Expected impact of COVID-19 vaccination on societies

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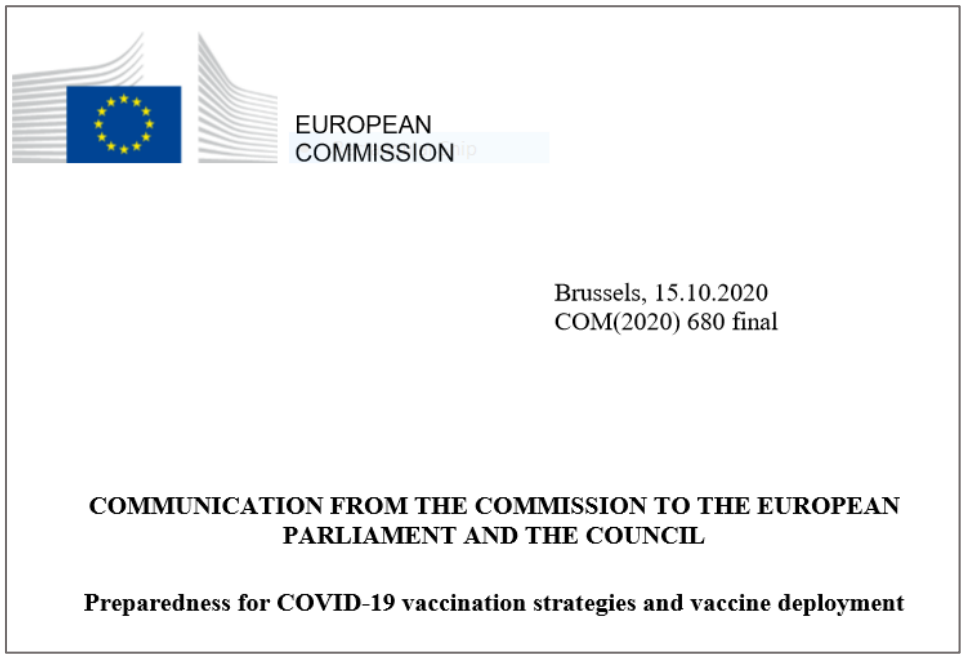
COVID-19 vaccination - What you need to know as a health professional, 10 February 2021

European Commission is calling for coordination in MSs to develop COVID-19 vaccination strategies and vaccine deployment plans



EUROPEAN COMMISSION

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COM(2020) 680 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Preparedness for COVID-19 vaccination strategies and vaccine deployment

Nov. 2020: **European Health Union** empowering the two agencies to jointly coordinate independent monitoring studies

ECDC is requested to:

- Closely work with the EU-NITAGs collaboration, as secretariat and in close collaboration with WHO, to support MSs 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;
- To support MS in decision making for planning deployment of COVID-19 vaccines, by developing scenarios for prioritisation strategy based on mathematical models.

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

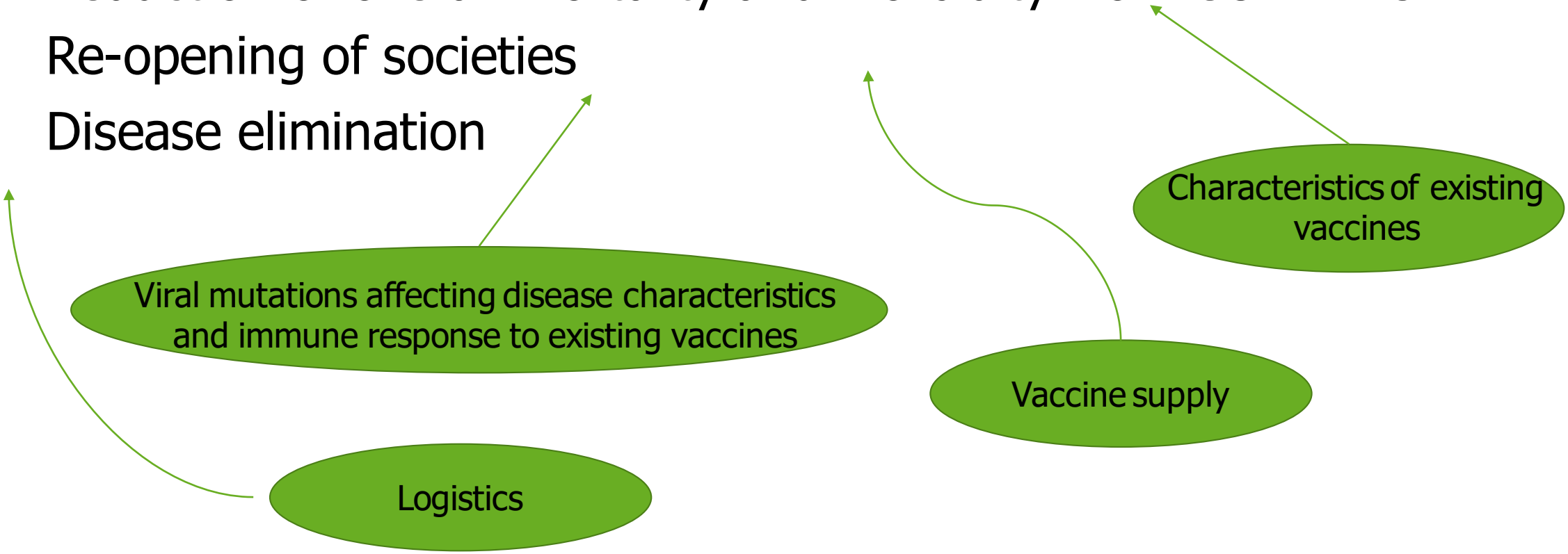
- Vaccine tracker for monitoring COVID-19 vaccine deployment
- Stress test of the logistical aspects of COVID-19 vaccination deployment plans

Impact estimation

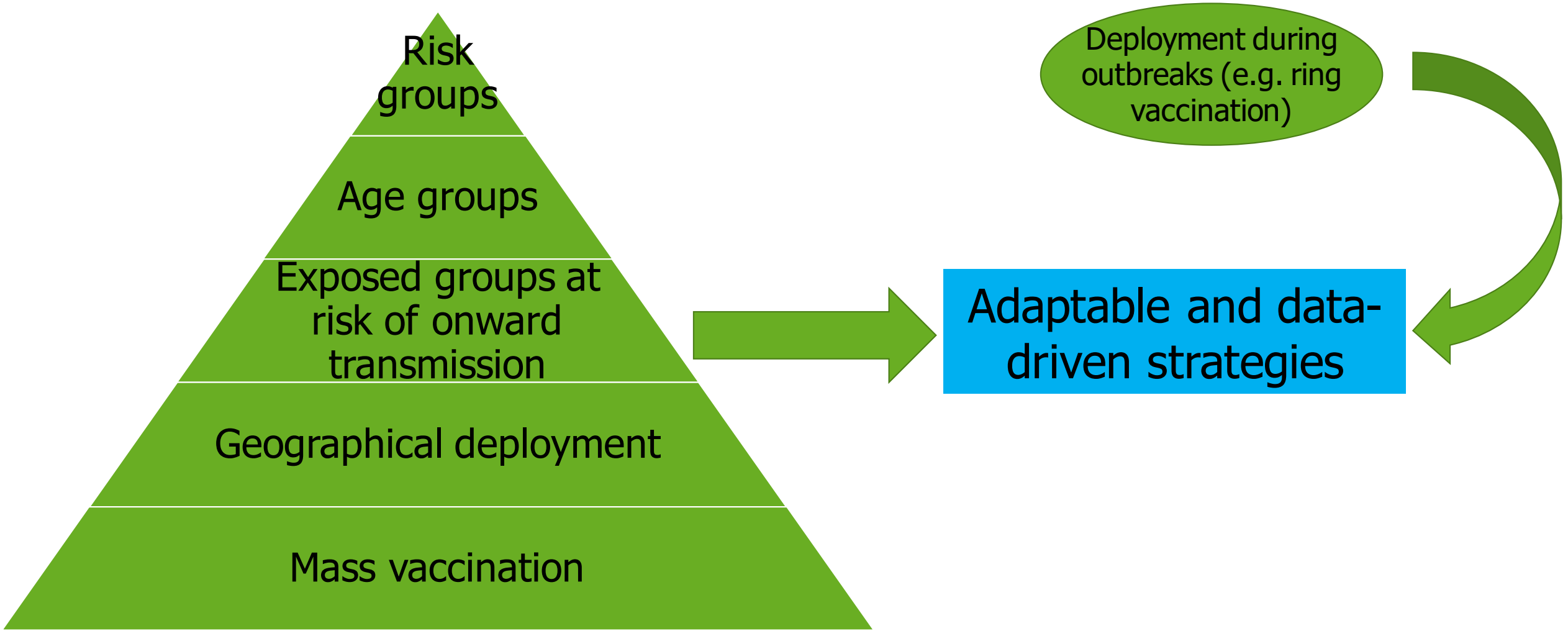
- Modelling of integrated scenarios of vaccination and non-pharmaceutical interventions
- Vaccine effectiveness monitoring in multiple settings

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



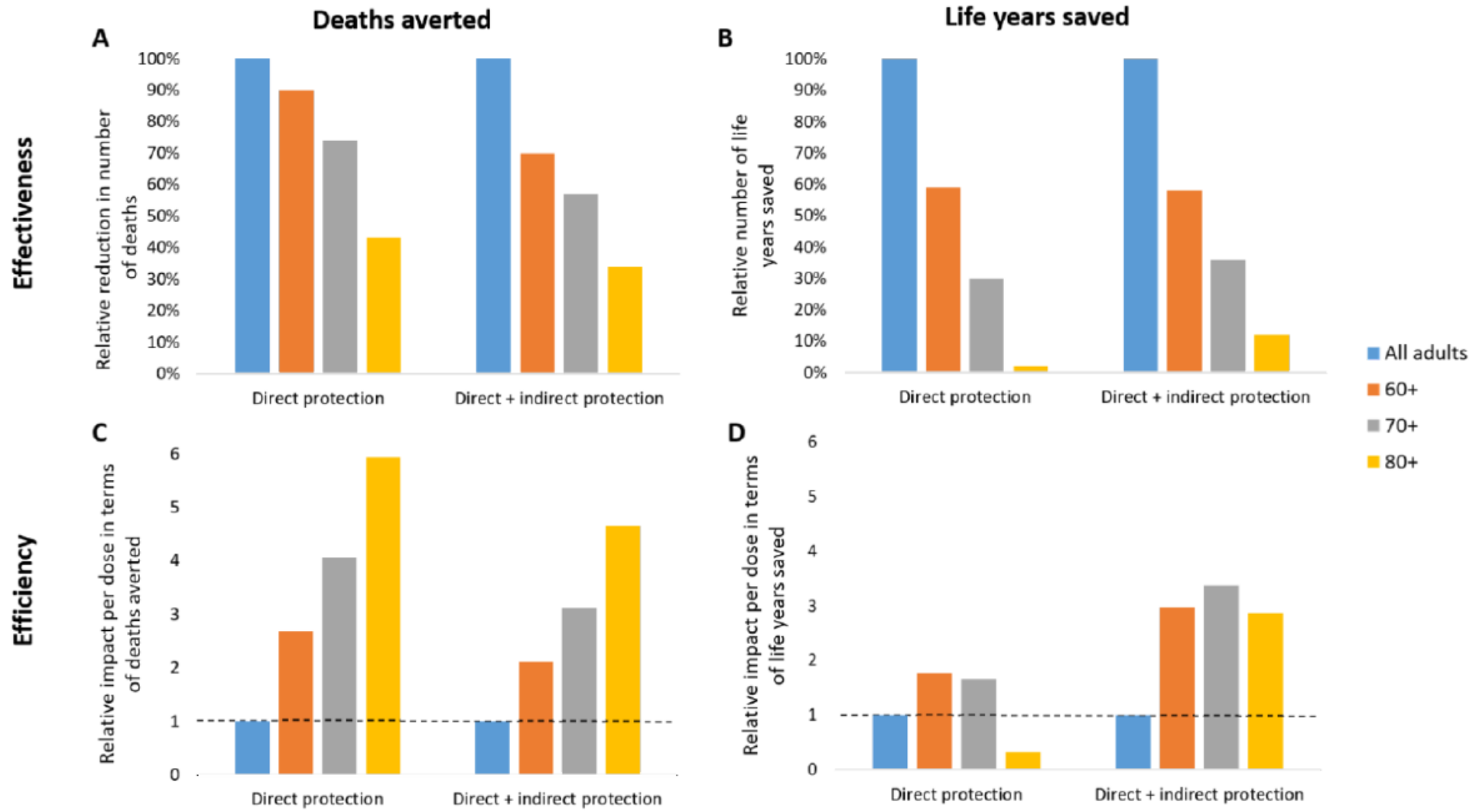
Targets of COVID-19 vaccination



https://www.ecdc.europa.eu/sites/default/files/documents/Key-aspects-regarding-introduction-and-prioritisation-of-COVID-19-vaccination.pdf

Modelling results – Vaccination of older adults

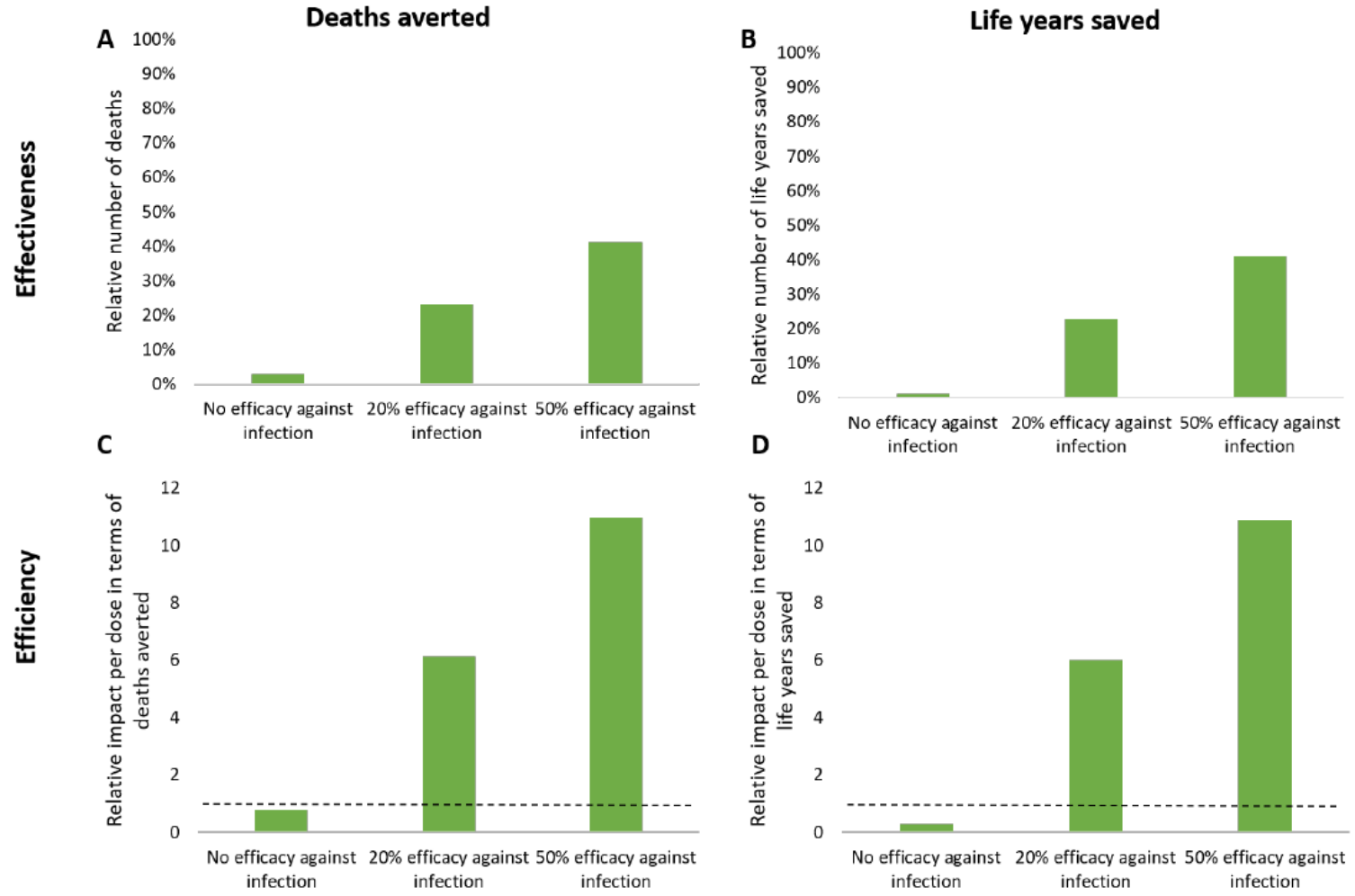
Figure 1. Relative effectiveness and efficiency of targeted vaccination by age, compared with a programme in which all adults are vaccinated



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

Modelling results - 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 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.
- If a COVID-19 vaccine does not protect against transmission, the most effective and efficient approach is to prioritise the vaccination of those groups at highest risk of severe disease and death.

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

How does vaccination of healthcare workers contribute to the impact of COVID-19 vaccination on society?

- Vaccination of healthcare workers is beneficial since it improves the resilience of the healthcare system
  - The societal benefit would be heightened if the vaccine were effective against disease transmission, since it would offer indirect protection to patients, residents of long-term care facilities and other high-risk individuals.
- Although vaccinating adults aged 18-59 years is not the most effective or efficient strategy 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.

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

Healthcare workers are a priority group for vaccination against COVID-19

Version 1.1 13 November 2020

WHO SAGE ROADMAP FOR PRIORITIZING USES OF COVID-19 VACCINES IN THE CONTEXT OF LIMITED SUPPLY

An approach to inform planning and subsequent recommendations based upon epidemiologic setting and vaccine supply scenarios

Version 1.1
13 November 2020

World Health Organization

Version 1.1 13 November 2020

Table 1. Epidemiologic setting and vaccine supply scenarios, and recommendations for priority use cases for vaccines against Covid-19 in the context of limited supply[a,b]

(a) Epidemiologic setting scenario: Community Transmission – defined in Legend 2

Overall public health strategy for this epidemiologic setting: Initial focus on direct reduction of morbidity and mortality and maintenance of most critical essential services; also, reciprocity. Expand to reduction in transmission to further reduce disruption of social and economic functions. **(A1) (A2) (A3) (B1) (B2) (C1) (C2) (D1)** – labels explained in Legend 1	
Vaccine supply scenario	**Priority groups**
Stage I (very limited vaccine availability, for 1–10% nat. pop.)	Stage Ia (initial launch): • Health workers at *high to very high risk* of acquiring and transmitting infection as defined in Annex 3. **(A1) (A3) (D1)** Stage Ib: • Older adults defined by age-based risk specific to country/region; specific age cut-off to be decided at the country level. **(A1) (C1)**
Stage II (limited vaccine availability, for 11–20%	• Older adults not covered in Stage I. **(A1) (C1)** • Groups with comorbidities or health states determined to be at *significantly higher risk* of severe disease or death. Efforts should be made to ensure that disadvantaged groups where there is underdiagnosis of comorbidities are equitably included in this category. **(A1) (C1) (C2)** • Sociodemographic groups at *significantly higher risk* of severe disease or death (depending on country context, examples may include: disadvantaged or persecuted ethnic, racial, gender, and religious groups and sexual minorities; people living with disabilities; people living in extreme poverty, homeless and those living in informal settlements or urban slums; low-income migrant workers; refugees, internally displaced persons, asylum seekers, populations in conflict settings or those affected by humanitarian emergencies, vulnerable migrants in irregular situations; nomadic populations; and hard-to-reach population groups such as those in rural and remote areas). **(A1) (B1) (B2) (C1) (C2)**

https://www.who.int/docs/default-source/immunization/sage/covid/sage-prioritization-roadmap-covid19-vaccines.pdf?Status=Temp&sfvrsn=bf227443_2

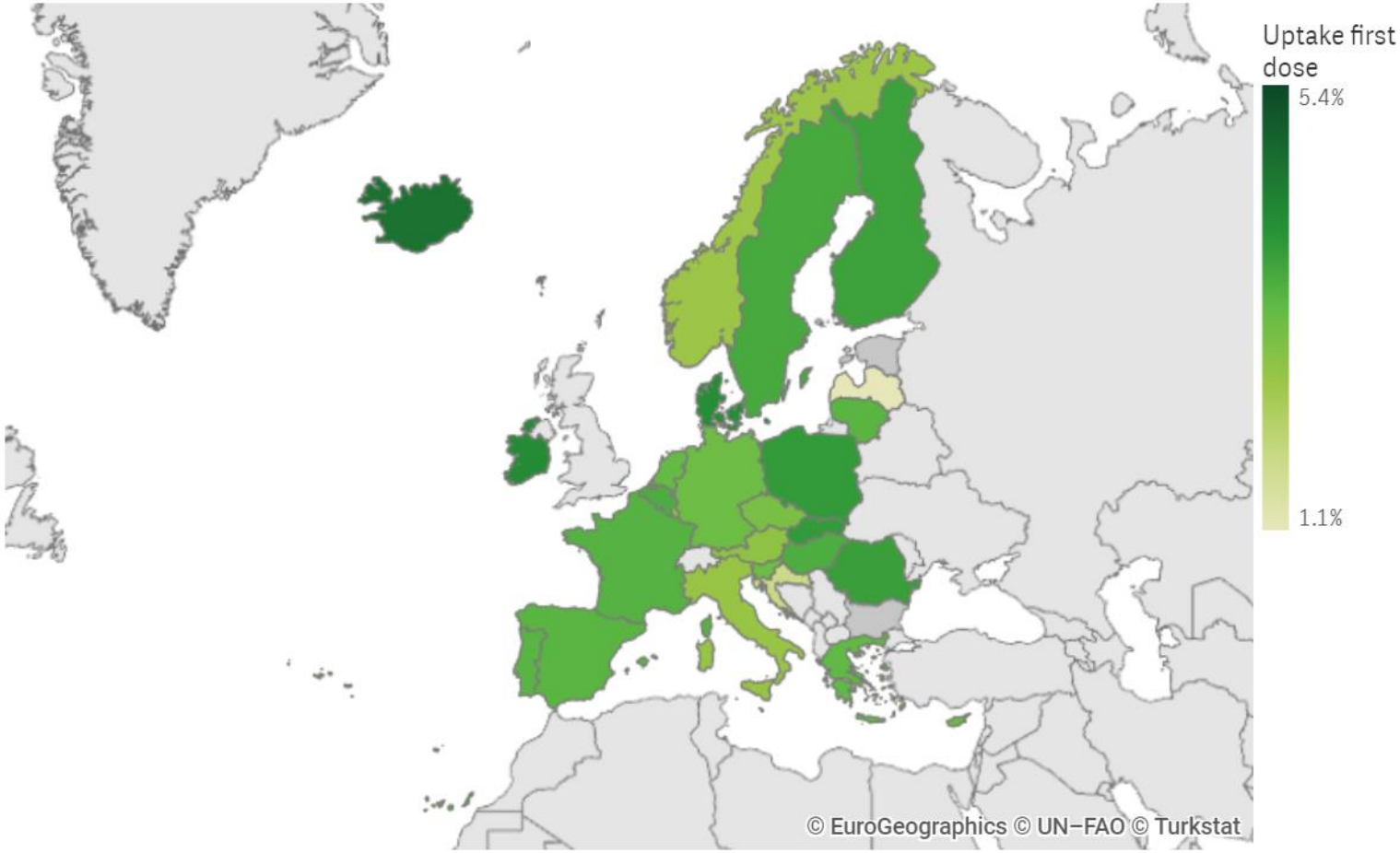
Why prioritising healthcare workers?

Individual protection	Societal role	Protection of vulnerable individuals	Reciprocity
• Healthcare workers are professionally exposed to SARS-CoV-2 • Frequent exposure and exposure to high viral load are not uncommon	• Healthcare workers are essential workers during a pandemic • During phases of intense community transmission, full capacity is needed in the healthcare	• Healthcare workers are close contacts of patients including vulnerable and fragile individuals • Patients who cannot be vaccinated could be indirectly protected	• Healthcare workers have paid a heavy toll during the first waves of the pandemic • Prioritisation for vaccination could also be seen as a recognition of this key role and sacrifice

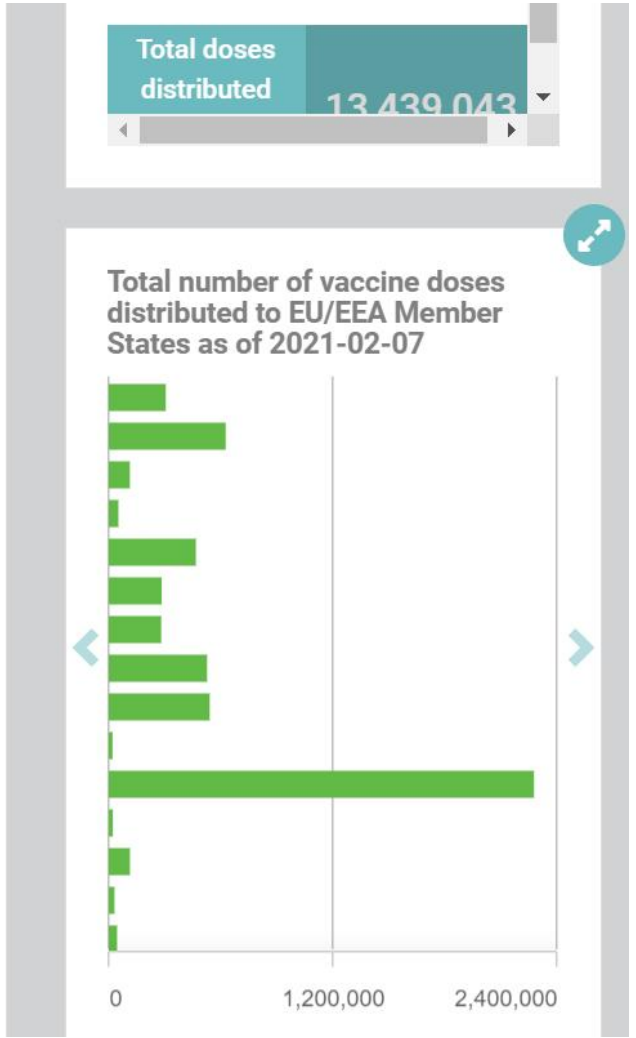
https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-vaccination-and-prioritisation-strategies.pdf

EU/EEA Vaccine tracker

National vaccine uptake (%) for the first dose in EU/EEA Member States as of 2021-02-07



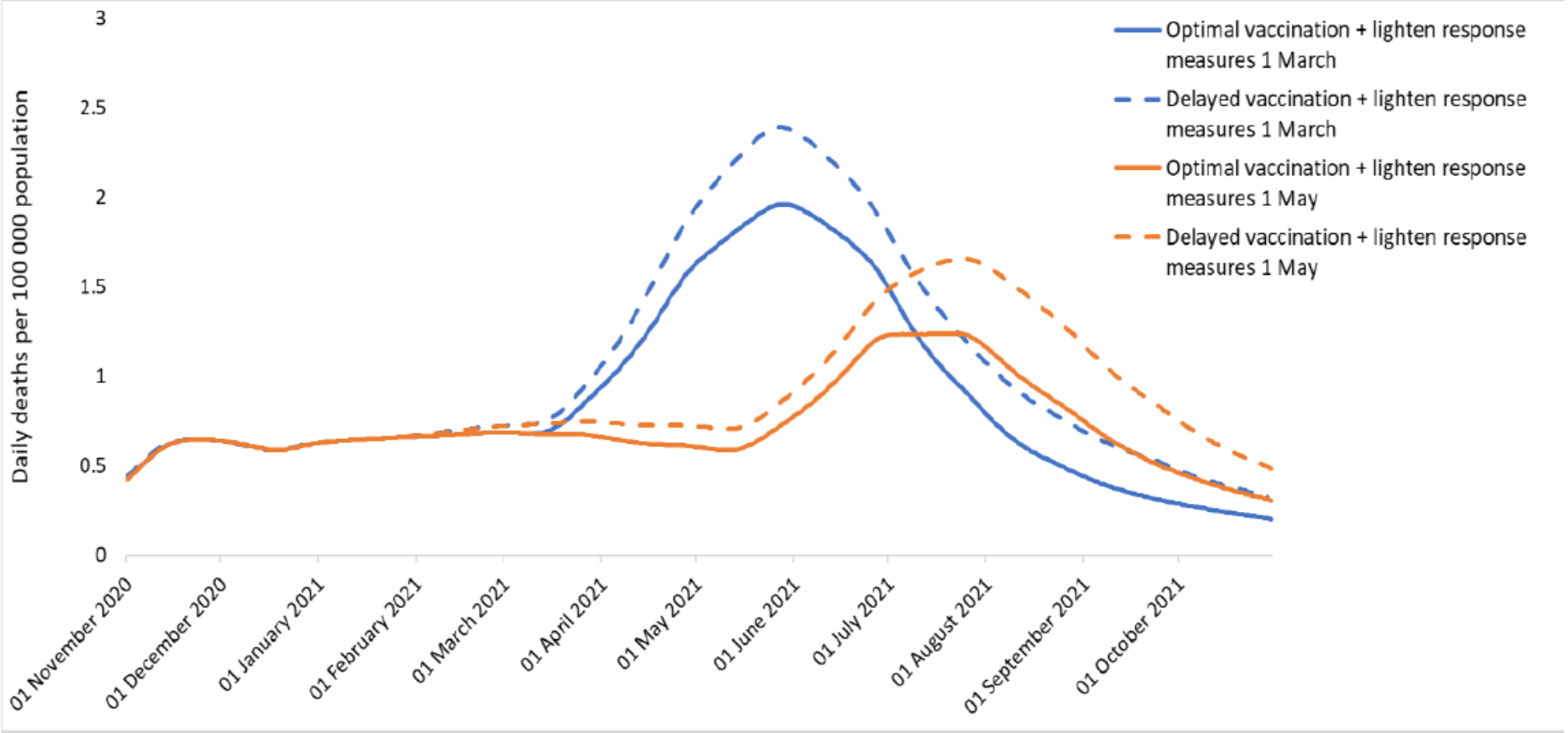
The boundaries and names shown on this map do not imply official endorsement or acceptance by the European Union.



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

Combined impact of vaccination and 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)



file:///P:/VPI/COVID-19/Commission%20HCWs%20webinar/Integrated-COVID-19-response-vaccination-era.pdf

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

- 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

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