

Moving forward: Considerations for goals and strategies of COVID-19 vaccination

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Potential goals of COVID-19 vaccination strategies

Reducing pressure on healthcare systems

- Motivating factor for lockdowns during most intense phases
- Priority of protecting healthcare system during the pandemic

Reducing overall severity and mortality

- Pandemic toll: over 24 million cases and 570,000 deaths in the EU/EEA as of 19 March 2021
- Very large numbers of people admitted to the ICU

Re-opening society

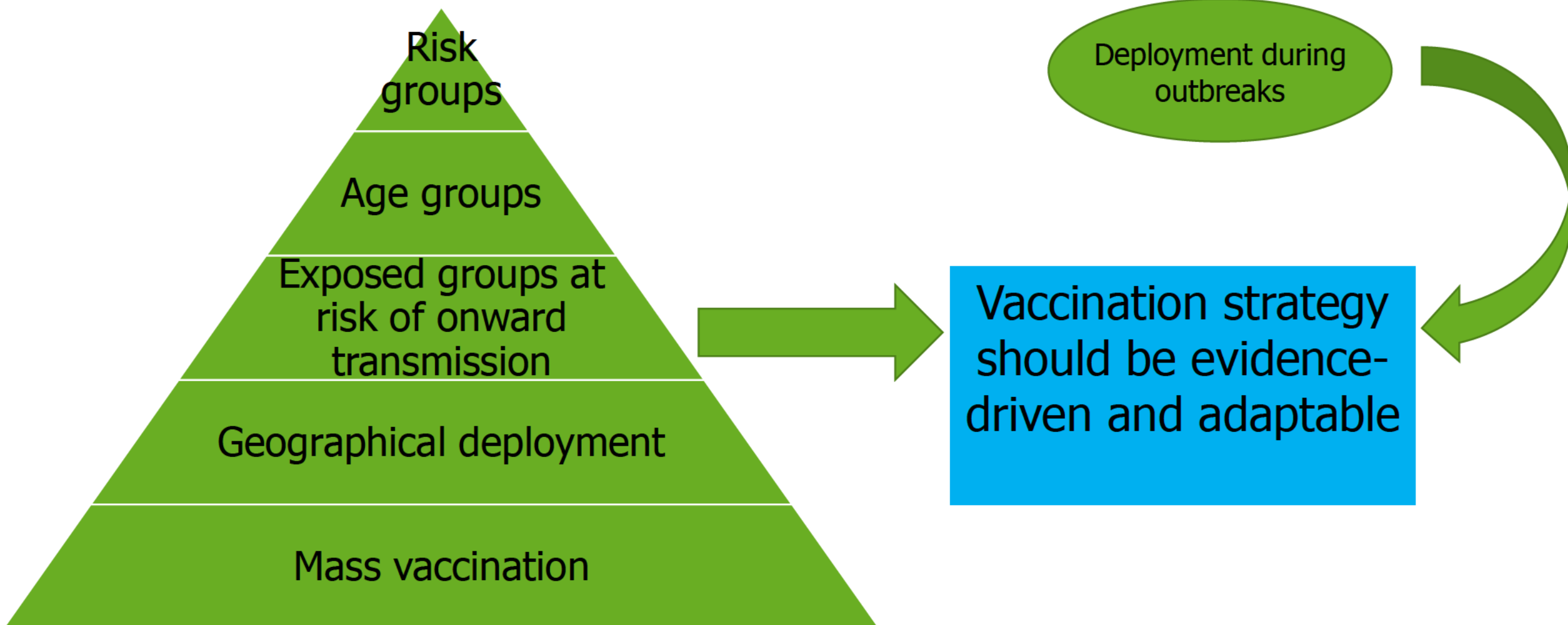
- Important damage to the economy and the society
- Indirect impact on health and wellbeing
- Fatigue in the population after over a year of restrictions

Disease elimination

- Appealing (but costly) objective
- Return to pre-pandemic lifestyle and conditions

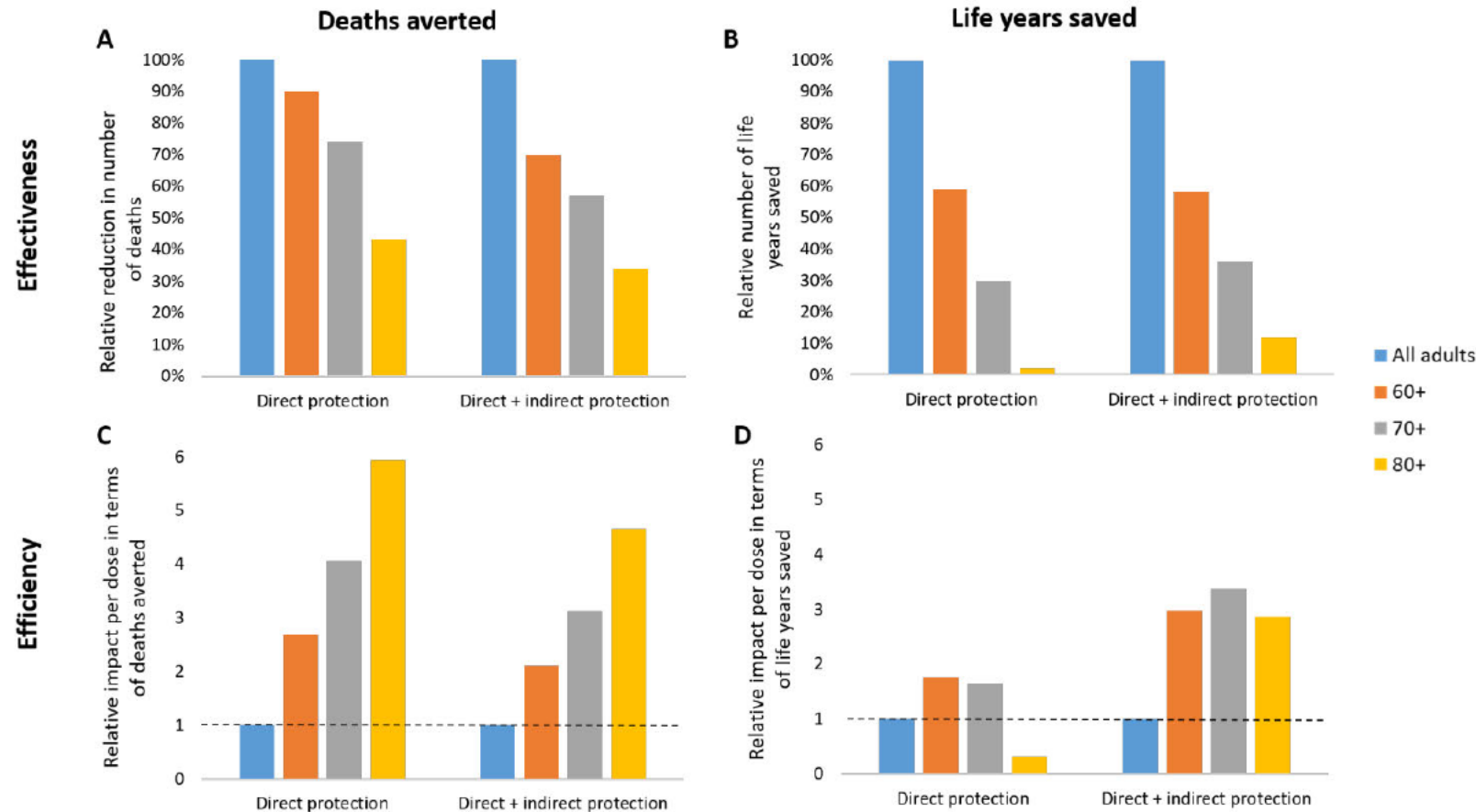


Possible targets of COVID-19 vaccination strategies



Vaccination of older adults compared to vaccination of all adults

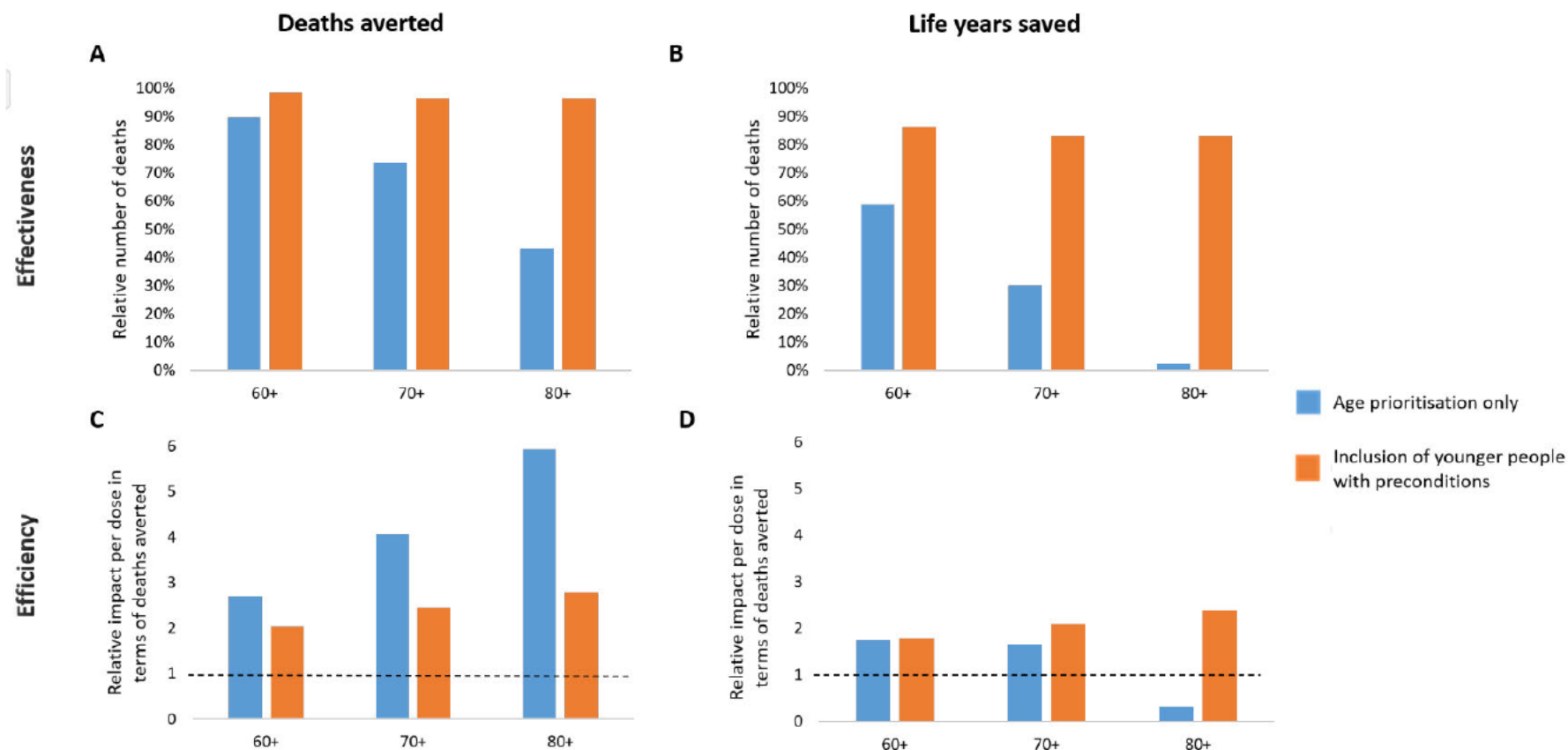
Figure 1. Relative effectiveness and efficiency of targeted vaccination by age, compared with a programme in which all adults are vaccinated



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

Inclusion of younger people with pre-conditions

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>

How to maximise the impact of COVID-19 vaccination



- **Identifying the optimal strategy depends on the goal** e.g. reducing mortality, saving life years, reducing pressure on the healthcare system
- COVID-19 vaccination strategies should take into account several dimensions and always need 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** (possibly using an age-staggered approach starting from the oldest).

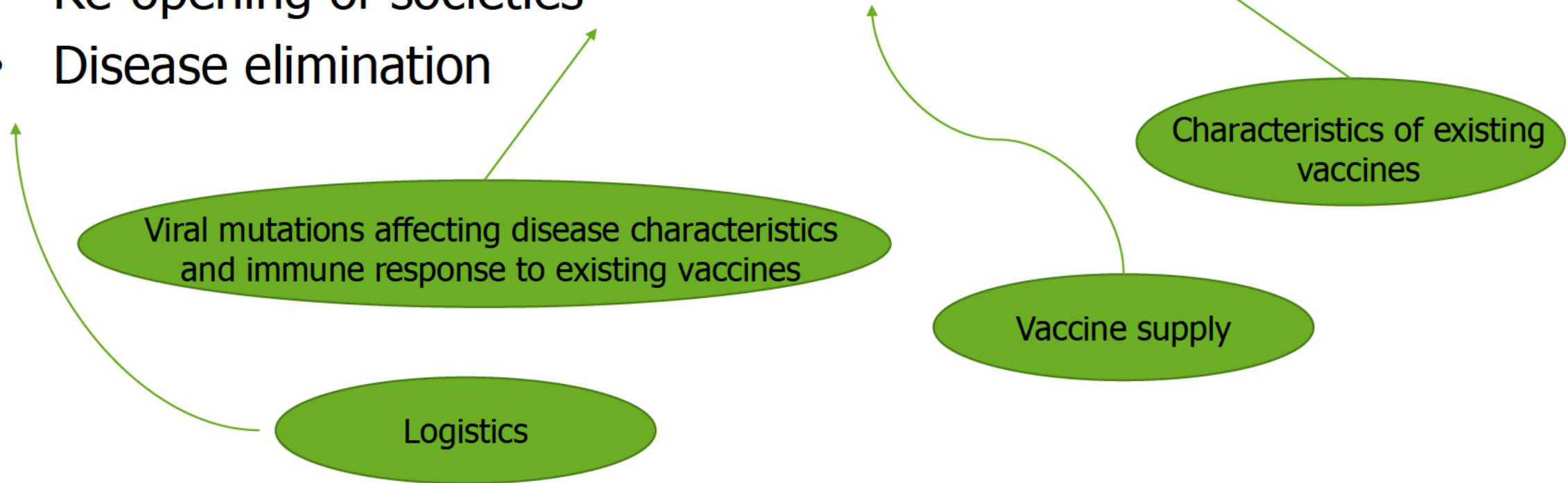
Additional considerations on COVID-19 vaccination strategies



- **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.

A dynamic landscape

- Reduction of pressure on healthcare systems
- Reduction of overall severity and mortality from COVID-19
- Re-opening of societies
- Disease elimination



External factors that may influence vaccination strategies against COVID-19



Emergence of new variants of concern (VOC): Vaccine characteristics:

- Higher transmissibility
 - Vaccine escape potential
 - Increased disease severity
- Effectiveness and safety by (age) groups
 - Duration of protection
 - Protection of partially immunised individuals
 - Effectiveness against VOC

Vaccine uptake by different (age) groups:

- Younger adults
- Healthcare workers
- Other occupational categories
- Vulnerable populations

Contact patterns by (age) groups:

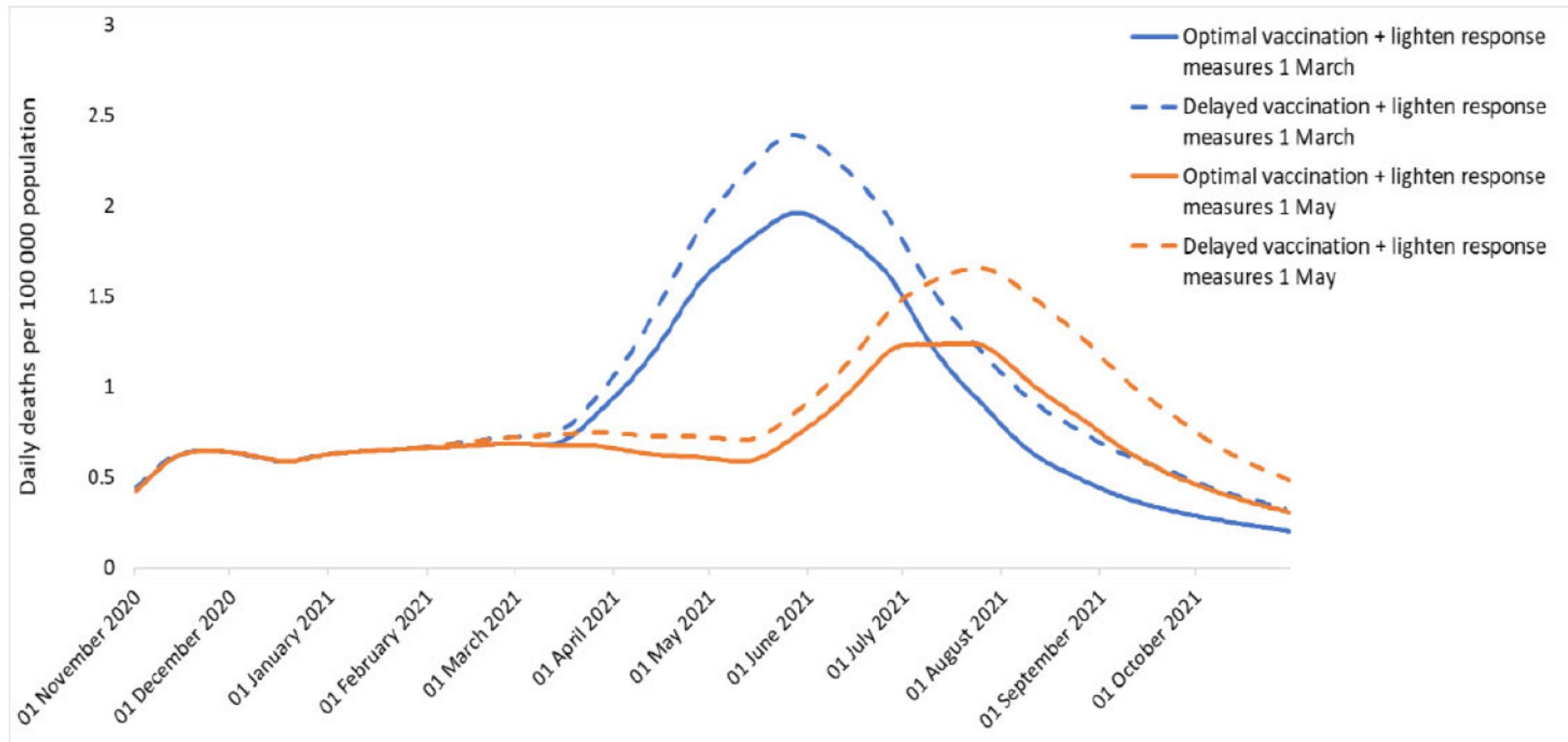
- Compliance with NPIs
- Behavioural change following vaccination

Vaccine supply:

- Delays
- Vaccine safety issues
- Timeline for new vaccines to reach the market
- Increased production and availability

Integration with NPIs

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)



Conclusions

Importance of defining clear (sequential?) goals



Clarify steps to reach each goal



Consider contextual implications



Monitor the progress towards the goal



Adapt strategies to unexpected changes

Thank you