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HEALTHCARE RESILIENCE AND ECONOMIC PERFORMANCE

The Enduring Economic Burden of COVID-19 and the Value of Vaccination Strategies in High-Income Countries

Background

- COVID-19 has shifted from a pandemic to an endemic, with year-round cases and seasonal surges generating continued pressure on healthcare systems and imposing an ongoing economic burden[1].
- Vaccination was critical to ending the pandemic. However, vaccine recommendations are increasingly narrowing and mainly target older and high-risk adults, excluding most working-age adults.

Aim

To estimate the economic burden of COVID-19 in high-income countries and to assess the broader economic benefits of vaccination.

Methods

- Cost-of-illness analysis in four countries (the UK, Australia, Japan, and the Netherlands) using 2024 cost data.
- Direct medical and indirect productivity costs are calculated based on disease models that estimate morbidity (acute and long COVID) and mortality in a one-year period[2,3,4,5].
- Scenarios analysed:
  1. No annual autumn vaccination
  2. Annual autumn vaccination of older adults and high-risk groups (per 2023/24 guidelines)
  3. Extended vaccination for adults aged 50+ and adults aged 18+

Economic burden of COVID-19 in post-pandemic settings

- Without annual vaccination programmes, we estimate COVID-19 could cost on average 0.48% of national GDP.
- This includes use of both inpatient and outpatient healthcare services.
- National economies bear a much larger share than healthcare systems: ~2× higher in Australia and Japan; ~7× higher in the UK; ~10× higher in the Netherlands.

ANNUAL ECONOMIC BURDEN OF COVID-19 IN CASE OF NO VACCINATION PROGRAMME

Total	£6.98 bn	A$7.35 bn	¥ 5.75 tn	€3.99 bn
Total as a % of National GDP*	0.26%	0.28%	0.97%	0.39%
% burden on the healthcare system	12%	35%	34%	9%
% burden on the national economy	88%	65%	66%	91%
Hospital bed-days	1,250,354	856,139	6,995,810	330,559
Outpatient appointments	3,348,693	1,629,155	44,956,602	1,831,520
Future work years lost (mortality)	129,547	71,810	340,638	44,610
Workdays lost (morbidity)	24,049,912	6,153,939	124,004,921	10,473,618

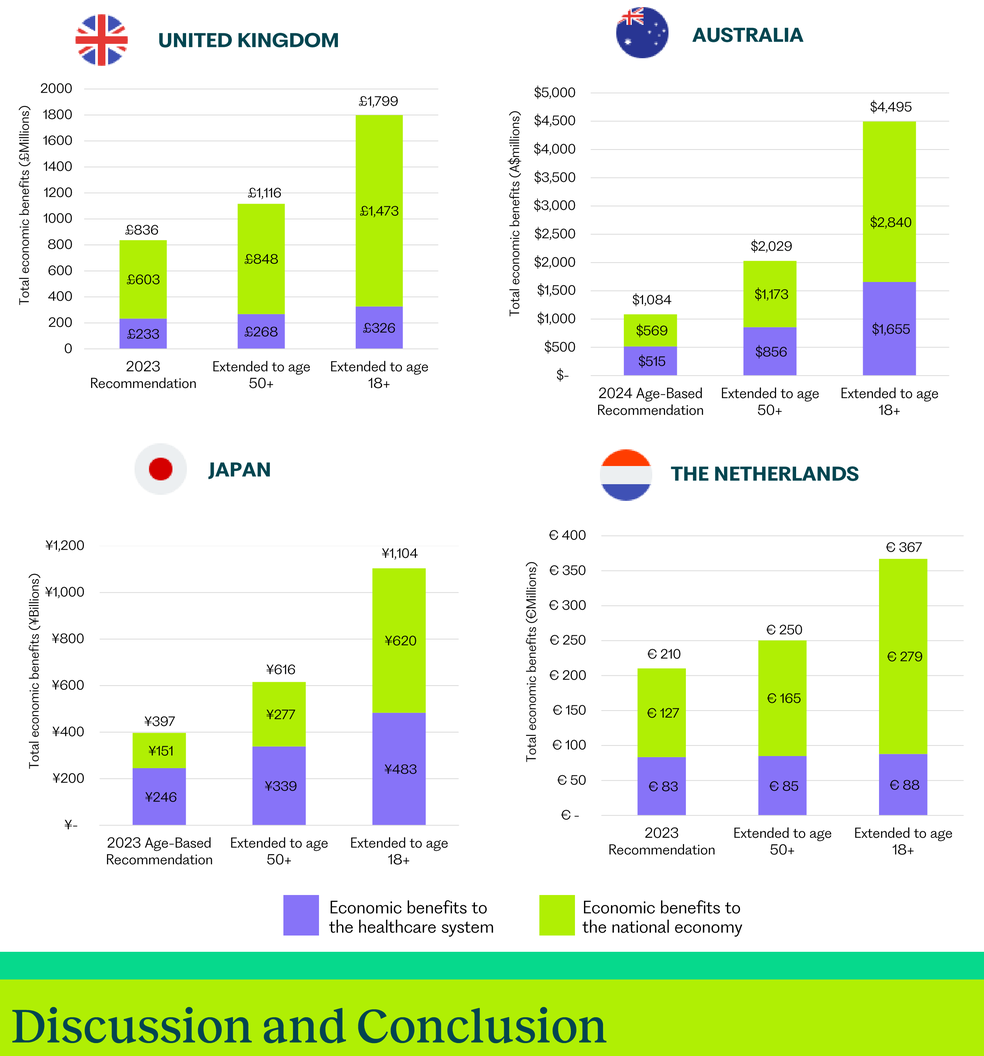
*Note: Figures are modelled estimates based on assumptions and should not be interpreted as observed outcomes. Older adults is defined as 60+ in the Netherlands and 65+ in Australia, Japan and the UK. High-risk groups are additionally included in the disease models for the UK and the Netherlands. *The denominator (total GDP) is different for each country.*

Economic benefits of COVID-19 vaccination

Vaccination of older adults and high-risk groups, aligned with 2023/2024 recommendations
- Economic benefits: 0.04% of national GDP, on average across countries.
- Reduces COVID-19's economic impact on the health system by ~22% and on the national economy by ~7%, on average.

Extending COVID-19 vaccine eligibility to adults aged 50+
- Economic benefits: 0.06% of national GDP, on average across countries.
- Additional economic benefits of vaccination are mainly driven by averted productivity losses.

Extending COVID-19 vaccine eligibility to adults aged 18+
- Economic benefits: 0.12% of national GDP, on average across countries.
- Averted **productivity losses** are the major driver of the economic benefits:
- The percentage of the averted burden on the national economy more than triples from 7% when older adults and high-risk groups are vaccinated to 27% when eligibility is extended to the general population aged 18+.



Discussion and Conclusion

- **COVID-19 continues to place a measurable burden on health systems and national economies.**
- **Modelling suggests that autumn vaccination of older adults may help alleviate healthcare pressures.**
- **Changes to eligibility criteria may influence health system outcomes and health equity, and should be monitored as part of ongoing public health assessment.**
- **Extending vaccination coverage to working-age populations could offer broader societal value, as suggested by macroeconomic modelling.**
- **These findings may support inclusion of the broader economic benefits in evaluations of vaccination strategies in the post-pandemic setting.**

References

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