

# Impact of Modelling the Inclusion of Productivity Costs in Economic Analyses for Vaccines for *Clostridioides difficile* and Respiratory Syncytial Virus Infections

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## Background

- Vaccines tend to accrue a relatively large part of their value through value elements such as **patient and carer productivity**. Productivity costs occur when the productivity of individuals is affected by illness, treatment, disability or death (1).
- Productivity costs are **not commonly or consistently considered** in health economic evaluations of vaccines in high-income countries, which may lead to an underestimation of their value and ill-informed vaccine development and reimbursement decisions (7).

## Aims

- To compare the estimated costs of standard of care (i.e. no vaccination program) versus those of a vaccination program **with and without inclusion of various elements of productivity costs**. This allows to illustrate to what extent inclusion of productivity costs might impact on the expected cost-effectiveness of these vaccination programs.

## Methods

- We estimated direct healthcare costs and productivity costs for two vaccines currently under development against ***Clostridioides difficile* (C. difficile)** and **Respiratory Syncytial Virus (RSV)**.
- We conducted a literature review of economic evaluations of *C. difficile* and RSV interventions published from January 2000-September 2021, statistical databases and official public health reports to obtain relevant data inputs to parameterize disease and cost outcomes.

	<i>C. difficile</i>	RSV
Population	Hospitalised adults aged ≥50	Children aged <5 at risk of RSV infection
Productivity costs	<ul style="list-style-type: none"> <li>Infection w/ hospitalisation</li> <li>Infection w/o hospitalisation</li> <li>Post-hospitalisation recovery</li> <li>Mortality</li> <li>Informal caregiving due to illness</li> </ul>	<ul style="list-style-type: none"> <li>Informal caregiving due to: <ul style="list-style-type: none"> <li>Outpatient consultations</li> <li>Infection w/ hospitalisation</li> <li>Infection w/o hospitalisation</li> <li>Post-hospitalisation recovery</li> </ul> </li> <li>Mortality</li> </ul>
Time horizon	1 Year	Lifetime

- We excluded the cost of the vaccine from this analysis.

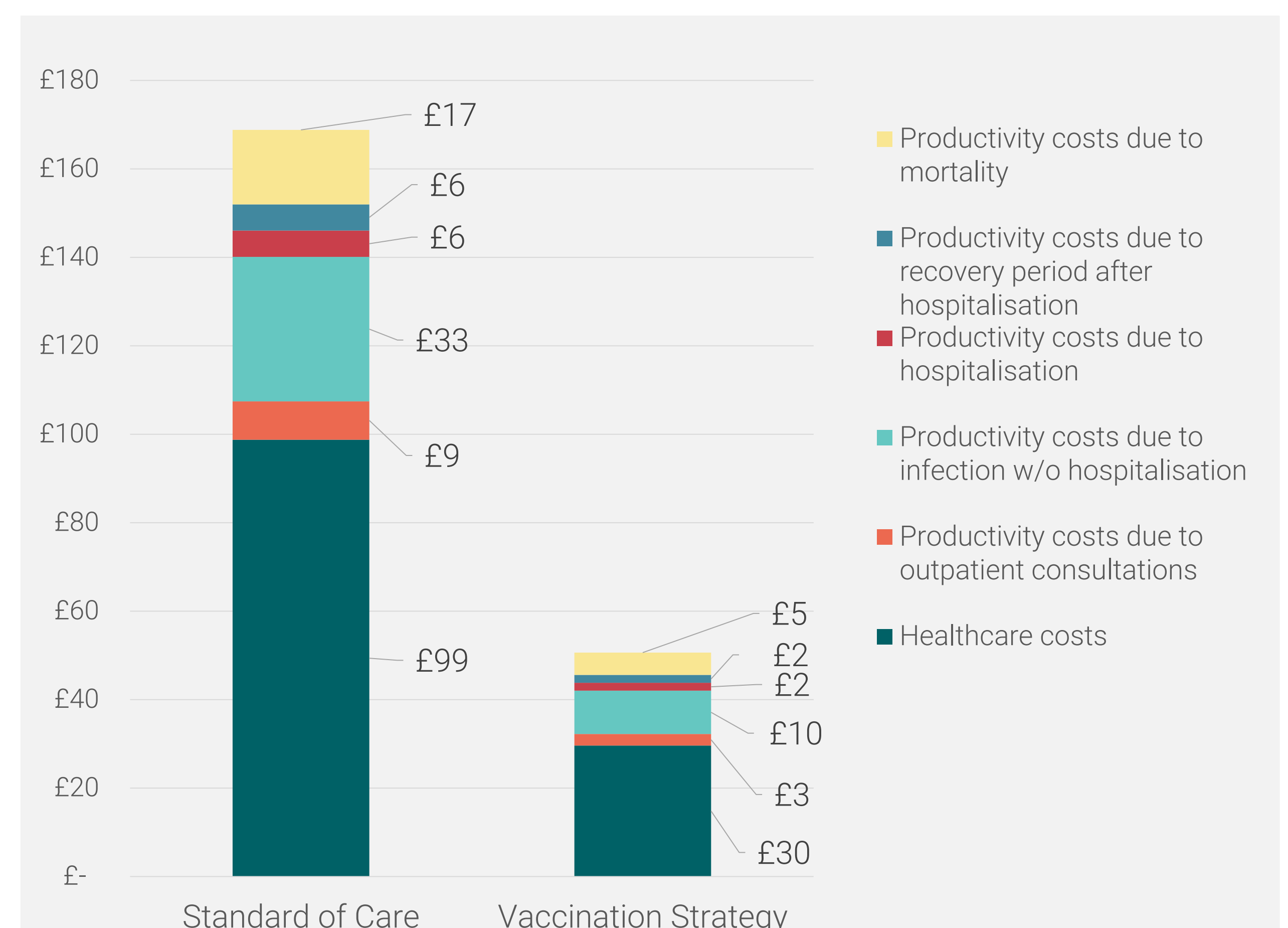
## Results: *C. difficile* Vaccine

- Healthcare costs associated with the standard of care and the vaccine strategy are £185 and £65 for every person vaccinated, respectively.
- Productivity costs are estimated to amount to an additional £18 under the standard of care versus £5.3 under the vaccination strategy. **A *C. difficile* vaccination program would therefore prevent £12.7 in productivity costs for every person vaccinated.**
- When productivity costs are considered, the difference in costs between the standard of care and vaccination strategy **increases from £120 to £132**.



## Results: RSV Vaccine

- Healthcare costs associated with the standard of care and the vaccination strategy are £99 and £30 for every person vaccinated, respectively.
- Productivity costs are estimated to amount to an additional £70 under the standard of care and £21 under the vaccination strategy. **An RSV vaccination program would therefore prevent £49 in productivity costs for every person vaccinated.**
- When productivity costs are considered, the difference in costs between the standard of care and vaccination strategy **increases from £69 to £118**.



## Conclusion

- Excluding productivity value from economic evaluations of vaccines for *C. difficile* and RSV may underestimate their value.
- Considering productivity costs in future cost-effectiveness analyses of vaccines for *C. difficile* and RSV will contribute to better-informed reimbursement decisions from a societal perspective.

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