



Public Health
England



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The socio-economic impact of influenza: weighing the benefits and the costs of influenza vaccination

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Decision-making about vaccination



Health

Flu vaccines for all children



Fergus Walsh
Medical correspondent

Health Protection (Vaccination) Regulations 2009 – Section 2

Obligation on the Secretary of State to ensure implementation of JCVI recommendations

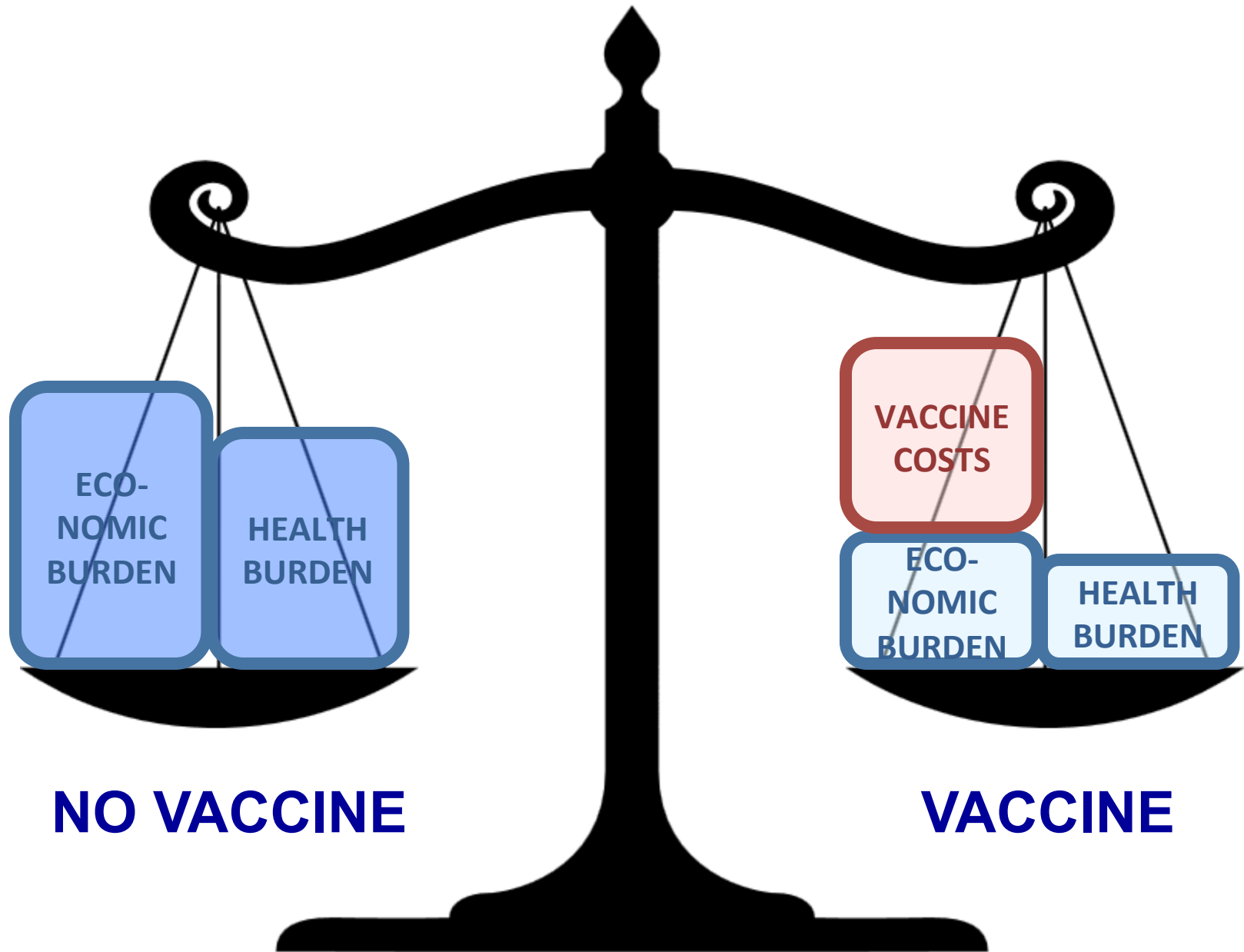
Those conditions are that the recommendation must—

- (a) relate to new provision for vaccination under a national vaccination programme or to changes to existing provision under such a programme;
- (b) be made by the JCVI (and not therefore a sub-committee of the JCVI);
- (c) be in response to a question referred to the JCVI by the Secretary of State;
- (d) be based on an assessment which demonstrates **cost-effectiveness**; and
- (e) not relate to vaccination in respect of travel or occupational health.

The Secretary of State must make arrangements to ensure, so far as is reasonably practicable, that the recommendation of the JCVI is implemented.

<http://www.legislation.gov.uk/uksi/2009/38/regulation/2/made>

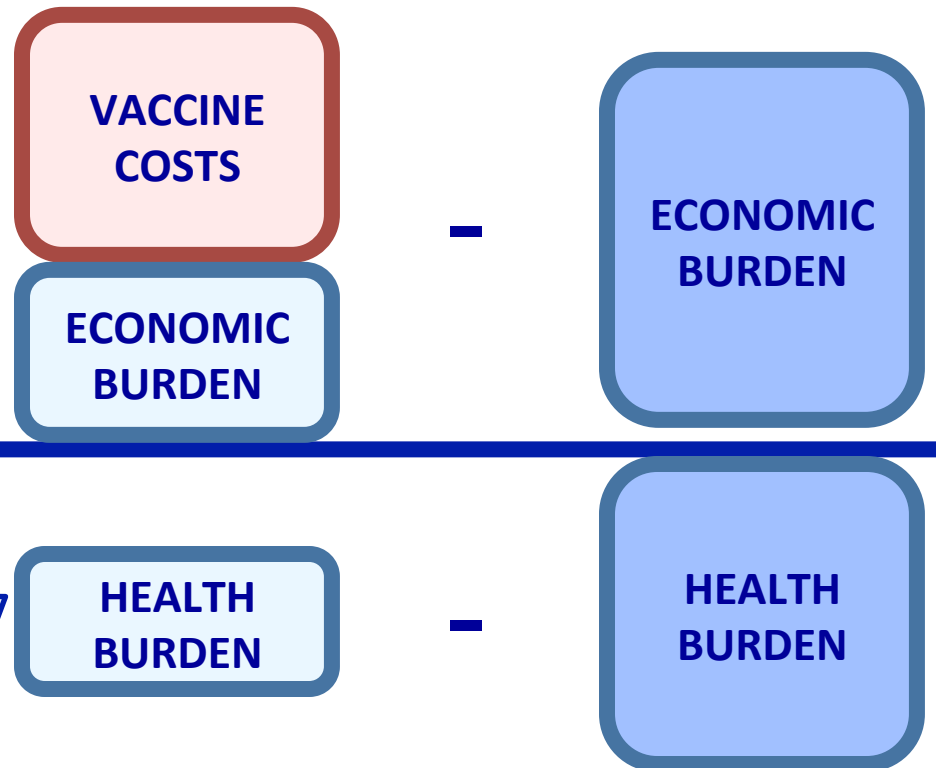
What is cost-effectiveness analysis?



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Incremental cost-effectiveness ratio =

$$\frac{\text{Incremental costs}}{\text{Incremental health gains}}$$



Measured in quantities like:
episodes of disease prevented
life years gained
QALYs or DALYs gained

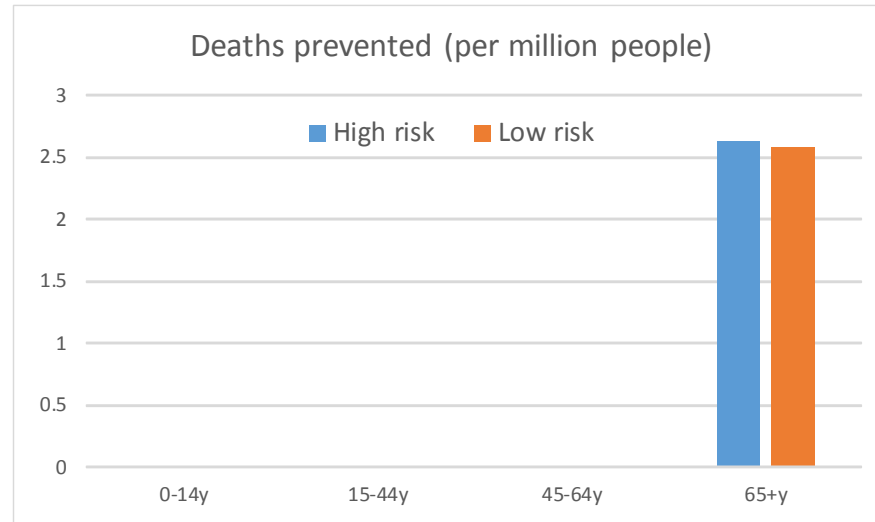
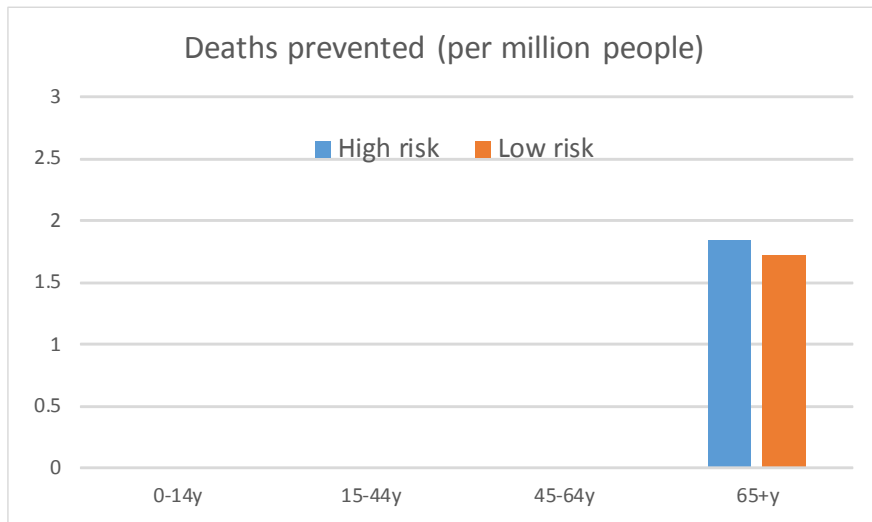
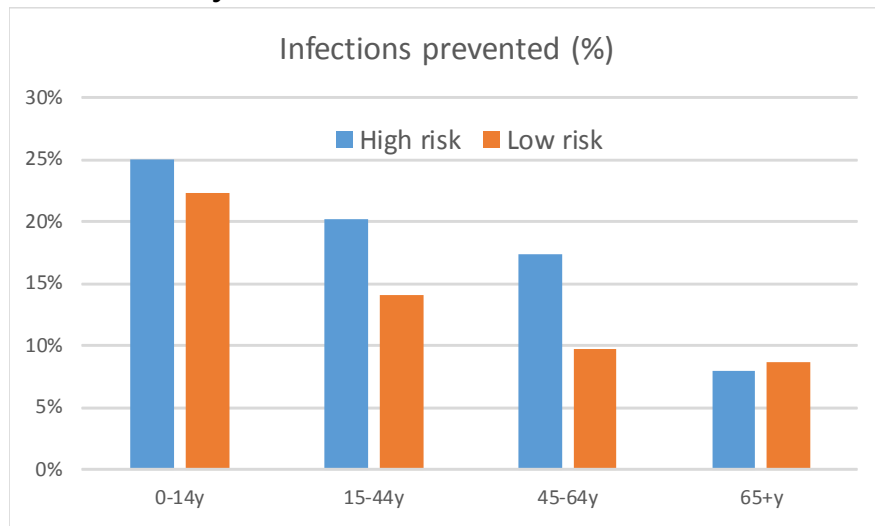
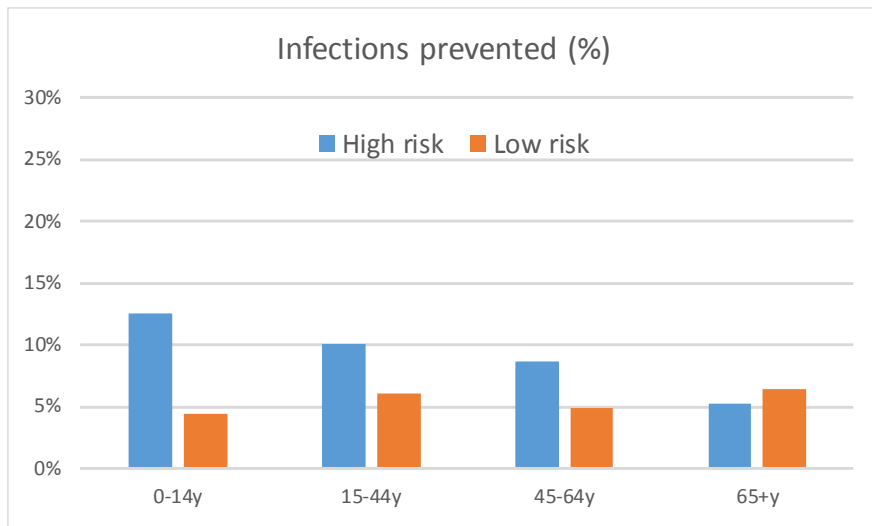
VACCINE

NO VACCINE

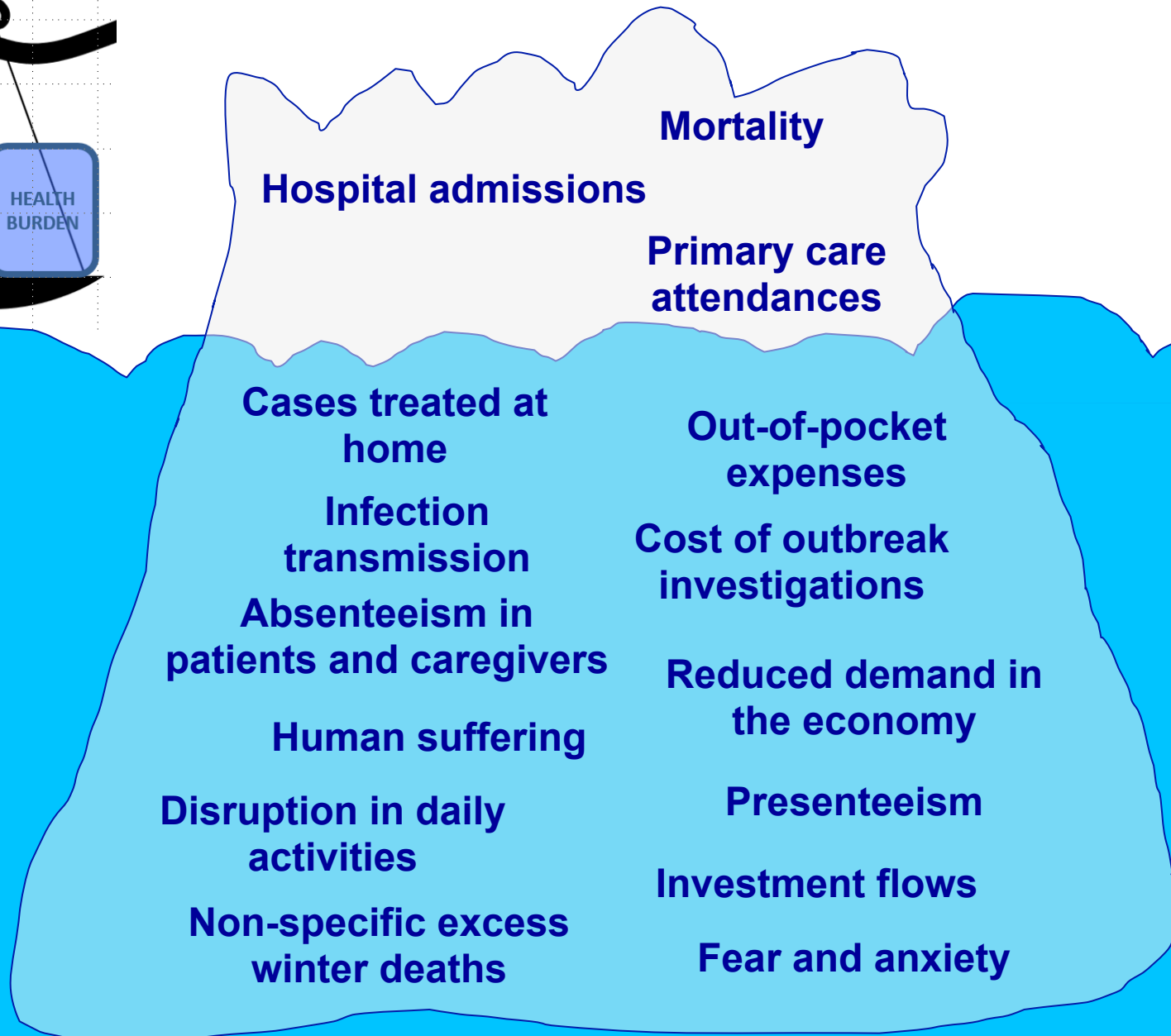
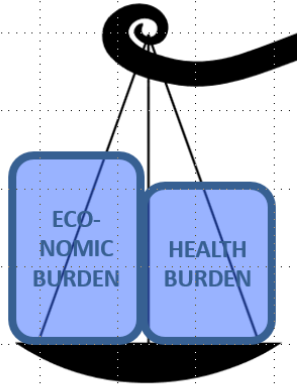
Impact of flu vaccination (UK example)

Strategy 1: Vaccinate pregnant women, clinical risk groups, health care workers, 65+ year olds

Strategy 2: Vaccinate pregnant women, clinical risk groups, health care workers, 65+ year olds + all 5-16 year olds



The influenza burden “iceberg”



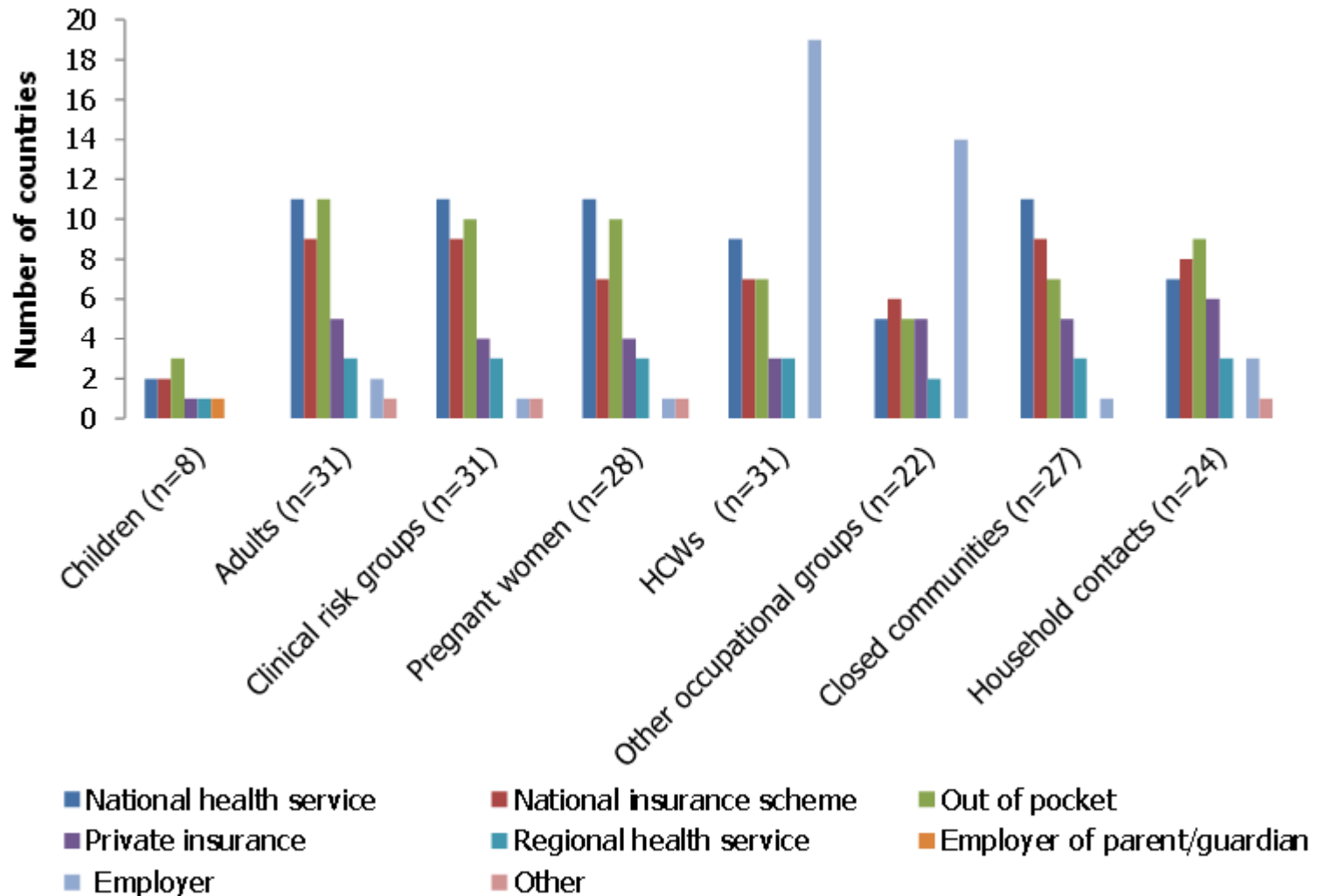
Cost-effectiveness studies of flu vaccination

Conclusions from a review of reviews

Review	Target group	Studies	Conclusion
Newall 2012	Children ≤ 18	20	Cost saving or cost-effective
Coleman 2006	Children	7	Not discussed
Nichol 2011	Children ≤ 18	20	Cost saving or cost-effective
Savidan 2008	Children < 18	15	Cost saving or cost-effective
Burls 2006	Healthy adults, healthcare workers	14	Mostly cost saving
Gatwood 2012	Healthy adults 18-64 y	7	Generally not cost saving
Hogan 2012	Healthy adults	10	Mostly favoured vaccination
Newall 2009	Adults 50-64 y	6	Cost-effective
De Waure 2012	Adults > 50 y, high-risk	20	Cost saving or cost-effective
Postman 2006	Elderly	18	Most cost saving or cost-effective
Peasah 2013	Pregnant women	5	Cost saving or cost-effective if timed correctly

Status of influenza vaccine recommendations

Figure 9. Payment mechanisms for vaccine administration for population groups targeted for seasonal influenza vaccination, 2012–13 influenza season



Outcomes from economic analyses

What kind of outcomes are useful for decision makers?

Analysis	Example
Cost-effectiveness	<p>“Vaccinating pregnant women in Sept-Dec would cost £23,000 per QALY gained.”</p> <p>Jit et al. <i>Vaccine</i> 2011; 29:115</p>
Cost-benefit	<p>“Direct and indirect cost savings from vaccinating children aged 2-5 y was about twice the cost of vaccination.”</p> <p>Esposito et al. <i>Vaccine</i> 2006; 24:629.</p>
Lives saved	<p>“Extending vaccination to children aged 5–14 y would prevent 1.95 deaths per 1,000 doses given.”</p> <p>Baguelin et al. <i>PLoS Med</i> 10(10): e1001527.</p>
Willingness to pay	<p>“Respondents were willing to pay \$175 to prevent an episode of influenza in a 1-year old child.”</p> <p>Prosser et al. <i>Health and Quality of Life Outcomes</i> 2005, 3:18.</p>
Macroeconomic impact	<p>“Using a pre-pandemic vaccine could save 0.13-2.3% of GDP during a pandemic.”</p> <p>Smith et al. <i>BMJ</i> 2009; 339:b4571</p>

Key questions

What is the reason for the gap between epidemiological and economic evidence for seasonal influenza vaccination, and actual country policy in the EU?

What kind of economic outcomes would be most useful for decision makers?