



FUNDED RESEARCH

The Socio-Economic Value of Adult Immunisation

RESULTS FROM A COMPREHENSIVE LITERATURE REVIEW OF FOUR IMMUNISATION PROGRAMMES IN TEN COUNTRIES

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Background

The world is currently undergoing significant demographic shifts, with aging populations emerging as a dominant trend. Health systems are grappling with immense pressures and treatment backlogs, with a "triple-demic" of COVID-19, seasonal influenza, and RSV (1) along with rising rates of chronic diseases among younger age groups (2).

Addressing these challenges requires a paradigm shift from treatment to prevention. Preventive public health interventions help support healthy lives and help healthcare systems cope with growing demand, while delivering substantial cost-savings to healthcare systems and society (3). Vaccination is a fundamental preventive measure, and is integral to achieving global health goals like the Sustainable Development Goals (SDGs)

While substantial progress has been made in childhood immunisation globally, the value of adult immunisation programmes often remains overlooked (4). Access to adult vaccinations is inconsistent across countries, with limited inclusion in routine immunisation schedules (5).

Aim

To assess and synthesize the evidence for the broad, socio-economic value of adult immunisation programmes, focusing on influenza, pneumococcal, herpes zoster (HZ), and respiratory syncytial virus (RSV) programmes in ten countries (Australia, Brazil, France, Germany, Italy, Japan, Poland, South Africa, Thailand, United States of America).

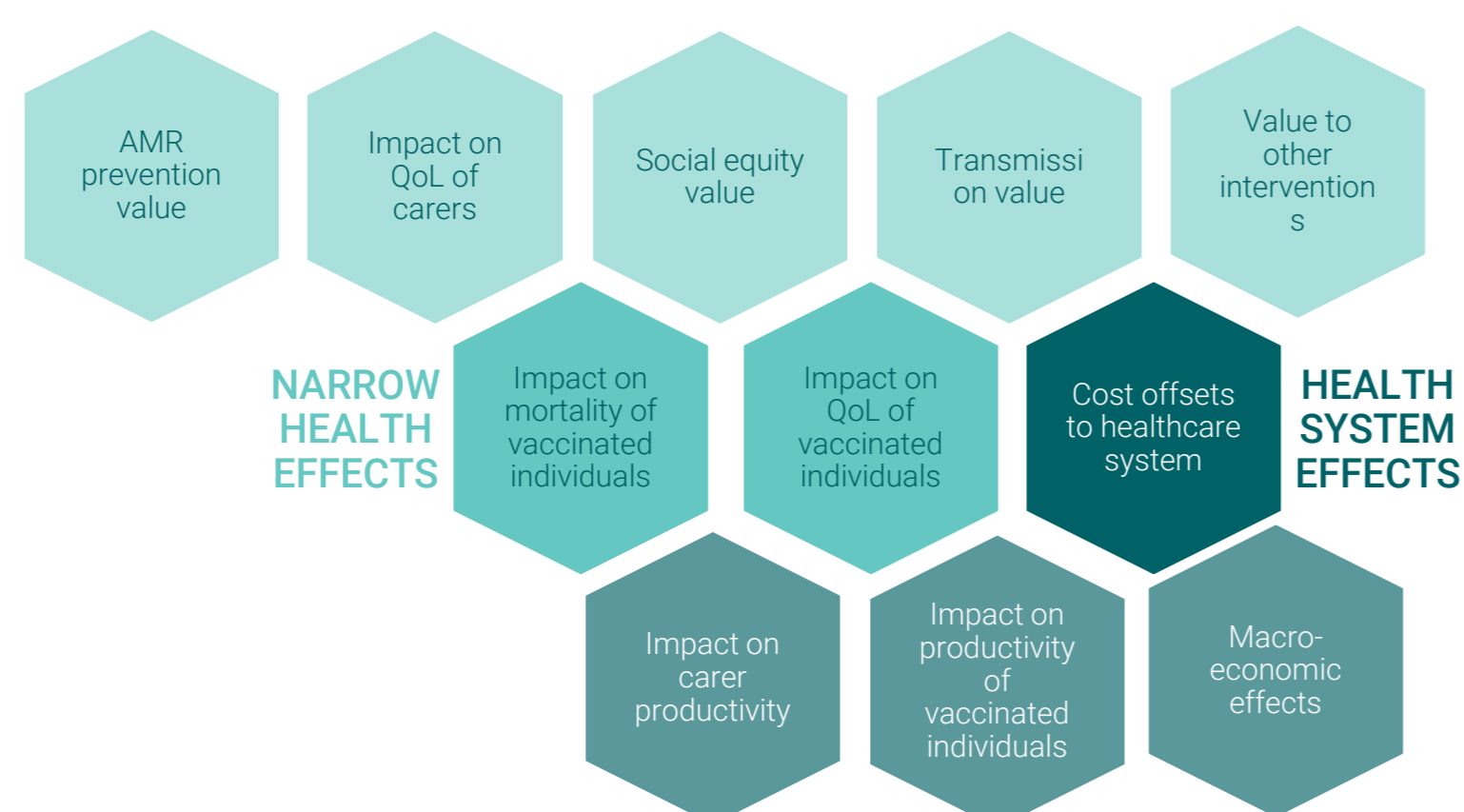
Methods

We conducted a literature review of evidence published in the PubMed database from 2017 to 2023 and search results were supplemented using a snowballing approach.

A published Value of Vaccines framework (Figure 1) was used to structure this assessment. We assessed the strength of the evidence base for the value of adult immunisation programmes by reviewing the papers identified in our search to determine which elements of value have been evidenced for each focus vaccine and country.

Methods: Value of Vaccines Framework

FIGURE 1: VALUE OF VACCINES FRAMEWORK (6)



Results: Availability of evidence

The heatmap table below visualises the available evidence on the value of four focus vaccines, for each element of the value framework:

TABLE 1: PERCENTAGE OF SAMPLE COUNTRIES FOR WHICH LOCAL EVIDENCE ON THE VALUE ELEMENT HAS BEEN PUBLISHED*

Value domain	Population health				Healthcare system		Society				
	Impact on quality of life of vaccinated	Impact on mortality of vaccinated	Impact on quality of life of carers	Transmission value	Cost offsets to healthcare system	Value to other interventions	Impact on productivity of vaccinated	Impact on carer productivity	Social equity value	AMR prevention value **	Macroeconomic effects
Influenza	100	100		50	80		60	20		10	
Pneumo-coccal	60	50		30	60		40	10	10		
RSV	60	10		10							
HZ	70	30			40		30	10			

Key: percentage of sample countries for which relevant evidence identified

100%	70-90%	40-60%	10-30%	No evidence
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* evidence from these sample countries may not be representative of the availability of global evidence on each value element; ** AMR = Antimicrobial resistance

- Evidence availability is greatest for the 'narrow' benefits, including quality of life and mortality benefits to vaccinated individuals and cost-offsets to healthcare systems.
- The most well-recognized 'broader' value elements are productivity effects and transmission.
- A nascent evidence base also shows some positive effects with respect to social equity value and value in preventing antimicrobial resistance.

Results: Summary of evidence

The value of adult immunisation for population health:

- Vaccine-preventable diseases continue to generate a substantial disease burden, causing mortality and severe health consequences (7). This will rise in the coming decades in countries with aging populations (8,9,10).
- Evidence shows that adult immunisation is highly effective in preventing diseases, their sequelae, and mortality, particularly in older adults and those with chronic health conditions (11,12,13).
- Adult immunisation programmes potentially produce additional health benefits by protecting unvaccinated individuals (14).



The value of adult immunisation for healthcare systems:

- Infections such as influenza, streptococcus pneumoniae, RSV, and varicella zoster virus significantly contribute to healthcare resource utilization and associated costs, often in already overburdened health systems (9,15,16).
- There is an extensive evidence base showing that adult immunisation programmes are highly cost-effective and can result in net cost savings to healthcare systems (17,18).
 - For example, recent studies in Australia and Germany have highlighted that vaccine programmes for influenza and pneumococcal disease not only produce health benefits but also yield financial gains by averting hospital inpatient and emergency care (19,20).
- Programmes to expand uptake can also be very cost-effective, perhaps as result of economies of scale, given the low variable costs compared to fixed costs associated with delivering immunisation programmes (21,22).
 - Evidence from Germany and France for example, indicates that expanding adult immunisation programmes for herpes zoster and influenza, respectively, may increase their overall cost-effectiveness (11,23).



The value of adult immunisation for society:

Productivity: Evidence shows that vaccine-preventable diseases are associated with a high productivity cost in formal labour markets (24). Adult immunisation programmes can potentially provide a positive return on investment in the form of both increased tax revenues and productivity, outweighing the costs of the programmes to governments many times over (24). Despite the significant proportion of older adults often involved in informal care (25), we did not identify evidence valuing the related productivity gains of vaccination in terms of informal care.

Social equity: The burden of vaccine-preventable diseases, and the benefits of adult immunisation programmes, are particularly concentrated in more socioeconomically disadvantaged sub-populations (26, 27, 28). Expanding adult immunisation schedules to include younger adults can reduce inequity in the distribution of vaccine-preventable diseases (27, 28, 29).

Anti-microbial resistance: Adult immunisation programmes can reduce the likelihood of unnecessary prescribing of antibiotics for respiratory illness (30), and novel antimicrobial vaccines can help to protect against the progression of AMR (31).



Gaps in recognition of the value of adult immunisation:

- While there is growing evidence of the broad societal value of vaccination, many gaps remain. No evidence was identified relating to macroeconomic effects, the enablement value to other interventions, or effects on the quality of life of caregivers.
- Gaps can be explained by the methodological challenges involved in collecting and analysing evidence of broader value, and in part by the 'narrow' decision-making frameworks which are typically used to evaluate immunisation programmes (4, 32, 33).
- Given a lack of transparency and lack of standardised evidence appraisal methods, the evidence which does exist is not consistently or comprehensively recognised in decision-making about adult immunisation policy (33).

Conclusion

The evidence found supports the critical role of optimising adult immunisation programmes in addressing major health and societal challenges while aligning with critical global agendas such as the UN Sustainable Development Goals (SDGs), the WHO Immunisation Agenda 2030 (IA2030), and the UN Decade of Health Ageing.

However, the research also clearly shows that many dimensions of the value of adult immunisation programmes are currently underrepresented in the academic literature.

Without such evidence, the full value of vaccination programmes is likely underestimated by policy -and decision-makers, risking suboptimal investment decisions.

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