

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.



Evidence for strengthening an existing vaccine programme

Case study: Germany – measles¹

KEY FINDINGS

A study of the costs of a measles outbreak in a region of Germany was conducted. Parental reasons in the case of non-vaccinated children were also explored. The key findings included the following.

- An accumulation of **non-immune individuals** led to an outbreak of 1749 cases in North Rhine-Westphalia in 2006.
- **Targeted efforts such as school-based catch-up campaigns for older age groups are needed to close immunity gaps to prevent outbreaks.**
- Most cases occurred in the city of Duisburg (614 cases), where
 - at least 80% of cases were reported as having received **no vaccinations**;
 - almost **3000 school days** and about **300 work days** were missed by patients with measles;
 - 95 patients were hospitalized for a total of **775 days**;
 - each measles case cost about **€520** (including the cost to the local public health office).

Methods

A school-based retrospective cohort study was conducted during the initial phase of the 2006 measles outbreak in North Rhine-Westphalia (NRW).

Overall coverage with two-dose measles-containing vaccine (MCV) in 2005 in NRW was 74.7%.

All cases notified in the worst-affected city, Duisburg, were invited to participate by interview or questionnaire. 81% of 614 cases in Duisburg were interviewed. The median age of interviewed measles cases was 11 years.

About measles

The measles virus is highly infectious. Measles can lead to serious complications such as death, blindness, encephalitis, pneumonia and severe diarrhoea.

Measles incidence increased by 348% in the WHO European Region between 2007 and 2013 due to immunity gaps.

¹ Wichmann O, Siedler A, Sagebiel D, Hellenbrand W, Santibanez S, Mankertz A, et al. Further efforts needed to achieve measles elimination in Germany: results of an outbreak investigation. Bull World Health Organ.

Results

Coverage

- 94% were unvaccinated or had only received one dose of MCV.
- Among the key reasons for under-vaccination were that parents had forgotten, they rejected vaccination, or a doctor had advised against vaccination.

Health

- Complications reported:
 - 19% otitis media
 - 7% pneumonia
 - 0.6% encephalitis
 - 2 deaths.

Economy

- Measles patients missed 2 854 school days and 301 work days
- Healthcare provider costs for the 614 measles patients in Duisburg were estimated at € 229 000.

Table 1. Reasons for non-vaccination (reported by parents of measles patients in the Duisburg 2006 outbreak)

Reason for not being vaccinated	%
Parents forgot about the vaccination	36.4
Parents rejected the vaccination	27.8
Doctor recommended against vaccination (inappropriately)	16.5
Doctor recommended against vaccination (appropriately)	0.3
Child was less than 12 month	13
Vaccination was not offered	6

Table 2. Health care costs, Duisburg measles outbreak 2006

Total costs for hospitalization	€ 178 329
Outpatient consultations	€ 27 528
Laboratory tests	€ 20 826
Antibiotic treatment	€ 2 440
Total	€ 229 123

Figure 1. Reported measles cases by age group, North Rhine-Westphalia region, Germany, 2011 and 2006

