



Knowledge brief

Results of the SocioVax monitor 2025: insight into vaccine hesitancy

Summary

Background and purpose

Commissioned by the Minister of Health, Welfare and Sport (VWS), the Centre for Infectious Disease Control at RIVM is responsible for directing the National Immunisation Programme (NIP)¹. The NIP consists of a range of (free) vaccinations for children in the Netherlands (see [vaccination schedule](#)). Parents decide for themselves whether to have their children vaccinated. The registered vaccination coverage has shown a declining trend over the past ten years².

As part of the Verder met Vaccineren [Moving Forward with Vaccination] programme, RIVM is investigating, through the SocioVax programme, which socio-psychological factors are associated with participation in the NIP. One of the pillars of SocioVax is a questionnaire monitor in which a representative group of parents in the Netherlands report their views on childhood vaccinations and the organisations involved. At the start of 2025, a [knowledge brief](#) was published presenting the results of the first wave of this monitor.

The current knowledge brief looks specifically at vaccine hesitancy. We use the questionnaire monitor to identify the proportion of parents who are hesitant about vaccinating their child(ren), and the factors associated with this. Based on a concise literature review, we describe possible interventions for reducing vaccine hesitancy. Insight into vaccine hesitancy offers starting points for policy, practice and communication to support people in the Netherlands in making an informed choice about vaccination participation.

Methodology

The questionnaire monitor was conducted among a sample of parents in the Netherlands in June 2024, December 2024, and June 2025. They answered questions about their vaccination choices regarding their youngest child.

Key findings

- Vaccine hesitancy is not the same as vaccine refusal. Vaccine hesitancy is most common among parents who have their children partially vaccinated; 41% of this group report hesitancy. Among parents who have their child fully vaccinated or not vaccinated at all, fewer report hesitancy (11% and 17%, respectively).
- Vaccine hesitancy is more common among people in highly urban (vs. non-urban) areas, people with a migration background, and as the child's age increases.

¹ <https://rijksvaccinatieprogramma.nl/professionals/richtlijnen/uitvoering-2025/2-wettelijke-kaders-organisatie-indicatie-financiering>

² [Vaccinatiegraad Rijksvaccinatieprogramma Nederland \[Vaccination coverage, National Immunisation Programme, the Netherlands\]. Reporting year 2024 | RIVM](#)

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- People who are hesitant generally hold less positive beliefs about vaccination than people who are not hesitant and fully participate in the NIP. There is no single belief that is most strongly associated with hesitancy. The differences between people who are hesitant and those who are not are greatest in the level of concern about vaccine safety (higher among hesitant parents), and trust in healthcare providers and the government regarding vaccination (lower among hesitant people). People who are hesitant more often report that family and friends do not have their children vaccinated.
- Healthcare providers, government communication, vaccination invitations, and family and friends are most frequently cited as important sources of information, both by people who are hesitant and by people who are not hesitant about vaccination. However, hesitant people cite government communication and vaccination invitations less often than non-hesitant people (42% vs. 63%, and 29% vs. 40%, respectively). Among hesitant people, a small group cite websites offering a counter-narrative to vaccination policy (14%) or social media (6%) as an important source of information for making a vaccination decision; this is higher than among non-hesitant people (2% for both).

Recommendations for policy and practice

The current results, together with what is known from the scientific literature on vaccination willingness, lead to the following recommendations:

- **Provide vaccine-specific information.** People who experience vaccine hesitancy often choose some vaccines but not others. Therefore, provide targeted information about specific vaccines and the diseases they protect against, so that parents who want to carefully consider each vaccine individually have the right information available to do so.
 - o This applies in particular to vaccines given to children at a later age (DT-IPV, HPV), as parents are relatively more likely to be hesitant about these. Ensure that communication addresses parents' specific questions and concerns, and remain mindful of the role of cultural norms and values in doing so. For example, it is known that with regard to HPV, some parents have concerns about the vaccine's effect on their child's sexual activity (see the knowledge brief '[SocioVax literatuuronderzoek: determinanten van vaccinatiedeelname bij kinderen](#)').
 - o Be transparent about what is known regarding the vaccine's effectiveness, safety, and side effects.
- **Assume genuine concerns.** Most people who are hesitant about vaccination use the same sources of information as people who are not hesitant. Take this hesitancy seriously and avoid stigmatising people who express it. This contributes to trust.

Methodology

Vaccine hesitancy

The scientific literature on vaccination willingness argues for studying vaccine hesitancy and vaccination participation separately. After all, (wanting to) participate or not is not the same as being hesitant or not. People who are hesitant may ultimately choose to vaccinate or not; and people who do (not) get vaccinated may or may not have been hesitant beforehand. By vaccine hesitancy, we therefore mean experiencing uncertainty about the choice to vaccinate or not (Bussink-Voorend et al., 2022).

Earlier qualitative research by RIVM shows that there are differences in vaccination decision-making between parents who fully vaccinate their children and parents who

partially vaccinate their children (Romijnders et al., 2019). Parents who fully vaccinate their children regard vaccinations as a given, whereas parents who partially vaccinate their children consider the advantages and disadvantages extensively, which is time-consuming and difficult.

It is important to gain insight into vaccine hesitancy in order to be able to deploy targeted support for the vaccination decision. What makes it difficult to reach a decision? For example, what beliefs do hesitant people hold, and what role does their social environment play for them? Does this differ from people who choose to vaccinate or not without hesitation?

In the SocioVax questionnaire monitor, we measure both (self-reported) vaccination participation and vaccine hesitancy. We also measure how people think about vaccinations, how their social environment thinks about vaccination, and which sources of information people use. The available data are therefore highly suitable for examining vaccine hesitancy in a targeted way.

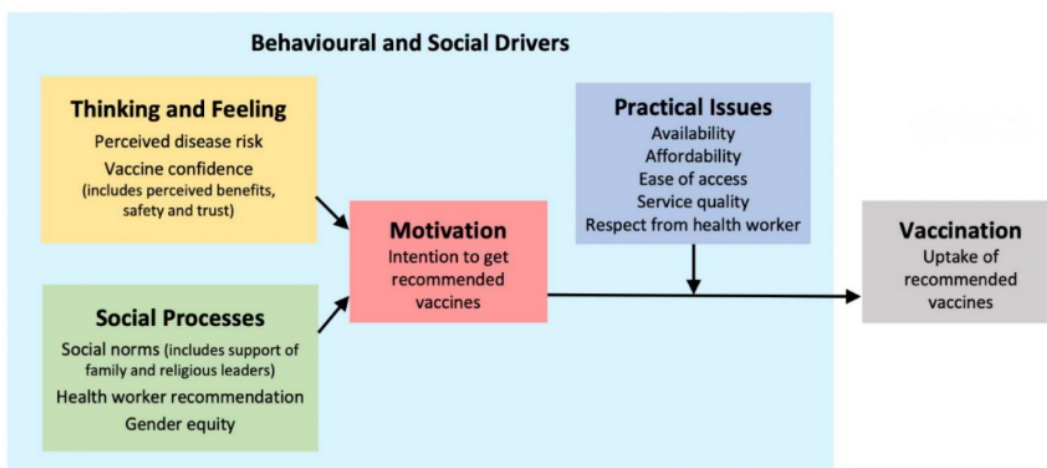
The research questions are:

1. How does the degree of vaccine hesitancy differ between parents who fully vaccinate, do not vaccinate, and partially vaccinate their children?
2. What are the demographic characteristics of people who are hesitant about vaccination?
3. Which beliefs regarding vaccination are associated with vaccine hesitancy?
4. Which sources of information are important for people who are hesitant about vaccination?

Questionnaire

The questionnaire is based on the Behavioural and Social Drivers of Vaccination (BeSD) Framework developed by the WHO BeSD working group, which sets out the beliefs and experiences that influence vaccination (World Health Organization, 2022). The focus here is on factors that can be measured at the individual level and that may be modifiable through policy and programmes. The factors can be divided into four domains: 1. What people think and feel, 2. Social processes, 3. Motivation (or hesitancy), and 4. Practical factors (see Figure 1).

Figure 1: Theoretical model based on the WHO's Behavioural and Social Drivers of Vaccination (BeSD) framework.



The core questionnaire consists of 20 items developed by the WHO BeSD working group, aligned with the domains of the BeSD framework. In addition, we have added a number of supplementary questions. The full questionnaire is available at data.rivm.nl.

Vaccine hesitancy:

We measured vaccine hesitancy using the uncertainty subscale of the Decisional Conflict Scale (O'Connor, 1995):

When it comes to vaccinating my youngest child...

- *I know what the best choice is for my child*
- *I feel certain about the choice*
- *I can make the decision easily*

(1 = *strongly disagree*, 5 = *strongly agree*)

We calculate the mean score of these three statements. We consider a mean score below 3.5 to indicate some degree of vaccine hesitancy³.

The Decisional Conflict Scale is typically used in a clinical context, and it is known that people with a higher score are more likely to change their mind or postpone their decision.

Vaccination participation:

We calculated participation in the National Immunisation Programme based on a combination of two questions: For the vaccinations for which the participant's youngest child⁴ has been invited so far, we ask whether the child has had none, some, or all of the vaccinations. For vaccinations for which the child has not yet been invited, we ask whether the parent wants the child to receive none, some, or all of the vaccinations.

Sample

The questionnaire (see [here](#) for more information) was administered to participants in the LISS panel⁵ in June–July 2024, December 2024, and June–July 2025. The LISS panel is based on a random (probability-based) sample that is representative of the Dutch population. From this panel, we invited all participants who have one or more children aged 14 or younger. Not every participant completes the questionnaire in every round. We include participants from all three measurement rounds in the analysis, and for each participant we use the responses from the most recent round in which they took part.

³No universal cut-off is available; 3.5 was chosen because it represents the midpoint between neutral (3) and agree (4), providing a conservative threshold for hesitancy.

⁴ Participants with more than one child are asked to complete the questionnaire about their youngest child. This ensures one measurement per participant and makes it clear which child is being referred to (so that we know the age of this child).

⁵ LISS (Longitudinal Internet studies for the Social Sciences) panel managed by Centerdata (Tilburg University).

Table 1: Sample characteristics (N = 956)*

Characteristic	Group	N	Mean/percentage	SD	min	max
Parent age		956	41	7.04	21	78
Youngest child's age		940	6.63	4.49	0	15
Sex	Male	419	43.8%			
	Female	537	56.2%			
Education type	Higher professional education (HBO)/university education (WO)	539	56.5%			
	Havo/vwo/MBO (upper secondary/vocational education)	343	36.0%			
	Basisonderwijs/vmbo	72	7.6%			
Migration background	None	703	73.7%			
	Migration background	251	26.3%			
Urbanity level	Very highly urbanised	156	16.4%			
	Highly urban	293	30.8%			
	Moderately urban	191	20.1%			
	Slightly urban	189	19.9%			
	Non-urban	123	12.9%			
Date of most recent participation	Wave 1 (June 2024)	204	21.3%			
	Wave 2 (December 2024)	202	21.1%			
	Wave 3 (June 2025)	550	57.5%			
Youngest child's participation in the NIP	Fully vaccinated	755	81.7%			
	Partially vaccinated	145	15.7%			
	Unvaccinated	24	2.6%			

*For research questions 2–4, 806 participants are included, as parents who do not vaccinate their child are excluded from the reference group, so that the reference group consists only of parents who have no hesitancy and whose child fully participates in the NIP.

Analyses

Several multivariate logistic regression models were used to test whether, and to what extent, there is a statistically significant association between vaccine hesitancy (yes/no) and other measured variables. For the different research questions, the following independent variables are included in relation to vaccine hesitancy:

- Research question 1: Self-reported vaccination participation, categorised as 'full participation', 'partial participation', and 'no participation'.
- Research question 2: Demographic characteristics: sex, education, age of the youngest child, age of the parent, migration background, urbanity of place of residence.
- Research question 3: Psychosocial determinants falling under 'thinking and feeling' and 'social processes' in the theoretical model (e.g. risk perception, beliefs about the benefits of vaccination, institutional trust regarding vaccination, concerns about vaccine safety). The association between the 'thinking and feeling' beliefs and vaccine hesitancy was tested in separate models (per belief), as beliefs regarding vaccination are very strongly correlated with one another. Demographic characteristics were included in the models as control variables.
- Research question 4: Sources of information, measured as the percentage of participants who report using the various sources when making vaccination decisions.

For research questions 2 to 4, we compare the group of parents with some degree of hesitancy with the group of parents without hesitancy whose child fully participates in the NIP (n = 806).

The research shows associations between variables but does not provide insight into causal relationships. For example: if a statistical association is found between vaccine hesitancy and the use of social media as a source of information for a vaccination decision, we cannot say whether the hesitancy arose (or was fuelled) as a result of using information on social media, or whether people turned to social media for information because they were already hesitant about vaccination. It is also possible that a third variable causes people both to be hesitant about vaccination and to use social media more often for their vaccination decision.

Results

1. What is the relationship between vaccine hesitancy and vaccination participation?
Of all parents participating in the SocioVax monitor, 16.1% report experiencing some degree of hesitancy about vaccinating their youngest child. This percentage differs between groups of parents who fully versus not fully participate in the National Immunisation Programme. Among parents who fully vaccinate their youngest child, 11.3% have some degree of hesitancy; among parents who do not vaccinate their child, this figure is 16.7%. Parents who partially vaccinate their youngest child are significantly more likely to have some degree of hesitancy (40.7%). Hesitancy therefore occurs mainly among parents who give their child some vaccinations but not others.
2. What are the demographic characteristics of parents who are hesitant about vaccination (vs. parents who are not hesitant)?
For this question, we compare parents who are hesitant with parents who are not hesitant and who fully participate in the NIP. Whether or not parents are hesitant about vaccination is associated with a number of demographic characteristics. Vaccine hesitancy is more common among parents living in very highly urbanised areas than among parents living in non-urban areas. Parents with a migration

background experience some degree of hesitancy more than twice as often as parents without a migration background. As the age of the youngest child increases, more parents experience some degree of vaccine hesitancy. This may possibly be explained by the fact that the HPV vaccination is offered at an older age (10 years), about which parents are more hesitant compared with the other vaccinations offered at a younger age. We asked parents who partially vaccinate their youngest child to indicate, for each vaccination, whether they wanted their child to receive it. Of these parents, most were hesitant about the HPV vaccination and the DTP vaccination (39.0% and 24.4%, respectively). Parents with an HBO or WO education (higher professional or university education) are less often hesitant than parents with a different educational background.

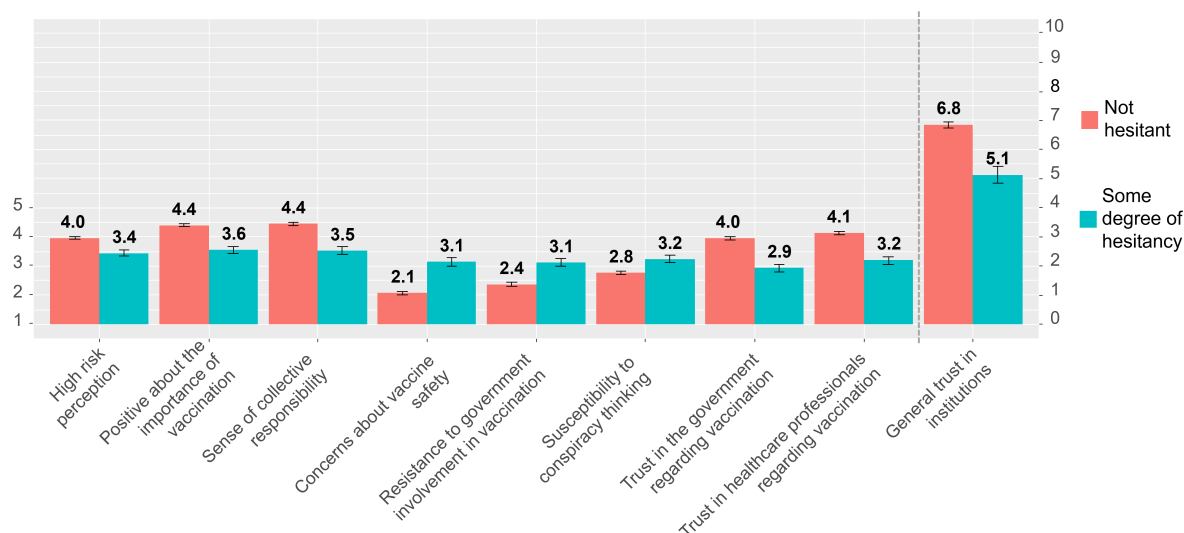
3. Which beliefs are associated with vaccine hesitancy?

Various beliefs about vaccination – for example regarding importance, safety, and trust in the institutions involved – are strongly interrelated (see also the knowledge brief [Resultaten van de SocioVax monitor 2024: sociaal-wetenschappelijk inzicht in vaccinatiebereidheid voor het RVP](#)). People who hold positive views about the importance of vaccination therefore generally also have relatively few safety concerns and a high level of trust in the institutions involved in vaccination, and vice versa.

Figure 2 shows the mean values of various beliefs for people who are hesitant versus not hesitant about vaccinating their child. The beliefs were measured on a scale from 1 (e.g. very low risk perception) to 5 (e.g. very high risk perception), except for general trust in institutions, which was measured on a scale from 0 (no trust at all) to 10 (a great deal of trust). People who are hesitant about vaccination have, on average, less positive beliefs about vaccination than people who are not hesitant and fully participate in the NIP. We see a relationship between all measured beliefs and vaccine hesitancy. This relationship is strongest for: concerns about vaccine safety, trust in the government regarding vaccination, and trust in healthcare professionals regarding vaccination. On these beliefs, people who are hesitant about vaccination differ, on average, the most from people who are not hesitant. The weakest relationship is seen with susceptibility to conspiracy beliefs: this is, on average, slightly – but not much – stronger among parents who are hesitant about vaccination (vs. parents who are not hesitant).

Participants were also asked to what extent their friends and family have their children vaccinated. Participants who are hesitant about vaccination relatively often report that friends and family do not have their children vaccinated (5.4%) or that they do not know (21.8%), compared with participants who are not hesitant and fully participate (0.1% and 6.1%, respectively). They therefore more often experience no clear social norm, or no norm at all, in favour of choosing vaccination.

Figure 2: Mean values of various beliefs for people who are hesitant versus not hesitant about vaccinating their child.

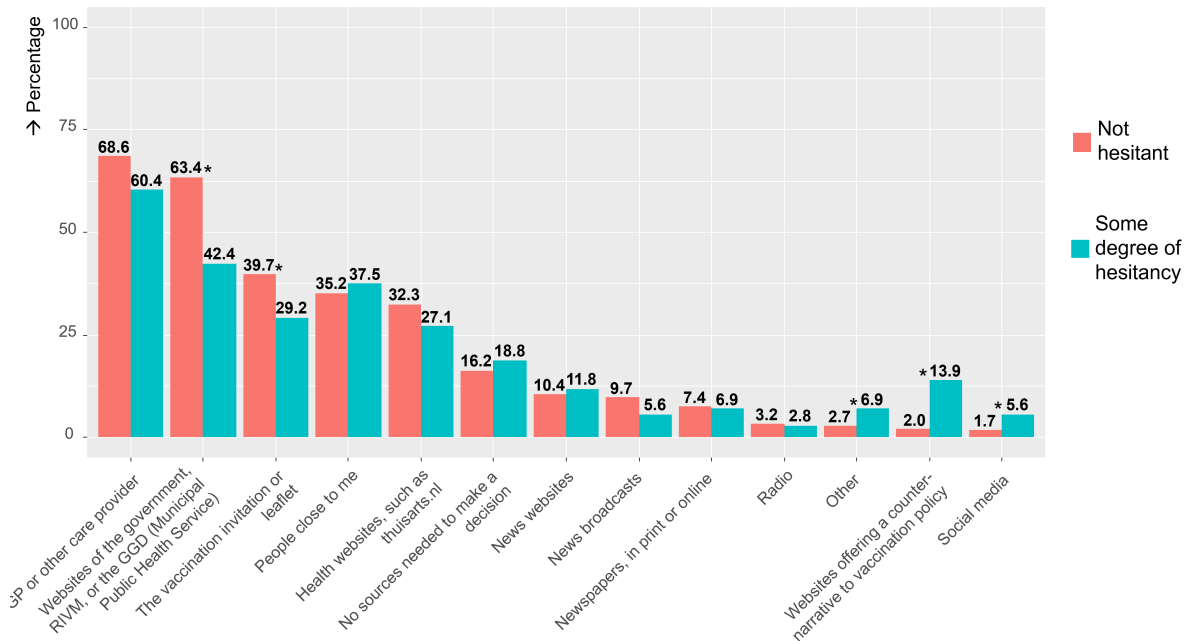


4. Which sources of information are important for parents who are hesitant about vaccination?

Participants were asked which sources of information are important to them in deciding whether or not to vaccinate their child. The GP or other healthcare providers are most frequently cited as an important source of information, both by parents who are hesitant and by parents who are not hesitant and fully participate (60% and 69%, respectively). These are followed by: government websites, the vaccination invitation, and people in one's social circle such as family, friends, or colleagues.

Figure 3 shows that parents who are hesitant are less likely than those who are not hesitant to use government websites (42 vs. 63%) or the vaccination invitation (29 vs. 40%) as an important source of information, although these still rank among the top four sources of information. People who are hesitant are more likely than those who are not hesitant to cite websites offering a counter-narrative to vaccination policy (14 vs. 2%) and social media (6 vs. 2%, respectively). The proportion of hesitant parents using these sources of information is nonetheless relatively low compared with the sources in the top four.

Figure 3: Percentage of participants indicating that this source of information is important to them in deciding whether or not to vaccinate their child.



Parents who are hesitant about vaccination were asked what they need in order to be able to make a decision (open question). This question was answered by 108 participants. 'More education/information' is mentioned most often. Specific examples mentioned include: more information about the advantages and disadvantages, independent scientific evidence, and information about the vaccine's contents. Some participants also feel a need to hear about other parents' experiences. Some hesitant parents state that they do not need anything more in order to make their decision, and a few describe it as 'a feeling'.

Literature: Interventions for reducing vaccine hesitancy

A quick scan of the scientific literature shows that studies do not always clearly distinguish between interventions aimed at increasing vaccination participation and interventions aimed at reducing vaccine hesitancy. This distinction is nonetheless relevant, since interventions that can increase vaccination participation do not always also reduce vaccine hesitancy, and vice versa. Some interventions that are effective in increasing vaccination participation may therefore only have an effect on people who are not hesitant but have not yet had their child vaccinated for some other reason.

Effective interventions aimed at increasing vaccination participation – rather than reducing hesitancy as such – often focus on lowering practical barriers, for example by ensuring easily accessible vaccination locations or sending reminders (see also the knowledge brief '[SocioVax literatuuronderzoek; interventies die vaccinatie deelname onder kinderen kunnen bevorderen](#)'). Studies show, however, that these interventions are of limited effectiveness for people who are not convinced they want their child to be vaccinated (Singh et al., 2022).

For people who are hesitant, it is important that their specific questions are answered (Singh et al., 2022). The specific questions may vary by target group and by vaccine. A review study suggests that communication interventions are particularly effective when they involve personal contact and the possibility of interaction (Jwa et al., 2025). Social media interventions can also be effective, particularly when they are made personally relevant ('tailored') and based on dialogue (Li et al., 2022). It is important to take into account the needs of different target groups: for example, adolescents may have different preferences for the form and content of interactions than adults, and men may have different needs than women when it comes to support with a vaccination decision (Liu et al., 2025).

There is also research specifically on communication strategies that are effective in addressing misinformation about vaccination. Misinformation can be a breeding ground for vaccine hesitancy. Promising strategies that can be applied in public communication include: communicating about the scientific consensus and strength of the evidence supporting vaccination research, as well as addressing well-known myths about vaccination, the use of humour, and warning against misinformation. It is advised not to use fear-inducing messages and communicating certainty, when there may in fact be uncertainties about the effectiveness or risks of vaccination (Whitehead et al., 2023). In this context too, it is found to be important to tailor the form and content of strategies to the needs and preferences of specific target groups.

Overall, the literature therefore highlights above all the importance of tailoring interventions to individuals or specific target groups. People who are hesitant about vaccination can be helped by having their questions answered and being able to discuss their concerns, and by receiving transparent information about the advantages and disadvantages of vaccination. Authors of review studies further note that the available evidence for the effectiveness of interventions is limited, for example because interventions are not clearly described, making it unclear exactly which elements are effective, or because there is no information on longer-term outcomes (Liu et al., 2025; Whitehead et al., 2023). High-quality intervention research is needed to increase knowledge about vaccine hesitancy.

Policy implications

The current research shows how often vaccine hesitancy occurs among parents participating in the SocioVax monitor, and which factors are associated with it. Based on these results and the findings from the literature, we discuss two points of attention for policy and communication in supporting people who are hesitant about vaccinating their child. We also identify what additional knowledge could contribute to better understanding and supporting this group of parents.

Points of attention for policy and communication

- **Provide vaccine-specific information on advantages and disadvantages.** People who experience vaccine hesitancy often choose some vaccines but not others. Therefore, provide targeted information about specific vaccines and the diseases they protect against, so that people can carefully consider each vaccine individually.
 - o This applies in particular to vaccines given to children at a later age (DT-IPV, HPV), as parents are relatively more likely to be hesitant about these. Ensure that communication addresses parents' specific questions and concerns, and remain mindful of the role of cultural norms and values in doing so. For example, it is known that with regard to HPV, some parents have concerns about the vaccine's effect on their child's sexual activity (see the knowledge brief '[SocioVax literatuuronderzoek: determinanten van vaccinatiedeelname bij kinderen](#)').
 - o In addition to the benefits of vaccination, also mention the possible disadvantages. Be transparent about what is known regarding the vaccine's safety and side effects. Present this alongside the advantages and disadvantages of not vaccinating (and the risks of the disease).
- **Assume genuine concerns.** Most people who are hesitant about vaccination use the same sources of information as people who are not hesitant. Take this hesitancy seriously and avoid stigmatising people who express it. This contributes to trust.

Areas for further research:

- **Insight into causality.** The available data do not provide insight into the causality of the associations between different beliefs, or between these beliefs and vaccine hesitancy. For example: do people have less trust in institutions because they themselves are not convinced of the value of vaccination? Or is it the other way around? Because different beliefs regarding vaccination are very strongly interrelated, there is also no single clear point of leverage for interventions to reduce vaccine hesitancy. By monitoring different beliefs regarding vaccination over a longer period, preferably within the same individuals, it is possible to examine whether a systematic sequence exists. For example, whether, among people who are hesitant about vaccination, trust in institutions declines first and vaccine-specific beliefs only afterwards, or vice versa. This provides points of leverage for interventions to address vaccine hesitancy in a timely and adequate manner.
- **Intervention development.** For people who are hesitant, it is important that their specific questions are answered. Which questions these are can differ by target group and by vaccine. In-depth (qualitative) research can provide insight into the specific questions and concerns people have about different vaccines, and what they need in order to make a decision about vaccinating their child. On this basis, suitable interventions can be developed together with the target groups. It is important to properly evaluate the effectiveness of interventions, including vaccine hesitancy – and not only participation – as an outcome measure. This will help us learn which interventions can help reduce hesitancy, and in which cases reduced hesitancy results in vaccination participation.

Conclusion

Among the parents participating in the SocioVax monitor, 1 in 6 report having some degree of hesitancy about vaccinating their children. They more often opt for partial participation in the vaccination programme than parents who are not hesitant. Parents who are hesitant are, in general and across various aspects, less positive about vaccination than parents who are not hesitant; both regarding the importance of vaccination and regarding vaccine safety and trust in the government and healthcare providers. The main sources of information do not differ between people who are hesitant and people who are not hesitant: healthcare providers, government websites, vaccination invitations, and family and friends. A small proportion of hesitant people also use alternative websites (14%) and social media (6%) as a source of information, more often than people who are not hesitant. The scientific literature on interventions for reducing vaccine hesitancy emphasises that people need to be able to raise their personal questions and concerns, preferably through interaction and in a form that matches their preferences and needs.

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