Global Health Cast 21

November 29, 2022

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Every Tuesday

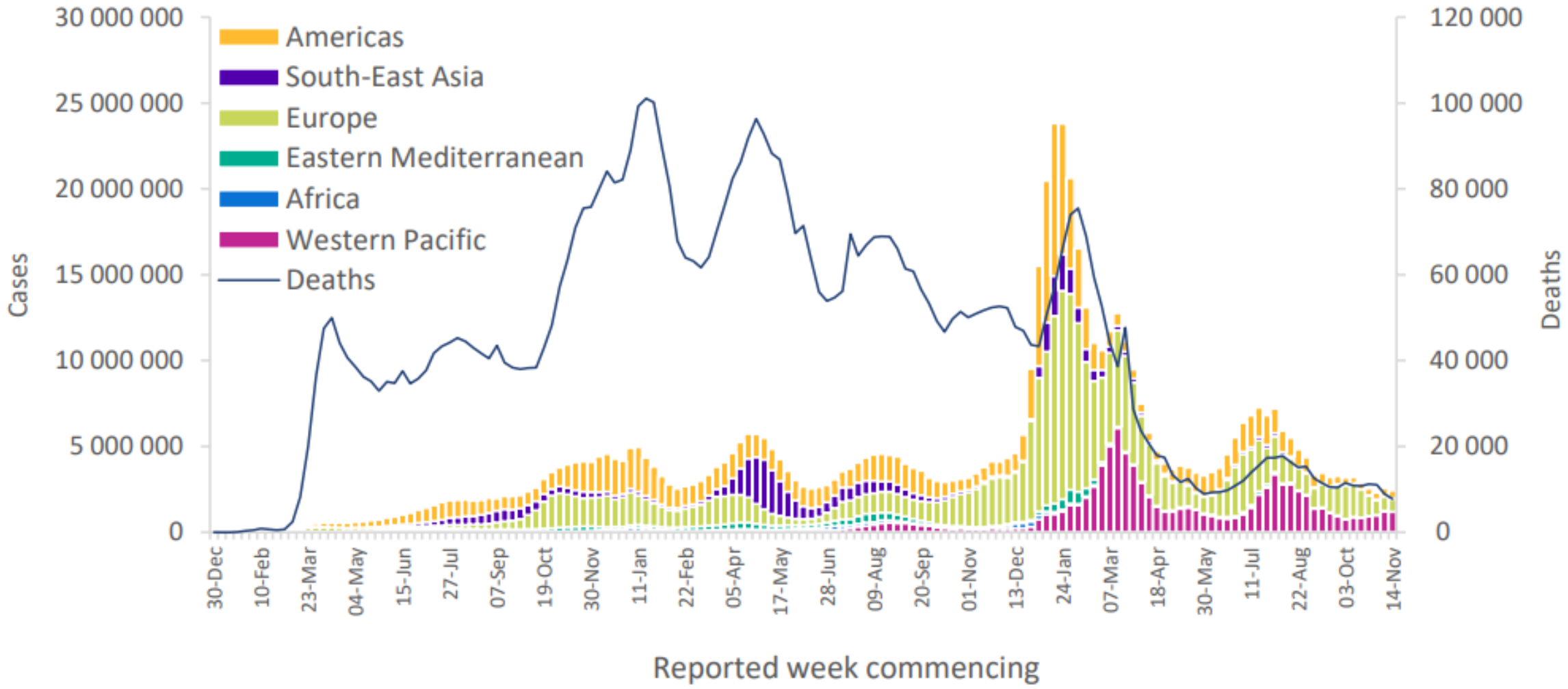
12.00 noon - CET

GLOBAL HEALTH PRESS

What we talk about today

- COVID-19 update
- TBE-ISW meeting in Vienna (end November 2022)
- NEW US CDC data on COVID vaccine and booster effectiveness
- Epidemiology of TBEV
- Diagnosis of COVID associated with a GREATER RISK of seizures & epilepsy
- Pathogenesis of TBE
- Parents' vaccination status associated with a reduced risk of hospital admission for kids
- Extend the TBE vaccine booster doses to every 10 years
- Flu vaccines for people with heart failure

Figure 1. COVID-19 cases reported weekly by WHO Region, and global deaths, as of 20 November 2022**



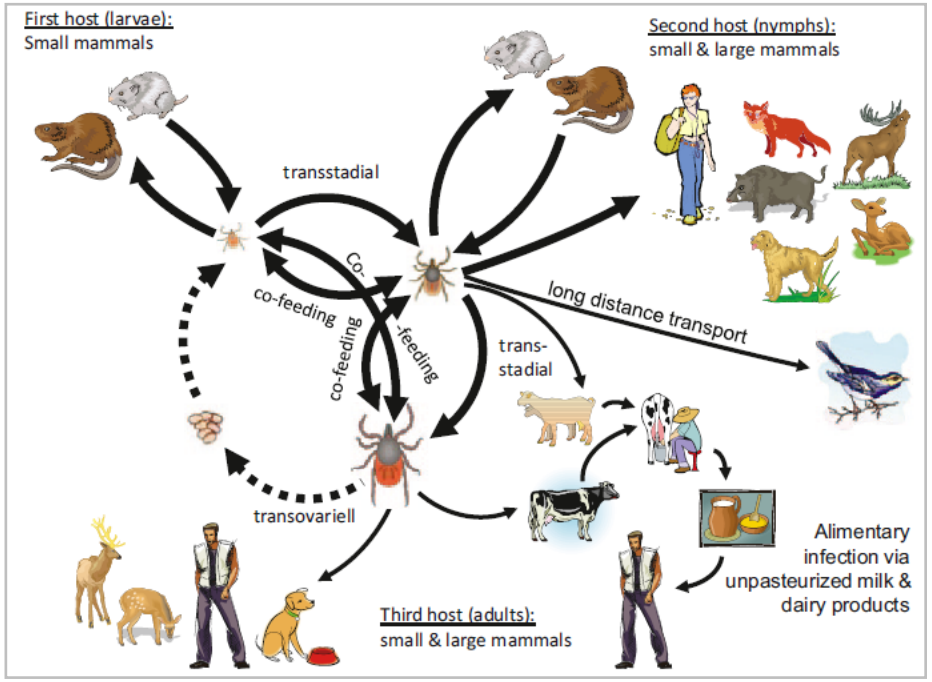
**See *Annex 1: Data, table, and figure notes*

International Working Group (ISW) on **TBE**

Vienna, November 24-25th, 2022

TBE – The Basics

1. **TBE:** CNS infection caused by the TBE virus (TBEV)
2. **Transmission:** Ticks, unpasteurized milk/products, transplantation, aerosols
3. **Occurrence:** UK/France to Japan (forest belt EurAsia)
4. **Seasonality:** 95% of cases occurring May to November
5. **Incidence:** <1/10^5 to >30/10^5, unpredictable variations
6. **3 "classic" TBEV subtypes:** European, Siberian, Far-Eastern)
   2 potential new subtypes (Baikalian; Himalayan)
7. **3 Manifestations:** no symptoms – non-CNS diseases – CNS infection
8. **Sequelae:** <46% of patients; in children mainly mental sequelae
9. **Case fatality:** 0.5–20%
10. **Specific therapy:** Not licensed / not available
11. **Local authorities, E-CDC, WHO recommend vaccination as best way for prevention**

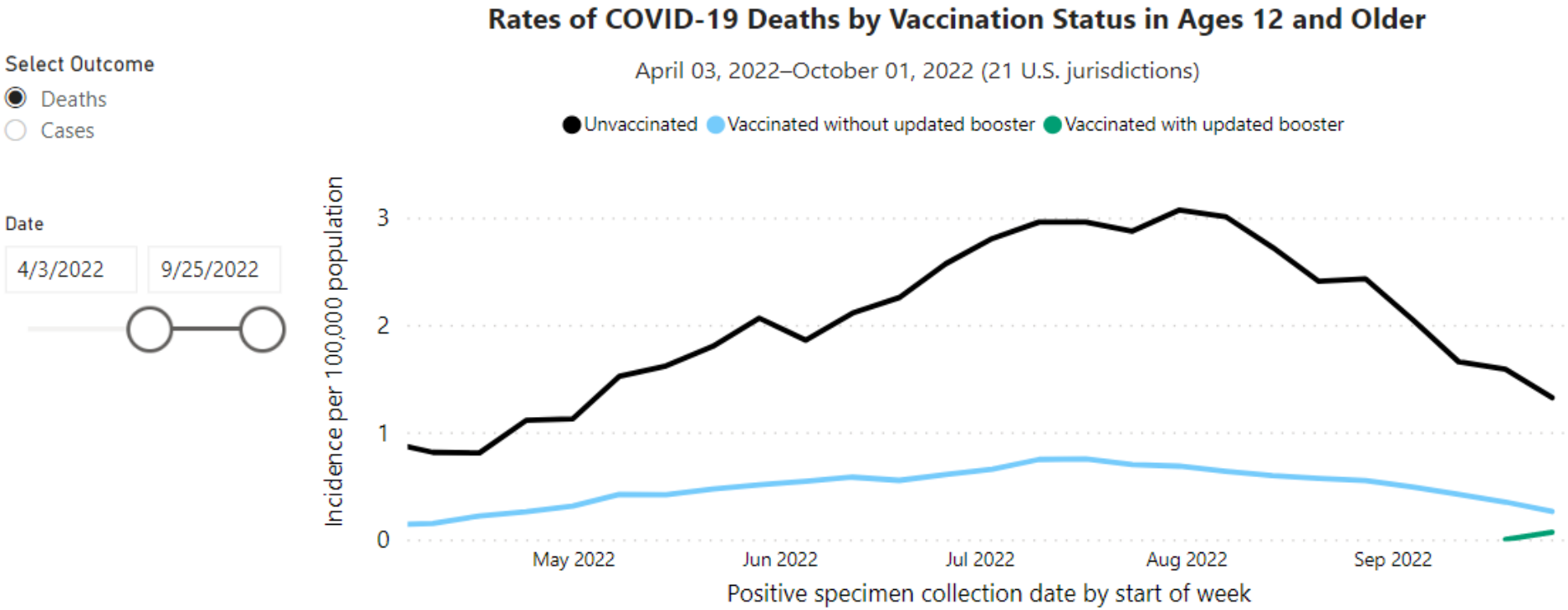


TBE is a Disease with Many Similarities to Tetanus

- Disease not eradicable, low incidence – TBE: <1/10^5; tetanus 0.25/10^5
- Reservoir outside humans – no herd protection
- Vaccination results solely in individual protection
- Severity (TBE may be more severe; chronic sequelae)

Dobler et al. Wien Med Wochenschr (2012) 162:230–238 DOI 10.1007/s10354-012-0100-5; Dobler et al. (2020) The TBE Book (GHP), Singapore

All vaccinated groups had overall lower risk of dying from COVID-19 and testing positive for COVID-19 compared with people who were unvaccinated.



People aged 12 and older vaccinated with an updated (bivalent) booster had:

14.9X
lower risk of dying from COVID-19

in September 2022, and

3.2X
lower risk of testing positive for COVID-19

in October 2022, compared to unvaccinated people.

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TBE–endemic countries:

From the UK to Japan from the polar circle to Africa

Many „white spots“ due to lack of surveillance / testing patients /

Neurology®

November 16, 2022 RESEARCH ARTICLE
OPEN ACCESS

Incidence of Epilepsy and Seizures Over the First 6 Months After a COVID-19 Diagnosis: A Retrospective Cohort Study

PDF
Help

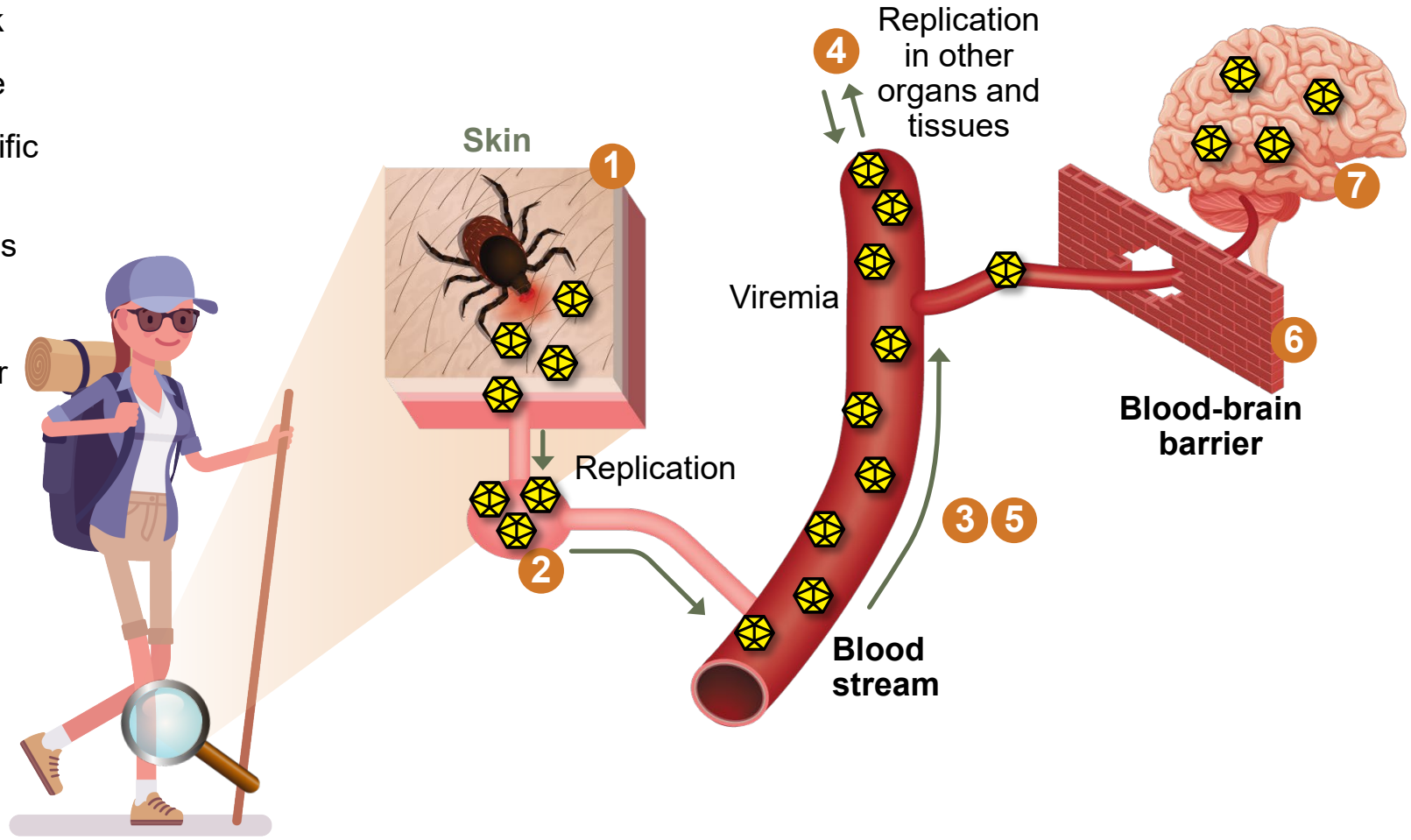
Maxime Taquet, Orrin Devinsky, J. Helen Cross, Paul J Harrison, Arjune Sen

First published November 16, 2022, DOI: https://doi.org/10.1212/WNL.0000000000201595

Conclusions: The incidence of new seizures or epilepsy diagnoses in the six months following COVID-19 was low overall, but higher than in matched patients with influenza. This difference was more marked in people who were not hospitalized, highlighting the risk of epilepsy and seizures even in those with less severe infection. Children appear at particular risk of seizures and epilepsy after COVID-19 providing another motivation to prevent COVID-19 infection in pediatric populations. That the varying time of peak risk related to hospitalization and age may provide clues as to the underlying mechanisms of COVID-associated seizures and epilepsy.

Schematic Drawing of the Steps During TBE Virus Infection

1. TBE virus transmission from an infected tick
2. TBE virus replication in regional lymph node
3. Primary Phase: First Viremia (fever, unspecific symptoms)
4. Replication of the virus in organs and tissues
5. Second viremia
6. TBE virus crossing of the blood-brain barrier
7. Second phase: Virus infection of the CNS



NOTE:

„Abortive TBE“ describes patients who only have fever., but never develop any acute CNS-symptoms

„Monophasic TBE“ describes patients with only CNS-disease, often linked to TBE-SIB

Based on: Domoso-Mantke et al. (2011) IntecOpen. Doi:10.5772/21912

Recent Advances in TBE Prevention

Research Letter | Pediatrics

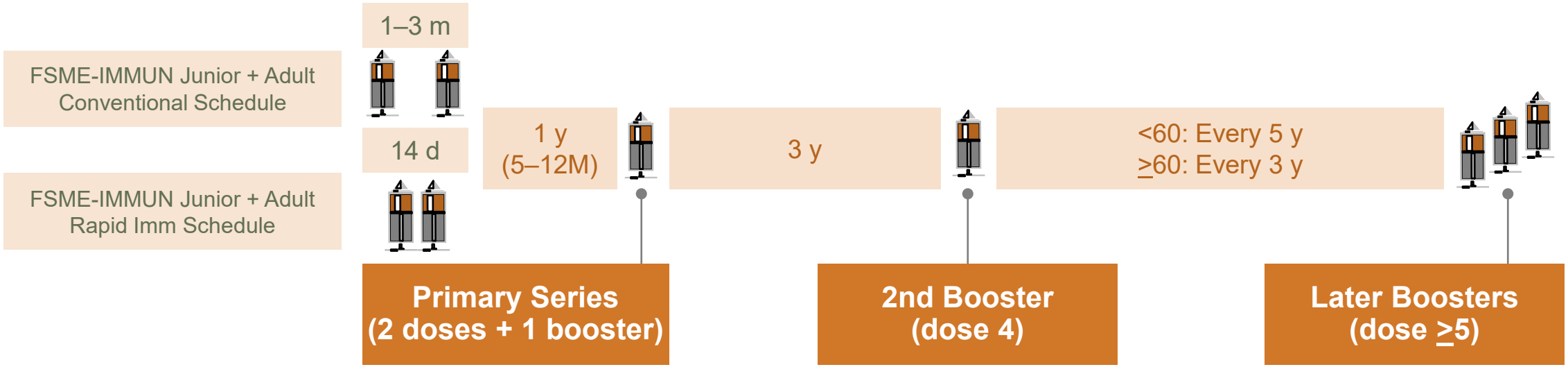
November 16, 2022

Analysis of COVID-19 Vaccination Status Among Parents of Hospitalized Children Younger Than 5 Years With SARS-CoV-2 Infection During the Delta and Omicron Waves

Florie Solignac, MD[1]; Naïm Ouldali, MD, PhD[2,3,4]; Camille Aupiais, MD, PhD[4,5]; et al

During the #Delta & #Omicron #COVID19 waves in #France, parents' #vaccination status was associated with a reduced risk of hospital admission for #SARSCoV2 in kids younger than 5 years.

FSME-Immun Vaccination Schedule: Current Schedule



- Of all vaccines, likely TBE vaccines have the most complicated vaccination schedule
- Dosing depends on individual situation and on age
- This is a result of the initial licensing, which was solely based on serological data

- By now, there is >40 years of FSME-Immun use in adults, and >16 years of use in children 1–15 years
- The current studies were done to evaluate if an extension of booster-intervals, i.e. reduced dosing, is feasible

FSME-Immun SmPC; data on file

Extended Booster schedule possible

- Vaccine license of 1976 was based on IMMUNITY only
- Today effectiveness data are available from several countries
- Pfizer medical team: too TBE-vaccine doses are unethical
  - Applied for delayed booster doses, following EMA-rules - EMA declined.
- **Vaccine effectiveness >90% even if dosese are missed for >10 years: Data from:**
  - Latvia
  - Germany
  - Austria
  - Switzerland
- **Booster only every 10 years recommended in Finland Switzerland**
  - Swiss data to show no increase in case numbers
  - The vast majority of TBE today are due to a
    - **Failure to vaccinate, not Vaccine failures**.

Flu vaccines greatly reduce both pneumonia and cardiovascular complications in people with heart failure.

A total of 5,129 patients were involved in the study, which ran from 2015 to 2021. Over the course of 1 year, a flu vaccine reduced pneumonia by 40% and hospitalization by 15% in patients with heart failure. During influenza season in the fall and winter, the vaccine reduced deaths by 20% in these patients.

Most importantly, fewer study participants had all-cause hospitalization in the vaccine group than in the placebo group (388 participants [15.2%] vs 455 participants [17.7%]; hazard ratio [HR], 0.84 [95% confidence interval [CI], 0.74 to 0.97]), and there were fewer recurrent all-cause hospitalizations in the vaccine group than in the placebo group (557 participants [21.8%] vs 671 participants [26.1%]; HR, 0.84 [95% CI, 0.75 to 0.94]).

Influenza vaccine to reduce adverse vascular events in patients with heart failure: a multinational randomised, double-blind, placebo-controlled trial - The Lancet Global Health

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it's not a
PANDEMIC
it's an IQ test