

# 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 sustaining a vaccine

## Case Study: United Kingdom - measles<sup>1</sup>

### KEY FINDINGS

A study of the short-term impact of measles infection on health-related quality of life was conducted in the United Kingdom during 2012 and 2013. Key findings included the following.

- 2366 cases of measles resulted in an estimated **23 110 age-adjusted days of lost productivity** during the 12 month period of the study.
- For each measles patient who fully recovered, on average, about:
  - **10 days** were taken off school or work and their carer took **7 days** off;
  - **4 nights** were spent in hospital (if hospitalized);
  - **4 contacts** with a health care professional were reported during the period of infection.

## Method

All eligible confirmed cases of measles from 1 June 2012 to 31 May 2013 were invited to participate in a postal survey.

The survey included the **EuroQol EQ-5D-3L** questionnaire to assess the impact on **HRQoL (health-related quality of life)** and additional questions about **direct and indirect impact** of measles infection.

The EuroQol scoring algorithm produces a health utility specific to the individual's health state. These utilities are then used in combination with the duration of symptoms to generate **the Quality-Adjusted Life Years or Days lost (QALYs or QALDs)**.

## About measles

Measles is a highly contagious viral disease.

It can cause serious complications, including blindness, encephalitis and death.

Measles caused an estimated 2.6 million deaths globally each year before widespread vaccination was introduced.

Vaccination costs less than US\$1 per child.

<sup>1</sup> The effect of measles on health-related quality of life: a patient-based survey. Thorington D, Ramsay M, van Hoek AJ, Edmunds WJ, Vivancos R, Bukasa A, Eames K. PLoS One. 2014 Sep 9;9(9):e105153. doi: 10.1371/journal.pone.0105153. eCollection 2014.

## Results

### Impact on health-related quality of life

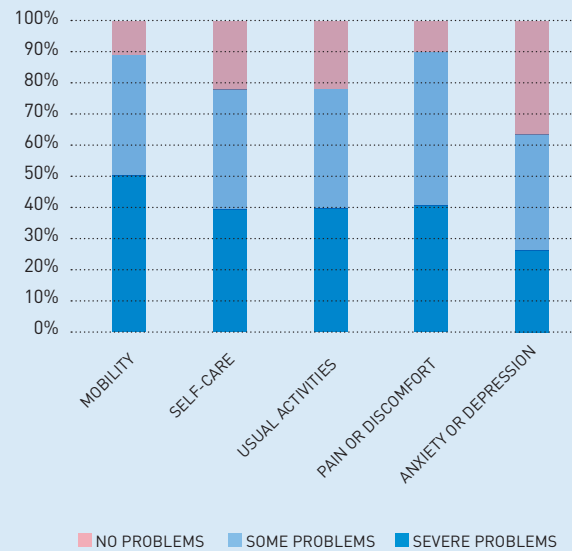
About **80%** of measles cases reported either some or severe problems for each dimension of health assessed.

Measles resulted in **0.019 QALYs** lost per patient (95% confidence interval: 0.016 – 0.022) – which is equivalent to **6.9 QALDs**.

The overall burden of disease in the United Kingdom (2366 confirmed cases) in the 12 month period from 1 June 2012 was estimated to be:

- **44.2 QALYs lost**
- **23 110 days of lost productivity (including carers).**

**Figure 1. Responses to each of five dimensions of health in EQ-5D-3L questionnaire for the worst day of infection for individuals with confirmed measles**



**Table 1: Impact of measles infection on the duration of symptoms, time off school or work and hospitalization**

	ALL CONFIRMED MEASLES CASES	AGED UNDER 7 YEARS	AGED 7-12 YEARS	AGED 13 YEARS AND OVER
Mean duration of perceived symptoms (days)	13.8	12.8	13.5	14.4
Individuals reporting time off work or school (%)	63.1 %	37.1 %	88.0 %	74.1 %
Mean time off work or school (days)	9.6	8.6	9.1	10.1
Individuals reporting time off work for primary caregivers (%)	39.6 %	44.3 %	40.0 %	31.5 %
Mean time off work for primary caregivers (days)	7.3	7	7.7	7.2
Individuals reporting at least one night in hospital (%)	36.5 %	32.9 %	8.0 %	45.4 %
Mean number of nights spent in hospital	4.2	4	4	4.4