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# Closing the measles vaccination gap

Information letters to policyholders or patient information in GP practices?

*wirksam regieren* division at the Federal Chancellery  
on behalf of the Federal Ministry of Health (BMG)





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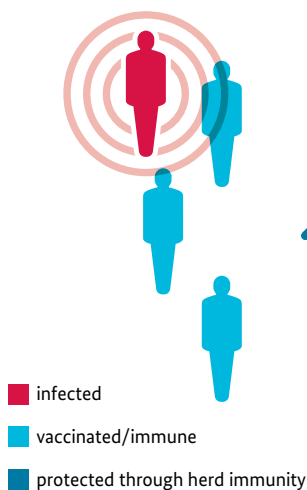
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# Measles protection among the population

Measles is a highly contagious viral illness that can have serious and even fatal consequences. The only effective protection against measles is vaccination.<sup>1</sup> If a sufficiently large proportion of the population is vaccinated, infants and people with weakened immune systems who cannot receive vaccinations themselves are protected from infection. This phenomenon is known as herd immunity.

Figure 1: Herd immunity

If at least 95% of the population is immune to measles, this is known as herd immunity. It prevents endemic virus transmissions.



## The aim is to eliminate measles

Vaccination protection against measles is so effective that it is possible to eradicate the disease. According to the goal set by the World Health Organization (WHO), measles should be eradicated in Europe by 2015.<sup>2</sup> In some countries in Europe, such as Finland, this goal has already been reached through the consistent implementation of vaccination programmes. In Germany, a sufficient vaccination rate has not yet been achieved. This is evident from the repeated outbreaks of measles in recent years (cf. Fig. 2).<sup>3</sup> The Federal Government has therefore approved its National Action Plan for the Elimination of Measles and Rubella in Germany 2015 – 2020.<sup>4</sup>

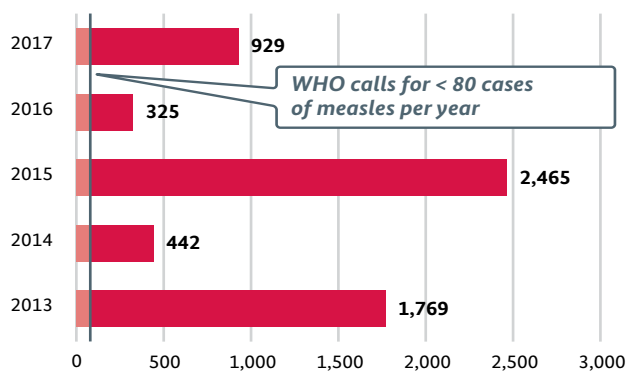


National Action Plan for the Elimination of Measles and Rubella in Germany 2015–2020

→ [https://www.bundesregierung.de/Content/Infomaterial/BMG/\\_2746.html](https://www.bundesregierung.de/Content/Infomaterial/BMG/_2746.html)

Figure 2: Cases of measles per year in Germany 2013 to 2017

Eradication of measles: According to the WHO, measles is classed as eradicated if no more than one case of measles occurs per 1 million inhabitants in a country per year. For Germany, this would mean no more than 80 cases of measles per year.



Data source: Robert Koch Institute

## Gaps in immunity and knowledge among adults born after 1970

There is a significant immunity gap among adults born after 1970 in Germany.<sup>5</sup> Surveys indicate that this immunity gap is largely due to a lack of knowledge around measles and the measles vaccination: one in five people mistakenly believes that measles is not a particularly serious condition; three-quarters of those surveyed were unaware of the vaccination recommendations for adults.<sup>6</sup>

One of the declared goals of the Federal Government's National Action Plan is therefore to provide targeted information to adults born after 1970. This recommendation is based on the importance of this age group for establishing herd immunity, as well as on the fact that the disease is frequently particularly serious in adults.

## Analysis

In the medical world, different approaches are being discussed on how the knowledge and vaccination gap can be closed.<sup>7</sup> The Federal Ministry for Health (BMG) has therefore commissioned *wirksam regieren* to investigate how suitable various information channels are for closing the knowledge and vaccination gap around measles and the measles vaccination among adults born after 1970.

An initial study looked at the impact of direct information to policyholders through various information letters provided by one health insurance company (Study 1). The direct information via letter aims to ensure that policyholders receive the information and have the opportunity to read this information in their own time.

A separate, second study looked at the impact of a written request from the BMG to general practitioners to inform their patients in a one-to-one conversation about measles and the vaccination recommendations (Study 2). Most patients regard their general

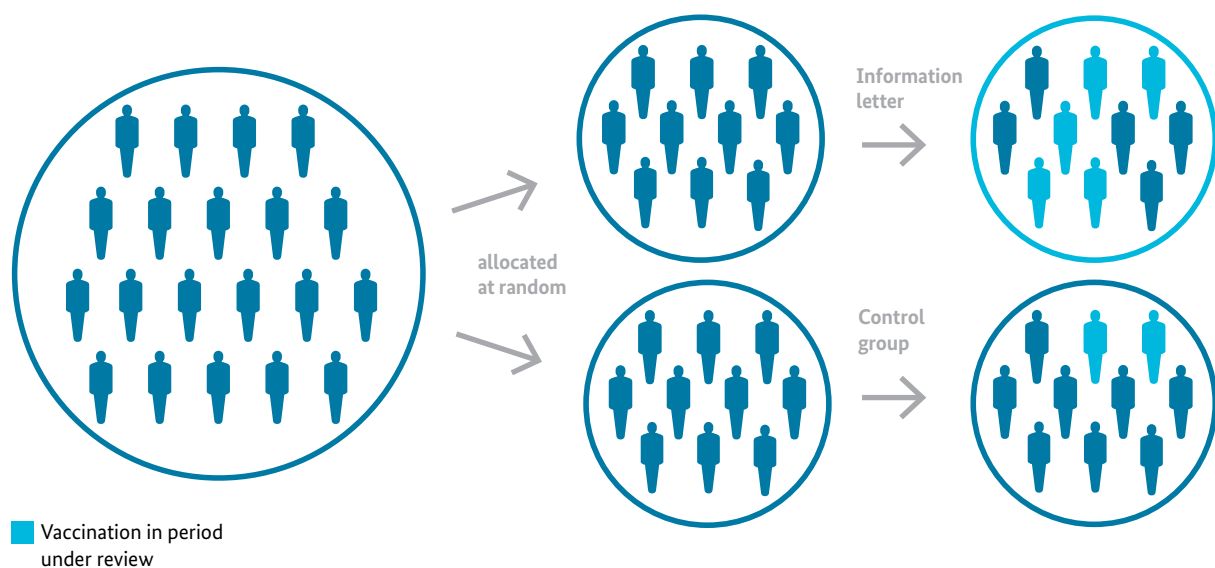
practitioner as an expert and important person of trust, and someone whom they consult particularly frequently on decisions around vaccination.<sup>8</sup> A request to general practitioners to step up the information and advice on measles and the measles vaccination on offer to adults therefore appears to be a promising approach.

To test the effectiveness of these two approaches to informing patients, two randomised, controlled field studies were carried out during the fourth quarter of 2016.

Figure 3: Randomised, controlled field studies

Randomised, controlled field studies are regarded as the scientific gold standard when it comes to examining cause and effect relationships. They are also used in the approval process for medications.

Randomised and controlled means that the various measures being tested are allocated to the participants in the study at random. This ensures that the groups are statistically comparable. A field study means that the measures are tested in the real world, i.e. in this case with real patients and doctors. This allows cause and effect relationships to be demonstrated.



## Study 1: Direct information to patients

In Study 1, policyholders received information about measles and the measles vaccination directly in a letter from their health insurance company. Six information letters were tested, all of which varied in terms of their information density and their graphical content. After the letters had been sent out, a survey was carried out of how many of the policyholders written to had been vaccinated against measles in the three months following receipt of the information letters. As a comparison, the vaccination numbers of a control group which had not received any letters were recorded.

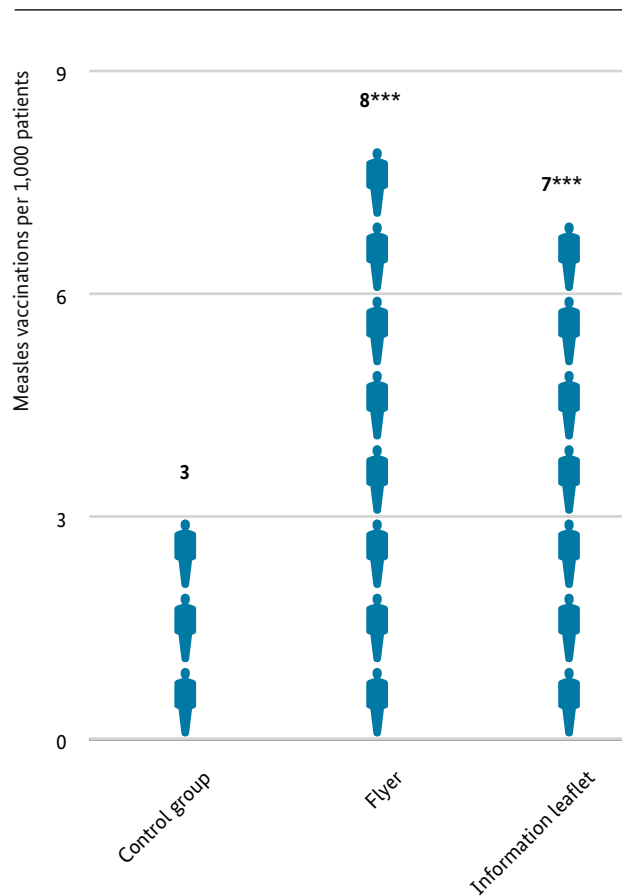
The study was carried out by *wirksam regieren* in cooperation with the Techniker Krankenkasse, the Federal Centre for Health Education (BZgA) and the Robert Koch Institute (RKI). With over 100,000 policyholders written to, this is one of the world's largest randomised, controlled studies on the subject of vaccine interventions.<sup>9</sup>

### Results of Study 1

By sending the information letters directly to patients, the number of vaccinations was increased by a factor of more than 2.5: compared to the control group, which did not receive any information, in the three months following receipt of the most effective information letter, 8 instead of 3 out of 1,000 patients were vaccinated against measles, with the measure incurring low overall costs. The second most effective information letter led to 7 vaccinations per 1,000 patients during the period under review (see Fig. 4).

The most effective information letters contained short, easy-to-understand and target group-relevant information on measles and the measles vaccination (see Fig. 5a/5b). In terms of impact, there was no demonstrable difference between a visually simple and visually more striking format.

Figure 4: Number of measles vaccinations per 1,000 patients in the control group vs. patients who were written to



\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05

[Detailed study report for this study](#)

→ <http://www.bundesregierung.de/Content/DE/StatischeSeiten/Breg/wirksam-regieren/Anlagen/Download-Masernimpfung-I.html>

Figure 5a/5b: Short, easy-to-understand and target group-relevant information

## What you need to know about measles vaccinations

To enable you to make an informed decision about a measles vaccination, we have summarised the key facts for you:

### How dangerous is the measles virus for adults?

- In Germany, around **2,500** people contracted measles in 2015. As a result of patchy vaccination, regional outbreaks can occur at any time with a significantly increased risk of infection, as has been seen recently in Berlin.
- Between **10 and 55 in 1,000** people infected with measles will develop inflammation of the lungs and **1 in 1,000** people will develop inflammation of the brain as a result of the infection. This can result in permanent brain damage and can even be fatal.

### When should adults be vaccinated?

- All adults born after 1970 who were not vaccinated during childhood or who only received one vaccination, or who are unsure of their vaccination status, should get **vaccinated against measles**.

### How well does the measles vaccine protect adults?

- **950 out of 1,000** people who have not been vaccinated and who come into contact with the measles virus will be infected. Measles is therefore highly contagious.
- **10 out of 1,000** vaccinated people who come into contact with the measles virus will be infected despite having two vaccinations. Compared to not being vaccinated, the vaccination thus provides highly effective protection.

### How serious is the risk of side effects after vaccination for adults?

- **2 to 5 people out of 100** who receive the vaccine will develop a non-infectious measles-like condition, which is generally associated with a mild, measles-like rash and fever, and rarely with joint pain.
- **0 to 1 out of 10,000** people who have been vaccinated will develop allergic reactions or a temporary reduction in their platelet levels, which reduces blood clotting.

This information leaflet was developed by *wirksam regieren* in collaboration with the Robert Koch Institute.

Figure 5a: Information leaflet



Figure 5b: Flyer

## Measles vaccinations are important for adults too!

### Adults can also contract measles

Measles cases are on the rise again in Germany: Around half of cases affect teenagers and adults who have been inadequately vaccinated or not at all.

### Measles: not a harmless childhood illness

In addition to complications such as middle ear or lung infections, around one in 1,000 people infected will develop inflammation of the brain. This can ultimately be fatal or lead to permanent physical disability. Serious consequences of the disease are much more common in teenagers and adults than in children.

### Vaccination protects

Vaccination is one of the simplest and most effective preventative measures for protecting against measles. Vaccinations protect more than just the people who receive them. If enough people are immunised, individual pathogens such as the measles virus can be eliminated.



### Who should be vaccinated against measles?

All adults born after 1970 if they:

- have not been vaccinated against measles yet
- only received one vaccination during childhood
- do not know if they have already been vaccinated or if they have had measles in the past

Children should receive two vaccinations between the ages of 11 months and 2 years. This will provide them with complete immunity.

Women intending to have children: Before becoming pregnant, women should check whether they have full measles protection. Measles vaccinations cannot be administered during pregnancy. For women who are immune to measles their child is automatically protected during the first few months of life, during which vaccinations cannot be given (passive immunity).

More information can be found online at [www.kbv.de/vorsorge](http://www.kbv.de/vorsorge)

This flyer was provided by the National Association of Statutory Health Insurance Physicians (KBV).

## Study 2: Information to patients via general practitioners

In Study 2, the BMG wrote to general practitioners and asked them to inform their patients about measles and the vaccination recommendations in a one-to-one consultation. A portion of the GPs were also asked to put out information brochures in the waiting room or to have them handed out personally at reception when the patient checked in. After the letters were sent, a survey was carried out to determine how many measles vaccinations were invoiced to the health insurance companies by the general practitioners who had been written to in the current quarter. As a comparison, the vaccination numbers of a control group of general practitioners who had not received any letters were recorded.

The study was carried out by *wirksam regieren* in collaboration with multiple Allgemeine Ortskrankenkasse (AOKs) health insurance providers and the AOK Federal Association, the BZgA and the RKI. More than 3,000 general practitioners were written to for this randomised, controlled field study.

**Figure 7: Information brochure from the BZgA. Front and reverse, text excerpt on the measles vaccination recommendations for adults amended in 2010**

**FURTHER INFORMATION**

is available

- from BZgA at: [www.impfen-info.de](http://www.impfen-info.de)
- from the Robert Koch Institute at: [www.rki.de/impfen](http://www.rki.de/impfen)
- in the BZgA leaflet "Vaccination" order no.: 11129000
- in the BZgA brochure "Our children" order no.: 11070000
- in the BZgA parent file "Growing up healthy" order no.: 11130000


**To order BZgA materials:**

- BZgA, 50819 Cologne
- [order@bzga.de](mailto:order@bzga.de)
- [www.impfen-info.de/informaterial](http://www.impfen-info.de/informaterial)

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**Measles·Mumps·Rubella  
Vaccination**

Protection for children,  
teenagers and young adults



### When is vaccination recommended for adults?

As more and more young adults are contracting the disease, since 2010 STIKO has recommended a booster vaccination against measles for all people born after 1970 who did not receive the vaccination during childhood or who only had one vaccination. The vaccination uses the MMR vaccine.

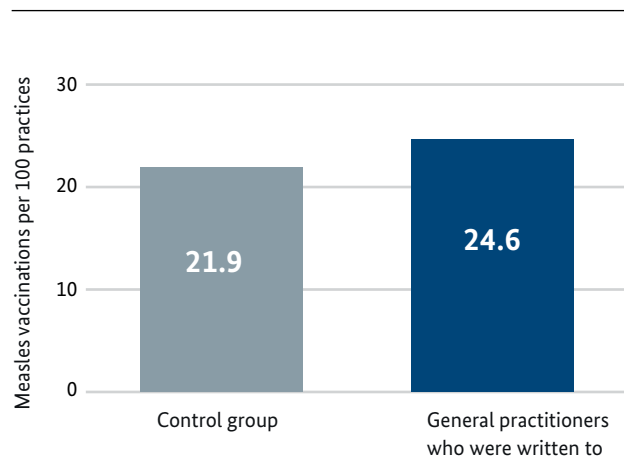
In particular, parents and young adults working in community facilities or in the health service should have their vaccination status checked. Individuals protected against measles will not, for example, infect infants, who cannot be vaccinated.

This information was provided by the BZgA.

### Results of Study 2

The results show that a letter to general practitioners with the request to step up targeted information to patients did not have any demonstrable effect on vaccination numbers. This is also true for GP practices that were asked to also put out information material in the waiting room or to hand it over at reception. Compared to the control group, there were slightly higher vaccination numbers among the general practitioners who were written to. These cannot be demonstrably attributed to the letters, however, due to significant regional fluctuations.

**Figure 6: Number of measles vaccinations per 100 GP practices in the control group vs. general practitioners who were written to**



Possible explanations for this result include the fact that general practitioners, despite the request, did not carry out any additional consultations, e.g. because they assumed that they had already sufficiently informed all patients or because they did not have time to do so in their everyday practice. It is also possible that, having received the information from their GP, patients decided not to have the vaccination.

### Detailed study report for this study

→ <http://www.bundesregierung.de/Content/DE/StatischeSeiten/Breg/wirksam-regieren/Anlagen/Download-Masernimpfung-II.html>



## Comparison and implications

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The comparison of the two studies indicates that, of the tested measures, only direct information to patients is suited to help close the measles vaccination gap among adults born after 1970. *The information provided must be brief, easy to understand and relevant to the target group. The two most effective letters met these criteria and increased the number of measles vaccinations by a factor of more than 2.5.* The sending of 1,000 information letters to policyholders can accordingly lead to 5 additional vaccinations in a period of three months. At costs of around EUR 100 to 125 per additional vaccination, this measure is comparatively inexpensive.

In contrast, the written request from the BMG to general practitioners to provide more targeted information to patients regarding to measles and the measles vaccination did not have any demonstrable impact on vaccination numbers. Important: this does not mean that information from general practitioners is unsuitable for explaining measles and the measles vaccination to patients. If the choice is made to provide information via GPs, it is recommended that the reasons for the lack of effectiveness of the measure tested here first be investigated; on the basis of the findings, measures should be taken to ensure GPs' support, e.g. through targeted information or training sessions.

The two studies illustrate the contribution that impact analyses can make to project development and planning. The most effective measures can be identified and where necessary developed further before implementation. The empirical monitoring and comparison of the effects of various measures before any regulation or roll-out facilitates effective and evidence-based government action.

## Acknowledgements

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## End notes

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