

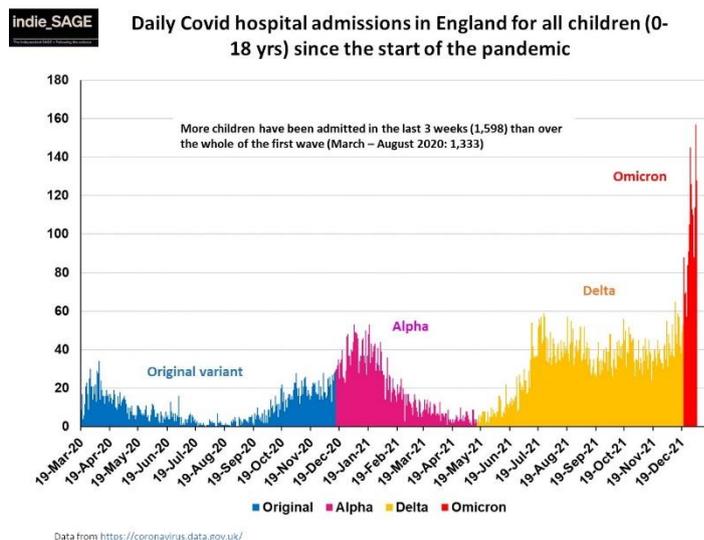
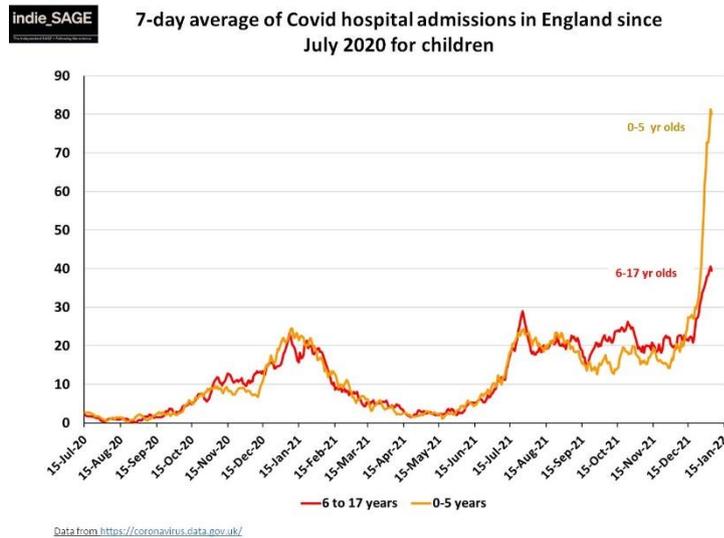
Episode 218 :

Dear colleagues,

Upon request, I will try to present the literature in a more structured way, according to larger areas, such as epidemiology, clinical, vaccines and immunology, drugs and virology.

EPIDEMIOLOGY

Ep 218-1: Still, more children are being hospitalised in the UK



Ep 218-2: Similar, rather concerning data from New York on rapid increase of pediatric hospitalizations

EXECUTIVE SUMMARY OVERVIEW

- 1 Seven out of ten children across New York State who contracted COVID-19 and were hospitalized were symptomatic and 54% had no comorbidities.
- 2 Hospitalizations due to COVID-19 rose across all age groups statewide, but none faster than for those 18 years and younger. Among people aged ≤ 18 years, admissions increased more than seven-fold statewide, while those for all age groups combined increased only 2-fold statewide. The hospitalization rate for 0 – 4-year-olds increased 791% from week of Dec. 5 – 11 to week of Dec. 26. – Jan. 1, 335% for those 5 – 11 years and 1047% for those 12 – 18 years during the same time period.
- 3 New pediatric hospital admissions are increasing most rapidly in New York City and the mid-Hudson Valley region, with a seventeen-fold and eight-fold increase, respectively, far surpassing the four-fold increase previously identified two weeks ago.
- 4 Of children newly admitted, 91% of 5 – 11-year-olds were unvaccinated and only 4% were fully vaccinated. Among 12-17-year-olds, 65% were unvaccinated while 26% were fully vaccinated. Moreover, 55% percent of hospitalizations were in children 0 – four-years-old, who comprise only 26% of the 0 – 18-year-old population and remain ineligible for vaccination.
- 5 In addition to foundational protection through vaccination, layered mitigation including masking is needed to keep children protected.

HOW DO WE PROTECT OUR CHILDREN'S
HEALTH?

These observed trends in hospital admissions for and with COVID-19 among those 18 years and younger highlight the need to redouble efforts to protect the health of our youngest New Yorkers.

Vaccination of children remains a critical, highly protective strategy and should be combined with other measures to reduce exposure, such as mask wearing.

Children four years of age and younger are not currently eligible for vaccination. Therefore, additional protective measures remain important to safeguard their health during the current winter wave, including vaccinating, boosting and masking by those around them.

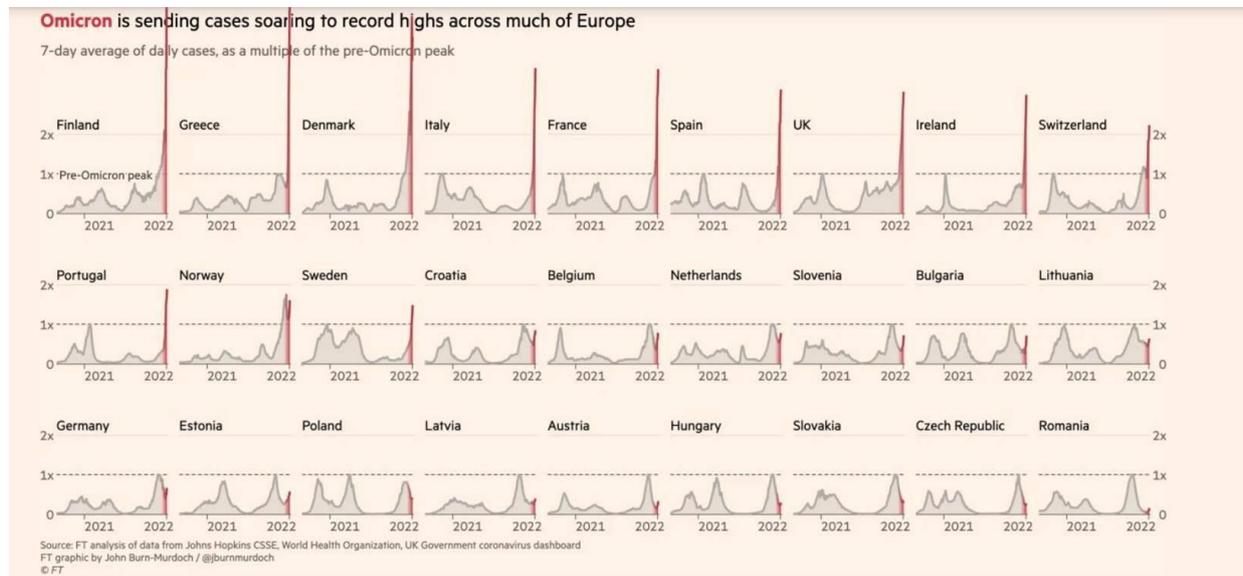


Note on p. 19 a calculated VE against omicron-related hospitalization between 76 and 95 % in children !

Ep 218-3: Population data from a paper in the Financial times.

Sorry, I have no access to the full paper, but this is the link, for the FT abonnees
<https://www.ft.com/content/b0cd9239-f2df-4afc-912f-b3f87fc676ff>

Europe



South Africa

Peak hospital admissions in South Africa's Omicron wave were about two-thirds of the Delta peak. But this figure hides an important nuance that underlines the mild or moderate nature of many cases compared with past waves, Friedland said. "A new category of patients emerged, which we had not seen in the past three waves — something we have classified as incidental Covid," he said.

Respiratory problems: Delta: nearly all had acute respiratory problems. Omicron about a third.

Duration of hospital stay: Delta about 7 days; Omicron 3 days



Ep 218-4 : A modeling exercise for the present “omicron” winter in the USA, predicting that essentially everybody will get infected (irrespective of vaccination status), unless adherence to NPI...

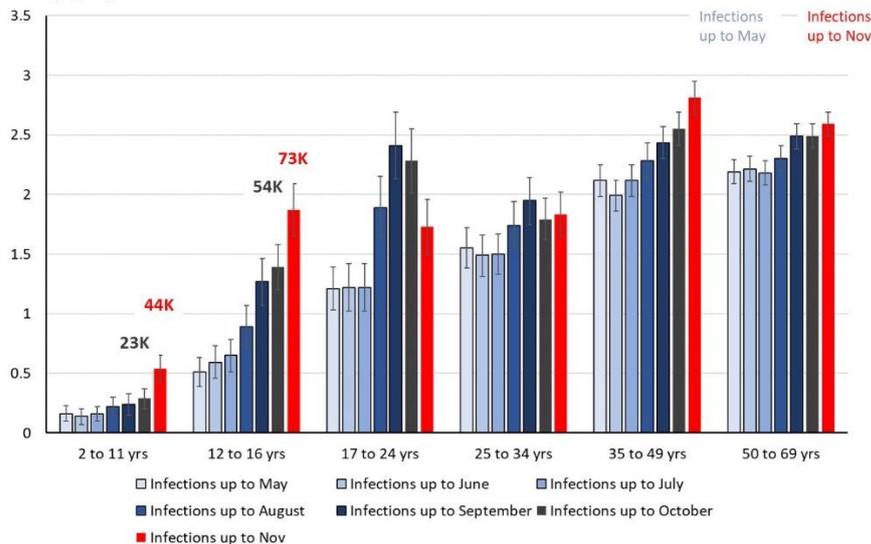
CLINICAL

Ep 218-5

indie_SAGE

Percentage of population living with “Long Covid” (symptoms lasting at least 4 weeks) by age over time (ONS survey)

Percent of age group



Data from

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/datasets/alldatarelatingtoprevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk>

Ep 218-6 : Kuodi reports on > 50 % protective effect of (Pfizer) vaccination on “post-acute” symptoms after COVID (breakthrough) infection (fatigue, headache, weakness and muscle pain).

Ep 218-7: New diabetes incidence associated with COVID-19 in children (< 18 yrs)

New diabetes diagnoses were:

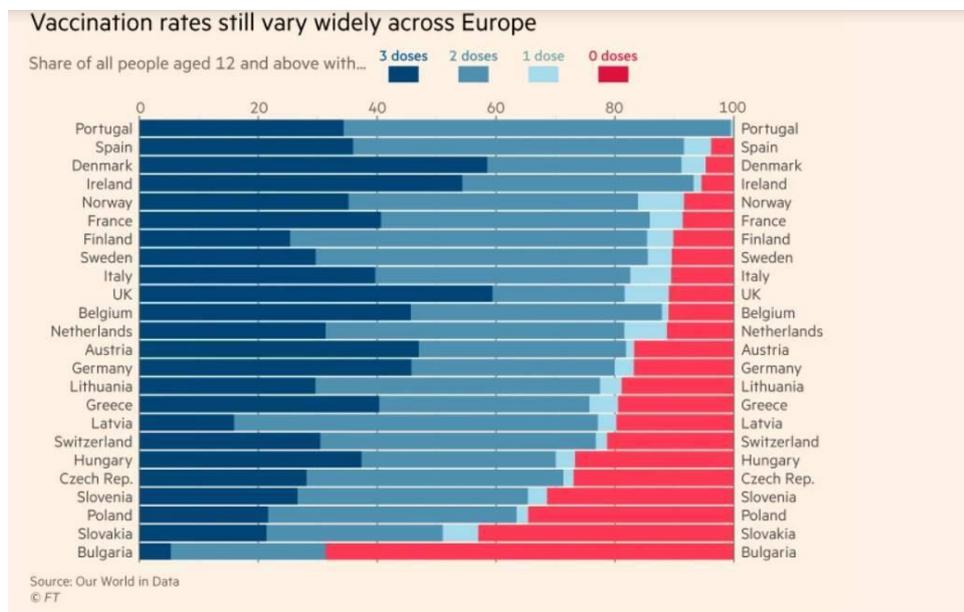
- 166% (IQVIA) and 31% (HealthVerity) more likely to occur among patients with COVID-19 than among those without COVID-19 during the pandemic
- 116% more likely to occur among those with COVID-19 than among those with ARI during the pre-pandemic period.

Non-SARS-CoV-2 respiratory infection was not associated with diabetes.

These findings are consistent with previous research demonstrating an association between SARS-CoV-2 infection and diabetes in adults

The increased diabetes risk among persons aged <18 years following COVID-19 highlights the importance of COVID-19 prevention strategies, including vaccination

VACCINATION



Ep 218-8 : Effectiveness of 3rd dose mRNA1273 (Moderna): large Kaiser study USA

Against infection:

- Overall 95.2% against delta and 62.5% against omicron infection
- No difference between < and > 65 yrs old for delta; but for omicron: 63 % for < 65 yrs old and only 57 % for > 65 yrs old.
- Immunocompromised: only 11.5 % against omicron

Against hospitalization:

None of the cases (delta or omicron) vaccinated with 3 doses were hospitalized compared to 53 delta and 2 omicron unvaccinated cases.

Ep 218-9: Antibody responses to mRNA vaccination in 65+ individuals (Canada)

- Two-dose COVID-19 mRNA vaccines weaker in older adults, and also decline more quickly over time, compared to younger adults. Clear enhancement, if previously infected (= hybrid immunity).

- A third COVID-19 mRNA vaccine dose enhanced binding and neutralizing antibodies to levels higher than those observed after two vaccine doses, not different from younger adults
- But the rate of decline of these responses should be monitored.

Ep 218-10: Vaccine efficacy against symptomatic disease and hospitalization in 65 + subjects (UK)

VE against symptomatic disease by omicron after booster

First 2 doses	Booster	2-4 weeks	5-9 weeks	10 + weeks
Astra-Zeneca	Pfizer	62 %	48 %	32 %
Astra-Zeneca	Moderna	65 %	56 %	No data
Pfizer	Pfizer	65 %	49 %	31 %
Pfizer	Moderna	70 %	57 %	No data

Moderna booster slightly more effective than Pfizer, irrespective of AZ or Pfizer as first 2 doses.

Rather rapid waning of effectiveness against symptomatic disease

Nevertheless:

VE against hospitalization of 94% 2 to 9 weeks after the booster dose and 89% at 10 weeks post

Ep 218-11: Immunogenicity of third dose of the “Indian” inactivated vaccine BBV-152:

- *Six months after a two-dose BBV152 vaccination series cell mediated immunity and neutralising antibodies to both homologous (D614G) and heterologous strains (Alpha, Beta, Delta and Delta plus) persisted above baseline, although the magnitude of the responses had very much declined.*
- *Neutralising antibodies against homologous and heterologous SARS-CoV-2 variants increased 19- to 97-fold after a third vaccination.*
- No data on vaccine efficacy yet.

Ep 218-12: Safety of mRNA vaccination in pregnant women:

Pregnant women with COVID-19 are at increased risk for severe illness and adverse birth outcomes. In a retrospective cohort of >40,000 pregnant women, COVID-19 vaccination during pregnancy was not associated with preterm birth or small-for-gestational-age at birth.

Ep 218-13: Protective effect of previous infection on symptomatic reinfection.

- Preventing symptomatic reinfection with Alpha, Beta, or Delta is robust, at about 90%.
- Protection against reinfection with Omicron is nearly 60%.
- Protection against hospitalization or death at reinfection = robust, regardless of variant

SOME CONCLUSIONS:

- 1) Although symptoms are generally milder with omicron in adults (less hospitalization, less respiratory distress, lower mortality in South-Africa), we now see in UK and US higher numbers of children being hospitalized, with evidence that prior vaccination strongly protects against hospitalization.**
- 2) There is evidence, both in children and adults that diabetes be elicited by COVID, which seems another reason for vaccination.**

- 3) mRNA vaccination for pregnant women is safe.
- 4) Pfizer vaccination has > 50 % protective effect on post-acute COVID symptoms.
- 5) A third dose with mRNA protects 65 + less than younger patients against symptomatic disease and the protection wanes over 10 weeks. Moderna is slightly, but significantly better than Pfizer. Protection against hospitalization remains about 90 % for at least 2 months after the booster.
- 6) Previous infection protects 90 % against symptomatic COVID by previous VOC, yet 60 % against omicron, but the protection against hospitalization and death remains robust.

Best wishes,

Guido