



# Expected impact of COVID-19 vaccination in the European Union

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# Outline

- 1 ECDC current and planned activities on impact of vaccination against COVID-19
- 2 Goals and strategies of vaccination against COVID-19
- 3 Prioritisation of target groups for vaccination against COVID-19
- 4 Reflections on optimal vaccination strategies
- 5 Other activities for monitoring impact of vaccination against COVID-19

# European Commission calling for coordination in Member States for COVID-19 vaccination strategies and vaccine deployment plans

## ECDC is requested to:

- Support Member States in developing vaccines deployment plans and vaccination strategies;
- Set up a system to collect vaccine coverage data;
- To promote and support the development of electronic immunisation registries;
- Develop scenarios for prioritisation of vaccination based on mathematical modelling.

## ECDC and EMA joint work is:

- To set up a **monitoring framework to estimate vaccination impact, effectiveness and promptly detect and analyse safety signals**



# ECDC recent and current activities

## Plans and strategies

- COVID-19 vaccination and prioritisation strategies
- Overview of the deployment plans

## Deployment

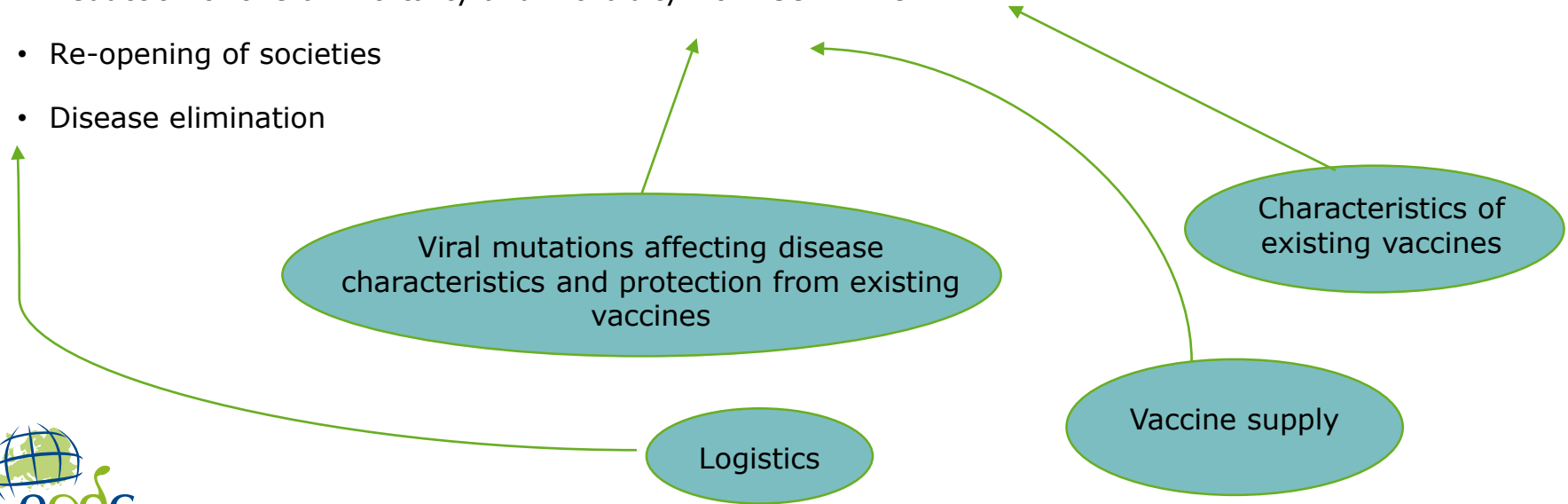
- Vaccine tracker for monitoring COVID-19 vaccine deployment
- Stress test to check the challenges encountered during the implementation of the vaccine deployment

## Impact estimation

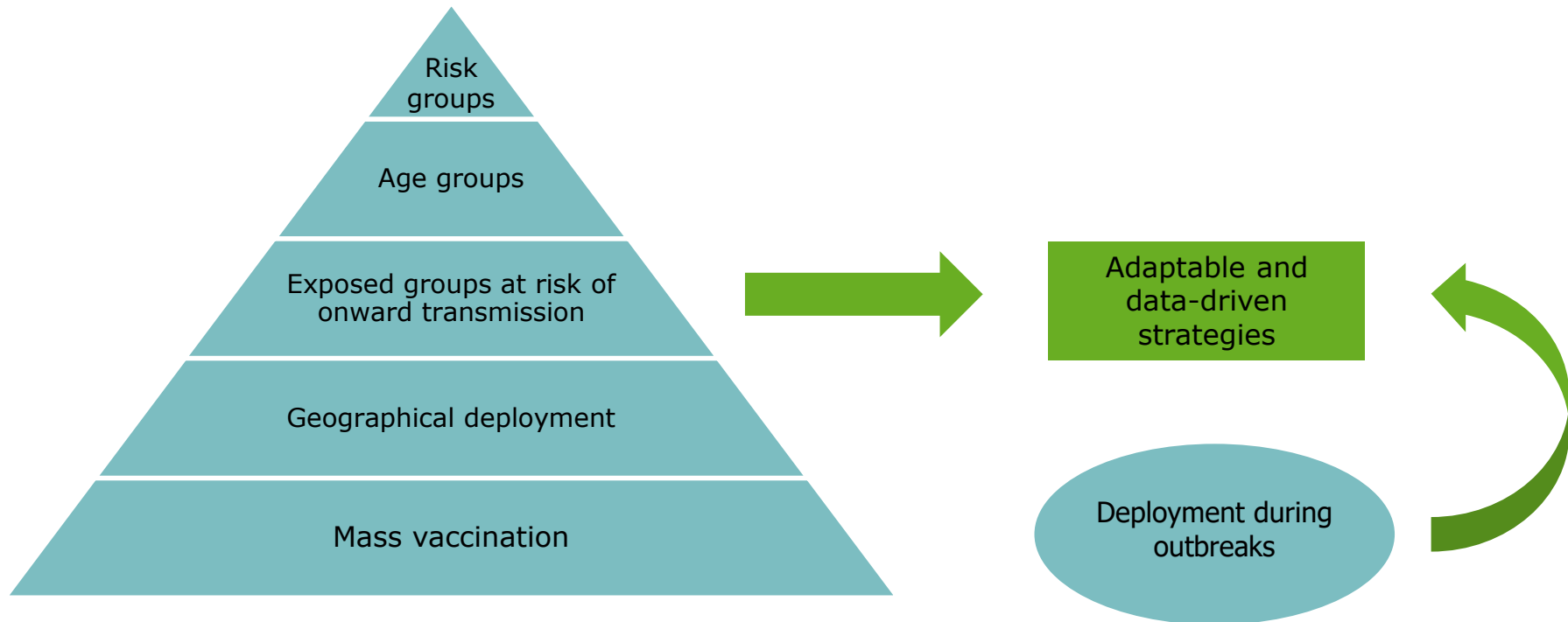
- Modelling of integrated scenarios of vaccination and non-pharmaceutical interventions
- Vaccine effectiveness studies in multiple settings

# Potential objectives of vaccination strategies against COVID-19

- Protection of vulnerable groups and healthcare system
- Reduction of overall mortality and morbidity from COVID-19
- Re-opening of societies
- Disease elimination



# Targets of COVID-19 vaccination

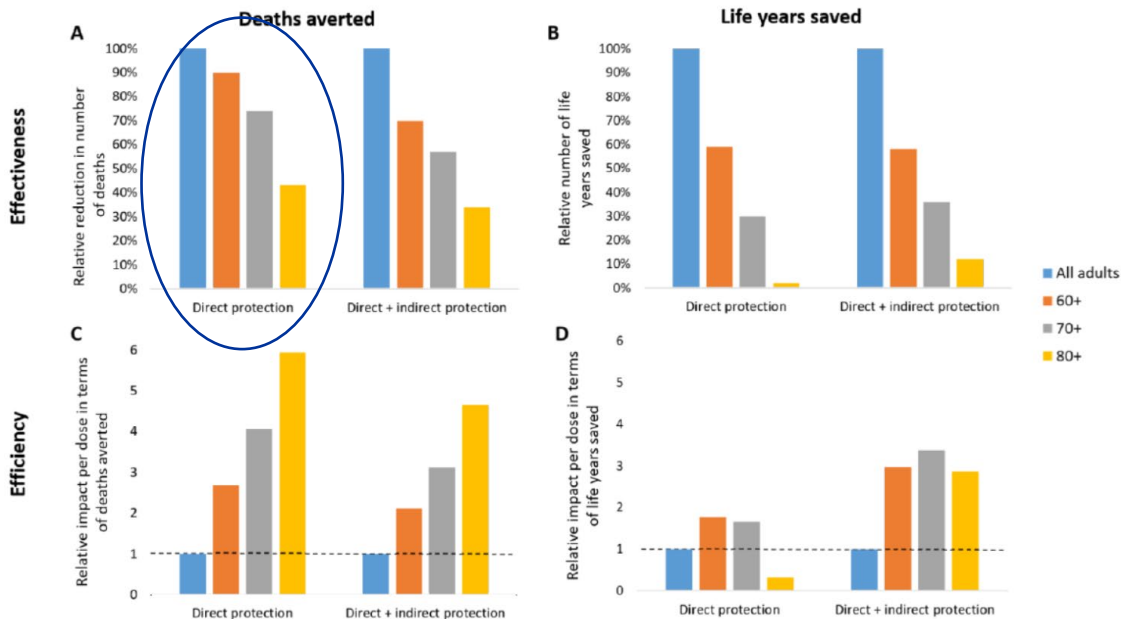


# Criteria for prioritisation of target groups for vaccination

<b>Individual protection</b>	<b>Societal role</b>	<b>Indirect protection of vulnerable individuals</b>	<b>Reciprocity</b>
<ul style="list-style-type: none"><li>• Increased risk of developing severe COVID-19</li><li>• Professional or societal exposure to SARS-CoV-2</li><li>• Frequent exposure and exposure to high viral load</li></ul>	<ul style="list-style-type: none"><li>• Essential workers during the pandemic</li><li>• During phases of intense community transmission, frontline and essential activities where full capacity is needed</li></ul>	<ul style="list-style-type: none"><li>• Close contacts of vulnerable and fragile individuals</li><li>• Contacts of individuals who cannot be vaccinated</li></ul>	<ul style="list-style-type: none"><li>• Heavy toll during the first waves of the pandemic</li><li>• Prioritisation for vaccination as a recognition of key role and sacrifice</li></ul>

# Vaccination of older adults

**Figure 1.** Relative effectiveness and efficiency of targeted vaccination by age, compared with a programme in which all adults are vaccinated

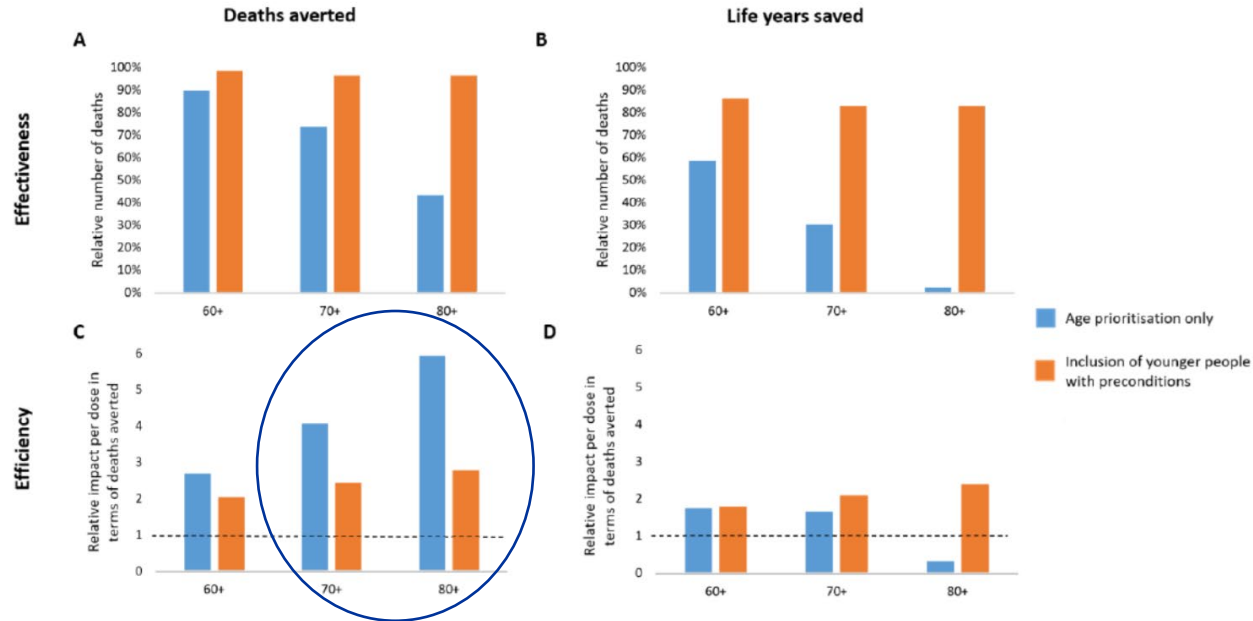


<https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-vaccination-and-prioritisation-strategies.pdf>



# Inclusion of younger people with preconditions

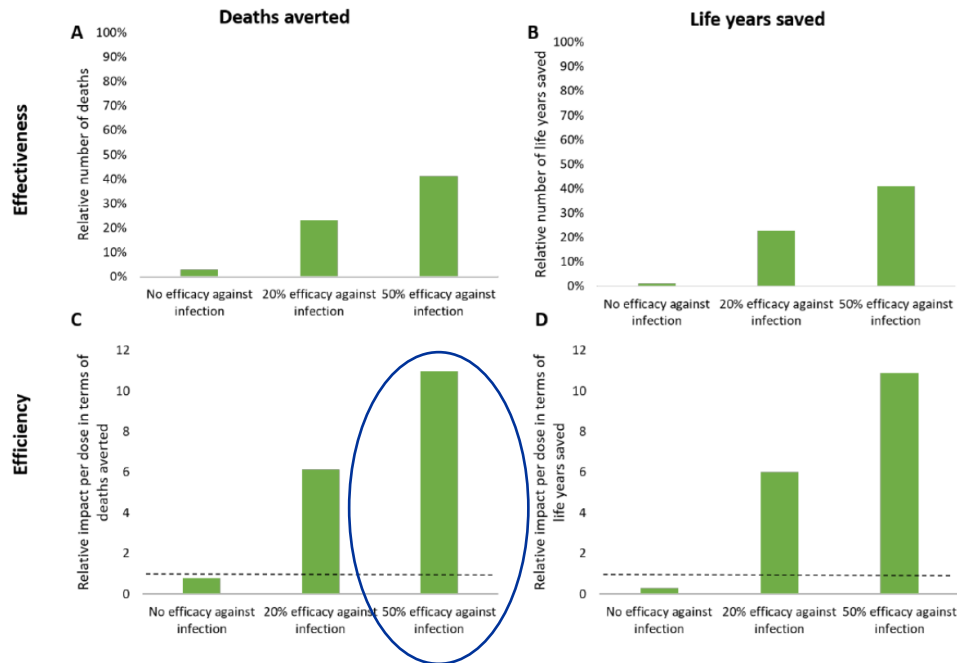
**Figure 2. Relative effectiveness and efficiency of vaccination targeted by age and preconditions, compared with a programme in which all adults are vaccinated**



<https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-vaccination-and-prioritisation-strategies.pdf>

# Vaccination of healthcare workers

**Figure 3. Relative effectiveness and efficiency of targeted vaccination of healthcare workers, compared with a programme where all adults are vaccinated**



<https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-vaccination-and-prioritisation-strategies.pdf>

# So, how to maximise the impact of COVID-19 vaccination on society?

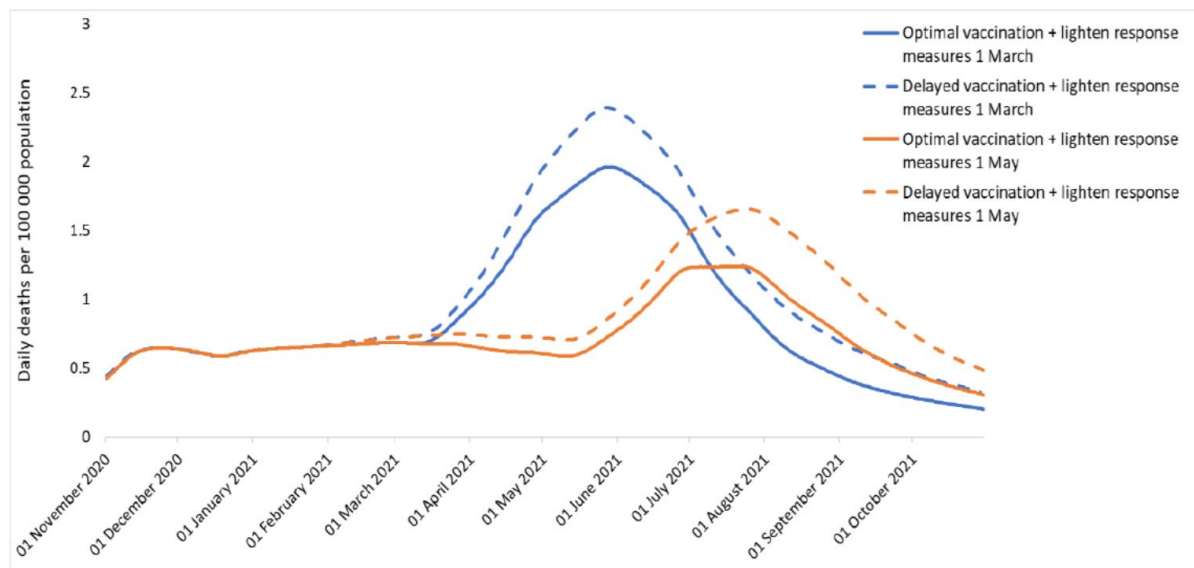
- **The choice of an optimal strategy depends on the objective** (e.g. reducing mortality, saving life years, reducing pressure on the healthcare system).
- Prioritisation of COVID-19 vaccination should take into account several dimensions and always needs to be contextualised.
- The optimal strategy also depends on the characteristics of the vaccine, in particular its efficacy against infection and therefore onward transmission.
- **The most effective and efficient approach to reduce COVID-19 deaths is to prioritise the vaccination of those groups at highest risk of severe disease.**

# So, how to maximise the impact of COVID-19 vaccination on society?

- **The societal benefit is heightened if the vaccines are effective against disease transmission**, since it offers indirect protection to people who cannot be/are not yet vaccinated, vulnerable groups and other high-risk individuals.
- Although **vaccinating adults aged 18-59 years is not the most effective or efficient strategy to reduce COVID-19 deaths when vaccine supply is limited**, consideration could be given to specific groups or settings that may have a disproportionate risk of exposure or to individuals at high risk of severe disease.

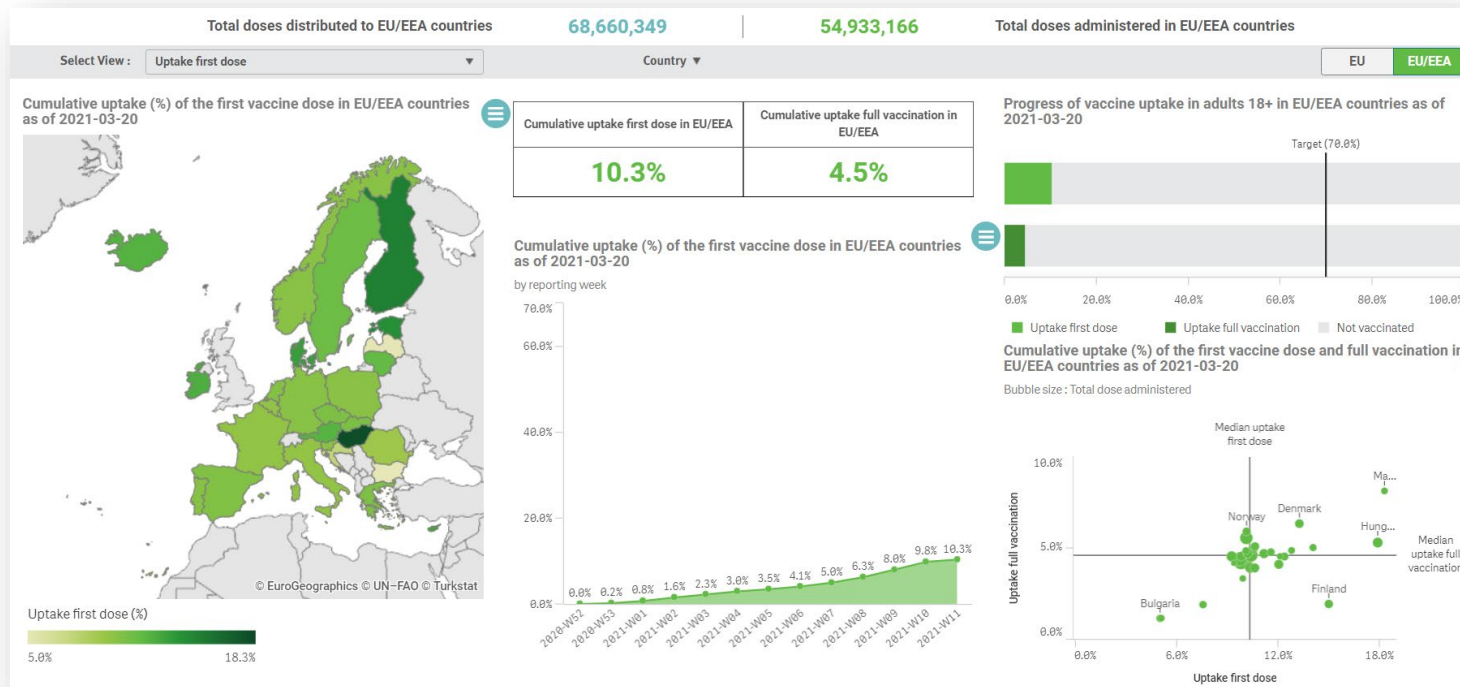
# Combined impact of vaccination and non-pharmaceutical interventions

**Figure 3.** The impact of delays to the COVID-19 vaccination programme on mortality, in light of the lifting of non-pharmaceutical interventions on 1 March 2021 (blue) or 1 May 2021 (orange)



<https://www.ecdc.europa.eu/en/publications-data/integrated-covid-19-response-vaccination-era>

# EU/EEA Vaccine tracker



<https://qap.ecdc.europa.eu/public/extensions/COVID-19/vaccine-tracker.html#uptake-tab>

# Why is there a need for post-marketing authorisation vaccine effectiveness and impact studies?

- “Real-world” vaccine effectiveness can be different from vaccine efficacy measured in trials, as the latter may not fully account for:
  - Previous/current infection/s
  - A number of underlying conditions
  - All age groups
  - Different schedules (incomplete immunisation, longer intervals between doses)
- Not all outcomes may have been assessed (e.g. disease severity, duration of immunity, asymptomatic infection, disease transmission)
- Indirect effects (herd immunity) cannot be measured in individually randomised trials used for marketing authorisation of vaccines

# Thank you for your attention

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