



Combating the illusive and illustrious Covid-19 virus

NEDLAC/NIOH OHS COVID-19 Workplace Training Programme, 16 August 2022

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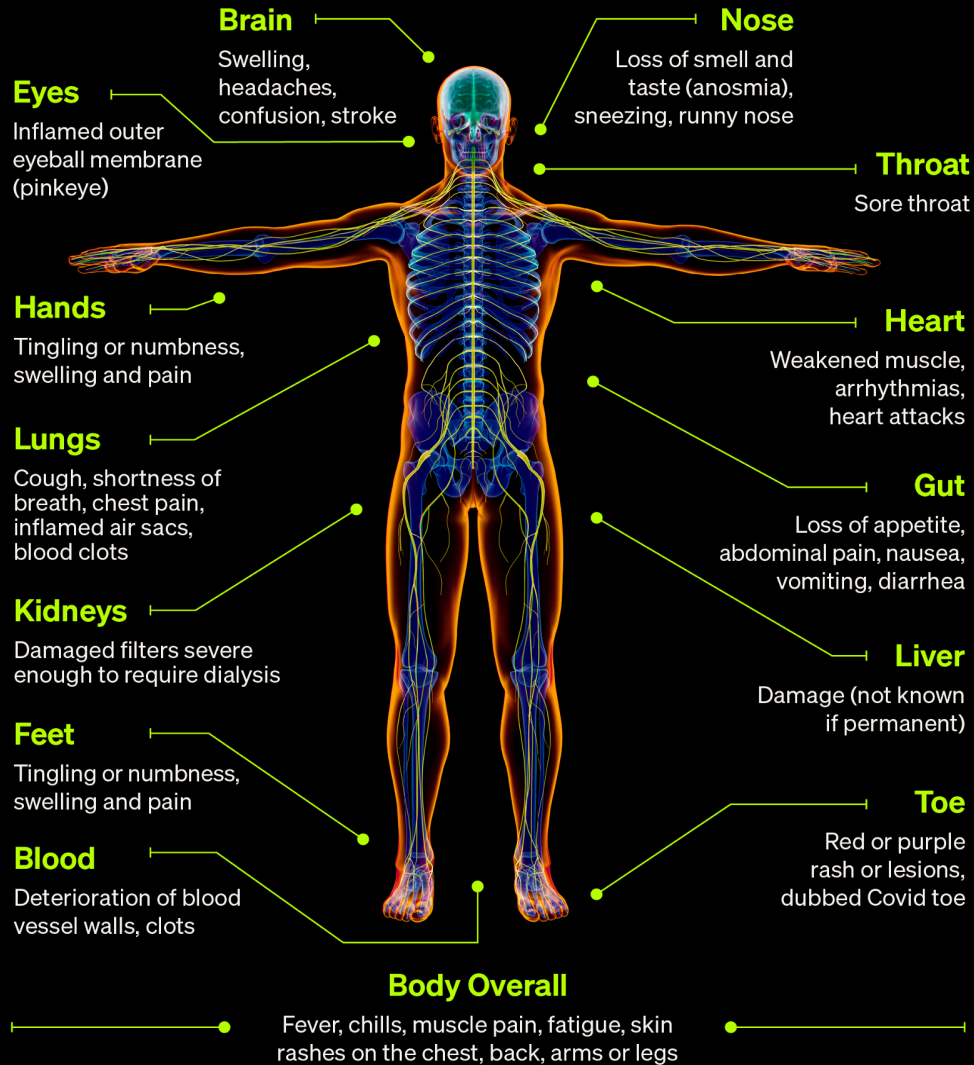
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Outline

- **Covid-19: More than an acute lung infection**
- **5 benefits of vaccines**
- **3 dimensions of low vaccine coverage**
- **What's next in Covid-19?**

People with Covid-19 might experience no symptoms, or just one or a few of these, or several in severe cases.

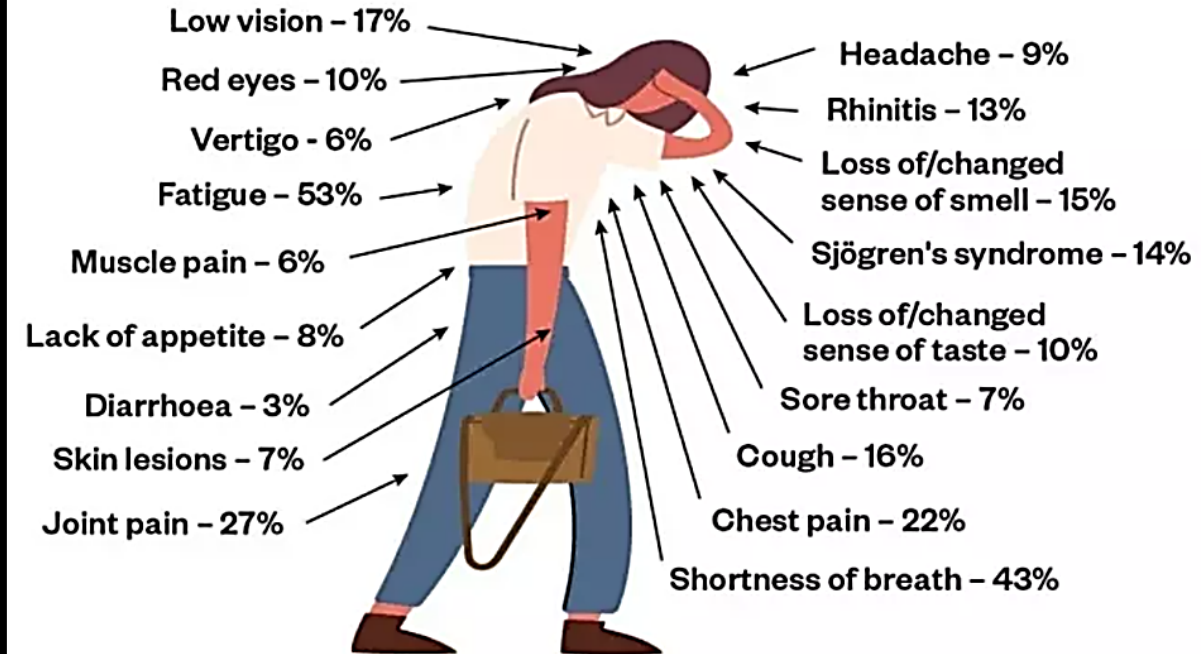


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Every Covid-19 Symptom We Know About Right Now, From Head to Toe

The most perplexing things about a disease that has proved vexing, deadly, and 'unprecedented in many ways'

Long COVID-19: the burden of "brain fog"



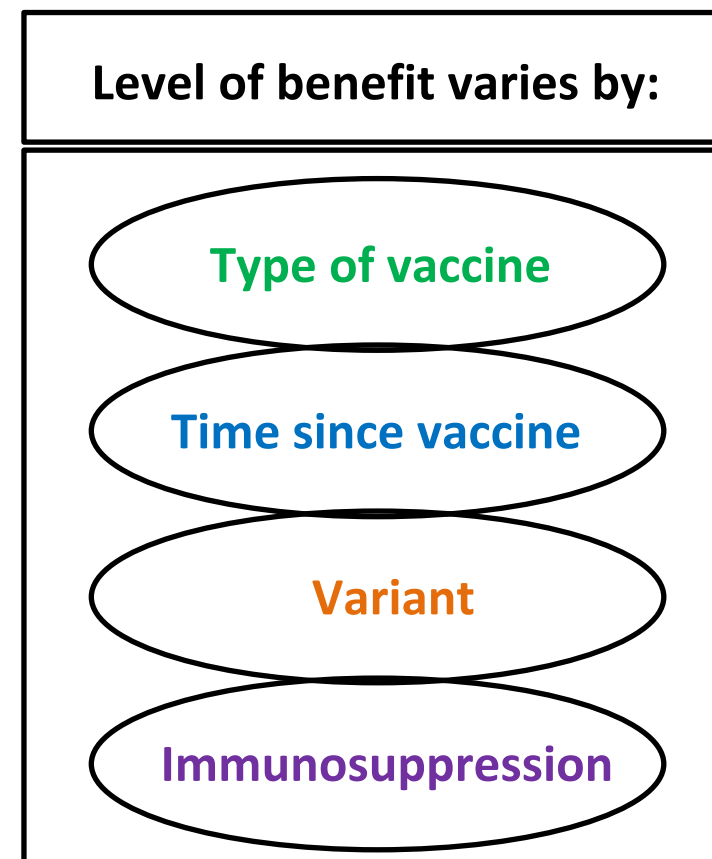
The 5 benefits of Covid-19 vaccines

- **Individual benefits:**

1. ↓ asymptomatic infections
2. ↓ clinically apparent infections
3. ↓ severity / hospitalisations / deaths
4. ↓ progression to long Covid

- **Community benefits:**

5. ↓ secondary attack rate to close contacts
 - ↓ infectious if infected when vaccinated
 - ↓ period of infectiousness when vaccinated



1, 2 & 3. Vaccines prevent asymptomatic, mild & severe infections, hospitalization & death

Two doses of Pfizer vaccine:

66% fewer asymptomatic & 95% fewer clinically mild infections

New York State (n=8,834,604) $\geq$ 65 years

(efficacy for severe disease and hospitalization for Alpha or Delta variant infection)

- Pfizer-BioNTech: **95%** to **89%** four months later
- Moderna: **97%** to **94%**
- J&J: **86%** to **83%**

US data on Covid-19 deaths: Boosted people - 78 times lower risk of dying

4. Two doses of Pfizer vaccine reduces long Covid

medRxiv
THE PREPRINT SERVER FOR HEALTH SCIENCES

Association between vaccination status and reported incidence of post-acute COVID-19 symptoms in Israel: a cross-sectional study of patients tested between March 2020 and November 2021

Paul Kuodi¹, Yanay Gorelik¹, Hiba Zayyad^{1,3}, Ofir Wertheim³, Karine Beiruti Wiegler², Kamal Abu Jabal^{1,2}, Amiel A. Dror^{1,4}, Saleh Nazzal³, Daniel Glikman^{1,3}, Michael Edelstein^{1,2}

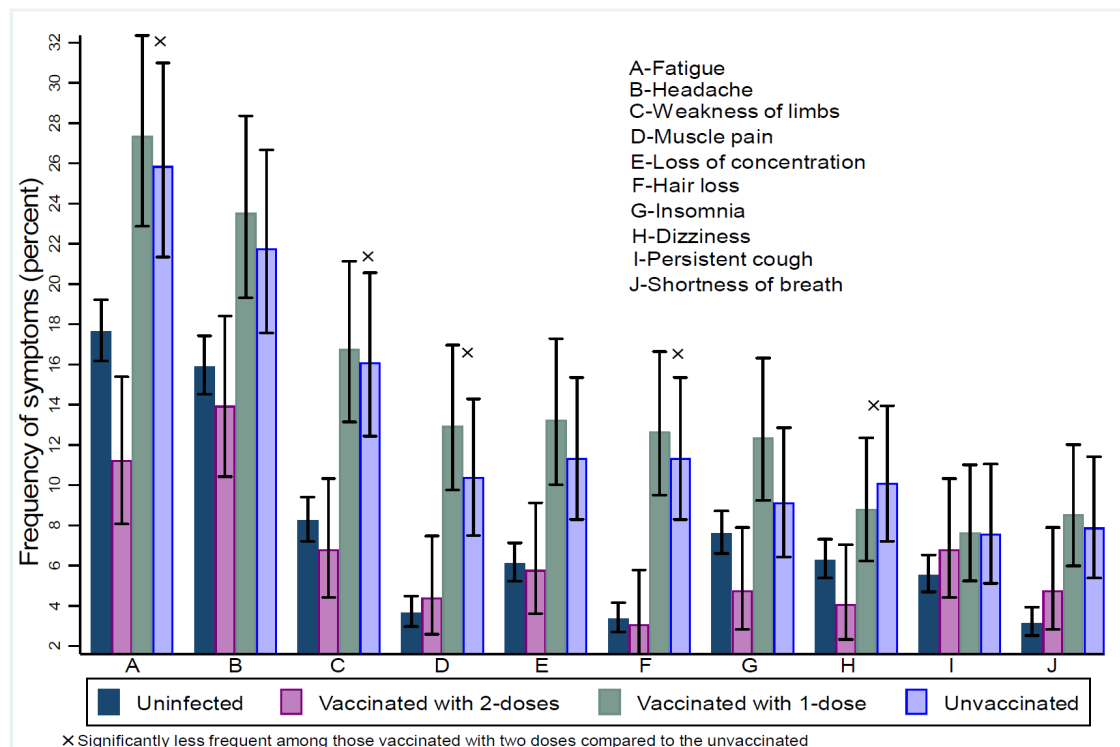


Figure 1. Frequency of most reported symptoms among the uninfected, the vaccinated and the unvaccinated

54% to 64% reduction in the 4 most common persistent long Covid symptoms:

- Fatigue
- Headache
- Weakness
- Muscle pain

5a. Vaccination reduces SARS-CoV-2 transmission

Science

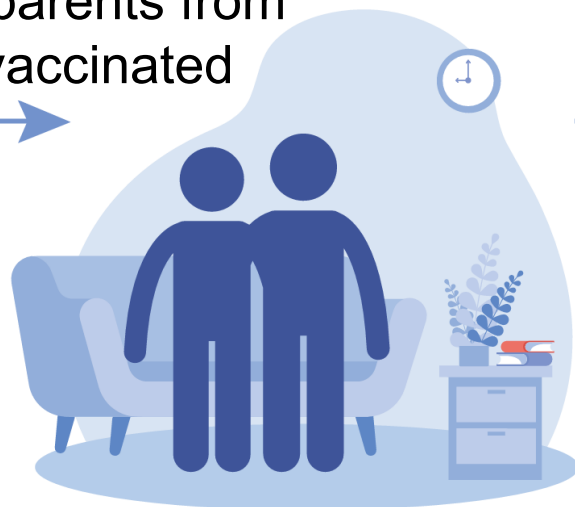
Indirect protection of children from SARS-CoV-2 infection through parental vaccination

Samah Hayek¹, Galit Shaham¹, Yatir Ben-Shlomo¹, Eldad Kepten¹, Noa Dagan^{1,2,3,4}, Daniel Nevo⁵, Marc Lipsitch⁶, Ben Y. Reis^{3,4,7}, Ran D. Balicer^{1,8}, Noam Barda^{2,1,3,4*}

Direct Protection Effect

Protection of parents from having been vaccinated

94%



Indirect Protection of Household members

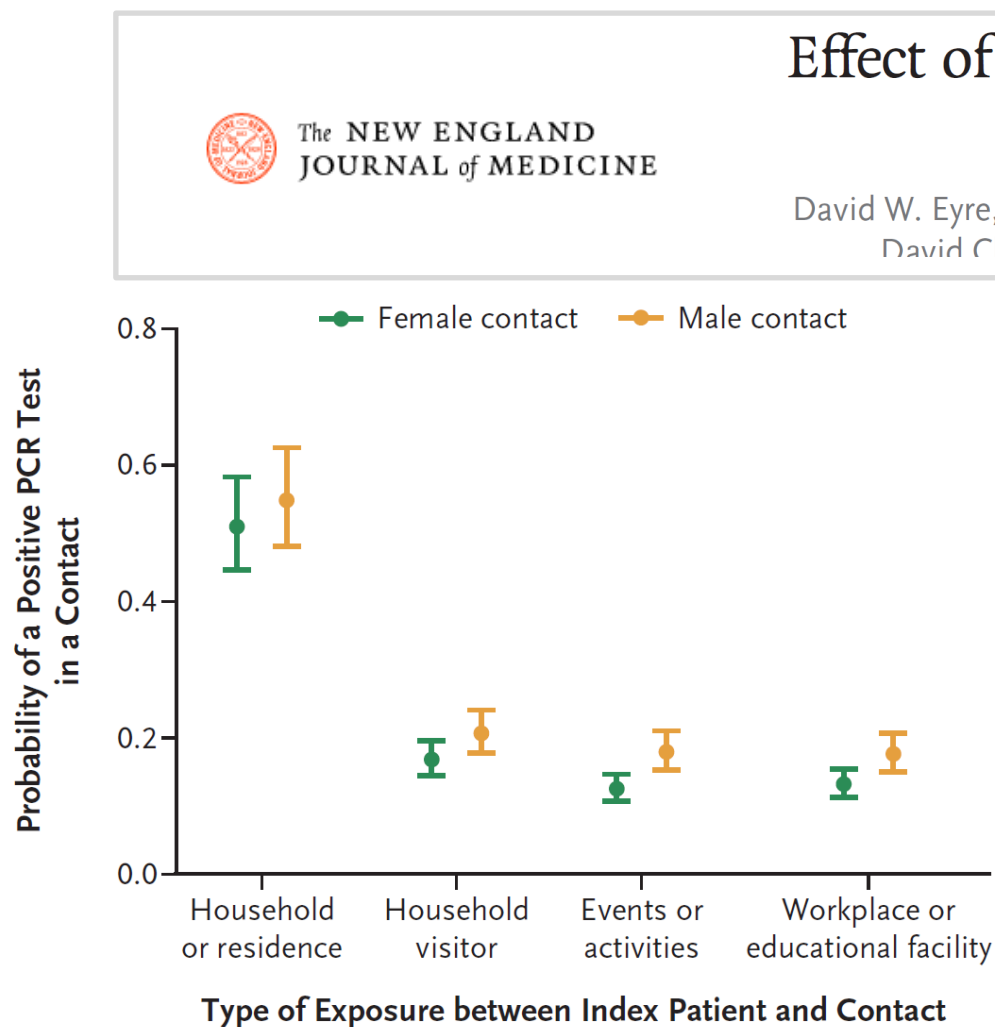
Reduction in Risk of transmission from infected parent to unvaccinated child

72%



- Two-parent homes with at least one vaccine-ineligible child
- Children with vaccinated parents - 72% lower risk of getting infected

5b. Vaccination reduced SARS-CoV-2 transmission to household & workplace contacts (in two variants)



- 146,243 contacts of 108,498 index patients tested (37% were PCR+)
- **Pfizer (X2)** reduced infection by **68%** in contacts compared to infections in contacts of unvaccinated
- Vaccine → ↓ viral load - ↓ infectiousness

I had Covid-19: Do I still need to vaccinate?

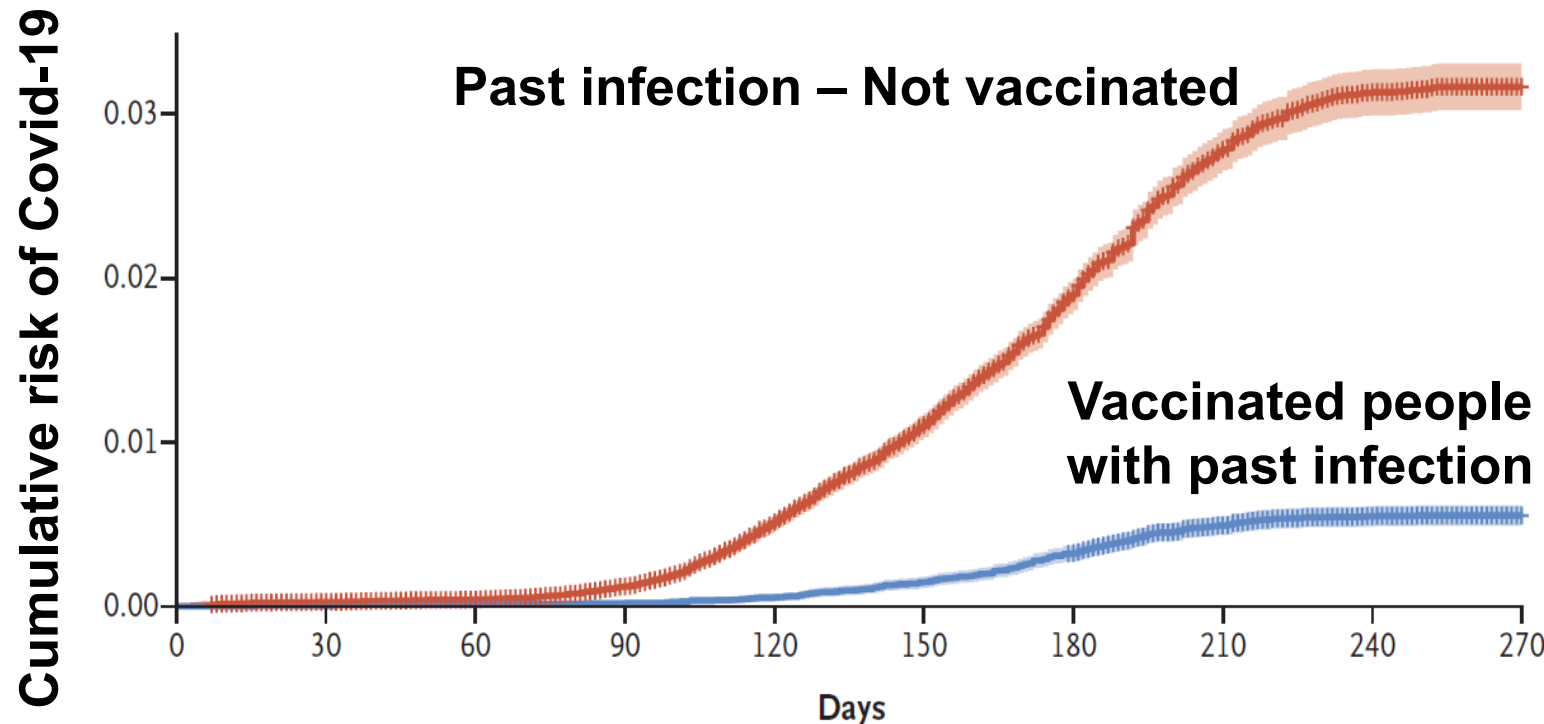
Vaccines ↓ reinfection by 82%



The NEW ENGLAND
JOURNAL of MEDICINE

Effectiveness of the BNT162b2 Vaccine after Recovery from Covid-19

Ariel Hammerman, Ruslan Sergienko, Michael Friger, Tanya Beckenstein, Alon Peretz, Doron Netzer, Shlomit Yaron, Ronen Arbel



- 149,032 patients with past infection - 56% vaccinated
- Reinfection rates: 2.5 vs 10.2 cases per 100.000
- Vaccine effectiveness = 82% (16 to 64 years)
- 1 Pfizer dose = 2 doses

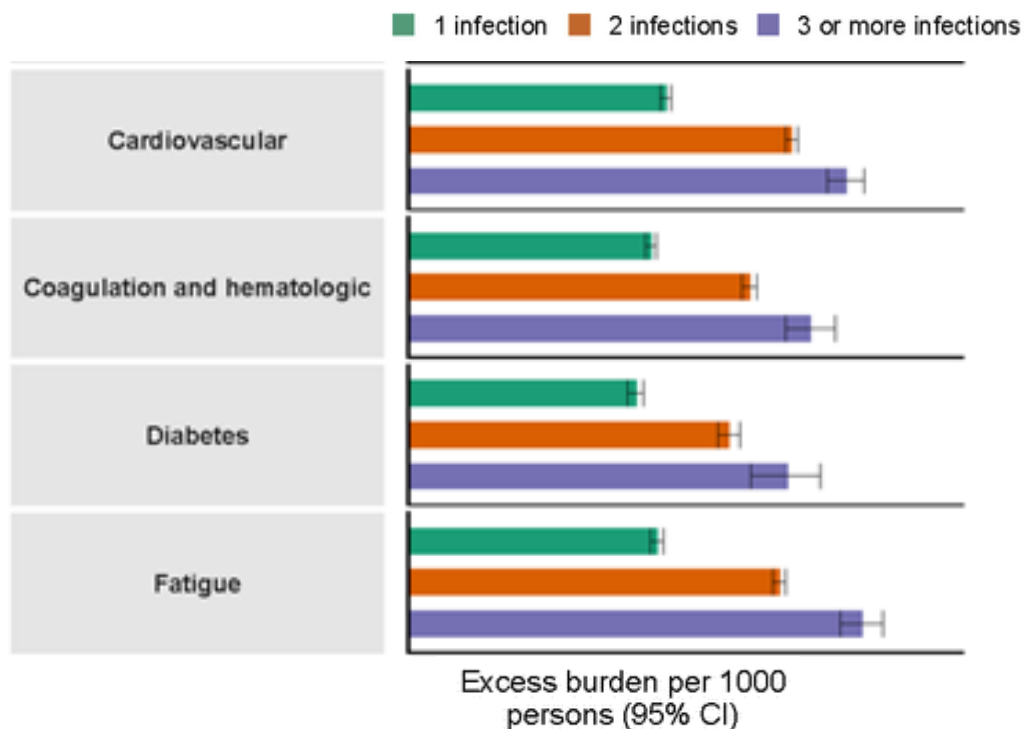
Reinfection is not harmless!

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Outcomes of SARS-CoV-2 Reinfection

Ziyad Al-Aly, Benjamin Bowe, Yan Xie



- Cohort
 - 257,427 people with 1st infection
 - 38,926 people with reinfection
 - 5,396,855 non-infected people
- Reinfection increases risk of all-cause mortality, hospitalization and adverse health outcomes (pulmonary and extrapulmonary organs)

Figure: Cumulative risk & burden of sequelae in people with 1, 2 and 3 or more SARS-CoV-2 infections compared to non-infected controls

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3 dimensions of Africa's low vaccine coverage

Supply problems:

1. Vaccine inequity, No local manufacture & Covax limitations

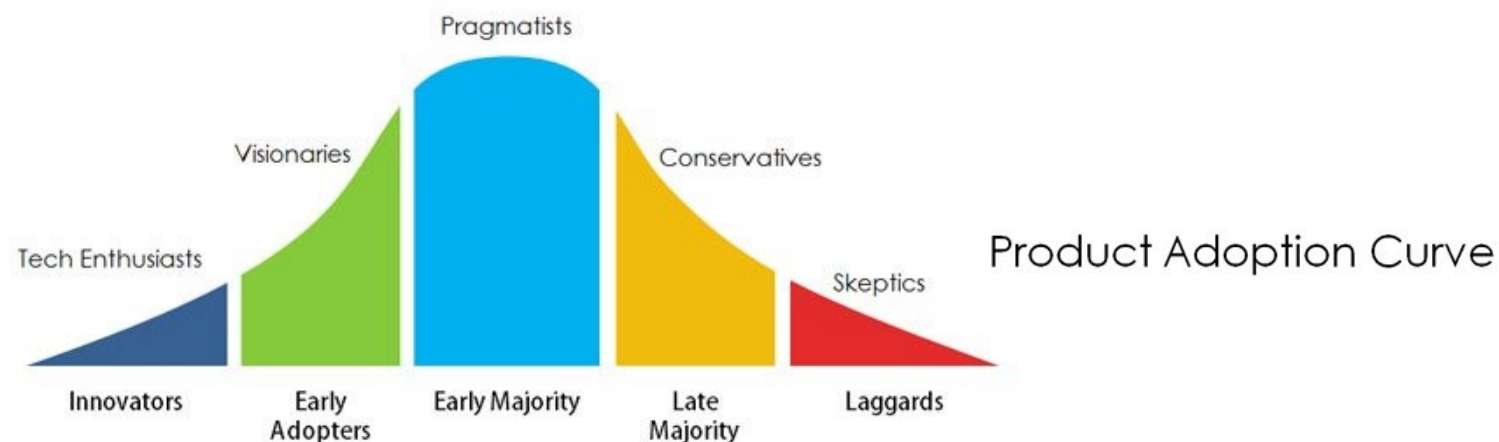
Demand problems:

2. ↓ threat - Disease less serious & Covid-19 low priority for people
3. Lower efficacy of vaccines with Omicron – more breakthroughs
4. Hesitancy related to mis/dis-information

System problems:

5. Low trust in government & poor capacity in health services

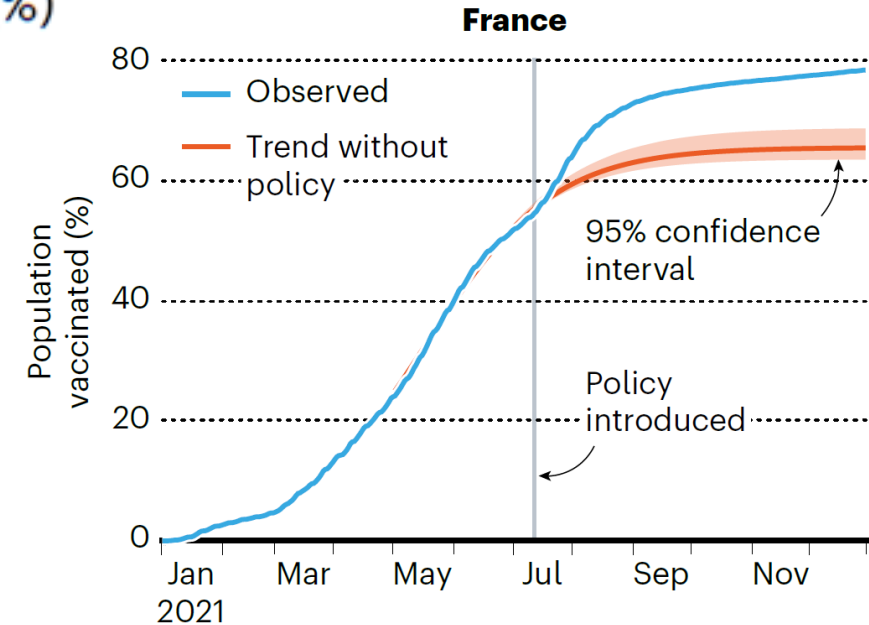
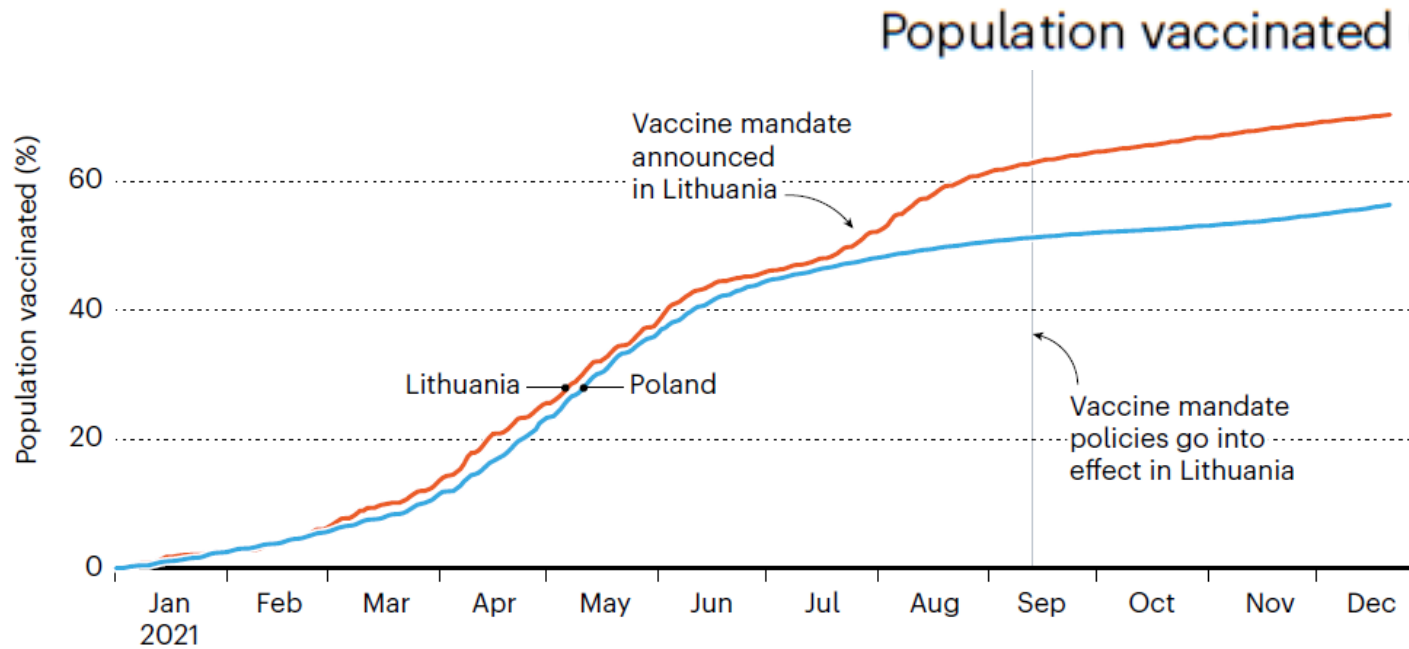
Inadequate programmatic support for vaccination rollout



1. **Innovators** – enthusiasts who will find a way to get vaccinated
2. **Early adopters** – visionaries who are first in line for vaccines
3. **Early majority** – pragmatists who get vaccinated when convenient
4. **Late majority** – conservatives & hesitant - need incentives / mandates
5. **Laggards** – anti-vaxxers who are unlikely to ever get vaccinated

Adapted from Rogers, Everett (16 August 2003). [*Diffusion of Innovations, 5th Edition*](#). Simon and Schuster

Vaccine mandates work! Impact in France & Lithuania



A health-pass programme in France sparked weeks of angry protest last year.

DID COVID VACCINE MANDATES WORK? WHAT THE DATA SAY

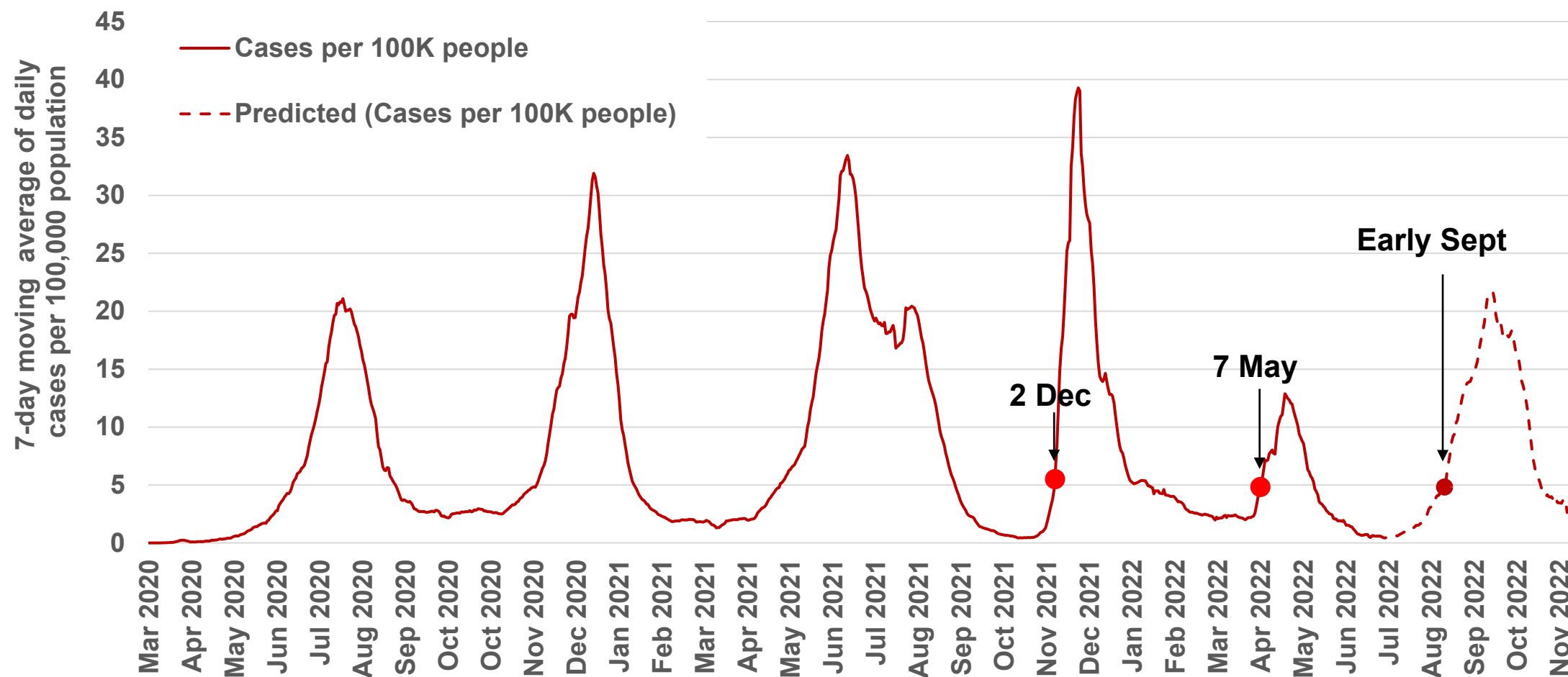
A measure of last resort got a major workout during the pandemic. Scientists are now trying to determine whether

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Covid-19 in South Africa – when is the 6th wave?



Note: New variant and other factors may change epidemic trajectory. These estimations are based on several assumptions and not on mathematical modelling

What does “*Living smartly with the virus*” entail?

1. Be fully vaccinated
2. Know level of community transmission – e.g. are cases rising?
- adjust your risk appetite accordingly
3. Know the potential risky situations you may be entering
- know what you can do to mitigate that risk
4. Avoid distant travel to places where you are not confident about the health care services available in the event of illness
5. Do what you can to protect others (not just yourself)!

A key lesson from HIV for Covid-19: Importance of mutual interdependence & shared responsibility



**HOW AIDS
CHANGED
EVERY
THING**

MDG 6: 15 YEARS, 15 LESSONS OF HOPE FROM THE AIDS RESPONSE

“The AIDS movement demonstrates that with a shared vision, shared responsibility and through global solidarity... ..we can change the course of history.”

– UNAIDS 2015

- **Global solidarity** – essential for access to life-saving medication, e.g. Global Fund & PEPFAR
- **Shared responsibility:** Countries where individuals see caring for fellow citizens as important do better than those where individuals focus on themselves first
- **No-one is safe until everyone is safe!**