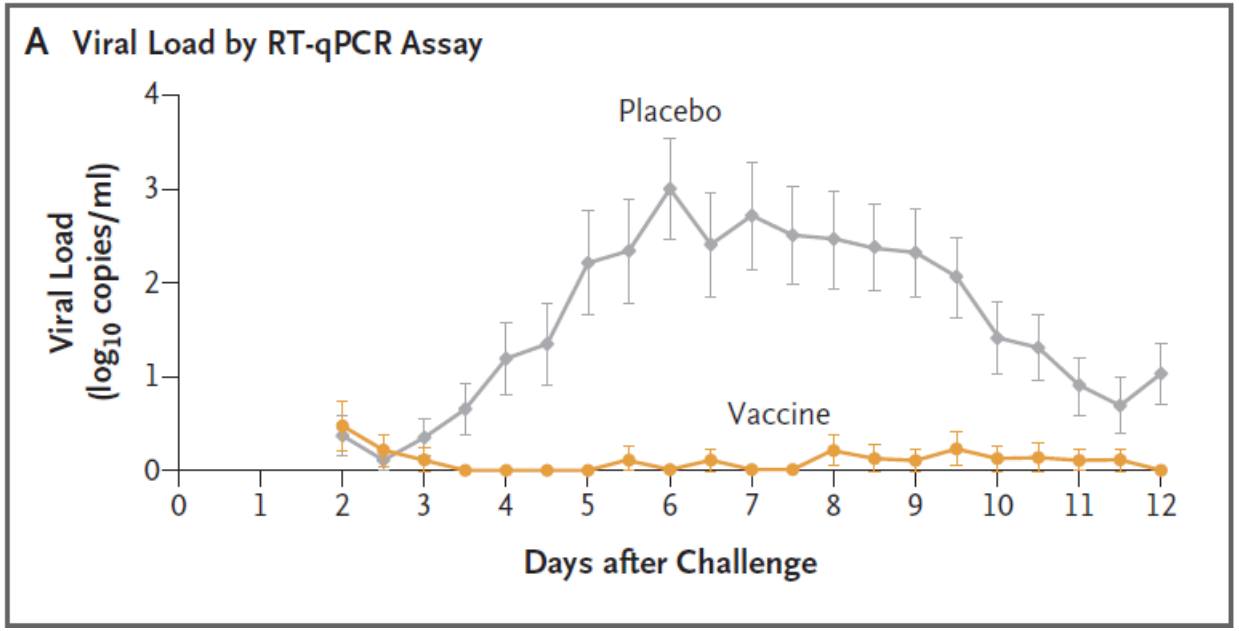
The NEW ENGLAND JOURNAL of MEDICINE

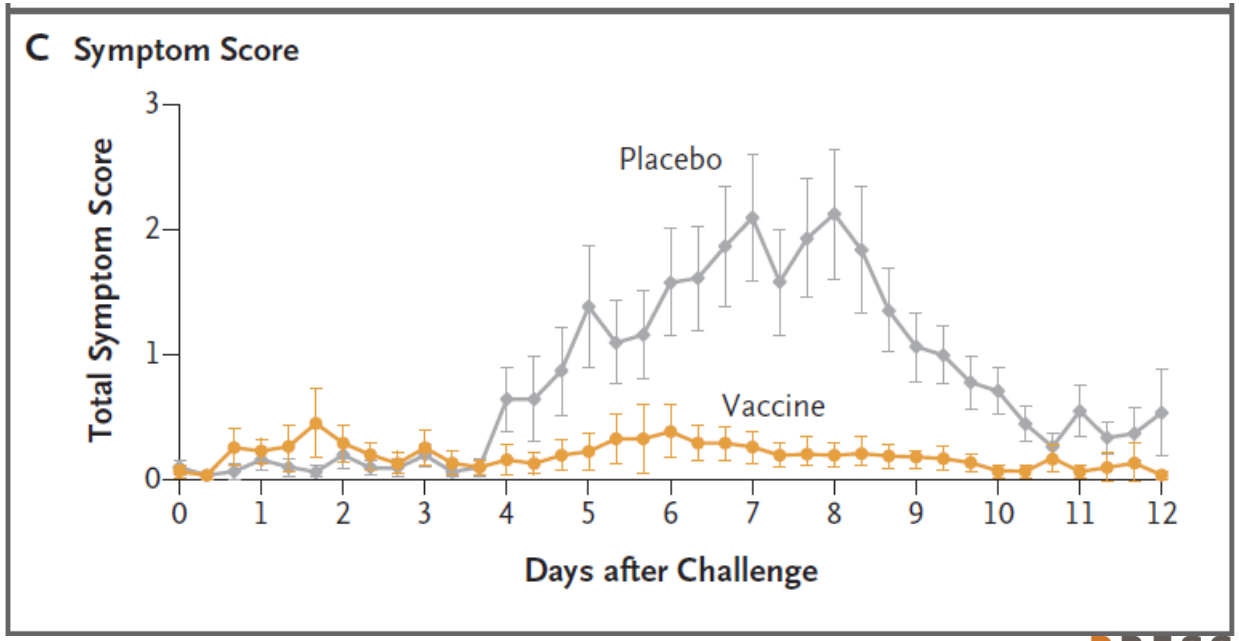
ORIGINAL ARTICLE

Vaccine Efficacy in Adults in a Respiratory Syncytial Virus Challenge Study

RESULTS

After participants were inoculated with the challenge virus, vaccine efficacy of **86.7%** (95% CI, 53.8 to 96.5) was observed for symptomatic RSV infection confirmed by any detectable viral RNA on at least 2 consecutive days. The median AUC for the RSV **viral load** (hours × log10 copies per milliliter) as measured by RT-qPCR assay was 0.0 (interquartile range, 0.0 to 19.0) in the vaccine group and 96.7 (interquartile range, 0.0 to 675.3) in the placebo group. The geometric mean factor increase from baseline in RSV A–neutralizing titers 28 days after injection was 20.5 (95% CI, 16.6 to 25.3) in the vaccine group and 1.1 (95% CI, 0.9 to 1.3) in the placebo group. More local injection-site pain was noted in the vaccine group than in the placebo group. No serious adverse events were observed in either group.





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Femme
Vie
Liberté