

Cost-effectiveness evidence – a case study

This document is intended to support immunization programme managers and staff in their efforts to secure sustainable funding for immunization.

HOW TO USE THIS DOCUMENT

It is important that decision-makers and partners appreciate the importance of immunization, not just as a public health intervention but as a national investment that yields socioeconomic returns and health care savings.

This document presents summaries and key findings from a cost-effectiveness study. It is one of ten such studies drawn from evidence published in peer-reviewed journals and official documentation. The summaries can be drawn upon to support your

country's efforts to raise the profile of immunization and ensure continued investment in it within the context of health care prioritization.

Use the summaries as inspiration, to prepare for a meeting or to hand out to stakeholders.

The case studies will help most when they are used to help paint a national picture and a strong country-specific case for continued support in immunization. Present the studies alongside descriptions of the national issues and challenges. If available, supplement them with your own national data. If the same data is not available, consider using other national data that can serve as a proxy.



Cost-effectiveness evidence for introducing and sustaining a vaccine

Case study: Germany – rotavirus¹

KEY FINDINGS

A study on the impact of rotavirus vaccine was conducted in Germany. Key findings included the following.

Rotavirus vaccination, with low-moderate vaccine uptake in Germany, was associated with:

- 36% reduction in rotavirus-related hospitalization for children less than 24 months in the eastern Federal States;
- 25% reduction in rotavirus-related hospitalization for children less than 24 months in the western Federal States;
- significantly lower incidence of rotavirus-related hospitalization when vaccine uptake is higher and earlier.

The greatest health impact was recorded for infants 6–11 months of age.

Method

Incidence rates of rotavirus-related hospitalizations were compared before (2004–2006) and in the seasons after (2008/09–2010/11) the vaccine was available on the German market.

A retrospective questionnaire survey was used to assess the **vaccine coverage**.

Rotavirus cases were identified through the national mandatory disease reporting system².

Results

A **low-moderate uptake** was observed (rotavirus vaccination was not introduced into the national immunization schedule in Germany until 2013).

The study population was stratified into eastern Federal States (EFS) and western Federal States (WFS) – because of the **remarkable difference in vaccine uptake**. (Rotavirus vaccine uptake was consistently higher in EFS).

About rotavirus

Rotaviruses are the most common cause of severe diarrhoeal disease in young children worldwide. They are also the cause of gastroenteritis and dehydration.

Worldwide, it causes an estimated 453 000 deaths in children below 5 years of age annually.

In the European Region deaths are rare, but there are 87 000 hospitalizations annually, which result in high health care costs.

There are two available rotavirus vaccines, Rotarix and RotaTeq, which are both considered safe and effective at preventing gastrointestinal disease.

¹ Dudareva-Vizule S, Koch J, an der Heiden M, Oberle D, Keller-Stanislawski B, Wichmann O. Impact of rotavirus vaccination in regions with low and moderate vaccine uptake in Germany. *Human Vaccines & Immunotherapeutics* 2012;8:1407–15.

² Robert Koch -Institut. *Infektionsepidemiologisches Jahrbuch für 2010*, Berlin, 2011

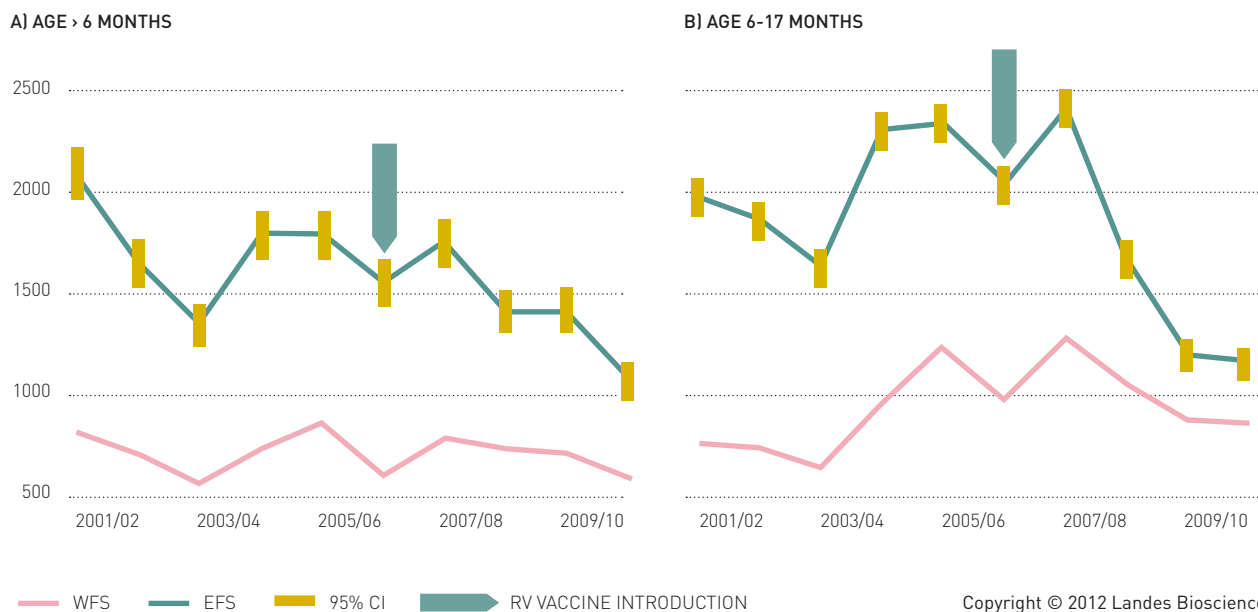
Table 2. Incidence of reported RV-related hospitalisations in EFS pre-vaccination (2004-6) and post-vaccination (2010/11)

AGE GROUP	INCIDENCE PER 100,000		% CHANGE
	2004-2006	2010-2011	
LESS THAN 6 MONTHS	1798	1075	-40
6-11 MONTHS	2585	1114	-57
12-17 MONTHS	2076	1226	-41
18-29 MONTHS	1525	1189	-22

Incidence of rotavirus-related hospitalization

- **decreased significantly** in children less than 24 months of age;
- did not decrease significantly in children aged 24 months or more;
- decreased more in EFS than WFS.

Fig. 1. Rotavirus-related hospitalization incidence 2001–2010 in age groups a) less than 6 months and b) 6–17 months demonstrate a steeper decline in EFS than WFS



Note: the incidence of rotavirus was also higher in EFS, however regression analysis demonstrated that the vaccination impact would be similar in both regions with similar coverage (that is, the difference in incidence of rotavirus-related hospitalization between the two regions is not accounted for by the difference in rotavirus incidence).