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Optimisation of the organisation of the mass vaccination program for nine-year-old school children in Twente.

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List of abbreviations

DPT	Diphtheria, Pertussis, Tetanus
GGD	Public Health services of municipalities
GP	General Practitioner
MMR	Measles, Mumps and Rubella
NIP	National immunisation program
RIVM	National Institute of Public Health and Environmental

Dutch Abstract

Achtergrond: Vaccineren is een van de meest levensreddende en kosteneffectieve interventies ter bescherming van de gezondheid. Een hoge vaccinatiegraad bij kinderen zorgt ervoor dat complicaties en mogelijke vroege sterfte zoveel mogelijk worden voorkomen, om de gezondheid van niet alleen de individuele maar ook de 'herd immunity' te beschermen. In Nederland wordt op de leeftijd van negen jaar de tweede dosis van de BMR en de derde dosis van de DTP-vaccins gegeven door middel van massavaccinatie. Er zijn een aantal onderzoeken uitgevoerd naar de factoren, die verband houden met de individuele besluitvorming, maar toch is er een verschil in de vaccinatiegraden van de zuigelingen en peuters en de schoolkinderen. Dezelfde trend is ook zichtbaar in Twente. Het grootste verschil tussen het vaccinatieprogramma van kinderen, leeftijdscategorie 0-4, en het vaccinatieprogramma van de 9-jarige is het ontwerp van de organisatie.

Doel: Het doel van deze studie is om aanbevelingen te doen aan de GGD om de organisatorische deel van vaccinatieprogramma voor negenjarigen te verbeteren om de vaccinatiegraad voor deze groep te verhogen.

Methode: Een verkennend onderzoek werd uitgevoerd bestaande uit een documentanalyse, mini-literatuur review en een kwalitatief onderzoek. In de documentanalyse wordt literatuur uit verschillende bronnen samengevoegd om te onderzoeken hoe de huidige vaccinatieprogramma wordt georganiseerd in Nederland. De mini-literatuur review is gedaan om de voor- en nadelen van de huidige vaccinatieprogramma en welke aanbevelingen voor verbetering van de organisatie er zijn. Het kwalitatieve onderzoek bestond uit interviews met beroepsbeoefenaren in de gezondheidszorg (N=6) om hun mening te geven over de organisatie van het nationale immunisatieprogramma en aanbevelingen voor verbetering.

Resultaten: Volgens de literatuur en de zorgprofessionals zijn tegenstrijdige prioriteiten, ervaringen en vergeetachtigheid de belangrijkste obstakels waarom ouders niet komen opdagen tijdens de massa vaccinatie sessies. Een meer op maat gemaakte aanpak zou moeten helpen om de vaccinatiegraad te verhogen.

Conclusie: Dit onderzoek biedt aanbevelingen aan de GGD om de massa vaccinatieprogramma te optimaliseren. Drie aanbevelingen op het gebied van implementatie wijzigingen worden aanbevolen. Ten eerste, bied ouders mogelijkheden aan buiten de traditionele vaccinatie uren. Ten tweede, verander de massa vaccinatiesessies in kleinere een-op-een vaccinatiesessies of op zijn minst kleinere massa vaccinatiesessies op de locatie van de GGD. Ten derde, gebruik een goed herinneringssysteem om de ouders te helpen herinneren aan de massa vaccinatiesessies. De uitkomsten van dit onderzoek vormen de basis voor toekomstige studies om de vaccinatiegraad van negenjarige schoolkinderen in Nederland te verhogen.

English Abstract

Background: Immunisation is one of the most lifesaving and cost-effective health protection intervention. High immunisation rates among children ensure that complications and possible early death as much as possible is prevented by reducing the spread of common childhood diseases to protect the health of not only the individual but also the herd immunity. In the Netherlands, the second dose of the MMR and third dose of the DTP vaccines are given at the age of nine in mass vaccination. A number of studies have been carried out to research the factors related to the individual decision making. Still, there is a difference among the vaccination rates from the infants and toddlers campaign. The same trend of vaccination rates, lower for school children than for infants and toddlers, is also visible in Twente. The biggest difference between the vaccination program of children, age category 0-4, and the vaccination program of the nine-year old, is the design of the organisation.

Objective: The main objective of this study is to give recommendations to the GGD to optimise the organisational part of the vaccination program for nine-year olds with resulting in higher vaccination rates.

Method: An exploratory study was carried out consisting of a document analysis, mini-literature review and qualitative research. Literature from various sources is combined in the document analysis to investigate how the current vaccination program is being organised in the Netherlands. The mini-literature review was done to determine the advantages and disadvantages of the current vaccination program and which recommendations are given for improvement of the organisation. The qualitative research consisted of interviews with healthcare professionals (N = 6) to give their opinion on the organisation of the national immunisation program and recommendations for improvement.

Results: According to the literature and the healthcare professionals conflicting priorities, patient experience and forgetfulness are the most important barriers why parents do not show up at the mass vaccination sessions. A more tailored approach should help to raise the vaccination rates.

Conclusion: This research provides recommendations for the GGD to optimise the mass vaccination program. Three implementation changes in terms of convenience are recommended. First provide parents with options outside the traditional vaccination hours. Secondly, change the mass vaccination sessions into smaller one to one vaccination sessions or at least smaller mass vaccination sessions given at the location of the GGD. Thirdly, make use of a good recall/remind system to help remember the parents of the mass vaccination sessions. The outcome of this research is the basis for future studies to uptake the vaccination rates for nine-year old schoolchildren in the Netherlands.

1. Introduction

1.1. Background

The Dutch National Immunisation Program (NIP) is a prevention program which started in 1957 (van Lier A. , et al., 2012). The main aim of the NIP program is to prevent against infectious diseases, complications and mortality by vaccination. This is done at two levels: first to provide individual protection and secondly to provide herd immunity. Therefore, a high overall vaccination rate is required to prevent epidemics and to protect the non-vaccinated children. The program exists of fourteen vaccines against twelve deadly infectious diseases to ensure that children are protected against: diphtheria, Haemophilus influenzae serotype b (Hib) disease, hepatitis B, human papilloma virus (HPV) infection, measles, meningococcal disease, mumps, pertussis, pneumococcal disease, poliomyelitis, rubella and tetanus. The vaccination schedule as it is in 2018 can be seen in Figure 1. The vaccines are available for free and are not compulsory but recommended (RIVM, 2017).

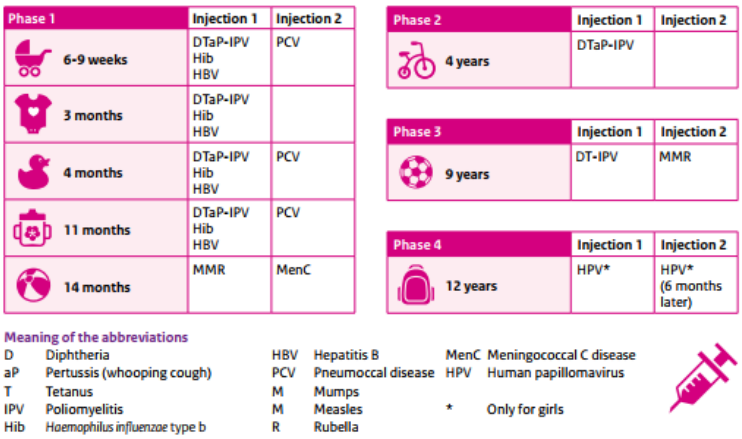


Figure 1: Current vaccination schedule the Netherlands in 2018 (source: RIVM)

In the Netherlands, the ministry of Health, Welfare and Sport determines which vaccinations are available in the national immunisation program (NIP) on advice of the Health Council. The national management of the NIP is in the hands of the National Institute of Public Health and Environmental (RIVM). The RIVM execute the supervision of the NIP on behalf of the Minister of Health, Welfare and Sport and coordinate the regional implementation. How the NIP should be performed, is the responsibility of the department Regional coordination of programs, storage and distribution. Five of their managers organise the implementation of the NIP in their own region. The vaccinations are given on a local level by Youth health care clinics. The evaluation and surveillance of the NIP is the responsibility for the Epidemiology and Surveillance through research (van Lier A. , et al., 2012).

From all the infants, 91.2% of the children at the age of two received all NIP vaccinations according to the schedule. This percentage dropped with a half percent for infants for the third year in a row from 2014. For school children the vaccination rates have declined with 1.15%, from an average of

92% in 2016 to 90.85% in 2017 (RIVM, 2017). The vaccination rates can be seen in Figure 2. In the Netherlands the vaccination rates are still higher than the aim of 90% of Global Vaccine Action Plan (GVAP). This action plan implies that nationwide the vaccination rate should reach at least 90% with a minimum level of 80% coverage for all vaccines in the NIP in every county or municipality. However, the percentages are lower than the 95% threshold of the World Health Organisation (WHO) (WHO, 2013). This threshold is held because this rate is needed to destroy diseases like measles and diphtheria to ensure herd immunity (RIVM, 2017).

Only the vaccination rate of HPV is lower compared to the other vaccination rates of the NIP. In this study the focus is on the vaccination program for infants and school children and not on the HPV vaccination for 14-year old girls. There are two reasons for this. The first reason is that HPV vaccination is much more recent, and the long-term effects are not known yet. Parents "*want to learn more about this vaccine"* (Brown et al., 2017, p.42). The second reason is that parents have other motives not to vaccinate their child than for the earlier vaccines, for example their child is not sexually active, and parents are afraid of the unknown side effects (Gilkey, et al., 2017) (Patty, et al., 2017).

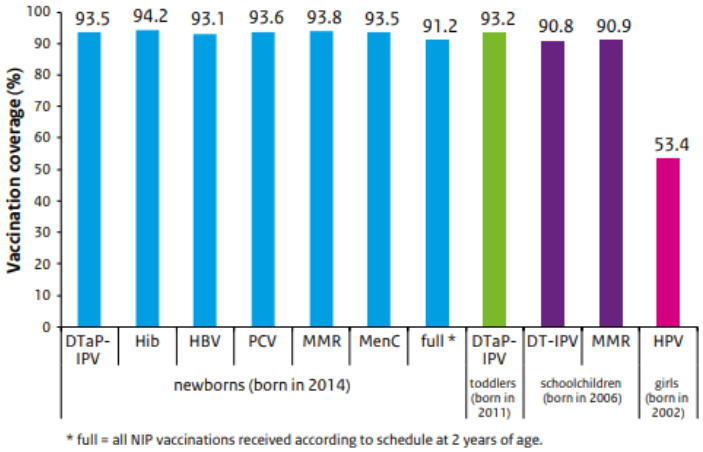


Figure 2: Vaccination rates per vaccine per age category in report year 2017 (Source: RIVM)

The national registration system Praeventis

Since 2005 the national registration system Praeventis is connected to the Basic Registration Persons, this forms the basis for the determination of the vaccination rates of the NIP. Within this system the validity (correctness and punctuality) of vaccinations is assessed on individual level according to an algorithm based on the annual report of the Centre of Infectious diseases. The executive youth health organisations send the personalised cards back to the department Regional Coordination of Programs/Purchase, Storage and Distribution by post. The managers enter the data in Preaventis. Therefore, the system can precisely determine the vaccination rates on individual level. Data on the vaccination rates can be used to improve the effectiveness of the NIP (van Lier A. , et al., 2012).

1.2. Importance of the vaccination program

In the Netherlands the vaccinations are voluntary and that went well for a long time. Due to the fact that the vaccination coverage is high, infectious diseases do not exist that often anymore in the Netherlands and less children die because of that the need for vaccination seems to have disappeared (WHO, n.d.). Recent outbreaks of the measles show otherwise, that vaccination is still needed.

The European Parliament worried about the fact that the vaccination rate is insufficient for adequate protection in the European Union (EU). In the time period from 2008 till 2015, 215.000 cases of diseases like measles could have been prevented by vaccination. (Europa Nu, 2018). Two till three million deaths can be saved by using vaccination every year and another 1.5 million deaths can be avoided if coverage is increased (Europa nu, 2018).

The number of outbreaks of the measles in the EU has tripled in 2017 compared to the numbers in 2016. A total of 14.451 cases were reported including 50 death cases. Most patients are reported by the countries: Romania. Italy, Greece and Germany. The vast majority of patients were not vaccinated. In many EU countries, however, vaccination coverage is too low for parts of the population to eliminate measles. In the Netherlands, sixteen cases of measles are reported in 2017. This number has doubled since 2015 when eight cases were reported (RIVM, 2018).

Measles is one of the most contagious diseases that exist. The virus is transmitted through the air, through coughing and sneezing. The disease lasts about seven till ten days. Sometimes complications arise, e.g. ear infection, pneumonia, or brain inflammation, which can cause children to become disabled or even die. Infection with the measles is only possible if you have not had measles before or you are not vaccinated against measles (RIVM, 2018). Vaccination against measles has been added to NIP in the Netherlands in 1976. In Appendix I, an infographic about the effects of the NIP in the Netherlands is shown.

Outbreaks among unvaccinated individuals occurred every four to seven years from that year on. A small outbreak of measles among anthroposophist's occurred in 2008. The most recent large outbreak occurred in the Bible belt in 1999-2000. During this large outbreak 3292 cases were reported, 150 people were hospitalized, and three people died of the consequences of the measles (Knoll, et al., 2013). The last measles outbreak in the Netherlands was not that long ago, namely in 2013. This outbreak occurred among the unvaccinated orthodox protestant population during a period of nine months. During this epidemic, more than 2600 measles patients were officially reported, 182 children were hospitalized, and one child died from complications of measles (Knoll, et al., 2013).

The fact that the vaccination rates drops is a reason to worry even at European level. Child vaccination programmes are still important, because not only in the Netherlands the contagious diseases still exist, also in other European countries the diseases occur.

1.3. Organisation of the mass vaccination program

Immunisation is one of the most lifesaving and cost-effective health protection intervention. High immunisation rates among children ensure that complications and possible early deaths is prevented as much as possible by reducing the spread of common childhood diseases to protect the health of not only the individual but also the herd immunity (Keegan & Bilous, 2004) (NHS, 2014). In the Netherlands, the second dose of the MMR and third dose of the DTP vaccines are given at the age of nine in mass vaccination campaign.

Mass vaccination is being done to vaccinate many individuals in a fast and effective way to prevent outbreaks. Together with routine immunisation, mass vaccination is necessary to achieve both national and international targets for the control of the vaccine avoidable diseases (Plotkin, 2006). The implementation of mass vaccination programs requires complex planning and coordination by experienced immunisation staff together with locally trained support staff in order to achieve high levels of vaccine coverage in the shortest length of time (Grabenstein & Nevin, 2006).

Current mass vaccination programs should be often evaluated and monitored to find opportunities to improve the organisation (Grabenstein & Nevin, 2006). In this time century, quality of the program becomes more and more important, because parents have more knowledge and are more inquisitive about the safety of the vaccines than years ago. Healthcare employees must be able to answer all types of questions about vaccination and offer support services which are crucial for the success of the vaccination program. It provides information about the effects of traditional mass vaccination programs to help educate the healthcare professionals and parents nowadays when hesitation about the vaccines enlarges (Grabenstein & Nevin, 2006).

The organisation of the mass vaccination program must be well-organised, to provide parents with the best service delivered to ensure that there are no practical barriers for refusing the recommended vaccines. Despite great accomplishment, there are still many challenges regarding the ultimate efficacy of vaccination programs. The determinants, who play a role in the organisation of the mass vaccination program will be explained in chapter 2.

1.4. Research problem

A number of studies have been carried out to find out which barriers, like religion, fear of side effects and safety of the vaccine, influences the individual decision making (Dubé, et al., 2013) (McKee & Bohannon, 2016) (Harmsen, et al., 2013). These barriers should not make a difference in the two age categories, but there is a difference among the vaccination rates from the infants and toddlers (full immunisation vaccination rate of 91.2%) and the vaccination rates of the school children (average vaccination of 90.5%). This can be seen in Figure 2. Assumed is that the organisation can be a reason for this, because the biggest difference between the vaccination program of children, age category 0-4,

and the vaccination program of the nine-year old, is the design of the organisation. Children at the age of nine do not go to the GGD for regular check-ups anymore, but the vaccinations are given in a central location somewhere in their own city or village (RIVM, 2018). The organisation is not well researched at the moment, that is why this research is focused on the organisational part of the vaccine program.

The same trend of vaccination rates, lower for school children than for infants and toddlers, is also visible in Twente. The average vaccination for infant and toddlers in 2017 is 95.3% and the average vaccination rate for school children in Twente in 2017 is 93.1%. In this study the focus is on Twente, because the GGD Twente wants to find out which practical reasons cause the difference in vaccination rate. Twente is a region in the eastern part of the Netherlands and exists of fourteen Overijssel municipalities with in total 627.200 inhabitants in 2017 (TwenteKennispunt, 2016).

1.5. Research questions

The main objective of this study is to give recommendations to the GGD for optimising the organisation of the mass vaccination program. These recommendations are made by doing literature research to find out which organisational factors have influence on the vaccination rates of the mass vaccination program and by interviewing healthcare professionals to see their point of view. To reach this objective the following research question is formulated:

Research question

How can the organisation around the child vaccination program for nine-year old be optimised according to the literature and the healthcare professionals in Twente?

Three sub-questions are formulated to help answering the research question. These questions aim to highlight all aspects of the research question. The sub-questions that need to be answered are as follow:

Sub-questions

1. How is the vaccination program in the Netherlands currently organised?
2. A: What are the advantages and disadvantages regarding the current vaccination program in the Netherlands according to the literature?

   B: Which recommendations do literature give to improve the organisation of the vaccination program in the Netherlands?
3. A: What are the advantages and disadvantages regarding the current vaccination program in the Netherlands according to the healthcare professionals in Twente?

   B: Which recommendations do healthcare professionals in Twente give to improve the organisation of the vaccination program in the Netherlands?

Societal relevance

The vaccines against various human infectious diseases reduced the harmful effects with in the end a lower child mortality globally. Not only by doing research and the development of vaccines, also to implement these vaccines into the public healthcare system worldwide (Rey-Jurado, et al., 2018). It is still important to vaccinate, because there are no country boundaries for diseases like the measles and pertussis. People go on holiday to for example to Italy and take the disease back with them to the Netherlands. Favourable effects related to vaccination programs are not only related to the indirect protective effect for the individual, which unvaccinated people could benefit from, but also with larger social benefits in the form of higher productivity, better education and economic profit (Lopalco & Santisteve, 2014) .

The proposed research is not only beneficial for the GGD Twente, but also beneficial for all GGD organisations in the Netherlands, because this research gives them handles to improve the organisation of the mass vaccination program and to know how healthcare professionals think about the current situation and can do further research about the vaccination program to make an optimum organisation in Twente with in the end a higher vaccination rate. A higher herd immunity means less chance to get sick or spread the diseases. So, vaccinating not only affects the individual but also has an advantage for society.

Scientific relevance

The vaccination program is accepted as a public health measure globally (Dubé, et al., 2013). Still outbreaks occur in the developed world and these are assigned to under-vaccinated or non-vaccinated communities (Falagas & Zarkadoulia, 2008). Besides this, research show that not only unvaccinated communities refuse to vaccinate, also vaccinated individuals have doubts and concerns about the vaccination program (Casiday, et al., 2006) (Burton-Jeangros, et al., 2005).

The choice to vaccinate their children depends on the parental view on the severity of the disease and on the safety and effectiveness of the vaccine. When the vaccination rate is high, and the diseases do no longer occur the need for vaccination decreases and parents believe that their child is not in danger (Warrel, et al., 2012). The vaccination rate also declines, due to the fact that parents fear the safety of the vaccines and their corresponding side effects. These beliefs can be a reflection of the fact that the preventable diseases almost no longer occur and seem less important than the risk of vaccination (Harmsen, et al., 2013).

Besides risk perception, religion and anthroposophical worldview are also factors why parents refuse to vaccinate. In the so-called Bible Belt region in the Netherlands lives the highest concentration of conservative protestants and the inhabitants are not vaccinated because of religious beliefs. For orthodox protestant communities the most important reason not to vaccinate is to rely on God (Fournet, et al., 2018). Anthroposophical parents are not against vaccination in general but are negative about the

fact that the vaccinations given, are combination vaccines and that these vaccines are in contrast with their view that health is a balance between body, soul and spirit (Harmsen, et al., 2012).

Factors about the individual decision making whether or not to vaccinate are known, but the role of the organisation is not. The differences between the vaccination rates of 0 till 4-years and school children clearly show that organisational factors play a role and that therefore research is needed to examine the link between the organisation and the vaccination rates of the nine-year old school children. Literature research and interviewing the healthcare professionals gives a better look inside the organisation of the vaccination program in Twente and their recommendations to uptake the vaccination rate among school children in Twente.

Thesis outline

In the next chapter, chapter two, theory about the vaccination hesitancy of parents and how the organisation is involved in the vaccination rates are described. In chapter three, the method how the research was carried out, is explained. The results are presented in chapter four. Finally, there is a discussion and conclusion in chapter five. In this chapter, the research results are explained more in detail and are compared with the literature, just like the generalizability of the research, also the strengths and limitations of this research are explained. Finally, some recommendations to improve the organisation of the mass vaccination are given.

2. Theoretical framework

In the first paragraph, vaccination hesitance is explained. After that, in the second paragraph, the organisational impact on the vaccination rate is clarified more in depth. This is a general theoretical framework and does not provide answers to sub-questions 2A and 2B.

2.1. Vaccination hesitance

To understand why parents, refuse or accept the vaccines, vaccination hesitancy is deeper explained. Refusal against vaccination is not something new. It started in the early 1800s, when many citizens criticise the use of the vaccine against smallpox, a deadly disease that plagued the human population for an extended period of time (Dubé, et al., 2015).

Vaccination rate is the primary output indicator of the vaccination program and is measured in percentages. Vaccination rate is important to the healthcare professionals, because it provides information about how many persons are vaccinated and it provides information about the herd immunity. This information is needed for the design and implementation of customised interventions, i.e. particular age groups (Lopalco & Santisteve, 2014). Achieving and continuing of the high vaccination rates should become priority for all healthcare systems. To monitor the development towards this goal, vaccination rates can serve as an indicator of the ability of a health care system to provide essential services to the most susceptible persons of the society (Bos & Batson, 2000).

A high vaccination rate depends not on one, but on multiple determinants. One determinant becomes more and more important for the vaccination rate, namely the hesitation of the vaccine that leads to delay or refusal of vaccinations (Eskola, et al., 2015). The hesitation of the vaccine is the behaviour that results from the decision-making process and reflects to various factors that influences the decision to vaccination according to the NIP (WHO, 2014).

Despite the fact that hesitation about vaccination has always existed, it is still important that organisations of the NIP ensure that the vaccination rates are high among the inhabitants to guarantee herd immunity.

2.2. Organisation of mass vaccination program

To uptake the vaccination rates among nine-year old school children the organisational factors are explained. To increase and maintain the vaccination rates, a strong vaccine infrastructure is needed. Just like transport infrastructure, which requires good road surfaces that are well-connected to each other to make sure that people and products reach their destination. A well-designed vaccine infrastructure depends also on vaccine storage and treatment procedures, confidence in the system that delivers vaccines, in the health professionals who inform and administer the vaccines, in the policymakers who

decide on the program and in the media, who write about the good and bad about vaccinations that must work flawlessly together (Orsolini, 2018) (Larson, et al., 2011).

The organisational factors, that play a role in whether or not to vaccinate their child, are shown in Figure 3, the context of eight core components of routine vaccination (Shen, et al., 2014). These can be divided into the following eight organisational areas:

1. Policy, standards and guidelines
2. Governance, organisation and management
3. Human resources
4. Vaccine, cold chain and logistics management
5. Service delivery
6. Communication and community partnerships
7. Data generation and use
8. Sustainable financing

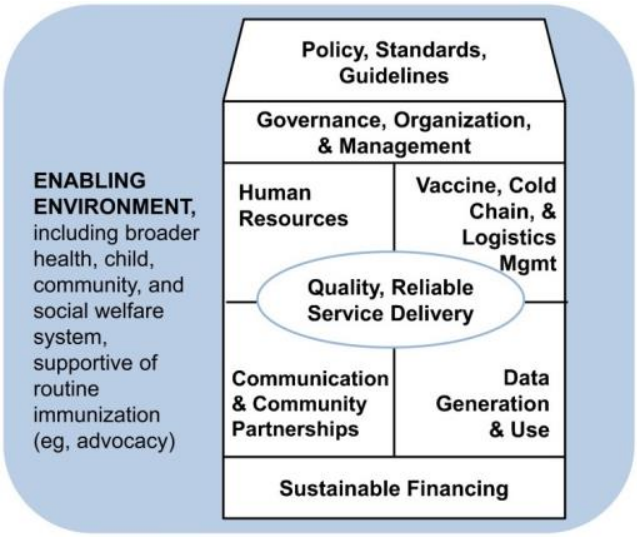


Figure 3: The context of eight core components of routine vaccination (source: Shen, et al., 2014).

Policy, Standard, Guidelines

The national vaccination program guideline is mentioned in the Public Health Act. In the Netherlands the guideline is adjusted where necessary and published every year. The 2018 version was drawn up by the RIVM, under the direction of medical advisors with specialisation in the NIP. In this guideline the framework of implementation of the NIP is mentioned even as the medical information. The GGD Twente must also carry out the vaccination program according to this guideline (RIVM, 2018).

Governance, Organisation and Management

The minister of Health, Welfare and Sports determines the content of the NIP program in the Netherlands. On behalf of the minister, the RIVM is responsible for managing the NIP. This includes:

establishment of the NIP framework, implementation guidelines and standards; coordination of the NIP; communication and monitoring end evaluation of the vaccination program; securing vaccine supply and distribution; preparing materials and monitoring tools for training; organising immunisation campaigns; disease surveillance and budget implementation. The NIP is performed by youth health care services, that includes GGD Twente (RIVM, 2018) (Shen, et al., 2014).

Human Resource

The growing hesitance against the NIP increases the need for well-trained healthcare professionals. Their technical skills about injections must be sufficient and their management and supervisory skills are also becoming more and more important, because responsibilities towards financial and data management increases (Shen, et al. 2014). Train and inform healthcare professionals how they must respond to side effects. To improve knowledge about side effects, side effects must be reported to the RIVM and local coordinator (Grabenstein & Nevin, 2006). Since healthcare professionals are one of the largest influencing bodies in the decision of vaccinations, good knowledge about the vaccines are needed to recommend the vaccinations and to handle the difficult conversation with the doubting parents (Paterson, et al., 2016).

Vaccine, Cold Chain and Logistics Management

To ensure the optimal strength of vaccines, careful attention is required in all levels of cold chain management. These includes storage and transport of the vaccines from producer to the local operator (Kartogly & Milstien, 2014). Large amounts of vaccines must be linked to recording thermometers and alarm systems (Grabenstein & Nevin, 2006). In case of the mass vaccination, barriers affecting the supply and cold chain management are common. Vaccine shortages because of too small production of the vaccinations sometimes occur (Esposito, et al. 2014). What also sometimes happened are incorrect temperatures of the fridge at local storage. Right temperatures are important, because it can decline vaccines potency and efficacy (Levinson, 2012). In the Netherlands the RIVM is responsible for the vaccine distribution and cold chain to the local operator. The vaccines may only be used for the NIP and remains property of the RIVM. The responsibility from delivery to the administration of the vaccines are for the local operators. Vaccines must be stored and transported under controlled conditions and only be administered if this is guaranteed (RIVM, 2018).

Quality, Reliable Service Delivery

For the mass vaccination quality, reliable service delivery is the most important factor, because parents have to do more effort in terms of getting their child vaccinated than when their child was 0 till 4-years old, because the design of the vaccination program is different. The design of the vaccination program can influence the vaccination rates, which is the focus in this research. For mass vaccination, this means that parents are divided into various times, these hours could be uncomfortable for them (WHO SAGE,

2015). Not only must vaccinations be given in a proper and safe way, also access to the location of the vaccination must be reachable for everybody. Access to the location of vaccination is an important factor. Distance to the location is found to be one of the reasons for lower vaccination rates (Esposito, et al, 2014).

Communication and Community Partnerships

Good information about the vaccination program must be available for everybody. Healthcare professionals are still one of the most important sources of information about the NIP. Just knowing information about the NIP is not enough for vaccination acceptance. Parents do not let their child vaccinated if healthcare professionals do not know about the value of the vaccines, when children need to be vaccinated and where the vaccines be given. Besides that, parents also do not vaccinate their children if healthcare professionals do not trust the safety of the vaccines (Waisbord & Larson, 2005). To inform the parents: why, where, when and how many times their children need vaccines, health care professionals need the right training (Shen, et al., 2014). In the Netherlands information about the NIP is available at the RIVM website. Negative publicity about the vaccination program and their safety is written a lot in the media. Although many side effects have been contradicted by science, some parents still believe that the MMR vaccine causes autism (Offit & Coffin, 2003)

Data Generation & Use

A lack of an information system to collect data about the vaccination status of the individual, who should receive a vaccination, is a health system barrier and can influence the vaccination rate. The use of an automated, population-based computer system to collect the data is essential for higher vaccination rates (Kelly, et al., 2007). These systems not only provide clinical advice and vaccination rates reports, but also help the inventory management of vaccines and recall messages. Unfortunately, these systems do not exist yet, because they are not fully developed. (Esposito, et al, 2014).

Sustainable Financing

Vaccination programs can be a victim of its own success. When huge outbreaks of infectious diseases do not occur anymore, and the vaccination rates are consistently high, the demand for vaccination can decrease and policy-makers and decision-makers may focus on other interventions. Vaccine preventing diseases can occur again and outbreaks return, causing a more financial burden to the government (Shen, et al., 2014).

All elements together, make a good organisation to provide the best vaccination program to the parents so that they are willingly to come for the recommended vaccines for their children.

The three C´s model

Not all elements of the eight core elements of vaccination can declare the difference in design of the vaccination program between the two age categories, the 0 till 4-years and the nine-year olds. In this research, the focus will only be on quality of the service and service delivery, because the design of the vaccination program is different. Therefore, quality of the service and service delivery factors could potentially explain the difference between the two age categories. Quality of the service and service delivery at a time and place fits in the circle convenience in the "three Cs model of the SAGE working group of the WHO", see Figure 4. This model consists of three categories: complacency, confidence and convenience (MacDonald, 2015). For this research only, convenience is taken as a factor, because this is affected by the design of the vaccination program and the service provided. The decision to vaccinate depends on the quality of the vaccination service provided at a certain time and place that are suitable and comfortable for parents and their children and can be the deciding factor in making the choice to vaccinate (WHO, 2013). To give recommendations in terms of convenience to improve the quality of the service could result in higher vaccination rates for nine-year old school children. That is why this is the only factor deeper explained in the analysis of this research.

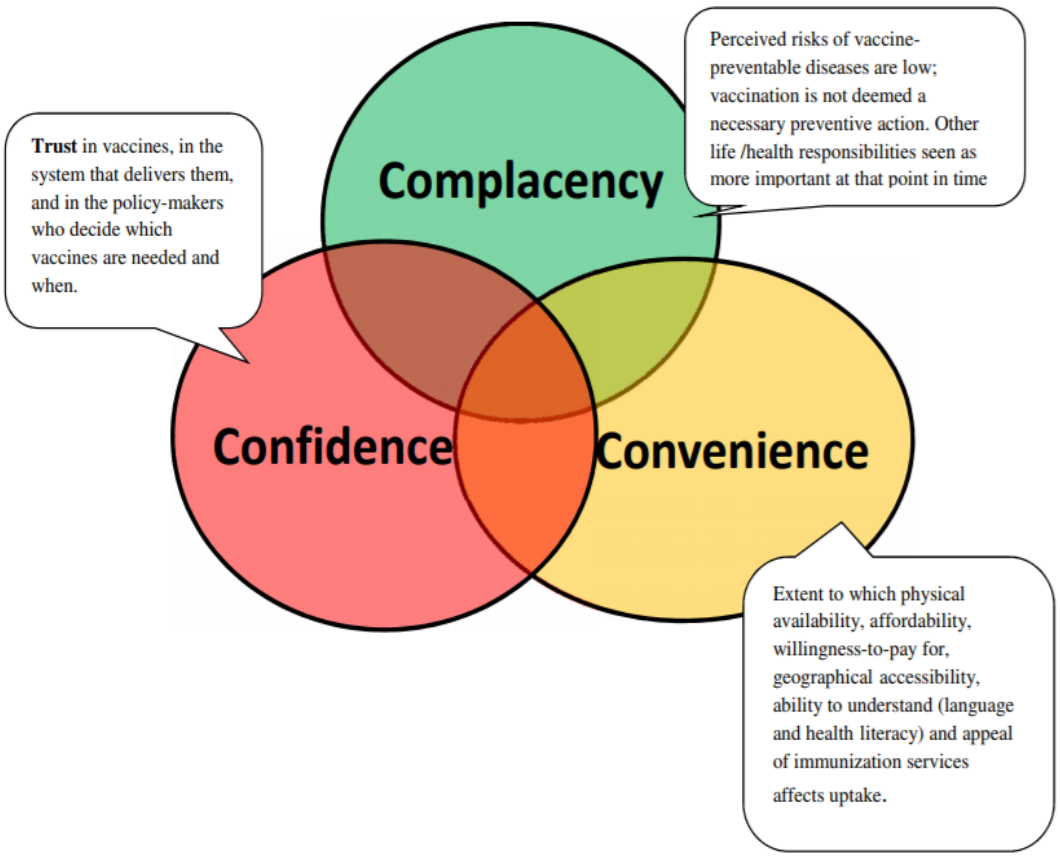


Figure 4: "Three C's" model of vaccine hesitancy (source: SAGE)

3. Method

To answer the research question and its related sub-questions, data on the organisation of the child-vaccination program was collected. In this chapter, the research setting and strategy, data collection methods, data analysis methods and ethical issues will be explained more in depth. This research is considered to be an explorative research with qualitative data collection method. Research for this master thesis was conducted during a time period of February 2018 till July 2018.

3.1. Research setting and strategy

Sub-question 1:

The design of sub-question 1: *How is the vaccination program in the Netherlands currently organised?* is as follows: the organisation of the vaccination program among 0 till 4-year olds is explained as a comparison to the organisation of the vaccination program among nine-year olds. This is done to give a broad view how the vaccination program is currently organised in the Netherlands and to make the difference in organisation between the two programs clear. It has been decided to perform a document analysis, because it is an efficient and effective way to collect data, because documents are manageable and practical tools for reviewing the literature (Bowen, 2009).

Literature study

Since the literature on the direct link between the organisation of the mass vaccination program and the lower vaccination rates in school children is scarce, exploratory research was required to develop profound and inductive insights. To identify and analyse these insights, a mini-literature review is done to answer sub questions 2A: *What are the advantages and disadvantages regarding the current vaccination program in the Netherlands according to the literature?* and 2B: *Which recommendations do literature give to improve the organisation of the mass vaccination program in the Netherlands?* Conducting a mini-literature review has the advantages that it is replicable, it minimises bias, draw consistent conclusions and it improves the generalisability to provide straight forward information to healthcare providers (Gopalakrishnan & Ganeshkumar, 2013).

The design of sub-question 2A is that first general advantages and disadvantages of the vaccination program are described, after that advantages and disadvantages of the mass vaccination program in terms of convenience are mentioned, because convenience was mentioned in chapter 2 as most important factor for this research. In the last paragraph, recommendations, for improving the service delivered, according to the literature are shown to answer sub-question 2B.

Interviews with healthcare professionals

In addition to the literature, a qualitative research is consulted to answer sub-question 3A: *What are the advantages and disadvantages regarding the current vaccination program in the Netherlands according*

to healthcare professionals? and 3B: *Which recommendations do healthcare professionals give to improve the organisation of the mass vaccination program in the Netherlands?*

A qualitative research provides in depth information by asking participants the underlying motivations and their work experience to understand the meaning of the participants attribute to their experiences (Austin & Sutton, 2014) (Sutton & Austin, 2015). It helps to understand how the organisation around the vaccination program is set up the way it is and to ask for recommendations about optimising the organisation for improving the vaccination rates among school children. Interviews with healthcare professionals from the GGD and General Practitioners (GPs) were conducted to insight information about the organisation around the child vaccination program in Twente in the months April, May and June 2018. Employees of the GGD were interviewed, because they execute the NIP program in Twente. GPs were interviewed, because they are a healthcare professional, mentioned as stakeholder in the implementation of the vaccination program (RIVM, 2018).

Advantages and disadvantages towards the vaccination program among 0 till 4-year olds are also explained as a comparison to the advantages and disadvantages towards the vaccination program among nine-year olds. This is done to see what kind of different aspects healthcare professionals see in vaccination of the two age categories.

3.2. Data-collection methods

Current organisation of the vaccination program:

Data to answer sub-question 1 is conducted to combine a document analysis with interviews from the healthcare professionals. Year reports and implementation documents of the NIP from the RIVM and GGD Twente are read, to see how the organisation of the vaccination program in Twente is currently organised for both age groups, 0 till 4-year old and nine-year old. The different documents and the interviews were combined together to summarise to answer the sub-question.

Mini literature review

For answering sub-questions 2A and 2B a mini literature review was conducted. The main aim of this review was to identify the advantages and disadvantages of the current mass vaccination program and to find recommendations to improve the mass vaccination program according to the literature. The focus was as much as possible on the convenience advantages, disadvantages and recommendations. Two databases were used to conduct the mini literature review which were Science Direct and Pub Med. Only English or Dutch written articles, published between 01-01-2000 and 31-12-2018, based on convenience barriers for childhood vaccinations and specified on humans, were included in this review. Full-texts not written in English or Dutch were excluded as well as articles only written about HPV vaccination or adult and immigrant vaccination as well as articles written on socio-economic barriers and articles written not on NIP diseases. Articles with lack of access were also excluded from the search strategy. It

was chosen to use service delivery as a search term, because convenience did not give any results. Both immunization and immunisation were used just like organization and organisation, because the notation with a z is American English and the notation with the s is UK English.

The search terms to find the articles were: (*immunisation/immunization OR vaccination), AND (children OR "school children") AND ("service delivery" or organization/organisation) AND (barriers OR factors)*

Based on search terms from the literature review, also Google was used to find relevant academic literature available online. Relevant articles found during reference or citation tracking were also included. One non-academic article found in Google, *top strategies for increasing immunisation coverage rates by the Massachusetts department of public health,* is included. The search strategy of the included articles is in Figure 5. An overview of the articles, used in the result analysis, are shown in Appendix II.

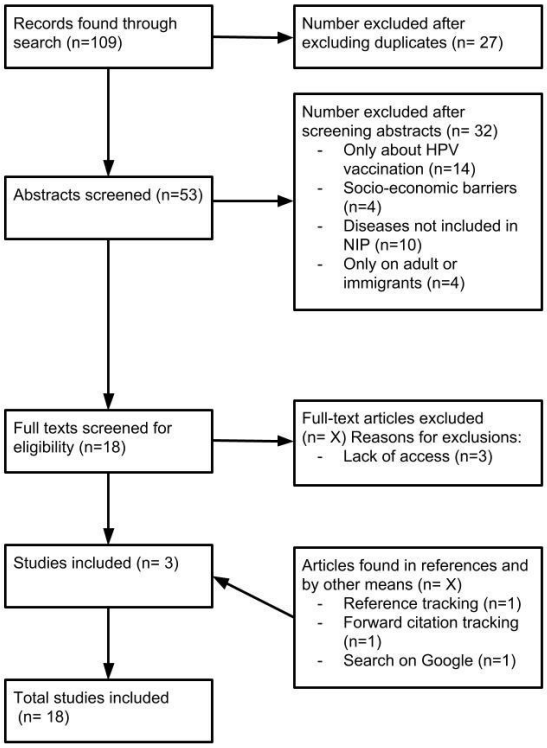


Figure 5: Search strategy

Interviews with healthcare professionals

To understand how the organisation currently is organised and to give recommendations to the GGD, one-to-one interviews with in total six healthcare professionals in Twente were conducted. The research data were collected by doing semi-structured interviews. In semi- structured interviews, questions are prepared, but there is a possibility to ask additional questions during the interview to clarify certain

issues (Barriball & While, 1994). The open questions enable us to formulate appropriate follow-up questions to our understanding of the opinion of the respondents. This is done to improve the quality of the interviews. The interviews were conducted according to two different interview protocols, which are included in Appendix III and IV. One protocol was used for interviewing the healthcare professionals of the GGD and the other protocol was used for interviewing the GPs. The questions of the interview were based on literature that lead to answering the research question. The interview protocol for the GGD employees existed of a total of 24 open questions divided into four parts: 1. General information about their work 2. General questions about the vaccination program in their municipality 3. Questions about the vaccination rate in Twente and the Netherlands where numbers of the vaccination rate where shown to the participants. 4. Questions about the organisation of the vaccination program in their municipality. The interview protocol for the GPs existed of a total of nineteen open questions also divided into the same for parts as the interview protocol of the GGD employees only with some different questions to find out the exact role of the GP in the vaccination program. All interviews ended with room for additional comments and feedback.

Research population

Interviews with four GGD employees, among them were two youth healthcare nurses, one youth doctor and one youth doctor's assistant. The GGD employees were recruited by the team leaders of the municipalities. Therefore, the inclusion criteria of the participants were based on the vaccination grade of their municipality. Three high graded and three least graded municipalities in Twente were selected based on the MMR and DPT vaccination rate for children at the age of nine. The three high graded municipalities are: Hellendoorn, Oldenzaal and Tubbergen. The three low graded municipalities are: Almelo, Borne, and Twenterand. In addition, Enschede is included, because two healthcare professionals volunteered in this research and they are working in Enschede. Only four employees of three municipalities (Hengelo/Borne, Enschede, Oldenzaal and Twenterand) were available for an interview. After the researcher got the list with names of the employees who wants to participate in this research, these employees were contacted for permission by the researcher herself. The other two interviews were conducted with GPs. The GPs were contacted by the researcher herself to ask for permission in this research. An overview of the stakeholder per municipality is shown in Table 1.

The interviews were held face-to-face at the location the participants preferred. At the start of the interview the interviewer introduced the research and clarify the aim if necessary. The participants were asked for permission to record the interview and were asked to sign the consent form included in Appendix III. The interviews for GGD employees took forty-five minutes to an hour depending on the participant. The interviews with GPs took fifteen to twenty-five minutes depending on the participant.

Table 1: Overview of the stakeholders and their function according to the NIP per municipality.

Municipality	Stakeholder	Function according to the NIP
Hengelo/ Borne	- Youth doctor - Youth doctor's assistant	- Administer the vaccines to both 0 till 4-year old children and school children. Available when emergencies happen. End responsibility of the execution of the NIP on the location. - Administer the vaccines to both 0 till 4-year old children and school children. In addition, location coordinator of the NIP in Hengelo and Borne
Enschede	- Youth nurse - General Practitioner	- Administer the vaccines to both 0 till 4-year old children and school children. - Not a specific function, but see children with side effects of the vaccines and sometimes vaccinate children if parents do not trust the GGD
Oldenzaal	- General Practitioner	- Not a specific function, but see children with side effects of the vaccines and sometimes vaccinate children if parents do not trust the GGD
Twenterand	- Youth nurse	- Administer the vaccines to both 0 till 4-year old and nine-year old children and program coordinator of the NIP in Twente

3.3. Data-analysis methods

Mini-literature review

The search terms were used to find academic literature to be included in this research. A total of 18 full-texts were found and reviewed. These articles included systematic reviews, document analysis, surveys, case control study, SWOT-analysis, focus groups and interviews. The articles were based on perspectives of parents, the organisation and healthcare professionals. Key findings for advantages, disadvantages and recommendations were summarised by one researcher.

Interviews with health care professionals

The first interview was performed as a pilot to check whether the questions were clear and if some changes were necessary. At the beginning of each interview a clear explanation about the aim of the research was given to the participants and they could ask further questions if necessary. Each interview

has been recorded and later be transcribed in Microsoft Word to minimise possible loss of information and to cite direct quotes. After transcription of the interviews, the transcribed interviews were uploaded into the software program Atlas.ti 8.0 and coded according to a coding scheme. Atlas.ti is a software program to help systematically analyse and visualise qualitative data by using a coding frame (Wester, 2004). One researcher coded the interviews. The coding frame existed of codes based on the questions of the interview and is included in Appendix V. When doubting, the code is not given to the sentence and when an answer occurs several times, it is included once in the analysis. Finally, the transcripts were read again to make sure that the codes were correct and that all data was coded. A part of the codebook is given in Table 2.

Table 2: Part of the codebook of the interviews with healthcare professionals

Question in the interview	Code	Citation
What are the bottlenecks of the healthcare professionals towards the current mass vaccination program?	Bottleneck	"I see bottlenecks that parents do not like large-scale vaccination" "No, they have now been filtered out. Bottlenecks. Are there bottlenecks? You know as it is now, it is very exciting because it goes to the municipality. What expectations does the municipality have for us?"

3.4. Ethical Approval

To justify this research ethically, ethical approval is given by the ethical board of the University of Twente under application number 18373. The interview participants were informed about correct information about the research during email-contact and further explanations were given verbally. They were also informed about the fact that the interview is voluntarily, and they could stop the interview at any time. Permission to the participants was asked before the interview either written or verbally. After the interview, the data is processed and analysed anonymously and there is no way the data is traced back to a participant.

4. **Result analysis**

This chapter describes the results that have emerged from the analysis of the data. First, sub-question 1 is answered after that results of the literature study to answer sub-questions 2A and 3A are shown. Finally, the results of the interviews with healthcare professionals are shown to answer sub-questions 3A and 3B. The focus will be on the convenience. After every paragraph a short conclusion is given to summarise the results found.

4.1. Result organisation current vaccination program in the Netherlands

This sub-question: *How is the vaccination program currently organised in the Netherlands?* goes deeper into the organisation of the vaccination program in the Netherlands and specific for Twente. The results are shown in two paragraphs: paragraph one is about how the vaccination program among 0 till 4-year old children is organised and paragraph two is about how the vaccination program among nine-year old school children is organised.

Vaccination program among 0 till 4-year old children

Van Lier et al. describes how the current vaccination program among 0 till 4-year old children currently is organised. When children are four weeks old, parents receive an invitation for their child to participate in the national vaccination program (NIP) with a brochure with information about for example side effects, the vaccine certificate and a set vaccination cards for all vaccines till the age of four from the RIVM office. Infants (from birth to fourteen months) get nine vaccinations against those infectious diseases mentioned in the introduction. Before the vaccines are given a youth doctor always examine the child to see if the child is healthy enough to get the vaccines. The doctor will also ask for permission. This request for permission is only made for the first vaccination and recorded in the digital dossier. In the first fourteen months the child receives nine vaccines spread over five visits at the consultation office. The vaccinations take place during the regular check-ups at the consultation bureau of the municipal health centre (GGD). At phase two of the NIP, when the child is at the age of four, he/she will get one vaccine at the consultation bureau of the GGD. For each phase in the vaccination scheme there will be a separate invitation sent to the parents included with a personalised vaccination card that parents need to bring to each vaccination session. On this vaccination card the vaccine characteristics of the administered vaccination (dose, date, executive organisation) even the reasons for not vaccination are mentioned on this card (van Lier A. , et al., 2012). If parents have indicated not to vaccinate their child, they still receive an invitation letter for the following vaccinations. The reason for this is in case parents have changed their minds about the vaccination program or medical grounds are no longer apply. Not only will they be reminded by the RIVM, but also by the consultation office. If parents forget an appointment they will be called to remind them of their appointment. (Rijksoverheid, sd). In Twente, the first phase of the NIP is organised in the same way as above.

Vaccination program among nine-year old children

The vaccination program for the nine-year old children is organised as a mass vaccination. This way of organising dates from 1953 with only a vaccination against diphtheria. In 1954 this vaccination was added with pertussis and tetanus. For poliomyelitis, the vaccination started in 1957 and in 1962 it was added to the DTP vaccine. Vaccination against rubella was started in 1974 and was limited to just 11-year-old girls and extended with the measles and mumps in 1987. The current MMR vaccine is given to both boys and girls at 14 months of age with a booster vaccination at the age of nine (van Wijhe, et al., 2018).

The vaccination program of the nine-year old exists of two repeated vaccines at the age of nine (DTP and MMR). An invitation letter from the RIVM for vaccination against these two diseases is sent to the home address of the child. On this invitation letter the expected date, time and location is mentioned. If they really are not able to come at the indicated time and date, parents are free to choose a different time and location by themselves. Other timeframes and locations are attached to the invitation letter. The group of nine-year olds are divided into two cohorts: one cohort, existing of the children born in January till June, is at the beginning of the year and the other cohort, existing of the children born in July till December, is at the end of the year. In most cases the vaccinations take place at a central location of the village or city where the child lives. In this central location (e.g. big gym) a lot of children can visit at the same time. Parents and their children report with their invitation letter and vaccination card at the front desk, so the two vaccinations can be stamped. After that the children can stand in line where they wait to get the vaccinations. The vaccinations are given by the GGD or youth healthcare in both arms at the same time. It could be that children get a fever or get red spots on the arm(s) after the injection. Most of these complaints disappear by itself in one or two days. Children who did not get vaccinated, get another, invitation later in the year. (GGDTwente, sd).

One municipality in Twente, namely Borne, organise the mass vaccination in a different way. All other municipalities organise the mass vaccination program as explained before (Interview P4, line numbers 50-65). In Borne children at the age of nine do not go to a central location in their municipality for their vaccination but go to the location at the GGD. They have organised it for the second year now. That means that school children gather at the location of the GGD were they must wait in line to get the two vaccines at the same time. An advantage of this way of organising is that the mass vaccination programme is provided at a smaller scale, because parents do not have to go to Hengelo anymore where it is much more crowded with longer waiting lines. Parents find this way of organising more pleasant (Interview P3, line numbers 155-159). way of organising makes no difference in the vaccination rates. Despite the fact that parents say that they like the mass vaccination better at smaller scale, the vaccinations rates do not rise, they even drop. In terms of vaccination rates difference should be expected. In Figure 6 the trend of the vaccination rates is visible in Borne from three years in a row

started in 2014 (GGD Twente, 2016). This trend is compared to the vaccination rates in Twente for 2015, 2016 and 2017 (van Lier E. , et al., 2015) (van Lier E. , et al., 2016) (RIVM, 2017). In the rest of Twente, the vaccination rates for DTP and MMR also drops. This van be seen in Figure 7. This way of vaccination is included in the analysis, because parents find this way of organising at smaller scale pleasant.

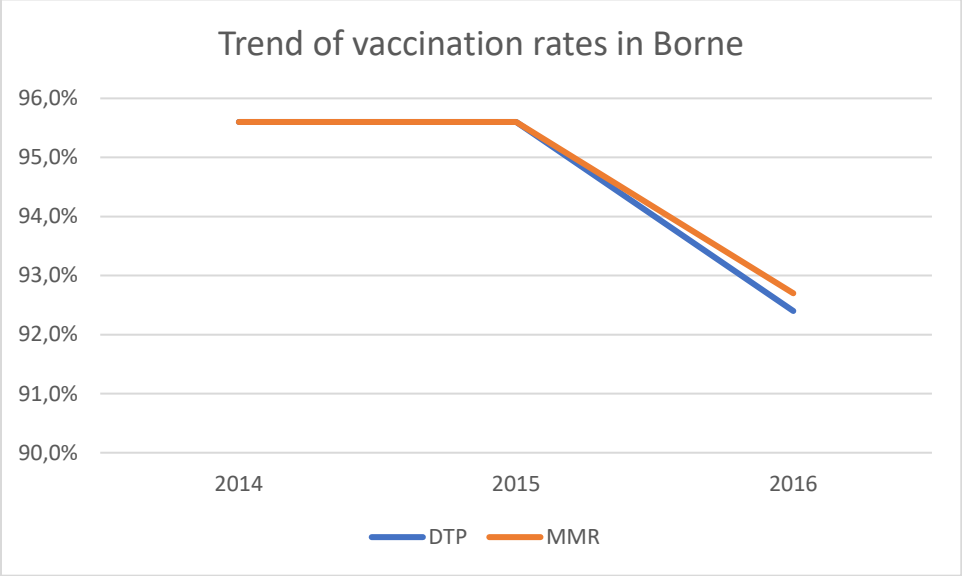


Figure 6: Trend in vaccination rates of the mass vaccination program in Borne in 2014, 2015 and 2016

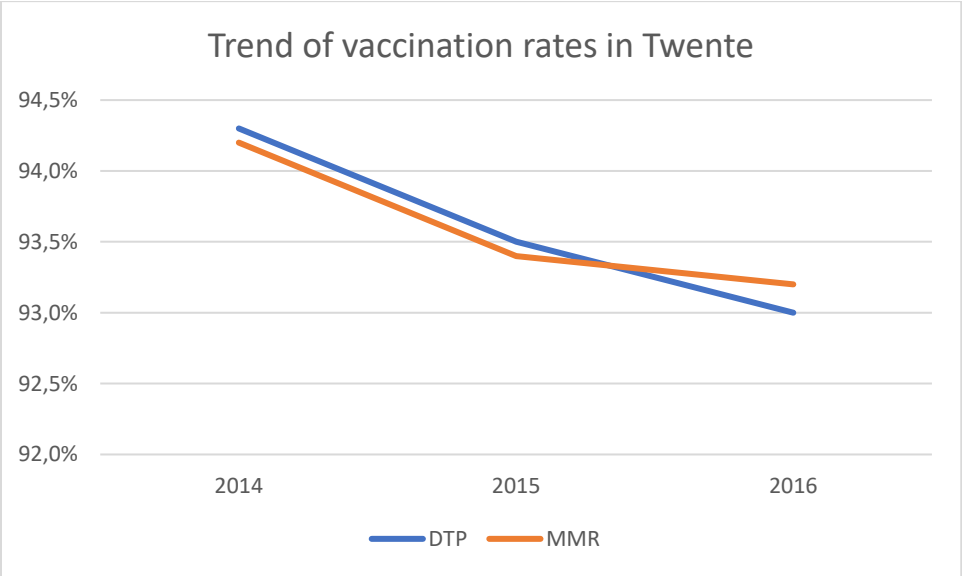


Figure 7: Trend of vaccination rates of the mass vaccination in Twente in 2014, 2015 and 2016

Role of the general practitioner

GPs do not have a function in the vaccination program. Parents only contact the GP when their children have side effects, or they do not trust the injection method of the GGD and contact the GP to ask if he can vaccinate (Interview P6, line numbers 16-34)

Conclusion

There is a design difference in the vaccination program for 0 till 4-years and for nine-year olds. Parents of 0 till 4-year olds go to the consultation office for regular check-ups of their young child and there they also get individually the vaccines. Youth healthcare providers have there a possibility to talk with them about the vaccines and parents can ask questions. This is different from the design of the nine-year olds, where children get the vaccines during a mass vaccination session. Parents get an invitation with a location and timeframe of a central location in their municipality to get the vaccines for their children at the age of nine. One municipality in Twente organises the mass vaccination is a slightly different way. In Borne the mass vaccination are not given at a central location in the municipality, but at the consultation office in the village so parents do not have to travel to Hengelo. There is no role for the GPs in the NIP.

4.2. Result mini-literature review

This paragraph shows the answers of sub-questions 2A and 2B conducted from the mini literature review about the advantages, disadvantages and recommendations in terms of convenience about the mass vaccination program. The results are shown in two paragraphs. In the first part, results of sub-question 2A are shown and in the second part results of sub-question 2B are shown.

Advantages and disadvantages

In this paragraph sub-question 2A: *What are the advantages and disadvantages regarding the current vaccination program in the Netherlands according to the literature?* is answered. First general advantages and disadvantages about the vaccination program are given. After that, advantages and disadvantages specific for convenience are given, because this is the most important factor that can declares the difference in vaccination rates between the two age categories.

Advantages

General advantages

Vaccination programs have a lot of advantages that is why all countries in the world have applied the vaccination program in their public health policy, because it saves many lives. Vaccination is the best way to prevent infectious diseases especially for infants and children by individual protection and herd immunity. Attenuated vaccines activate all phases of the immune system and provide quick and more stable immunity against those diseases. Vulnerable children can profit directly, by being vaccinated or indirectly by gaining health benefit of the fact that other people are protected against the infectious diseases. This is an objective of the mass vaccination program, because it stops the transfer of the infectious diseases from one person to another person. An advantage for the organisation is that the vaccines are cheap and easy to transport (Grabenstein & Nevin, 2006).

Advantages in terms of convenience

Two advantages for mass vaccination were mentioned (Grabenstein & Nevin, 2006) (Hanvoravongchai, et al., 2011). One advantage in perspective of the organisation, is that the range is large. Organising the vaccination in a mass vaccination way a lot of children can be vaccinated in a short timeframe (Grabenstein & Nevin, 2006). The other advantage, in perspective of the parents, is that mass vaccination programs raise community awareness, because parents talk to each other about vaccination at e.g. schools and with friends and family (Hanvoravongchai, et al., 2011).

Disadvantages

General disadvantages

All vaccines have side effects and are not 100% safe. Some children are more delicate and react strongly to the vaccination than others, but there are a few side effects caused by vaccines. Most side effects are relatively innocent. The most common side effects are, muscle pain, headache, red swollen arm at the side of the injection or fever. Vaccines are in no relation with several conditions like autism, diabetes and asthma (Hendriksz, et al., 2013) (MacDonald, 2004).

Individual and herd-immunity benefits of vaccination are world-wide, but by providing large-scale vaccination. It can be a 'victims of their own success'. A disadvantage can be that the diseases are less familiar to the parents and they do not see the necessity of the vaccines (Yaqub, et al., 2014).

Disadvantage in terms of convenience

Disadvantages are written in terms of barriers why parent do not come to the mass vaccination. These barriers can explain the difference in vaccination rates, because the factors have influence on the service delivery of the mass vaccination program. Overview of the barriers according to the literature are shown in Table 3.

A major barrier for parents are conflicting priorities. In the current time century were parents are juggling to prioritise (child) activities after school, because they are too busy for example with working or have other children to care for at the time of the mass vaccination. This reason is mentioned in eight articles (Weiss, Winch, & Burnham, 2009) (Favin, et al., 2012) (Letley, et al., 2016) (Hendriksz, et al., 2013) (Yawn, et al., 2000) (Tarrant & Gregory, 2002) (Mack & Darden, 2008) (Yaqub, et al., 2014). Five articles give inconvenient hours as a barrier for non-vaccinations (Favin, et al., 2012) (Hendriksz, et al., 2013) (Yawn, et al., 2000) (Smith, et al. 2017) (Mack & Darden, 2008). For the mass vaccination program parents receive an invitation with a timeframe of vaccination. Mass vaccinations are mostly held at a Wednesday afternoon between two and four p.m. This information is given on the GGD website. On the invitation a list of other data and timeframes in other municipalities in Twente are mentioned, but if the mass vaccinations are organised late in the year, limited possibilities are left. If parents are not able to go to the alternatives given on the invitation, because of conflicting priorities,

other alternatives outside the vaccination hours are not given (Falagas & Zarkadoulia, 2008). With alternatives is meant evening hours or the possibility to come to the monthly walk-in hour at the consultation office. Five articles mentioned that the child is sick on the day of the appointment that is the reasons parents do not come for the vaccines (Weiss, Winch, & Burnham, 2009) (Favin, et al., 2012) (Yawn, et al., 2000) (Falagas & Zarkadoulia, 2008) (Tarrant & Gregory, 2002). Five articles mentioned that parents do not let their child get vaccines when their child is sick at the appointment of the mass vaccination (Weiss, Winch, & Burnham, 2009) (Favin, et al., 2012) (Hendriksz, et al., 2013) (Yaqub, et al., 2014) (Tarrant & Gregory, 2002).

Another major barrier is patient experience. When parents decide not to go on their timeframe, but go whenever they want, waiting lines can occur. Long waiting time is mentioned in seven articles as a barrier for non-vaccination (Favin, et al., 2012) (Hendriksz, et al., 2013) (Letley, et al., 2016) (Hendriksz, et al., 2013) (Yawn, et al. 2000) (Tarrant & Gregory, 2002) (Mack & Darden, 2008). In six articles is mentioned that parents have trouble to access the location of the mass vaccination (Favin, et al., 2012) (Hendriksz, et al., 2013) (Yawn, et al., 2000) (Thomas, et al., 2018) (Falagas & Zarkadoulia, 2008) (Tarrant & Gregory, 2002). In three articles it is mentioned that older children may fear needles and that parents do not let their child get a vaccine, because of anxiety (Hendriksz, et al., 2013) (Yaqub, et al., 2014) (Tarrant & Gregory, 2002).

The last major barrier mentioned in seven articles is forgetfulness (Weiss, Winch, & Burnham, 2009) (Letley, et al., 2016) (Yawn, et al. 2000) (Thomas, et al., 2018) (Falagas & Zarkadoulia, 2008) (Mack & Darden, 2008) (Esposito, Principi, & Cornaglia, 2014). For the mass vaccination parents get only one invitation letter. If parents do not show up at the mass vaccination program only one reminder is send for the next option in their municipality. When parents also do not show up at the appointment no reminder is send. One article mentioned that from the perspective of the healthcare professional that they do not have the possibility to track patients when they did not go for vaccination (Mack & Darden, 2008).

Table 3: Overview barriers for mass vaccinations in terms of convenience according to the literature

Major causal factor	**Related factors**
Conflicting priorities	- Too busy (n=8) - Inconvenient hours (n=5) - Child is sick on the day (n=5)
Patient experience	- Waiting lines (n=7) - Anxiety of the children (n=3) - Difficult access (n=6)
Forgetfulness	- Missed appointment (n=7)

Comparison between 0 till 4-years old and nine-years old

School aged children are older and more aware on how vaccination works than children 0 till 4 years old. They may fear needles, so the children are more stressful and anxious about the fact that they are getting vaccines (Hendriksz, et al., 2013) (Yaqub, et al., 2014) (Tarrant & Gregory, 2002).

According to the systematic review of Smith et al. parental emotions play a role in the vaccination rates. Most parents go to the consultation office for regular check-ups for their children. During those regular check-ups the discussion about vaccination take place. Parents can discuss their worries about vaccination and other issues they have according to vaccination, like side effects or fear of illness. Healthcare professionals can give more targeted information than during mass vaccination, because there the healthcare professionals do not have the talk with parents (Smith, et al., 2017).

Conclusion

Vaccines provide direct and indirect protection against deadly diseases. To this in mass vaccination sessions a lot of children can be vaccinated in a short timeframe. Major barriers for parents in terms of convenience to refuse the vaccines are conflicting priorities, patient experience and forgetfulness. Emotions play a role between the different age categories, but during mass vaccination sessions healthcare professionals are not able to have that discussion with the parents.

Recommendations according to the literature

In this paragraph, result of sub-question 2B: *Which recommendations does literature give to improve the organisation of the mass vaccination program in the Netherlands?* is shown. First some general recommendations are given after that recommendations are given for the factor convenience.

General recommendations to uptake the vaccination rates according to the literature

To decrease the vaccination hesitancy of parents, healthcare providers should be well-trained to answer the questions of the parents clearly and with the right information but try to avoid to “oversell” the vaccination program, because this can lead to a higher vaccination hesitancy. Previous research has shown that parents are willingness to accept information that shares their worldview. When parents are confronted with information that is in contrast with their believes, they can feel more threatened and respond in a defence way. If parents get the right information about vaccines they are more willingness to give permission for vaccinating their children (MacDonald, 2004). To understand who the public trust and what their perceptions and risks of vaccines are, research is needed. Building public trust is not just about saying what parents need to do or teach them about the risk and the benefits. Trust must be recovered by talking and exchange the right information and opinions. It is important to listen to the concerns of the parents regarding vaccination and use the right counsel strategy to convince parents of

the importance of the vaccination program. Table 4 is an example of a tools to help the healthcare professional in counselling strategies towards the vaccine position of the parents (Dubé, et al., 2016).

Table 4: Attitudes toward vaccination, with proposed counselling strategies (source: Dubé, et al., 2016).

Vaccine position	Counseling strategies[2]
Vaccine acceptors	• Encourage / promote resiliency. • Explain common side effects and rare adverse events. • Use verbal and numeric descriptions of vaccine and disease risks.
Vaccine hesitant	• Build rapport, accept questions and concerns. • Establish honest dialogue, provide risk and benefit information about vaccines and diseases. • Use decision aids and other quality information tools. • Book another appointment to re-visit discussion, if needed.
Vaccine refusers	• Avoid debating back and forth about vaccination. • Aim to keep discussion brief, but leaving door open to further discussion. • Inform about risks of non vaccination. • Offer attendance at a special clinic[3].

Recommendations in terms of convenience

Provide options outside traditional vaccination hours is mentioned as a recommendation in six articles (Massachusetts Department of Public Health, 2017) (Letley, et al., 2016) (Hendriksz, et al., 2013) (Thomas, et al., 2018) (Favin, et al., 2012) (Falagas & Zarkadoulia, 2008). Organise vaccinations sessions at evening hours or let parents know that they are welcome at the walk-in hour at the consultation hours for parents who are unable to come to the appointment of the mass vaccination. Make these options aware for the parents (Letley, et al., 2016) (Hendriksz, et al., 2013) (Yawn, et al., 2000) (Thomas, et al., 2018) (Falagas & Zarkadoulia, 2008). For people who have more questions or want an individual contact moment for advice or want to discuss the vaccines, these should be available. Two articles mentioned this as a recommendation (Grabenstein & Nevin, 2006) (Massachusetts Department of Public Health, 2017).

Forgetfulness is another major barrier for non-vaccination. Recommendations for a better reminder and recall system is mentioned in seven articles (Letley, et al., 2016) (Hendriksz, et al., 2013) (Yawn, et al., 2000) (Falagas & Zarkadoulia, 2008) (Massachusetts Department of Public Health, 2017) (Mack & Darden, 2008) (Esposito, Principi, & Cornaglia, 2014). Two articles mentioned to invest in a healthcare system for tracking the children who did not get the vaccines (Mack & Darden, 2008) (Esposito, Principi, & Cornaglia, 2014). To make sure that parents would not forget the appointment an e-mail or text-message can be send to the parents (Massachusetts Department of Public Health, 2017). For busy parents who do not have time to read the long brochure, provide to them simple solutions like refrigerator magnets, for not forgetting the appointment (Letley, et al., 2016) Vaccinating on individual

level has an effect on reducing the waiting line according to two articles (Hendriksz, et al., 2013) (Yawn, et al., 2000). In one article it is mentioned to use the long waiting time for volunteers or employees to discuss possible questions with parents (Favin, et al., 2012).

In another article it is mentioned to use school as a tool for information distribution about the vaccination program (Esposito, Principi, & Cornaglia, 2014). Recommendations for using school-based vaccination program for school children is mentioned in two articles (Falagas & Zarkadoulia, 2008) (Vandelaer & Olanrian, 2015). In other countries school-based immunisation is a popular way of vaccinating. In 2012, this way of vaccination was used in 95 out of 174 countries, while 79 countries vaccinate in another form. (Vandelaer & Olanrian, 2015). School-based vaccination program may result in higher vaccination rates (Falagas & Zarkadoulia, 2008). Because school-based vaccination programs have a connection to higher vaccination rates this is included in the discussion.

Conclusion

Well-trained healthcare professionals are important. They have to answer the questions of the parents clearly and with the right information. Further is it mentioned to provide the parents with the best service as possible to give parents options outside the vaccination hours and to make use of a good recall/reminder system to remind the parents when the mass vaccinations take place. In other countries school-based vaccination programs are common and are in relation with higher vaccination rates.

4.3. Result interviews with health care professionals

In this part of the results sub-question 3A: *What are the advantages and disadvantages regarding the current vaccination programme in the Netherlands according to the healthcare professionals in Twente?* and 3B: *Which recommendations do healthcare professionals in Twente give to improve the organisation of the mass vaccination programme in the Netherlands?* are given. First the study population is described after that results of sub-question 3A is given and finally the results of sub-question 3B is given.

Study population

Six health care professionals were interviewed for this research: four participants were working at the GGD Twente for the municipalities: Twenterand, Enschede, Borne and Hengelo and two GPs working in Oldenzaal and Enschede, see Table 5. The participants were active in their working field between 11 and 25 years (mean = 18 years) their average age is 50 years. The results are shown in three paragraphs. Paragraph one shows the results of sub-question 3A and paragraph two shows the results of sub-question 3B. The comparison between the advantages and disadvantages is given in paragraph three.

Table 5: Overview characteristics of the participants

Interview	Gender	Age	Municipality	Function
P1	Woman	51 years	Twenterand	Youth Healthcare nurse and coordinator of the NIP in Twente
P2	Woman	51 years	Enschede and	Youth Healthcare nurse
P3	Woman	43 years	Hengelo and Borne	Youth doctor
P4	Woman	50 years	Hengelo and Borne	Youth doctor's assistant and location coordinator in Hengelo and Borne
P5	Man	58 years	Oldenzaal	General Practitioner
P6	Woman	49 years	Enschede	General Practitioner

Advantages and disadvantages according to the healthcare professionals

The advantages and disadvantages are split into two groups. The first group is advantages and disadvantages for the vaccination programme for 0 till 4-year children. The second group is advantages and disadvantages for the vaccination programme for nine-year old school children.

Advantages and disadvantages vaccination program 0 till 4-year old children

Advantages vaccination program 0 till 4-year olds

All six participants think that the current vaccination program among infants and toddler is well organised at the moment. An advantage, which was mentioned during the interviews is that there is enough well-qualified staff at the consultation bureau present and they know in which frameworks they have to work. Another advantage is that the consultation office is a familiar concept to parents. Parents have primary reasons, like weight and height, to come to the appointment. Vaccinations are given individual during the that same appointment *"It is embedded in the regular contact moments, so during the research. After the research the child get the vaccine(s). The child is already there (…)"* (Interview P3 line numbers 358-359). Besides that, parents are informed in front, mostly during the house visits

and their first appointment at the consultation office, about the vaccination programme, so they can make a deliberate choice.

Disadvantages vaccination program 0 till 4-year olds

Four of the six participant do not think that there are disadvantages regarding the current vaccination programme among 0 till 4-year old children. Two other participants do think that there is one disadvantage. The main disadvantage, mentioned by two of the healthcare professionals, is that the organisation at the consultation office is not flexible. Parents are more and more in control. *"Maybe it is too rigid. When parents (...) differ from the regular program, it becomes more and more difficult for us to plan the consults"* (Interview P2, line number 233-235). When parents differ from the current vaccination program, for example if parents want to have separate vaccines instead of combinations vaccines, it is hard to organise, because extra consults need to be planned for that. Extra consults cost more time and time is money *"(...) parents want the components separately. What you get then is that you have to change the National Immunisation Schedule completely and that means extra consults, extra time and extra money."* (Interview P3, line number 244-247).

Advantages vaccination program nine-year olds

All six participants see advantages towards the current vaccination program among nine-year old school children. One advantage in terms of the organisation is that execution of the mass vaccination is very efficient. *"Very efficient in terms of execution"* (Interview P2, line number 217-219).

Disadvantages vaccination program nine-year olds

Two of the participants do not think that there are any disadvantages regarding the current vaccination program among nine-year olds. *"No, it is fine"* (Interview P4, line number 108) *Four* of the participants do see disadvantages. The main disadvantage, mentioned by four of the six healthcare professionals, is that the connection with the GGD is gone. Parents of children in the age category 0 till 4-years have additional reasons to come to the appointment at the consultation bureau. *"When the children are small, weight and height are important for the parents"* (Interview P1 line numbers 266-267) At the age of nine-year, parents only receive an invitation letter and do not go to the GGD for regular check-ups anymore. The invitation letter will be put somewhere out of sight and the appointment will be forgotten sooner. *"Parents are no longer in the system of appointments at the GGD. You get one invitation letter for the vaccination and they put it away. So, it will be forgotten sooner."* (Interview P2 line numbers 267-269) *"Parents are busy nowadays (...) You have to take a day off work. The appointment can be easily forgotten"* (Interview P1 line numbers 456-459).

Another healthcare professional mentioned that parents do not like the design of the mass vaccination program. Parents are invited at a certain timeframe. Some parents are not able to come at their timeframe and come at a time they prefer. So, long waiting lines occur, and children see other

children getting their vaccinations and get more anxious. *"What we see is that people do not always stick to the agreed timeframe. Sometimes you get a lot of children at the same time and long waiting lines occur. At one point children see other children cry. So, the tension rises, and more children cry and struggle against the vaccinations"* (Interview P3 line numbers 143-146).

Another explanation why the vaccination rates among nine-year olds are lower, is that the nine-year old MMR and DTP vaccines are booster vaccines. Some parents do think that their child is already enough vaccinated against these infectious diseases. This explanation is not in terms of organisation but can explain why the vaccination rates of nine-year olds are lower than the vaccination rates of the 0 till 4-year olds. Moreover, one healthcare professional told that more parents refuse the nine-year old vaccines nowadays, because it was advised against by the homeopathic doctor or it has a connection with autism. *"One parent did not want the MMR vaccination, because she has read that is has a connection with autism. (…) another parent told me that she did not vaccinate her nine-year old child, because it was advised against by her homeopathic doctor. I hear more and more sounds like this."* (Interview P3, line numbers 257-261).

Conclusion

A summarisation of the pros and cons towards the two vaccination programs according to the healthcare professionals are shown in Table 6.

Table 6: Summarisation of the pros and cons according to the healthcare professionals of the current vaccination program in the Netherlands.

	Pros	**Cons**
Vaccination program 0 till 4-years	- Well organised - The children are often seen and there is a connection with the parents	- Inflexible organisation
Vaccination program nine-year	- The conditions are well secured. It is a well-oiled machine.	- The connection with the GGD is gone - Large-scale vaccination - Bad recall system - Easier to forget

Recommendations according to the healthcare professionals

Sub-question 3B: *Which recommendations do healthcare professionals give to improve the organisation of the mass vaccination program in the Netherlands?* is answered in this paragraph.

One participant did not have any recommendations to change the organisation of the mass vaccination program in the Netherlands. The healthcare professional thinks that the mass vaccination program should stay the same as it is at the moment. If you change the organisation, you will not reach everybody, because you cannot do it right for everybody. *"I think we do an excellent job right now. I would not change it, to organise it otherwise. To organise the vaccination program into a smaller way, requires a lot of organisation and for some people you will never do it right*." (Interview P4 line numbers 557-558 and 590). This view is in contrast with four other healthcare professionals. They think that the mass vaccination programme should change into a one-to-one small-scale vaccination programme. It should be linked to a contact moment and organise the vaccination program like the 0 till 4-year old group. The entire population of the nine-year-old children is in the picture then. Youth healthcare workers can give parents the right information about the vaccinations and parents can ask questions about it if they have them. The disadvantage is that it takes more time, because every nine-year-old needs to have a separate appointment at the GGD location. *"As a healthcare professional, we can give more specific advice or give more specific explanations about the side effects. We also provide more information about what is going to happen when their child becomes 12 or 14-year-old. It only has benefits to see parents and their child individual. It does ask a lot more for consultations"* (Interview P3, line numbers 495-499). So, the vaccination rate should rise. "*If you can link it to a contact moment that you see the parents and their child. So, you see the entire nine-year-old population. Then it could work that the nine-year olds vaccination rate increases"* (Interview P1, line numbers 472-474).

The moment the mass vaccination is changed into an individual vaccination way of vaccinating, the whole organisation changes. Now children are seen at the age of ten only by a doctors' assistant at the primary school without parents. The big disadvantage of not organising the nine-year old vaccination program that way is because the age of nine is too young to examine. Ten or eleven-year old children are more important to examine, because they are in the transition to high school. *"Nine-year old is still too young to get the research items. The eleven-year olds are more important to the transition to high school"* (Interview P1, line numbers 477-478).

If the vaccination cannot be linked to a contact moment than it should be organised into smaller sessions at the location of the GGD. Every GGD location can organise it the way they want it and fits best to the people in their municipality. An advantage of organising the vaccination into smaller sessions is that parents know the location of the GGD, because they have been there with their child in the past. For the healthcare providers this is also a more pleasant way of organising, because it is more patient-friendly and more accessible for the parents, because the location is closer to the home address of the child. *"I think as a youth healthcare worker it is even more pleasant to do it on a smaller scale. It is more patient-friendly, approachable and closer. Like today, many organisations and municipalities also want to help to develop healthcare as easy and close as possible. If you take it to the locations, you*

would get to that target" (Interview P3, line numbers 211-215). This way of organising is currently done in Borne.

Three participants think a better recall system would improve the vaccination rates among the nine-year old school children, because it makes the parents aware of the vaccination moment and they cannot forget their appointment. This can be done by sending a message on the social media channels of the GGD. Another way is to remind the parents by sending them a text-message or a WhatsApp message. *"A profit can be achieved with either an app or a text message. If parents are linked to all those social media, then there must be many possibilities to make them aware that there is vaccination moment"* (Interview P2, line numbers 278-281). One participant mentioned that the vaccination possibilities should extended. Instead of one day make it a couple of days in the same week and make good advertisement for it with banners throughout the city. *"(...) organisational must that not be very complicated. Whether you rent a sports hall for three days instead of one. And make good advertising for that (...) like banners with the text: the vaccination week has started again"* (Interview P6, line numbers 163-168). Parents who come to the consultation office also forget appointments, but their parents get a call by the secretary of the consultation office that they forgot their appointment and then reschedule a new one. "*Parents also forget appointments for their 0 till 4-year-old children at the consultation office"* (Interview P2, line numbers 283-284).

What does it take to change the organisation?

To change the organisation of the mass vaccination program requires a flexible attitude from the employees, because everything that is familiar is thrown overboard. Besides attitude, change takes time. Changing the organisation needs preparations and these changes should be tested before implementation. These tests would probably be executed next to the current work. So, it is important that time should be made available for a good implementation plan and to do a pilot. *"(...) You need to have enthusiastic, flexible employees. Yes, it also takes time, and that is a thing. Changing things takes time and time must be made to test the new implementation plan. That is the most important thing."* (Interview P2, line number 491-495). The healthcare employees must see the usefulness of the change, because they must implement the change in practice. *"Change in organisation requires commitment from the employees, because they must carry it out. They must see the usefulness and the necessity of it."* (Interview P1, line numbers 580-584). The management must recognize the usefulness and the necessity of the change, because they must finance it all. If the change costs too much money it will not happen anyway. *"If there can be a student to find out this all. That would be my recommendation. In January, the transfer to the municipalities takes place and that requires a lot. You need literature study of how the implementation plan should look like, how is it organised in other countries, and what is proven effective? And of course, a cost-effectiveness analysis must be carried out. We cannot do that from the GGD itself"* (Interview P3, line numbers 614-629).

Conclusion

The mass vaccination programme should change into a one-to-one small-scale vaccination programme. It should be linked to a contact moment and organise the vaccination program like the 0 till 4-year old group. Or at least in smaller mass vaccination sessions at every location of the GGD, because parents find that more pleasant. Besides that, a better recall/reminder system is recommended by the healthcare professionals to make sure parents will not forget their appointment. To change the organisation asks for a commitment of the employees of the GGD.

5. Discussion and conclusion

In this research, the organisation of the vaccination program has been studied. In this chapter, first a conclusion of the sub-question is presented. After that, the main research question is answered. Following, the strengths and limitation of this research will be described, even as the recommendations. Finally, a short conclusion is given.

5.1. Conclusion results sub-questions

Answer to sub-question 1: *How is the organisation of the vaccination program currently organised in the Netherlands?* is. The vaccination program of the nine-year old exists of two repeated vaccines at the age of 9 (DTP and MMR) given in a mass vaccination session. An invitation letter from the RIVM for vaccination against these two diseases is sent to the home address of the child. On this invitation letter the expected date, time and location is mentioned. In most cases the vaccinations take place at a central location of the village or city were a lot of children fit at the same time. Parents and their children report with their invitation letter and vaccination card at the front desk, so the two vaccinations can be stamped. After that the children can stand in line where they wait to get the vaccinations. The vaccinations are given by the GGD or youth healthcare in both arms at the same time. Children who did not went to vaccinate get later another invitation later that year. Only in Borne this is different organised. The mass vaccination is organised at smaller scale. The organisation of the mass vaccination is different organised than for the children age 0 till 4, were children are vaccinated during their appointments for regular-check-ups. There is no role for the GP in the vaccination program.

Advantages and disadvantages in terms of convenience according to the literature and healthcare professionals

Answer to sub-question 2A: *What are the advantages and disadvantages regarding the current vaccination program in the Netherlands according to the literature?* and 3A *What are the advantages and disadvantages regarding the current vaccination program in the Netherlands according to the healthcare professionals in Twente?*

Advantages in terms of convenience

An advantage specific for mass vaccination is that the range is large. A lot of children can be vaccinated in a short timeframe. The conditions are well secured, it is a well-oiled machine.

Disadvantages in terms of convenience

Parents are not presented with other possibilities outside the vaccination hours. The connection with the GGD is gone. Parents do not go for regular check-ups anymore, so it is easier to forget and there is not a good recall system to remind the parents of the vaccination session. When parents decide not to go on their timeframe, but go whenever they want, waiting lines can occur. Besides these parents are juggling to prioritise activities after school, because most parents have more than one child to care for or are a single parent or are busy with work or do not have a vehicle to come to the location of the mass vaccination. During the mass vaccination programs, the children are older and are aware of how vaccination works. They may fear needles, so the children are more stressful and anxious about the fact that they are getting vaccines.

Recommendations in terms of convenience according to the literature and healthcare providers

Answer to sub-question 2B: *Which recommendations do literature give to improve the organisation of the vaccination program in the Netherlands?* and 3B: *Which recommendations do healthcare professionals in Twente give to improve the organisation of the vaccination program in the Netherlands*?

According to the literature, a more tailored approach should help to uptake the vaccination rates. This can be done by providing parents options outside the traditional vaccination hours for example in the evening hours and by providing parents options for an individual vaccination appointment. Another recommendation was to make use of a better recall/reminder system to ensure that parents get a reminder when their child is unvaccinated. School-based vaccination programs are also recommended, because it have a connection with high vaccination rates among school children and is used in more than half of all the countries in the world.

According to the healthcare professionals, the mass vaccination should change into a one-to-one small-scale vaccination program. They say it should be linked to a contact moment and organise the vaccinations just like the 0-4 age group. The entire population of the nine-year olds are in the picture then. The healthcare providers also think a better recall system would improve the vaccination rate, because it reminds parents about the vaccinations.

5.2. Answering the main research question

With results of the sub-questions, the interviews with health care professionals and the literature the main research question can be answered: *How can the organisation around the child vaccination program for nine-year old in Twente be optimised according to the healthcare professionals and the literature?*

Parents have multiple barriers nowadays to fully vaccinate their children. Major barriers were conflicting priorities, patient experience and forgetfulness. On these barriers the GGD Twente has influence to optimise the organisation to provide the best quality of service to the parents which result in higher vaccination rates for school-aged children. This can be done by a more tailored approach for parents and their children. Solutions for the barriers are providing parents with options outside the traditional vaccination hours, like evening hours. A better remind and recall system, like e-mail or text messages send to the parents, and to reduce the waiting time by organising smaller scale mass vaccination.

5.3. Explanation results and comparison with literature

The most interesting findings of this research are described below and compared with general literature.

In the Netherlands, the vaccination program is different organised for the two age categories: 0 till 4 and nine-year olds. The biggest difference is that the vaccines for age category 0 till 4 are given individually at the location of the GGD and for nine-year olds this is done during mass vaccination at one central location in their municipality. In this way, parents must put more effort into letting their child vaccinated during the mass vaccination then when their children were 0 till 4 years old, because the vaccination does not take place during check-ups, but they must go to a central location just for the vaccines. For this reason, most of the healthcare professionals are in favour to link the vaccinations of the nine- year olds to a contact moment and organise the vaccinations just like the 0-4 age group. Now, children are seen in group seven, by a doctor's assistant, when they are around the age of ten. Before that appointment parents need to fill a health check on the GGD website (GGD Twente, n.d.). If this appointment can be slide forward, these two can be combined. An additional advantage is that the entire population of the nine-year olds are in the picture. Behavioural- and psychosocial problems can be detected sooner, because youth healthcare workers see problems faster than parents (NJI, 2014).

Other mass vaccination designs can be arranged in two ways. First, the vaccines can be given at school. Although healthcare professionals in Twente are not in favour of vaccination at primary schools, literature give positive aspects of this design. School-based vaccination programs have a connection with high vaccination rates (Perman, et al., 2017) Another advantage is that school-based vaccination programs are more cost-effective than vaccinations provided at healthcare centres due to the lower vaccination costs and additional travel costs for parents who do not have a vehicle to come to the healthcare clinics (Centers for Disease Control and Prevention, 2010). Parents can give permission by a permission form, which is distributed at school. So, they do not have to be there for permission. One

study mentioned that parents' presence during the vaccination had a lower vaccination rate (Lorick, et al., 2015). This was indicated as a barrier against this design by healthcare professionals, because parents need to be there for informed consent. Some factors are important to consider. The quality of the relationship between the school and the youth nurse or assistant is important for schools to contribute within the vaccination program (Perman, et al., 2017). In previous studies the difficulty of reducing vaccine wastage and cold chain management were reported. They only did not provide information on how often these errors occurred (Kassianos, et al., 2015) (Lott & Johnson, 2012). The major organisational challenge mentioned by the healthcare professionals is that a youth doctor always must be available in the back guard, because when something medical happens the doctor can act quickly. The WHO have published a "School Vaccination Readiness Assessment Tool" to provide the government assistance to find strengths and weaknesses in the school system to implement this design of vaccinating (WHO, 2013). To see if this form is applicable for the Netherlands further research needs to be done.

The second way is to make an individual appointment with parents and the child at the location of the GGD. Parents are more willingness to accept a vaccine if a healthcare professional recommended the vaccine and smaller scale vaccination is more patient friendly (Dubé, et al., 2012). Vaccines given at children healthcare centres is also more appreciated by mothers (Finnegan, 2017). Advantage is that all the facilities necessary are already available. Another advantage is that parents can ask questions beforehand this is also related with higher vaccination rates (Centers for Disease Control and Prevention, 2010). By vaccinating on individual appointments have an effect on lowering the waiting line (Yawn, et al., 2000). A factor mentioned in literature was that nurses worry that proving just vaccination program took them away from other work activities like sex education or support for vulnerable children (Perman, et al., 2017). A disadvantage mentioned by the healthcare professionals is that the organisation is less efficient, because it takes more time, because every child needs a separate appointment.

A disadvantage of the vaccination program of nine-year olds according to the literature and the healthcare professionals, is that vaccinating is a side issue and can be forgotten sooner. Parents of young children have different additional, perhaps primary reasons to come the appointment at the consultation office. Parents of young children are more insecure and can ask question about the development of their child (de Kom, sd). At the consultation office multiple care is provided. The children's weight and length are measured, and parents can speak with a doctor or a nurse to get tips and tricks for educating their children. This can also explain the difference in vaccination rates.

The GGD Twente send their vaccination card back to the department Regional Coordination of Programs/Purchase, Storage and Distribution, a department of the RIVM, by post. Via a computer program called Praeventis the vaccination rates will be calculated. This system does this on an individual level and is connected to the Basic Registration Person. When parents, with children age 0 till 4, forget

an appointment at the consultation office they get a reminder. When parents, with children aged 9, do not show up at the mass vaccination program, only one reminder via post is given. In other countries these systems are already existing. In Scotland, a centralised system for monitoring children's health was used to send invitations for vaccinations (Potts, et al., 2013). In Australia, a national immunisation registry was developed to enable access to individual vaccination records (Ward, et al., 2010). Another way to recall parents is through social media. A reminder message can be send on Facebook or Twitter remind to the parents about the vaccinating, to uptake the vaccination rates (Stockwell & Fiks, 2013).

Vaccination is not an interest of one person, it influences the self-interest, the interest of children and the interest of the society. The final decision which lead to vaccination remains each person's own consideration of the information they get and their confidence in the institutions that produce, regulate and deliver the vaccines. To enable vaccines to realise their full potential for health protection, public and private health rules must consider the range of social and political factors that have effect on the acceptance of the vaccines. Policy makers, health providers, the pharmaceutical industry and other involvers of the vaccination program must face the reality that individuals and groups always be doubting and refuse the vaccines. The emphasis should be on building and maintain trust to those who accept and support the vaccines and not on the anti-vaccination groups who will never change to accept the vaccines (Larson, et al., 2011). Social media plays a huge role in the acceptance of vaccines of parents. A lot of reports about the scariest side effects are published online, but social media can also be used as education material to study immunisation convenience (Nowak, et al., 2015). In the Netherlands those vaccination preventable diseases do not often occur. Therefore, parents cannot see the priority of vaccination with as result the lower vaccination rates. This declares not the difference in vaccination rates of the 0 till 4-year old and the nine-year olds, but social media has a huge influence on the vaccination rates and to manage this, result in higher overall vaccination rates.

Vaccination policies differ around the world. More and more European countries decided to make vaccination mandatory, because of the lower vaccination rates. Examples of these countries are France, Belgium and Italy. In Italy parents receive a fine of €500 till €1000 if they refuse to vaccinate their children. In France the main consequence parents receive, when they refuse to vaccinate, is that their children are excluded from schools and nurseries (Scutti, 2018). In Australia vaccination is not compulsory, but parents receive a financial advantage when they vaccinate their child (Walkinshaw, 2011). According to a systematic review of Wigham et al. incentives are not proven effective. Not a single country has a vaccination rate of 100%. Even if it is proven effective, the implementation of this approach depends on the tolerability of parents, professionals and other stakeholders, who have something to do with vaccination program (Wigham, et al., 2014).

According to the Guideline of the NIP, GPs are involved in the NIP (RIVM, 2018). If parents want to differ from the NIP, they should go to the GP. Talking with GP's concluded that GPs are not

involved in the NIP. A GP can have a more influenced role like confidential adviser. Parents look for information on social media and internet, but do not understand the contradiction of the reports. It is important that they can discuss their doubts with a professional they trust. The GP can give more information about the vaccine program and have a conversation with the parents and knowing the concerns parents have (Veenstra, 2017). Besides this GPs can provide reminders for vaccinations when children come to the consult (Butler & MacDonald, 2015) . The GPs do need some training of the vaccination program first, because they do not have anything to do with it right at that moment (Veenstra, 2017).

The execution of the NIP will be transferred to the municipalities per 01-01-2019. They will play a bigger role in the execution of the NIP. They have the freedom to make specific agreements with the GGD and are not bound with strict rules from the government. Municipalities have the task to ensure and monitor that the implementation of the NIP is in accordance with the professional obligations arising from the agreements to aim the highest possible vaccination coverage. One aspect that is important is the timely invitation of the school children for the highest possible vaccination coverage. The distance between the address of the child and the location of the mass vaccination program must not be too large (VNG, 2017). The exact details have not been discussed yet. So, these recommendations can be considered during the meetings with the GGD and the municipality.

5.4. Recommendations for an optimal organisation

Practical recommendations:

Recommendations for an optimal organisation are to organise the mass vaccination into smaller sessions. Moreover, provide also sessions at evening hours or at the walk-in hours at the consultation office for parents who are unavailable at afternoon hours, during the regular hours of the mass vaccination, because of conflicting priorities. For children who are anxious about the vaccines this way of vaccination is also much more pleasant. First pilot test this in one municipality to see if this is working.

For a better recall system, the solution can be, to link Praeventis to the computer system of the GGD. The GGD can then carefully see which children need vaccination and can form the basis for vaccine-oriented parental communication or clinical warning in a flexible and customised way and to send recall/remind messages to the parents of the nine-year old children. Another possibility is to advertise better for mass vaccination to remind the parents of the mass vaccination session. The GGD can advertise by banners and hang them throughout the city or village, to create awareness among parents, like the banners van *"de scholen zijn weer begonnen"*. Another way to make the parents aware of the vaccination session for their child is to send a message to the parents via the social media channels of the GGD, like Facebook or Twitter. Besides that, a WhatsApp- or text message can be send to the parents, so they will not forget their appointment. GGD employees have also connection with primary

schools already so they can make use of it to provide information trough the schools, like a letter with information or make the parents aware of the upcoming vaccination possibility.

When implementing an organisational change, always involve a doctor's assistant. Their view is much more practical, so practical pieces can be secured. Involve parents as well, because in the end they must make the decision whether to have their child vaccinated. If the organisation is geared to the wishes of the parents, vaccination rates will probably rise, because parents do feel if they are more valued. Discuss results and problems with other GGD departments for further ideas and tips.

Recommendations for further research:

A future study is necessary to map the reasons why parents do not want to vaccinate their children. Now, it is not clear for the employees of the GGD Twente why parents of the nine-year old children refuse to vaccinate their children. Surveys from the WHO can be used in this further research to identify the reasons why parents hesitate or refuse to vaccinate (WHO, 2014). When that is familiar, the GGD can steer more directly to implement an effective program in cooperation with the municipality, because they are responsible for the vaccination program from January 1st, 2019.

The healthcare professionals in Twente do not see the advantage of a transfer to schools, because parents must be present for permission. In Sweden, the DTP vaccine is given at the age of ten and the MMR vaccination is given at the age of twelve at primary school. Parents receive a permission form which they return to the school nurse. Parents do not have to be there at the time children receive their vaccines (Aulin, 2009). In Sweden, the vaccination rates for MMR and for DTP are above 95%. For MMR this is 95% and for DTP 97% in 2017 (WHO, 2018). Where the coverage in the Netherlands for MMR 90.9% is, and DTP is 90.8% (RIVM, 2017). To conclude if this vaccination method is applicable for the Netherlands, further research is needed.

5.5. Generalizability

The gathered data was based on the interviews of six participants. Five of them were women, which was in line with the high percentage (75%) women working in healthcare. GGD Twente and GPs are a part of the healthcare organisations in the Netherlands, therefore it is not outstanding that the data from more women were gathered. The average age of the respondents in this research is 50 years old. This is in line with the average age of personnel in organisations. Most employees (32%) are between 45 and 54 years old (WHO, 2008). This research was conducted with healthcare professionals in Twente, so therefore it is important to take differences between the opinions of healthcare professionals in other regions in the Netherlands into account. Another factor that must consider is the difference in population. This research is also beneficial for all GGD organisations in the Netherlands, because of the similarity of the implementation of the mass vaccination, because this is written in the law of public health (RIVM, 2018). The results of this research might also give other GGD organisations handles to improve the organisation of the mass vaccination campaign in their region, but with prudence.

5.6. Strengths and limitations of this research

As far as the researcher knows, this is the first study that investigated the vaccination program through the eyes of the healthcare professional to improve the organisation of the mass vaccination in the Netherlands. A strong point is that this research reach awareness among youth healthcare employees. However, there are some limitations which should be considered by interpretation of the results.

A limitation of this research is that there is a possibility that not all available literature was found during the mini-literature review, because less literature was available specific on the design of the vaccination program and one researcher had to interpret all the data, this can cause subjectivity and interpretation mistakes.

A limitation of this research is that a limited number of healthcare professionals were interviewed. That means that further research is necessary to draw conclusions and to generalize the results for every GGD organisations in the Netherlands.

Parents were not interviewed, because this research is focused on the health care professional. This is a limitation, because healthcare professionals see it from organisational perspective and not in perspective of the parents, which can lead to different interpretations. Another limitation is that the respondents were recruited via the managers of the GGD which can cause selection bias. For further research this means that the researcher recruited the participants by themselves to make sure the selection bias is limited.

5.7. Short conclusion

The goal of this research was to give recommendations to the GGD Twente to improve the design of the mass vaccination program to make the vaccination process convenient for parents and their children with in the end higher vaccination rates for school children. According to the literature and the interviews with the healthcare professionals conflicting priorities, forgetfulness and patient experience are the most important barriers for parents to refuse the vaccines. To improve the mass vaccination program a more tailored approach should help raising the vaccination rates. This can be done by making use of a better recall/remind system to ensure that parents do show up at the mass vaccination session. Providing parents with opportunities outside the traditional hours will also help to uptake the vaccination rates. Organisational changes can only be done through a massive commitment from the GGD employees. Whether school-based vaccination program will be applicable for the Netherlands, further research need to be conducted.

References

Andre, F., Booy, R., Bock, H., Clemens, J., Datta, S., John, T., . . . Schmitt, H. (2008, February). Vaccination greatly reduces disease, disease death and inequity worldwide. *Bulletin of the World Health Organization , 86*(2), 81-160. Retrieved from http://www.who.int/bulletin/volumes/86/2/07-040089/en/

Aulin, U. (2009, March). *The Swedisch vaccination program*. Retrieved June 12, 2018, from International School of the Sockholm Region: https://internationalschoolofthestockholmregion.stockholm.se/sites/default/files/the_swedish_vaccination_program.pdf

Austin, Z., & Sutton, J. (2014). Qualitative Reasearch: Getting Started. *Can J Hosp Pharm, 67*(6), 436-440.

Barriball, K., & While, A. (1994, February). Collecting data using a semi-structured interview: a discussion paper. *Journal of Advanced Nursing, 19*(2), 328-335. doi:10.1111/j.1365-2648.1994.tb01088.x

Bloom, E., Canning, D., & Weston, M. (2005). The value of vaccination. *World Economics, 6*(3), 15-39.

Bos, E., & Batson, A. (2000, August). Using Immunization Coverage Rates for Monitoring Health Sector Performance: Measurement and Interpretation Issues. *Wold Bank Health Nutrition and Population (HNP) Discussion Papers*, 1-27. Retrieved June 5, 2018, from https://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/Bos-UsingImmunization-whole.pdf

Bowen, G. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal, 9*(2), 27-40. doi:10.3316/QRJ0902027

Brown, B., Gabra, M., & Pellman, H. (2017, June). Reasons for acceptance or refusal of Human Papillomavirus Vaccine in a California pediatric practice. *Volume, 3*, 42-45. doi:10.1016/j.pvr.2017.01.002

Burton-Jeangros, C., Golay, M., & Sudre, P. (2005, September). Compliance and resistance to child vaccination: a study among Swiss mothers. *Rev Epidemiol Sante Publique, 53*(4), 341-350. doi:10.1016/S0398-7620(05)84616-4

Butler, R., & MacDonald, N. (2015, August). Diagnosing the determinants of vaccine hesitancy in specific supgroups: The Guide to Tailoring Immunization Programmes (TIP). *Vaccine, 33*(34), 4176-4179. doi:10.1016/j.vaccine.2015.04.038

Casiday, R., Cresswell, T., Wilson, D., & Panter-Brick, C. (2006). A survey of UK parental attitutes to the MMR vaccine and trust in medical authority. *Vaccine, 24*, 177-184. doi:10.1016/j.vaccine.2005.07.063

Centers for Disease Control and Prevention. (2010, October 25). *Increasing Appropriate Vaccination: Vaccination Programs in.* Retrieved July 06, 2018, from https://www.thecommunityguide.org/sites/default/files/assets/Vaccination-Programs-at-Schools-Childcare-Centers.pdf

de Kom, N. (n.d.). *Bezoek aan consultatiebureau*. Retrieved from Ouders van Nu: https://www.oudersvannu.nl/baby/gezondheid/bezoek-aan-consultatiebureau/

Dubé, E., Bettinger, J., Halpering, B., Bradet, R., Lavoie, B., Sauvageau, C., . . . Boulianne, N. (2012, December 1). Determinants of parents' decision to vaccinate their children against rotavirus: results of a longitudinal study. *Health Education Research, 27*(6), 1069-1080. doi:10.1093/her/cys088

Dubé, E., Bettinger, J., W.A., F., Naus, M., S.M., M., & Hilderman, T. (2016, December 1). Vaccine acceptance, hesitancy and refusal in Canada: Challenges and potential approaches. *Canada Communicable Disease Report, 42*(12), 246-251. doi:10.1503/cmaj.150707

Dubé, E., Gagnon, D., Nickels, E., Jeram, S., & Schuster, M. (2014, November 20). Mapping vaccine hesitancy—Country-specific characteristics of a global phenomenon. *Vaccine, 32*(49), 6649-6654. doi:10.1016/j.vaccine.2014.09.039

Dubé, E., Laberge, C., Guay, M., P., B., Roy, R., & Bettinger, J. (2013, Augustus 1). Vaccine hesitancy an overview. *Human Vaccines & Immunotherapeutics, 9*(8), 1763-1773. doi:10.4161/hv.24657

Dubé, E., Vivion, M., & MacDonald, N. (2015, January). Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications. *Expert Review of Vaccines, 14*(1), 99-117. doi:10.1586/14760584.2015.964212

Eskola, J., Duclos, P., Schuster, M., & MacDonald, N. (2015, August 14). How to deal with vaccine hesistancy? *Vaccine, 33*(34), 4215-4217. doi:10.1016/j.vaccine.2015.04.043

Esposito, S., Principi, N., & Cornaglia, G. (2014, May). Barriers to the vaccination of children and adolescents and possible solutions. *European Society of Clinical Microbiology and Enfection, 20*(5), 25-31. doi:10.1111/1469-0691.12447

Europa Nu. (2018, April 19). *Europees Parlement luidt noodklok over vaccinaties*. Retrieved May 23, 2018, from Europa-nu: https://www.europa-nu.nl/id/vknnn10czzpb/nieuws/europees_parlement_luidt_noodklok_over?ctx=vh6ukzb3nnt0

Europa nu. (2018, April 19). *Vaccinatie: zorg om de te lage vaccinatiegraad in de EU*. Retrieved May 23, 2018, from Europa Nu: https://www.europa-nu.nl/id/vkmuodbgroze/nieuws/vaccinatie_zorg_om_de_te_lage?ctx=vhsjeu461wp8&s0e=vhdubxdwqrzw

Falagas, M., & Zarkadoulia, E. (2008, June). Factors associated with suboptimal compliance to vaccinations in children in developed countries: a systematic review. *Current medical research and opinion, 24*(6), 1719-1741. doi:10.1185/03007990802085692

Favin, M., Steinglass, R., Fields, R., Banerjee, K., & Sawhney, M. (2012, December). Why children are not vaccinated: a review of the grey literature. *International Health, 4*(2), 229-238. doi:10.1016/j.inhe.2012.07.004

Finnegan, G. (2017). *Want to improve vaccination rates? Make it easy for parents.* Retrieved July 06, 2018, from Vaccines today: https://www.vaccinestoday.eu/stories/want-improve-vaccination-rates-make-easy-parents/

Fournet, F., Mollema, L., Ruijs, W., Harmsen, I., Keck, F., Durand, J., . . . Steenbergen van, J. (2018, January 30). Under-vaccinated groups in Europe and their beliefs, attitude and reasons for non-vaccination;two systematic reviews. *BMC Public Health, 18*(196), 5103-5108. doi:10.1186/s12889-018-5103-8

Gad, A., & Shah, S. (2007). Special Immunization Considerations of the Preterm Infant. *Journal of Pediatric Health Care, 21*(6), 385-391. doi:10.1016/j.pedhc.2007.05.005

GGD Twente. (2016). *Vaccinatiegraden per gemeente*. Retrieved June 12, 2018, from Twentse GezondheidsVerkenning (TGV): https://ggdtwente.buurtmonitor.nl/jive?var=%20dktp2jr,%20bmr2jr

GGD Twente. (n.d.). *Inentingen DTP en BMR voor kinderen 8 en 9 jaar*. Retrieved June 15, 2018, from Inentingen: https://www.ggdtwente.nl/publiek/kinderen/vaccinaties/inentingen-dtp-en-bmr-voor-kinderen-8-9-jaar

GGD Twente. (n.d.). *Op School*. Retrieved June 15, 2018, from ggdtwente: https://www.ggdtwente.nl/publiek/kinderen/op-school

GGDTwente. (n.d.). *Inentingen voor kinderen van 8 of 9 jaar oud*. Retrieved March 6, 2018, from https://www.ggdtwente.nl/home/182-hitte-en-kou

Gilkey, M., Calo, W., Marciniak, M., & Brewer, N. (2017, March 13). Parents who refuse or delay HPV vaccine: Differences in vaccination behavior, beliefs and clinical communication preferences. *Human Vaccines Immunotherapeutics, 13*(3), 680-686. doi:10.1080/21645515.2016.1247134

Gilson, L. (2003, April). Trust and the development of health care as a social institution. *Social Science and Medicine, 56*(7), 1453-1468. doi:10.1016/S0277-9536(02)00142-9

Gopalakrishnan, S., & Ganeshkumar, P. (2013, January-March). Systematic Reviews and Meta-analysis: Understanding the Best Evidence in Primary Healthcare. *Journal of Family Medicine and Primary Care, 2*(1), 9-14. doi:10.4103/2249-4863.109934

Grabenstein, J., & Nevin, R. (2006). Mass immunization programs: principles and standards. In S. Plotkin, *Mass Vaccination: Global Aspects - Progress and Obstacles. Current Topics in Microbiology and Immunology* (Vol. 304, pp. 31-51). Springer, Berlin, Heidelberg. doi:10.1007/3-540-36583-4_3

Hanvoravongchai, P., Mounier-Jack, S., Oliveira Cruz, V., Balabanova, D., Biellik, R., Kitaw, Y., . . . Griffiths, U. (2011, July 01). Impact of Measles Elimination Activities on Immunization Services and Health Systems: Findings From Six Countries. *Journal of Infectious Diseases, 204*(1), S82-S89. doi:10.1093/infdis/jir091

Harmsen, I. A., Bos, H., Ruiter, R. A., Paulussen, T. G., Kok, G., de Melker, H. E., & Mollema, L. (2015). Vaccination decision-making of immigrant parents in the Netherlands; a focus group study. *BMC Public Health, 15*(1229). doi:10.1186/s12889-015-2572-x

Harmsen, I., Mollema, L., Ruiter, R., Paulussen, T., Melker de, H., & G., K. (2013, December 16). Why parents refuse childhood vaccination: a qualitative study using online focus groups. *BMC Public Health, 13*(1183). doi:10.1186/1471-2458-13-1183

Harmsen, I., Ruiter, R., Paulussen, T., Mollema, L., Kok, G., & Melker de, H. (2012, October 24). Factors that influence vaccination decision-making by parents who visit an anthroposophical child welfare center: A focus group study. *Advances in Preventive Medicine, 2012*. doi:10.1155/2012/175694

Hendriksz, T., Malouf, P., Sarmiento, S., & Foy, J. (2013). Overcoming patient barriers. *AOA Health Watch*, 9-14.

Institute of Medicine. (2012). *Adverse effects of vaccines: Evidence and causality.* Washington D.C.: The National Academies Press. doi:10.17226/13164

Kartogly, U., & Milstien, J. (2014). Tools and approaches to ensure quality of vaccines throughout the cold chain. *Expert Review of Vaccines, 13*(7), 843-854. doi:10.1586/14760584.2014.923761

Kassianos, G., White, S., Reynolds, A., & Rajaram, S. (2015). Review of the experiences from the first childhood influenza vaccination programme. *Drugs in context, 4*, 212280. doi:10.7573/dic.212280

Keegan, R., & Bilous, J. (2004, July). Current issues in global immunizations. *Seminars in Pediatric Infectious Diseases, 15*(3), 130-136. doi:10.1053/j.spid.2004.05.005

Kelly, J., Zimmerman, L., Reed, K., & Enger, K. (2007). Immunization information systems national research and evaluation agenda. *Journal of Public Health Management and Practice, 13*(1), 35-38. doi:10.1097/00124784-200701000-00007

Kim, S., & Goldie, S. (2008, March). Cost-effectiveness analyses of vaccination programmes. *PharmacoEconomics, 26*(3), 191-215. doi:10.2165/00019053-200826030-00004

Knoll, M., Urbanus, A., Swart, E., Mollema, L., Ruijs, W., Binnendijk van, R., . . . Hahné, S. (2013). Large ongoing measles outbreak in a religious community in the Netherlands since May 2013. *Euro Surveillance, 18*(36). doi:https://doi.org/10.2807/1560-7917.ES2013.18.36.20580

Larson, H., Cooper, L., Eskola, J., Katz, S., & Ratzan, S. (2011, Augustus 6). Adressing the vaccine confidence gap. *Lancet, 378*(9790), 526-535. doi:10.1016/S0140-6736(11)60678-8

Letley, L., Rew, V., Ahmed, R., Habersaat, K., Paterson, P., Chantler, T., . . . Butler, R. (2016, July 25). Tailoring immunisation programmes: Using behavioural insights to identify barriers and enablers to childhood immunisations in a Jewish community in London, UK. *36*(31), 4687-4692. doi:10.1016/j.vaccine.2018.06.028.

Levinson, D. (2012). *Vaccines for children program: vulnerabilities in vaccine management.* Department of Health and Human Services, Office of Inspector General. Retrieved June 7, 2018, from https://www.oig.hhs.gov/oei/reports/oei-04-10-00430.pdf

Lind, C., Russell, M., MacDonald, J., Collins, R., Frank, C., & Davis, A. (2014, March 31). School-based influenza vaccination: Parents' perspectives. *Plos One, 9*(3), e93490. doi:10.1371/journal.pone.0093490

Lopalco, P., & Santisteve, P. (2014, May). Actual immunization coverage throughout Europe: are existing data sufficient? *Clinical Microbiology and Infection, 20*(5), 7-11. doi:10.1111/1469-0691.12453

Lorick, S., Goldberg, L., Zhang, F., Birkhimer, N., Dubé, N., Dutram, K., . . . Mills, D. (2015). Factors Associated With Uptake of the Influenza A(H1N1)pdm09 Monovalent Pandemic Vaccine in K-12 Public Schools, Maine 2009-2010. *Journal of Public Health Management and Practice, 21*(2), 186-195. doi:10.1097/PHH.0000000000000156

Lott, J., & Johnson, J. (2012, March). Promising practices for school-located vaccination clinics-- part II: clinic operations and program sustainability. *Pediatrics, 129*(2), S81-S87. doi:10.1542/peds.2011-0737G.

MacDonald, N. (2004, August). *Routine Immunization in Young Children*. Retrieved June 10, 2018, from Encyclopedia on Early Childhood Development: http://www.child-encyclopedia.com/immunization/according-experts/routine-immunization-young-children

MacDonald, N. (2015, August 14). Vaccine hesitancy: Definition, scope and determinants. *Vaccine, 33*(34), 4161-4164. doi:10.1016/j.vaccine.2015.04.036

Mack, R., & Darden, P. (2008). Children's Immunizations. *Health Marketing Quarterly, 16*(4), 7-14. doi:10.1300/J026v16n04_02

Massachusetts Department of Public Health. (2017). *Top strategies for increasing immunization coverage rates.* Retrieved July 06, 2018, from https://www.mass.gov/files/documents/2016/09/vg/top-strategies.pdf

McKee, C., & Bohannon, K. (2016). Exploring the Reasons Behind Parental Refusual of Vaccines. *The Journal of Pediatric Pharmacology and Therapeutics, v.21*(2), 104-109. doi:10.5863/1551-6776-21.2.104

NHS. (2014, December). *Core service specification | National immunisation programme.* Retrieved June 4, 2018, from NHS public health functions agreement 2015-16: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/386231/1516_No00_Core_Spec_National_Immunisation_Programme_FINAL.pdf

NJI. (2014, November 4). *Gedragsproblemen*. Retrieved June 15, 2018, from Werken aan de kwaliteit in de jeugdsector: https://www.nji.nl/nl/Databank/Cijfers-over-Jeugd-en-Opvoeding/Cijfers-per-onderwerp-Gedragsproblemen

Nowak, G., Gellin, B., MacDonald, N., & Butler, R. (2015, August 14). Adressing vaccine hesitancy: The potential value of commercial and social marketing principles and practices. *Vaccine, 33*(34), 4204-4211. doi:10.1016/j.vaccine.2015.04.039

Offit, P., & Coffin, S. (2003, December 8). Communicating science to the public: MMR vaccine and autism. *Vaccine, 8*(22), 1-6. doi:10.1586/14760584.2.1.1

Orsolini, L. (2018, February 27). *Building a Strong Vaccine Infrastructure*. Retrieved June 5, 2018, from Adult Vaccine Acces Coalition: https://www.adultvaccinesnow.org/2018/02/27/building-a-strong-vaccine-infrastructure/

Paterson, P., Meurice, F., Stanberry, L., Glismann, S., Rosenthal, S., & Larson, H. (2016, December 20). Vaccine hesitancy and healthcare providers. *Vaccine, 34*(52), 6700-6706. doi:10.1016/j.vaccine.2016.10.042

Patty, N., Dijk van, H., Wallenburg, I., Bal, R., Helmerhorst, T. J., Exel van, J., & Cramm, J. (2017). To vaccinate or not to vaccinate? Perspectives on HPV vaccination among girls, boys and parents in the Netherlands: a Q-methodological study. *BMC Public Health, 17*(1), 872-884. doi:10.1186/s12889-017-4879-2

Perman, S., Turner, S., Ramsay, A., Baim-Lance, A., Utley, M., & Fulop, N. (2017, March 14). School-based vacicnation programmes: a systematic review of evidence on organisation and delivery in high income countries. *BMC Public Health*, 252-263. doi:10.1186/s12889-017-4168-0

Pidgeon, N., & Fischhoff, B. (2011, April). The role of social and decision sciences in communicating uncertain risks. *Nature Climate Change, 1*(1), 35-41. doi:10.1038/nclimate1080

Plotkin, S. (2006). *Mass vaccination: Global aspects- progress and obstacles* (Vol. 304). New York: Springer-Verlag Berlin Heidelberg. doi:10.1007/3-540-36583-4

Potts, A., Sinka, K., Love, J., Gordon, R., McLean, R., Malcolm, W., . . . Donaghy, M. (2013). High uptake of HPV immunisation in Schotland - perspective on maximising uptake. *Eurosurveillance, 18*(39). doi:10.2807/1560-7917.ES2013.18.39.20593

Rey-Jurado, E., Tapia, F., Munoz-Durango, N., Lay, M., Carreno, L., Riedel, C., . . . Kalergis, A. (2018, Jan). Assessing the importance of domestic vaccine manufacturing centers: an overview of immunization programs, vaccine manufacture and distribution. *Frontiers in Immunology, 9*(26). doi:10.3389/fimmu.2018.00026

Rijksoverheid. (n.d.). *Rijksvaccinatieprogramma*. Retrieved March 8, 2018, from Rijksintituut voor volksgezondheid en milieu: https://www.rivm.nl/Onderwerpen/R/Rijksvaccinatieprogramma

RIVM. (2015, October 9). *Het opzetten van een systeem om de redenen van ouders om hun kinderen wel of niet te laten vaccineren en de houding van de consultatiebureumedewerkers te monitoren*. Retrieved from Rijksinstituut voor Volksgezondheid en Milieu: http://www.rivm.nl/RIVM/Kennis_en_kunde/Strategisch_Programma_RIVM/Resultaten_Strategisch_

RIVM. (2016, November). effecten Rijksvaccinatieprogramma (RVP). Retrieved from www.rivm.nl/rijksvaccinatieprogramma

RIVM. (2017). *The National Immunisation Programme in the Netherlands Surveillance and developments in 2016-2017*. Retrieved from National Institute for Public Health and Environment: https://www.rivm.nl/dsresource?objectid=6ce81bc5-d296-4215-b744-8321a7ad9139&type=org&disposition=inline

RIVM. (2017, October 2). *Vaccinatiegraad en jaarverslag Rijksvaccinatieprogramma Nederland 2016*. Retrieved from Rijksintituut voor Volksgezondheid en Milieu: http://www.rivm.nl/dsresource?objectid=2807c63f-3223- 4f2e-b488-7e3126b03072&type=pdf&disposition=inline

RIVM. (2018, February 2). *Aantal gevallen van mazelen in EU verdriedubbeld in 2017*. Retrieved March 3, 2018, from https://rijksvaccinatieprogramma.nl/nieuws/aantal-gevallen-van-mazelen-eu-verdriedubbeld-2017

RIVM. (2018, March 08). *Op het consultatiebureau*. Retrieved May 30, 2018, from Over het Rijksvaccinatieprogramma: https://rijksvaccinatieprogramma.nl/over-het-programma/consultatiebureau

RIVM. (2018, April 16). *Over deze richtlijn*. Retrieved June 6, 2018, from Richtlijn uitvoering RVP: https://rijksvaccinatieprogramma.nl/professionals/richtlijn-uitvoering-rvp/over-richtlijn

Ruijs, W., Hautvast, J., Ijzendoorn van, G., Ansem van, W., Velden van der, K., & Hulscher, M. (2012, June 6). How ortodox protestant parents decide on the vaccination of their children: a qualitative study. *BMC Public Health, 12*(408). doi:10.1186/1471-2458-12-408

Scutti, S. (2018, January 2). *How countries arount the world try to encourage vaccination*. Retrieved June 12, 2018, from CNN: https://edition.cnn.com/2017/06/06/health/vaccine-uptake-incentives/index.html

Shen, A., Fields, R., & McQuestion, M. (2014, December). The future of routine immunization in the developing world: challenges and opportunities. *Global Health: Science and Practice, 2*(4), 381-394. doi:10.9745/GHSP-D-14-00137

Smith, L., Amlôt, R., Weinman, J., Yiend, J., & Rubin, J. (2017, October 27). A systematic review of factors affecting vaccine uptake in young children. *Vaccine, 35*(45), 6059-6069. doi:10.1016/j.vaccine.2017.09.046

Stockwell, M., & Fiks, A. (2013, August 1). Utilizing health information technology to improve vaccine communication and coverage. *Human Vaccines and Immunotherapeutics, 9*(8), 1802-1811. doi:10.4161/hv.25031

Sutton, J., & Austin, Z. (2015, May-Jun). Qualitative Research: Data collection, Analysis and Management. *Can J Hosp Pharm, 68*(3), 226-231.

Tarrant, M., & Gregory, D. (2002). Exploring childhood immunization uptake with First Nations mothersin north-western Ontario, Canada. *Journal of Advanced Nursing, 41*(1), 63-72. doi:10.1046/j.1365-2648.2003.02507.x

Thomas, S., Cashman, P., Islam, F., Baker, L., Clark, K., Leask, J., . . . Durrheim, D. (2018, May 03). Tailoring immunisation service delivery in a disadvantaged community in Australia; views of health providers and parents. *Vaccine, 36*(19), 2596-2603. doi:10.1016/j.vaccine.2018.03.072

TwenteKennispunt. (2016, December). *Demografie*. Retrieved March 1, 2018, from www.twenteindex.nl

van Lier, A., Oomen, P., Hoogh de, P., Drijfhout, I., Elsinghorst, B., Kemmeren, J., . . . Melker de, H. (2012). *Præventis, the immunisation register of the Netherlands: a tool to evaluate the National Immunisation Programme separator*. Retrieved from Eurosurveillance: https://www.eurosurveillance.org

van Lier, E., Oomen, P., Conyn-van Spaendonck, M., Drijfhout, I., Zonnenberg-Hoff, I., & de Melker, H. (2015, June 22). *Immunisation coverage National Immunisation Programme in the Netherlands : Year of report 2015.* Retrieved July 07, 2018, from RIVM: https://www.rivm.nl/Documenten_en_publicaties/Wetenschappelijk/Rapporten/2015/juni/Vaccinatiegraad_Rijksvaccinatieprogramma_Nederland_Verslagjaar_2015

van Lier, E., Oomen, P., Giesbers, H., van Vliet, J., Drijfhout, I., Zonnenberg-Hof, I., & de Melker, H. (2016, June 30). *Vaccinatiegraad Rijksvaccinatieprogramma Nederland: verslagjaar 2016.* Retrieved July 07, 2018, from RIVM: https://www.rivm.nl/dsresource?objectid=89ece336-f681-43c2-abc0-7213e87f6b6b&type=org&disposition=inline

van Panhuis, W., Grefenstette, J., S.Y., J., Shong Chock, N., Cross, A., Eng, H., . . . D.S., B. (2013, November 28). Contagious Diseases in the United States from 1888 to the present. *N Engl J Med, 369*(22), 2152-2158. doi:10.1056/NEJMms1215400

van Wijhe, M., Tulen, A., Kortals Altes, H., McDonald, S., de Melker, H., Postma, M., & Wallinga, J. (2018, March 14). Quantifying the impact of mass vaccination programmes on notified cases in the Netherlands. *Epidemiology and Infection, 146*(6), 716-722. doi:10.1017/S0950268818000481

Vandelaer, J., & Olanrian, M. (2015, January 29). Using a school-based approach to deliver immunization—Global update. *Vaccine, 33*(5), 719-725. doi:10.1016/j.vaccine.2014.11.037

Veenstra, T. (2017, September 1). *Actievere rol voor huisarts bij vaccinaties.* Retrieved June 10, 2018, from Huisarts en Wetenschap: https://www.henw.org/artikelen/actievere-rol-voor-huisarts-bij-vaccinaties

Vesikari, T., & Damme van, P. (2017). *Pediatric Vaccines and Vaccinations: A European Textbook.* Springer International Publishing. doi:10.1007/978-3-319-59952-6

VNG. (2017). *Handreiking uitvoering van het Rijksvaccinatieprogramma door gemeenten in samenhang met afspraken over de jeugdgezondheidszorg.* opdracht van het ministerie van VWS. Retrieved June 17, 2018, from https://vng.nl/files/vng/brieven/2017/attachments/handreiking_rvp20171017.pdf

Waisbord, S., & Larson, H. (2005). *Why invest in communication for immunization? Evidence and lessons learned.* A joint publication of the Health Communication Partnership based at Johns Hopkins Bloomberg School of. Retrieved June 7, 2018, from http://www.who.int/immunization/hpv/communicate/why_invest_in_communication_for_immunization_unicef_healthcommunicationspartnership_path_usaid.pdf

Walkinshaw, E. (2011, November 8). Mandatory vaccinations: The national landscape. *CMAJ, 183*(16), e1167-e1168. doi:10.1503/cmaj.109-3993

Ward, K., Menzies, R., Quinn, H., & Campbell-Lloyd, S. (2010). School-based vaccination in NSW. *NSW public health bulletin, 10*, 237-242. doi:10.1071/NB10046

Warrel, D., Cox, T., Firth, J., & Török, E. (2012). *Oxford textbook of Medicine: Infection.* Oxford: Oxford University Press.

Weiss, W., Winch, P., & Burnham, G. (2009, Jun). Factors Associated with Missed Vaccination during Mass Immunization Campaigns. *Journal of Health Population and Nutrition, 27*(3), 358-367.

Wester, F. (2004, November). Analyse van kwalitatief onderzoeksmateriaal. *Huisarts en Wetenschap, 47*(12), 565-570. Retrieved from https://www.henw.org/files/download/henw-2004-12-565.pdf

WHO. (2004). *Economics of immunization: a guide to the literature and other resources*. Retrieved June 16, 2018, from WHO: http://apps.who.int/iris/bitstream/handle/10665/68526/WHO_V-B_04.02_eng.pdf;jsessionid=6D438F1688F5A28B1D2C2E6BA17D176D?sequence=1

WHO. (2008). *Gender and health workforce statistics.* Retrieved July 05, 2018, from http://www.who.int/hrh/statistics/spotlight_2.pdf?ua=1

WHO. (2013). *Global Vaccine Action Plan 2011-2020*. Retrieved February 25, 2018, from Unicef: https://www.unicef.org/immunization/files/GVAP.pdf

WHO. (2013). *School-based immunization*. Retrieved June 19, 2018, from Immunization, Vaccines and Biologicals: http://www.who.int/immunization/programmes_systems/policies_strategies/school_assessment_tool/en/

WHO. (2013, March 18). *What influences vaccine acceptance: A model of determinants of vaccine hesitancy*. Retrieved June 27, 2018, from The SAGE Vaccine Hesitancy Working Group: http://www.who.int/immunization/sage/meetings/2013/april/1_Model_analyze_driversofvaccineConfidence_22_March.pdf

WHO. (2014). *Report of the sage working group on vaccine hesistancy.* Retrieved May 28, 2018, from http://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf

WHO. (2018, June 1). *WHO vaccine-preventable diseases: monitoring system. 2018 global summary*. Retrieved June 16, 2018, from World Health Organization: http://apps.who.int/immunization_monitoring/globalsummary/countries?countrycriteria[country][]=SWE

WHO. (n.d.). *Data and Statistics*. Retrieved February 25, 2018, from Vaccines and immunization: http://www.euro.who.int/en/health-topics/disease- prevention/vaccines-and-immunization/data-and-statistics

WHO SAGE. (2015, January). *Summary WHO SAGE conclusion and recommendations on vaccine hesitancy*. Retrieved June 13, 2018, from WHO: http://www.who.int/immunization/programmes_systems/summary_of_sage_vaccinehesitancy_2pager.pdf?ua=1

Wigham, S., Ternent, L., Bryant, A., Robalino, S., Sniehotta, F., & Adams, J. (2014). Parental Financial Incentives for Increasing Preschool Vaccination Uptake: Systematic Review. *American Acadamy of Pediatrics, 134*(4), e1117-e1128. doi:10.1542/peds.2014-1279

Yaqub, O., Castle-Clarke, S., Sevdalis, N., & Chataway, J. (2014, July). Attitudes to vaccination: A critical review. *Social Science & Medicine, 112*, 1-11. doi:10.1016/j.socscimed.2014.04.018

Yaqub, O., Castle-Clarke, S., Sevdalis, N., & Chataway, J. (2014, July). Attitudes to vaccination: A critical review. *Social Science & Medicine, 112*, 1-11. doi:10.1016/j.socscimed.2014.04.018

Yawn, B., Xia, Z., Edmonson, L., Jacobson, R., & Jacobsen, S. (2000, September - October). Barriers to Immunization in a Relatively Affluent. *J Am Board Fam Pract, 13*(5), 325-332.

Appendix I: Infographic effects of the NIP in the Netherlands

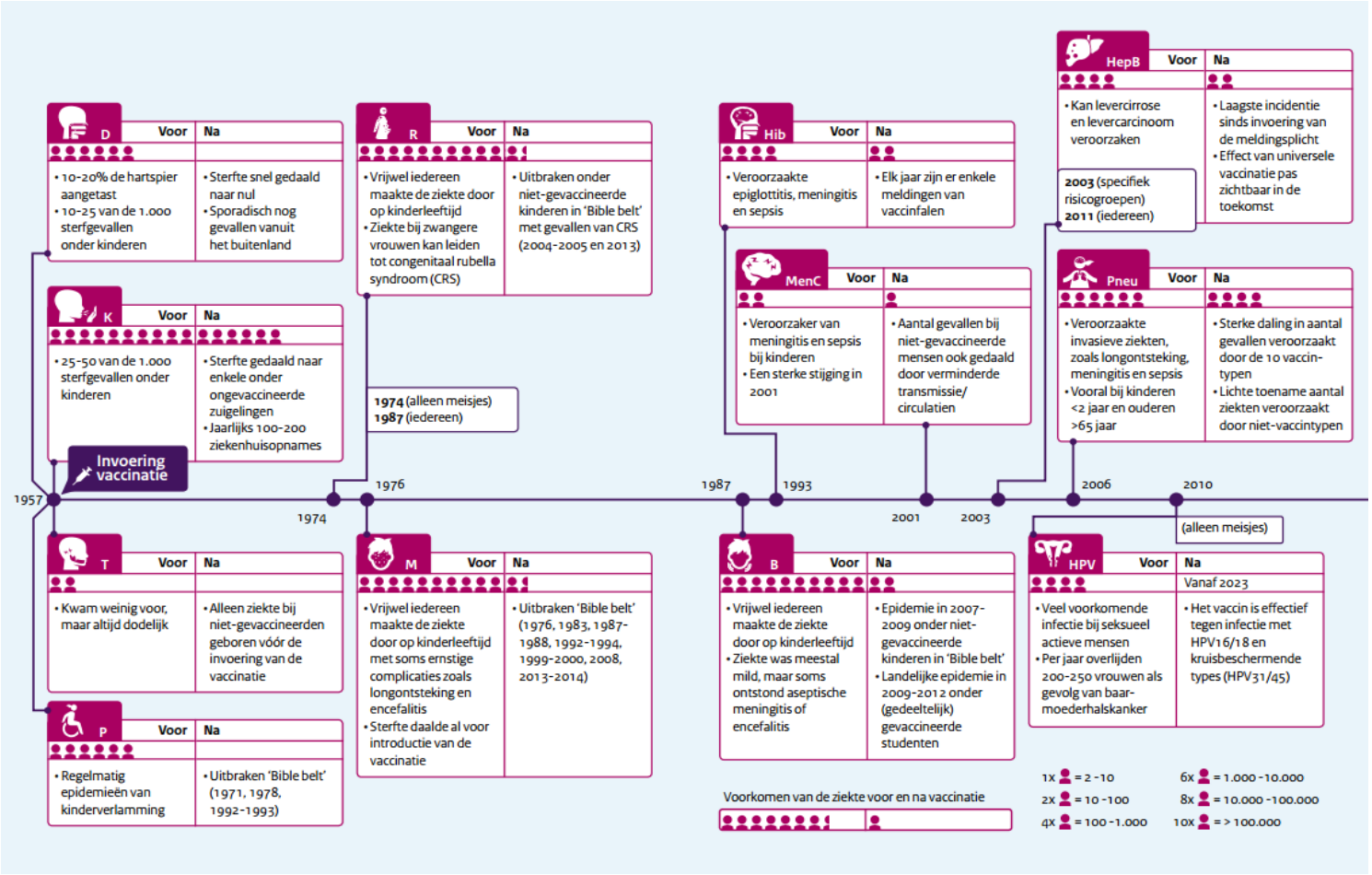


Figure 8: Effects of the national immunisation program (NIP) in the Netherlands (RIVM, 2016)

Appendix II: Overview used literature found in mini-literature review.

#	Author	Title	Year	Journal	Country	Study type and sample size	Vaccination strategy	Perspective	Advantage/ Barriers	Recommendations
1	Weiss, W.M. et al.	"Factors associated with missed vaccination during mass immunization campaigns."	2009	Journal of Health population and Nutrition	Globally	Literature search (n=34)	Mass vaccination	Parents	- No advantage - Parents too busy - Unawareness of appointment - Sick child	No recommendations
2	Grabenstein, J.D. & Nevin, R.L.	"Mass immunization programs: principles and standards."	2006	Current Topics in Microbiology and immunology	Non-reported	Non-reported	Mass vaccination	Parents and organisation	- Broad range - No barriers	- Make individual appointment available
3	Massachusetts department of Public Health	"Top strategies for increasing immunization coverage rates"	2016	Not in journal	US	Non-reported	Non-reported	Parents	No barriers	- Improve Reminder/Recall system - Vaccinations at convenient times for parents

4	Hanvoravongchai, P., et al.	"Impact of Measles Elimination Activities on Immunization Services and Health Systems: Findings from Six Countries"	2011	Journal of Infectious Diseases	Globally	Primary data from Interviews (n=60) and staff profiling surveys Secondary data from document analysis	Mass vaccination	Parents and organisation	- Raise community awareness among	- No targeted recommendation
5	Favin, M., et al.	"Why children are not vaccinated: a review of the grey literature"	2012	International Health	Globally	Document analysis (n=126)	Not reported	Parents	- No advantage - Access to the facility - Waiting time - Conflicting priorities - Child is sick - No advantages	- Organise vaccination sessions at least quarterly at a time more people can go - Use volunteers or employees to discuss possible questions with parents during their waiting time
6	Letley, L., et al.	"Tailoring Immunisation Programmes, using behavioural insights to identify barriers and enablers to	2018	Vaccine	UK	SWOT analysis	Not reported	Parents	- No advantage - Parents too busy - Long waiting time - Missed appointment	- Flexible services, e.g. outside traditional hours or walk in services. - Use a better inconsistent call and recall system

		childhood immunisations in a Jewish community in London, UK."								
7	Hendriksz, et al.	"Overcoming patient barriers to immunization"	2013	AOA Health Watch	US	Not reported	Not reported	Parents	- No advantage - Fear and anxiety of immunization pain - Bad access - Long waiting lines - Inconvenient hours	- Better recall/reminder system - Provide parents access outside vaccination hours - Individual appointment for vaccination reduce waiting time
8	Yawn, et al.	"Barriers to immunization in a relatively affluent community"	2000	Journal of the American Board of Family Practice	US	Case-control (n=1.216)	Not reported	Parents	- No advantage - Long waiting time - Parent too busy - Access - Inconvenient hours - Forgot appointment - Child is sick	- Use of reminder and recall systems - Individual appointments for reducing waiting time
9	Smith, et al.	"A systematic review of factors affecting vaccine uptake in	2017	Vaccine	Not reported	Systematic Review (n=68)	Not reported	Parents	- No advantage - Emotions by young parents - Inconvenient time or place - Lack of time	- No recommendations

		young children"								
10	Thomas, S. et al.	"Tailoring immunisation service delivery in a disadvantaged community in Australia; views from health providers and parents"	2018	Vaccine	Australia	Interviews (n=34) and focus groups (n=6)	Not reported	Health care providers and parents	- No advantage - Forgot appointment - Too busy - Access	- A more tailored approach with flexible hours
11	Faragas, M.E. & Zarkadoulia, E.	"Factors associated with suboptimal compliance to vaccination in children in developed countries: A systematic review."	2008	Current Medical Research and Opinion	Globally	Systematic review (n=39)	Not reported	Parents	- No advantage - Forgot appointment - Sick child - Access - Long waiting time	- Use remind/recall system - Clinic hours should be length - Schools may play a role in promoting vaccination. Vaccination at school may result in higher vaccination rates.
12	Vandelaer & Olanrian	"Using a school-based approach to	2015	Vaccine	Globally	Dataset on school-based immunizati	School-based	Organisation	- No barriers - Advantage for using school-	- School-based vaccination result in higher vaccination rates

		deliver immunization – Global update"				on from UNICEF and WHO			based vaccination	
13	Yaqub et al.	"Attitudes to vaccination : A critical review"	2014	Social Science & Medicine	Europe	Systematic Review (n=38)	Not reported	Parents and healthcare professionals	- Fear of needles and pain - Too busy	- No recommendations
14	Tarrant M. & Gregory, D.	"Exploring childhood immunization uptake with First Nations mothers in north-west Ontario, Canada"	2003	Journal of advanced nursing	Canada	Interview (n=28)	Not reported	Mothers	- Fear of needles - Too busy - Access - Waiting time - Sick child	- No recommendations
15	Mack, R.W. & Darden, P.M.	"Children's immunizations"	2008	Health Marketing Quarterly	US	Focus group with parents and Physician survey	Not reported	Parents and Physicians	- Forget appointment - Transportation - Too busy - Inconvenient hours - Waiting time - Inability to track patients behind in immunizations	- Better recall/reminder system
16	MacDonald, N.	"Routine immunization in young children"	2004	Encyclopaedia on Early Childhood Development	Canada	Not reported	Not reported	Parents	- No advantage - Vaccines have side effects like autism	- If the parents get the right information they are more willingness to give

										permission to vaccination
17	Dubé, E. et al.	"Vaccine acceptance, hesitancy and refusal in Canada: Challenges and potential approaches"	2016	Canada Communicable Disease Report	Canada	Not reported	Not reported	Parents	Not reported	- Tailored vaccination program - Understanding the perspectives of the parents why they do not vaccinate
18	Esposito, S. et al.	"Barriers to the vaccination of children and adolescents and possible solutions"	2014	Clinical Microbiology and Infection	Globally	Not reported	Not reported	Parents, healthcare providers and organisation	- No advantage - Bad access to immunisation records - Forgot appointment	- Effective reminder/recall system - Information through schools

Appendix III: Informed consent

Titel onderzoek:

Verantwoordelijke onderzoeker:

In te vullen door de deelnemer

Ik verklaar op een voor mij duidelijke wijze te zijn ingelicht over de aard, methode, doel en [indien aanwezig] de risico's en belasting van het onderzoek. Ik weet dat de gegevens en resultaten van het onderzoek alleen anoniem en vertrouwelijk aan derden bekend gemaakt zullen worden. Mijn vragen zijn naar tevredenheid beantwoord.

[Indien van toepassing] Ik begrijp dat film-, foto, en videomateriaal of bewerking daarvan uitsluitend voor analyse en/of wetenschappelijke presentaties zal worden gebruikt.

Ik stem geheel vrijwillig in met deelname aan dit onderzoek. Ik behoud me daarbij het recht voor om op elk moment zonder opgaaf van redenen mijn deelname aan dit onderzoek te beëindigen.

Naam deelnemer: ……..

Datum: …… Handtekening deelnemer: …...…….

In te vullen door de uitvoerende onderzoeker

Ik heb een mondelinge en schriftelijke toelichting gegeven op het onderzoek. Ik zal resterende vragen over het onderzoek naar vermogen beantwoorden. De deelnemer zal van een eventuele voortijdige beëindiging van deelname aan dit onderzoek geen nadelige gevolgen ondervinden.

Naam onderzoeker:

……..……..

Datum: …… Handtekening onderzoeker: ...……

Appendix IV: Interview protocol GGD employees

Interviewnummer	P	

De optimalisatie van de organisatie van het Rijksvaccinatieprogramma onder 9-jarigen in Twente

Onderzoek Anne Morssink, masterstudent Health Sciences (2018) interview

Beste zorgprofessionals,

Hartelijk dank dat u mee wilt werken aan mijn onderzoek. Het doel van mijn onderzoek is om de vaccinatiegraad onder schoolgaande kinderen in Twente te verhogen. Hiervoor vraag ik aan zorgprofessionals van de GGD naar hun ervaringen met de organisatie van het vaccinatieprogramma.

Het interview bestaat uit vijf verschillende delen met elk open vragen over een ander onderwerp.

UNIVERSITEIT TWENTE.

Inleiding

1. ENQUÊTEUR: Noteer de datum en tijd.

A dag: .....

B maand: .....

C jaar: 2018

D uur: .....

E minuten: .....

[BEGIN DOOR JE VOOR TE STELLEN EN JE COLLEGEKAART OP TAFEL TE LEGGEN].
(lees voor): Mijn naam is: Anne Morssink, student Health Sciences op de universiteit van Twente en ik wil u graag in het kader van mijn masterthesis vragen stellen over uw werkzaamheden, over de manier waarop het Rijksvaccinatieprogramma in uw organisatie is georganiseerd, en uw mening daarover.
(lees voor): Wanneer ik u vraag naar uw situatie, gaat het uitdrukkelijk om uw PERSOONLIJKE SITUATIE/MENING. Er zijn dus geen goede of foute antwoorden mogelijk. Het gaat om uw eerste spontane reactie en u moet niet te lang nadenken.
Ik wijs er nogmaals met nadruk op, dat de informatie die u verstrekt hoogst VERTROUWELIJK behandeld zal worden. Informatie zal ook nooit doorgegeven worden aan derden.
Het vraaggesprek zal ongeveer drie kwartier in beslag nemen. Ik zou in het interview de volgende vijf onderdelen met u bespreken:

- **Als eerste begin ik met een algemene introductie waarin ik u zal vragen over de aard van uw werk, om een indruk te krijgen van uw werkzaamheden.**
- **Daarna wil ik graag wat algemene vragen stellen over het Rijksvaccinatieprogramma. U heeft de mogelijkheid om uw antwoorden waar nodig toe te lichten.**
- **Deel drie zal open vragen bevatten over uw mening over het verschil tussen Nederland en Twente. U heeft de mogelijkheid om uw antwoorden waar nodig toe te lichten.**
- **Tenslotte zal ik vragen stellen over de organisatie van het rijksvaccinatieprogramma in uw GGD-gemeente. Ook in dit deel heeft u de mogelijkheid om uw antwoorden waar nodig toe te lichten.**
- **Als slot zal ik de vraag stellen om aanbevelingen te doen om de organisatie rondom het vaccinatieprogramma te verbeteren.**

Om er zeker van te zijn dat we uw antwoorden goed overnemen zou ik het gesprek graag opnemen. Gaat u hiermee akkoord?

Toestemmingsformulier laten tekenen!

➔ *Als akkoord, zet opnameapparatuur NU aan*

Heeft u nog vragen?

DEEL 1: Algemene werkzaamheden

Voordat ik begin met vragen over uw werkzaamheden wil ik eerst enkele achtergrondkenmerken noteren.

1. [Noteer het geslacht van de geïnterviewde]

Man	☐
Vrouw	☐

2. Wat is uw leeftijd?

☐ **Jaar**

3. Wat is uw functie binnen de jeugdgezondheidszorg?

Vraag hier goed door: Om wat voor werk gaat het precies? Heb je er een speciale opleiding voor nodig? → Goed doorvragen om er precies achter te komen wat ze doen.

4. **Welke taken vallen onder deze functie?**

5. Hoe lang werkt u al in deze functie binnen de organisatie?

☐ Jaar

6. **Op welke manieren geeft uw organisatie voorlichting over het Rijksvaccinatieprogramma aan ouders/kinderen? → Doorvragen of ze daarbij veel gebruik maken van social media**

7. Wat is uw rol met betrekking tot het Rijksvaccinatieprogramma?

Lees voor: We hebben hiermee het eerste deel van het interview afgerond. Dan zou ik nu willen overgaan naar deel twee. Dit zijn algemene vragen over het vaccinatieprogramma.

DEEL 2: Algemene vragen vaccinatieprogramma

8. **Hoe wordt de organisatie rondom het vaccineren van 0 tot 4-jarigen in uw gemeente geregeld? Probeer te achterhalen waarom het zo wordt gedaan volgens de respondent.**
   → Door wie wordt het gecoördineerd, welke stakeholders zijn aanwezig?

9. **Hoe wordt de organisatie rondom het vaccineren van 9-jarigen in uw gemeente geregeld? Probeer te achterhalen waarom het zo wordt gedaan volgens de respondent.**
   → Door wie wordt het gecoördineerd, welke stakeholders zijn aanwezig?

10. **Alle organisaties werken met richtlijnen vanuit de overheid. In welke mate heeft uw gemeente/organisatie vrijheid om zelf invulling te geven hoe de vaccinaties worden georganiseerd? → Zijn er mogelijke knelpunten?**

11 Welke voordelen ziet u aan het huidige vaccinatieprogramma onder 0 tot 4-jarigen?

12 Welke voordelen ziet u aan het huidige vaccinatieprogramma onder 9-jarigen? → Achterhalen of er eventueel verschil zit tussen 0 tot 4- jarigen en 9-jarigen.

13 Welke nadelen ziet u aan het huidige vaccinatieprogramma onder 0 tot 4-jarigen?

14 Welke nadelen ziet u aan het huidige vaccinatieprogramma onder 9-jarigen? → Achterhalen of er eventueel verschil zit tussen 0 tot 4- jarigen en 9-jarigen.

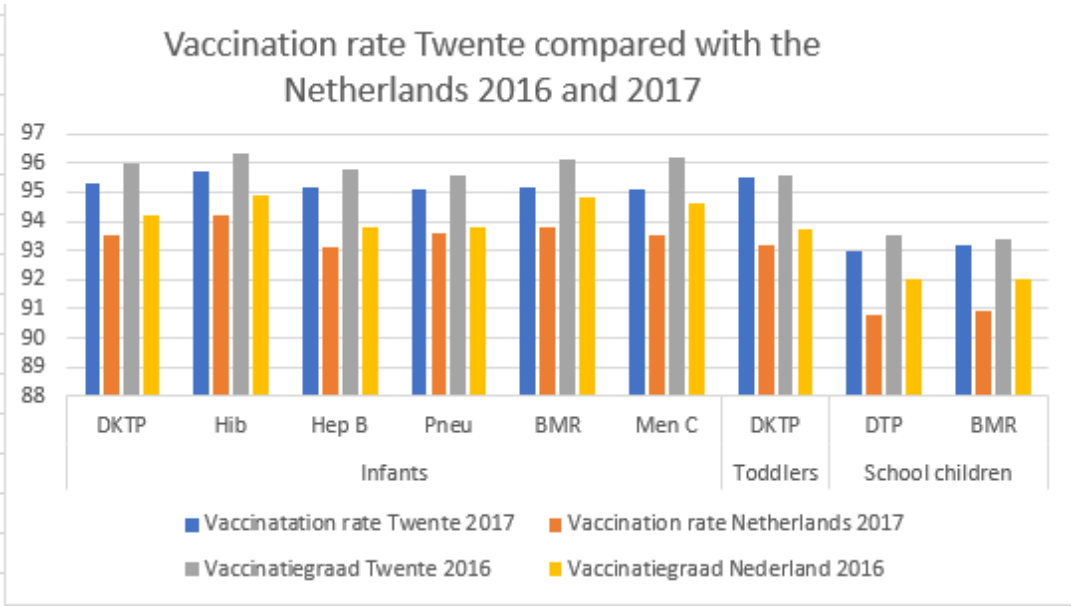
Lees voor: We hebben hiermee het tweede deel van het interview afgerond. Dan zou ik nu willen overgaan naar deel drie. Dit zijn vragen over het verschil tussen Twente en Nederland.

DEEL 3: Verschil Twente/Nederland

De vaccinatiegraad in Twente ligt hoger dan in Nederland voor elke vaccinatie, zowel in 2016 als in 2017. Laat u het plaatje zien, zodat de vaccinatiegraad van zowel Nederlands als Twente duidelijk is voor de respondent.

15 **Op dit moment is de vaccinatiegraad in Twente hoog, welke maatregelen zijn er genomen om deze vaccinatiegraad hoog te houden? →**

Duidelijk maken welke groep je kiest om te vragen (beide of alleen 0-4 of 9-jarigen)



16 Heeft u een idee hoe het kan dat de vaccinatiegraad in Twente hoger ligt dan het landelijk gemiddelde?

Vaccination coverage in percentages of the DTP and BMR vaccinations per municipality in Twente in report year 2017

Municipality	**DPT vaccinate**	**MMR vaccinate**
Almelo(13)	90.7%	90.4%
Borne (11)	92.4%	92.7%
Dinkelland (5)	94.8%	95.7%
Enschede (8)	93.6%	93.9%
Haaksbergen (11)	92.4%	92.7%
Hellendoorn (3)	95.4%	95.7%
Hengelo (6)	93.8%	94.2%
Hof van Twente (7)	93.8%	94.1%
Losser (9)	93.1%	93.4%
Oldenzaal (2)	96%	96.2%
Rijssen-Holten (14)	86.3%	86.7%
Tubbergen (1)	96.7%	96.7%
Twenterand (12)	92.3%	92.1%
Wierden (4)	95%	94.3%
Gemiddelde	**93.3%**	**93.5%**

17 In welke GGD- gemeente bent u werkzaam?

18 De vaccinatiegraad van uw gemeente is hoger/lager dan in de rest van de gemeenten in Twente, hoe denkt u dat dit komt?

19 Wat is volgens u de redenen dat de vaccinatiegraad onder schoolgaande (9-jarigen) lager ligt dan bij de 0 tot 4-jarigen?

20 Wat is volgens u de redenen dat de vaccinatiegraad van het MMR- en DTPK-vaccinatie onder schoolgaande kinderen verschillen?

Lees voor: We hebben hiermee het derde deel van het interview afgerond. Dan zou ik nu willen overgaan naar deel vier. Deze vragen gaan over hoe in uw gemeente het Rijksvaccinatieprogramma is georganiseerd.

DEEL 4: Organisatie

Het grote verschil tussen het vaccineren onder 0 tot 4-jarigen en 9-jarigen is de organisatie (hoe het wordt geregeld). Dat heeft u me eerder in het interview uitgelegd. Nu zou ik graag willen ingaan op de mogelijke redenen voor dit verschil. (Alleen meningen om de organisatie te verbeteren)

21 Hoe kan de organisatie in uw gemeente volgens u anders worden georganiseerd om de vaccinatiegraad te verhogen?

22 In het buitenland worden de vaccinaties voor 9-jarigen gegeven op basisscholen. Sommigen vinden het wel een goed idee en sommigen niet, wat denkt u?

23 Tegenwoordig schenkt de media veel aandacht aan de vaccinaties bijvoorbeeld over de bijwerkingen en dat je er autisme van kan krijgen etc. Wat vindt u daarvan? Wie zou juist tegen het vaccineren zijn? → Doorvragen of de negatieve media-aandacht invloed heeft op de vaccinatiegraad van de 9-jarigen.

24 **Tot slot zou ik graag willen horen welke aanbevelingen u op dit moment zou doen om de organisatie van de vaccinaties te verbeteren?**

a. **Waarom zou u juist deze aanbeveling doen?**

b. **Wat is daar volgens u voor nodig?**

Afsluiting

Lees voor: Tot slot het allerlaatste gedeelte van het interview. Hier wil ik u de ruimte geven voor het maken van opmerkingen/feedback op de vragen, die u van belang acht voor mijn huidige onderzoek.

Wilt u nog opmerkingen maken met betrekking tot het interview?

IK WIL U GRAAG HARTELIJK BEDANKEN VOOR DIT INTERVIEW. ALS U WILT, KAN IK NA AFLOOP VAN HET ONDERZOEK U HET ONDERZOEKSVERSLAG VIA DE MAIL STUREN.

***WEL/NIET**

*streep door welke niet van toepassing

ENQUÊTEUR: Noteer de tijd (24-uursklok). Interview geëindigd om:

A uur: .....

B minuten: .....

Appendix V: Interview protocol GP

Interviewnummer	P	

De optimalisatie van de organisatie van het Rijksvaccinatieprogramma onder 9-jarigen in Twente

Onderzoek Anne Morssink, masterstudent Health Sciences (2018) interview

Beste zorgprofessionals,

Hartelijk dank dat u mee wilt werken aan mijn onderzoek. Het doel van mijn onderzoek is om de vaccinatiegraad onder schoolgaande kinderen in Twente te verhogen. Hiervoor vraag ik aan zorgprofessionals van de GGD naar hun ervaringen met de organisatie van het vaccinatieprogramma.

Het interview bestaat uit vijf verschillende delen met elk open vragen over een ander onderwerp.

UNIVERSITEIT TWENTE.

Inleiding

1. ENQUÊTEUR: Noteer de datum en tijd.

A dag: .....

B maand: .....

C jaar: 2018

D uur: .....

E minuten: .....

[BEGIN DOOR JE VOOR TE STELLEN EN JE COLLEGEKAART OP TAFEL TE LEGGEN].
(lees voor): Mijn naam is: Anne Morssink, student Health Sciences en ik wil u graag in het kader van mijn masterthesis vragen stellen over uw werkzaamheden, over uw rol met betrekking tot het Rijksvaccinatieprogramma, en uw mening daarover.
(lees voor): Wanneer ik u vraag naar uw situatie, gaat het uitdrukkelijk om uw PERSOONLIJKE SITUATIE/MENING. Er zijn dus geen goede of foute antwoorden mogelijk. Het gaat om uw eerste spontane reactie en u moet niet te lang nadenken.
Ik wijs er nogmaals met nadruk op, dat de informatie die u verstrekt hoogst VERTROUWELIJK behandeld zal worden. Informatie zal ook nooit doorgegeven worden aan derden.
Het vraaggesprek zal maximaal twintig minuten in beslag nemen. Ik zou in het interview de volgende vijf onderdelen met u bespreken:

- **Als eerste begin ik met een algemene introductie waarin ik u zal vragen over de aard van uw werk, om een indruk te krijgen van uw werkzaamheden.**
- **Deel twee zal open vragen bevatten over uw mening over het verschil tussen Nederland en Twente. U heeft de mogelijkheid om uw antwoorden waar nodig toe te lichten.**
- **Tenslotte zal ik vragen stellen over de organisatie van het rijksvaccinatieprogramma in uw GGD-gemeente. Ook in dit deel heeft u de mogelijkheid om uw antwoorden waar nodig toe te lichten.**
- **Als slot zal ik de vraag stellen om aanbevelingen te doen om de organisatie rondom het vaccinatieprogramma te verbeteren.**

Om er zeker van te zijn dat we uw antwoorden goed overnemen zou ik het gesprek graag opnemen. Gaat u hiermee akkoord?
Toestemmingsformulier laten tekenen!

➔ *Als akkoord, zet opnameapparatuur NU aan*

Heeft u nog vragen?

DEEL 1: Algemene werkzaamheden

Voordat ik begin met vragen over uw werkzaamheden wil ik eerst enkele achtergrondkenmerken noteren.

1. **[Noteer het geslacht van de geïnterviewde]**

Man	☐
Vrouw	☐

2. **Wat is uw leeftijd?**

☐ **Jaar**

BEROEP: HUISARTS

3. **Hoe lang werkt u al als huisarts?**

☐ Jaar

4. **Op welke manieren geeft de huisarts voorlichting over het Rijksvaccinatieprogramma aan ouders/kinderen?**

5. **Met welke vragen over het rijksvaccinatieprogramma komen ouders naar de huisarts? → Erachter proberen te komen of ouders andere type vaccinaties willen en of dat vaak voorkomt**

6. **Wat is uw rol met betrekking tot het Rijksvaccinatieprogramma? → Doorvragen naar het feit of de huisarts zelf ook vaccineert en in welke omstandigheden dit dan zijn.**

Lees voor: We hebben hiermee het eerste deel van het interview afgerond. Dan zou ik nu willen overgaan naar deel twee. Dit zijn algemene vragen over het vaccinatieprogramma.

DEEL 2: Algemene vragen vaccinatieprogramma

7. **Welke voordelen ziet u aan het huidige vaccinatieprogramma onder 0 tot 4-jarigen?**

8. **Welke voordelen ziet u aan het huidige vaccinatieprogramma onder 9-jarigen?**

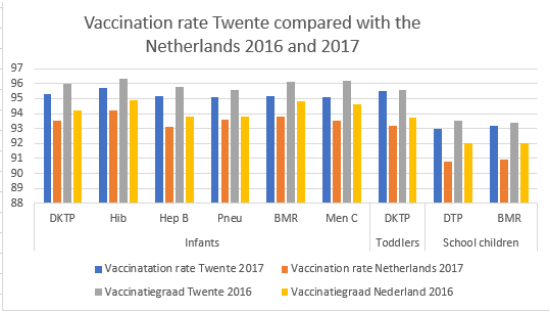
9. **Welke nadelen ziet u aan het huidige vaccinatieprogramma onder 0 tot 4-jarigen?**

10. **Welke nadelen ziet u aan het huidige vaccinatieprogramma onder 9-jarigen?**

Lees voor: We hebben hiermee het tweede deel van het interview afgerond. Dan zou ik nu willen overgaan naar deel drie. Dit zijn vragen over het verschil tussen Twente en Nederland.

DEEL 3: Verschil Twente/Nederland

De vaccinatiegraad in Twente ligt hoger dan in Nederland voor elke vaccinatie, zowel in 2016 als in 2017. Laat u het plaatje zien.



11. **Heeft u een idee hoe het kan dat de vaccinatiegraad in Twente hoger ligt dan het landelijk gemiddelde?**

Vaccination coverage in percentages of the DTP and BMR vaccinations per municipality in Twente in report year 2017

Municipality	**DPT vaccinate**	**MMR vaccinate**
Almelo	90.7%	90.4%
Borne	92.4%	92.7%
Dinkelland	94.8%	95.7%
Enschede	93.6%	93.9%
Haaksbergen	92.4%	92.7%
Hellendoorn	95.4%	95.7%
Hengelo	93.8%	94.2%

Hof van Twente	93.8%	94.1%
Losser	93.1%	93.4%
Oldenzaal	96%	96.2%
Rijssen-Holten	86.3%	86.7%
Tubbergen	96.7%	96.7%
Twenterand	92.3%	92.1%
Wierden	95%	94.3%

12. **In welke gemeente bent u werkzaam?**

13. **De vaccinatiegraad van uw gemeente is hoger/lager dan in de rest van de gemeenten in Twente, hoe denkt u dat dit komt?**

14. **Wat is volgens u de redenen dat de vaccinatiegraad onder schoolgaande (9-jarigen) lager ligt dan bij de 0 tot 4-jarigen?**

Lees voor: We hebben hiermee het derde deel van het interview afgerond. Dan zou ik nu willen overgaan naar deel vier. Deze vragen gaan over hoe in uw gemeente het Rijksvaccinatieprogramma is georganiseerd.

DEEL 4: Organisatie

Het grote verschil tussen het vaccineren onder 0 tot 4-jarigen en 9-jarigen is de organisatie (hoe het wordt geregeld). Dat heeft u me eerder in het interview uitgelegd. Nu zou ik graag willen ingaan op de mogelijke redenen voor dit verschil. (Alleen meningen om de organisatie te verbeteren)

15. **Hoe kan de organisatie in uw gemeente volgens u anders worden georganiseerd om de vaccinatiegraad te verhogen?**

16. **In het buitenland worden de vaccinaties voor 9-jarigen gegeven op basisscholen. Sommigen vinden het wel een goed idee en sommigen niet, wat denkt u?**

17. **Wat zou u ervan vinden als het Rijksvaccinatieprogramma door de huisarts wordt uitgevoerd?**

18. **Tegenwoordig schenkt de media veel aandacht aan de vaccinaties bijvoorbeeld over de bijwerkingen en dat je er autisme van kan krijgen etc. Wat vindt u daarvan? Wie zou juist tegen het vaccineren zijn? → Doorvragen of de negatieve media-aandacht invloed heeft op de vaccinatiegraad van de 9-jarigen.**

19. **Tot slot zou ik graag willen horen welke aanbevelingen u op dit moment zou doen om de organisatie van de vaccinaties te verbeteren?**

    a. **Waarom zou u juist deze aanbeveling doen?**

    b. **Wat is daar volgens u voor nodig?**

Afsluiting

Lees voor: Tot slot het allerlaatste gedeelte van het interview. Hier wil ik u de ruimte geven voor het maken van opmerkingen/feedback op de vragen, die u van belang acht voor mijn huidige onderzoek.

Wilt u nog opmerkingen maken met betrekking tot het interview?

IK WIL U GRAAG HARTELIJK BEDANKEN VOOR DIT INTERVIEW. ALS U WILT, KAN IK NA AFLOOP VAN HET ONDERZOEK U HET ONDERZOEKSVERSLAG VIA DE MAIL STUREN.

ENQUÊTEUR: Noteer de tijd (24-uursklok). Interview geëindigd om:

A uur: .....

B minuten: .....

Appendix VI: Code framework

Determinant	Code	Quotations
Op welke manier wordt er voorlichting gegeven?	Voorlichting	"Nou vooral mondeling bereiden we ouders tijdens het kennismakingshuisbezoek, intake noemen wij dat. Als de baby geboren is, krijgen wij via het GBA-gegevens door van de geboren baby en dan gaan wij actief een afspraak plannen voor een huisbezoek, intake. Overigens alles is vrijwillig bij ons, als ouders er geen gebruik van willen maken dan kunnen ze dat aangeven. Het gros van de mensen zijn er wel van. We noemen het bij het huisbezoek. Verder hebben we wel wat voorlichtingsmateriaal liggen, maar het RIVM zelf is ook actief in het rondsturen van informatie naar ouders toe. Wij maken actief afspraken om zeg maar het rijksvaccinatieprogramma uit te voeren." "…stel je voor ouders hebben vragen, kunnen ze daar altijd op terugkomen bij een extra consult. Deze gaat op indicatie om uitleg te geven. Die optie is er. Dan heb je straks zeg maar dan de 4-jarigen prik komt er nog weer achteraan en die gaat ook weer middels een folder van het RIVM. Via onze site, website, kunnen ouders, worden ze terugverwezen naar de vraag en antwoorden. Het ouderportaal van het RIVM daar komen ze via doorklikken. Het RIVM is wel de bron waar wij onze informatie afhalen dat is eigenlijk wel de link die wij in onze uitnodigen meesturen. Dat is eigenlijk met name voor de groepsvaccinaties. Daar zit de link van het

		RIVM bij in. Daarin is het RIVM weer met de folder informerend. Wij twitteren zeg maar, wij informeren voor de groepssessies om ook via social media wel een keer te attenderen naast de uitnodigsbrief die gestuurd wordt. Onze uitnodigingsbrief, samen met de brief van het RIVM is één pakketje. Dus twee brieven krijgen ouders. En we hebben ook een tijd de, de plaatselijke bladen, het huis aan huis bladen, ook een tijdje mee genomen om te kijken of heeft dat effect op de stijging van de vaccinatiegraad dat is altijd een beetje lange termijn politiek. De cijfers komen een paar jaar later op de drempel en dat was ook met name van de daling van de HPV dat we dat bedacht hebben. Posters hebben we een tijdje gedaan." "Niet, alleen als ze zelf met vragen komen dan zeggen we er wat over."
Hoe is de organisatie rondom kinderen van 0 tot 4-jaar georganiseerd?	Organisatie 0 tot 4-jaar	"Het begint met het toesturen van de kaarten en dan het RVP staat in principe vast. Daar hebben wij ons ook aan te houden. Het heeft echt te maken het optimaliseren van de vaccinatiegraad en het elkaar beschermen het is heel erg van belang dat de kindjes de eerste prik aangeboden krijgt tussen de 6 en de 9 weken. Dus dan start het schema. Dus als ouders daar toestemming voor hebben gegeven dan ontvangt het kind bij wijze met het consult van 8 weken. Die willen wij ook echt graag met 8 dan wel 7 weken geven. Liever dat dan met 9 weken. Omdat het kindje dan nog onbeschermd is. En dan heb je al het schema klaar wat de eerste drie

		prikken in intervallen van een maand en dan komt de vierde prik komt er naar 6 maanden achteraan. Dat staat eigenlijk vast. Daar hebben wij hele schema's van het RIVM voor. Dat hanteren wij ook zoveel mogelijk in ons werkgebied. Ziekte kinderen en wensen van de ouders daar gelaten. Of indicaties arts." "…tijdens de reguliere contactmomenten op het consultatiebureau. Dus dat zijn vaste momenten volgens het Rijksvaccinatieprogramma vanaf 2 maanden dat ze de vaccins krijgen. Dat loopt via het consultatiebureau op de individuele consulten." "…. De aansturing is door de coördinator, mevrouw X. Verder hebben we op alle locaties de koelkasten staan waar het vaccin in bewaard wordt. Dit wordt maandelijks aangeleverd door het RIVM…"
Hoe is de organisatie rondom de 9-jarige massa vaccinatie georganiseerd?	Organisatie 9-jaar	"…Voor 9-jarigen worden er allemaal massavaccinaties gedaan in bepaalde steden en plaatsen." "Ik weet in principe precies welke 9-jarigen we hebben. Het RIVM heeft ook een bestand aan de hand van het vaccinatiegegevens. Zij roepen iedereen op die de prikken dan nog open hebben staan op 9-jarige leeftijd. Dat is een ander bestand dan dat wij hebben. Wij hebben zich op alle kinderen. Zij hebben zich op alle kinderen waarvan de vaccinaties nog open staan. Tot nog toe gaat het nog steeds zo dat het RIVM van dat bestand uitgaat. En vanuit dat bestand de uitnodigen ook verstuurd."

		“Ik doe er een brief naartoe van dit is onze uitnodigingsbrief. Bijvoorbeeld kinderen van deze kinderen uit Vriezeveen willen wij graag in het voorjaar. In het voorjaar doen we de kinderen van januari tot en met juni jarig, die dan 9 worden. Daarna juli t/m december. Is puur de beheersbaarheid. Dus twee sessies. Ik geef alleen aan welke cohorten, welke leeftijden, ik dan wil hebben. Maar zij roepen op. Mijn uitnodigingsbrief zit daar dan bij.”
Aan welke richtlijnen moeten zorgprofessionals zich houden?	Richtlijn	“Niet meer vanuit het RIVM gestuurd en het ligt nu bij de gemeentes. De gemeente gaat ons betalen en kan dus ook veel meer bepalen. Daar zijn hele handreikingen voor uitgeschreven nu. Zoals wij nu werken, dat per 1 januari 2019 zeg maar zijn doorgang moet blijven vinden, maar doordat de gemeente de zak met geld gaat krijgen, kunnen ze ook wat meer gaan eisen misschien. Of omdat er hele andere mensen zitten, hele andere kijk op de materie. Dus dat gaan we ervaren. Zoals het nu is, hebben we zeker te doen aan protocollen, aan kwaliteitsprotocollen, veiligheidsprotocollen. Je hebt te doen met het vaccin, zeg maar dat het medicatie is. Hoe ga je daar mee om, cold chain richtlijnen zijn daarop van toepassing. Dus de distributie van het vaccin, hoe ga je met het vaccin om, hoe werk je daarmee, protocol rondom de intervallen. Prikken wij te vroeg dan krijgen wij gelijk een kaart van het RIVM: dat is niet goed, die moet opnieuw.”

		"…Maar het is wel zo dat we dat zelf in Borne hebben gedaan daar gaat het RIVM verder niet over. Zij willen gewoon dat iedereen geprikt wordt en hoe wij dat verder invullen dat is aan ons."
Zijn er knelpunten?	Knelpunt	"…. Daar zie ik wel knelpunten dat ouders de massaliteit ook niet prettig vinden. … " "Nee, die zijn er inmiddels wel uitgefilterd. Knelpunten. Zijn er knelpunten? Weet je zoals het nu is, is het heel spannend omdat het naar de gemeente gaat. Welke verwachtingen heeft de gemeente tegenover ons? …"
Wat zijn de voordelen van het vaccinatieprogramma onder 0 tot 4-jarigen?	Voordelen RVP 0 tot 4	"Ik vind dat het goed georganiseerd is. De kennis is op alle locaties aanwezig. Er is genoeg gekwalificeerd personeel. De kaders zijn heel helder. Ouders worden geïnformeerd van tevoren, dus als ze vragen hebben daar is al heel goed over nagedacht. Dan weten ze waar ze dat kunnen stellen. Ervan uitgaande dat het tijdens de huisbezoeken goed is genoemd. Het is een heel mooi pakketje eigenlijk in mijn beleving. Hebben ouders vragen of, zijn er dingen, is er ruimte om het daarover te hebben met elkaar. En de aanname is bij ouders heel groot. De acceptatie. Dat wil niet zeggen dat ze het makkelijk vinden. Ze vinden het heel spannend en vervelend, maar ze doen het wel omdat ze weten waar het voor is." "Voordeel. Ik denk dat het grote voordeel is dat we de kinderen veel zien en dat we zo bekend zijn als instituut, het consultatiebureau. Of het nou negatief of

		positief is, het consultatiebureau kent eigenlijk iedereen." "Voordelen? Het is een heel breed programma hè. Mag ik dat als voordeel zeggen?" "Ik vind het een waardevol programma, omdat het preventief goed werkt."
Wat zijn de voordelen voor het vaccinatieprogramma onder 9-jarigen?	Voordelen RVP 9-jaar	"Het enigste voordeel wat ik nu zie is dat het heel efficiënt is qua uitvoering, maar verder denk ik niet dat het heel dat daar nog wel wat winst behaalt zou kunnen worden" "Ook daarin is het eigenlijk, weet je, de organisatie die staat. De uitnodigingen lopen, de locatie, het personeel. Dat is eigenlijk hetzelfde als bij de 0-4. Dus zeg maar de randvoorwaarden zijn goed geborgd. Het is eigenlijk een geoliede machine." "…het staat beschreven in. daar hebben we een protocol voor met de verschillende taken. Voor die tijd krijg je ook nog een soort briefing zeg maar van de coördinator. Hoe gaat het? Hoe hebben we het ingedeeld? Wie is omloop? Wie regelt het vaccin? Het is allemaal heel duidelijk en dat werkt heel prettig, dat iedereen weet wat je taken zijn." "…de kracht van de groepsvaccinatie als het vriendje van Pietje gaat dan denkt de moeder van Pietje hoezo waarom jij wel en ik niet. Dus dat is dan ook gelijk de kracht. Dat hoor ik ook."
Wat zijn de nadelen voor het vaccinatieprogramma onder 0 tot 4-jarigen?	Nadelen RVP 0 tot 4	"Een nadeel zie ik wel dat de ouders tegenwoordig de vaccins los willen hebben. Dat betekent dus dat je nu een gecombineerde prik hebt: DKTP met de

		Hib en de Heb. Dan willen ze die niet apart of dan willen ze dus de componenten apart. Wat je dan krijgt is dat je helemaal het Rijksvaccinatieschema moet veranderen, want en dat betekent weer extra consulten, extra tijd, extra geld, want tijd is geld. Zo wordt er wel naar gekeken. Extra mankracht wat je dan nodig hebt, dat zie ik wel als nadeel van de vragen die ik nou steeds meer hoor van mijn collega's van 0-4. We moeten steeds aparte componenten prikken, want ouders hebben het steeds meer voor het zeggen. Het is allemaal vrijblijvend. Je kunt ze niet dwingen om bepaalde vaccins zo af te nemen. Dat zie ik wel als nadeel. Verder zie ik niet ander nadeel. Ik denk dat dat gewoon heel plezierig is dat het of de verpleegkundige of de arts is die continue het kind volgt. Dat is gewoon een heel groot voordeel." "Misschien is het wat te starrig. Op het moment dat ouders een, een andere, hoe zeg je dat nou, afwijken van het gewone programma dan wordt het voor ons wat lastiger om het in te plannen. Dat betekent extra contact momenten en dan moeten we dat op een andere organisatie, anders organiseren; tijdens een inloop of tijdens een zelfgekozen moment waarop ik de ouders terug laat komen als het niet past in de agenda van ouders en dan gaan we kijken wanneer kan het wel. Dan maken we daar wel uitzonderingen voor. Het is ook wel een vrij star gegeven het consultatiebureau gebeuren. Daar zijn wij ook niet heel flexibel in."

		"Nee, ik vind het prima zo."
Wat zijn de nadelen onder voor het vaccinatieprogramma onder 9-jarigen?	Nadelen RVP 9-jaar	"Nee, het is prima" "Ik denk dan toch dat de binding een beetje weg is met het instituut GGD. Daar waar wij in de 0-4 toch wel profiteren is dat dan toch wel een beetje weg denk ik. Ja." "Vragen van ouders ook van, nou ja die BMR hoef ik niet hoor, want ik heb gelezen dat het connectie heeft met autisme of ja ik had laatst ook een ouder: Ja, die BMR heb ik niet voor gekozen met 9 jaar, want het werd me ook ontraden door de homeopathische geneesheer, want ja er zitten toch stofjes in. Dus ik hoor steeds meer geluiden, ouders die gaan er ondertussen over nadenken, dan willen ze dus of de BMR of de DTP niet of helemaal geen vaccinatie."
Welke maatregelen zijn ar al genomen?	Maatregelen vaccinatiegraad	"Voor 9-jarigen wat wij onder commitment van ouders te verhogen gedaan hebben, is het filmpje een paar jaar geleden gedaan, gemaakt. Die wordt veel bezocht op de site van ons. Daar wordt veel op gekeken zeg maar, gemonitord. Maar of dat leidt tot toch wel komen, weet je dat hebben we nooit onderzocht." "…een overdracht gedaan waarbij ook wordt verteld van nou uw kind krijgt nog met betrekking tot het vaccinatieprogramma met 9 jaar een vaccinatie. Ik doe dat wel op het moment dat ik een onderzoek op indicatie heb of bij het speciaal onderwijs. Dan geef ik wel aan dat als het kind nog geen 9 jaar is. Dan krijgt uw kind nog een vaccinatie van ons. Meestal is het oké, dan hebben ouders er

		geen vragen over en dan komen ze ook wel. Een enkeling, die heeft daar toch wel moeite mee en dan ga je het gesprek aan zeg maar." "Nou weet je, op het moment dat mensen niet gevaccineerd willen worden. Vanaf het bureau wordt er gewoon goed over gepraat en uitgelegd. Ik vind wel dat de media dat er gewoon heel veel in wordt geplaatst."
Hoe komt het dat de vaccinatiegraad onder 9-jarigen lager ligt?	Lagere vaccinatiegraad 9-jaar	"Ik denk inderdaad dat als je al iets zou kunnen bedenken over reden van de dalende vaccinatiegraad ten opzichte van de 0 tot 4 dat de binding mogelijkerwijze anders is. Het staat verder van ouders af. Als je al een keer een brief mist, een uitnodiging mist. Dan krijg je maar één keer een herinneringsoproep voor een half jaar later vanuit het RIVM. Dus je wordt al een keer gerappelleerd. Als je denkt van, ik weet het eigenlijk niet. Er is dan niemand die eigenlijk adequaat vraagt van ik heb je gemist, er is iets te bespreken met elkaar of er is minder contact. Dat is misschien ook wel de valkuil. Dat zou het zomaar kunnen zijn…" "Dat is ook wat we net al benoemd hebben. Ik denk het losse contact. Het is alleen maar de prik. Misschien toch ook wel de invloeden van social media. Dat mensen er toch anders tegenover staan, dat ze daar meer last van hebben. Het is makkelijker tegenwoordige, ik denk, misschien werkt het ook wel tegen dat we tegenwoordig allemaal zo druk zijn. Het moet er allemaal even bij, je moet er rekening mee houden,

		je moet er vrij voor nemen. De afspraak kan heel makkelijk zomaar vergeten worden." "Ik denk wel dat het te maken heeft met de individuele contacten; bereik, de laagdrempeligheid, dat het ingebed is in de reguliere contactmomenten, dus tijdens het onderzoek. Na het onderzoek krijg je dan de prik. Het kind is er al en geef je een vaccinatie. Ik denk dat het daar echt mee te maken heeft. Hier moet je ze apart, los van alle contacten met kinderen in die leeftijdscategorie, moet je ze apart uitnodigen. In de massaliteit dan wel hè. Dus ik denk wel dat dat een groot verschil is. Vragen kun je natuurlijk veel beter kanaliseren als je een op een contacten hebt. Dus je kunt ze heel snel van eh… antwoorden voorzien. Hier zit je in een grote sessie met toch je moet de kinderen allemaal prikken. Dus je hebt weinig tijd of de arts die even vrijloopt die de vragen kan beantwoorden. Daar wordt wel voor geregeld, maar dat is toch anders dan dat ze individueel op je spreekuur hebt. Ik denk wel dat dat echt een verschil uitmaakt. Ja." "… misschien werkt het ook wel tegen dat we tegenwoordig allemaal zo druk zijn. Het moet er allemaal even bij, je moet er rekening mee houden, je moet er vrij voor nemen. De afspraak kan heel makkelijk vergeten worden." "Het kan de organisatie zijn van het Rijksvaccinatieprogramma. Het is meer geaccepteerd de 0 tot 4-jarigen. Daar horen de vaccinaties er gewoon bij. Ouders worden geconfronteerd met een afspraak.

		Bij 9-jarigen, zijn de kinderen alweer 9. De kinderen zijn wat ouders, dat de ouders er minder bovenop zitten. Baby's bescherm je met je hele hebben en houden. Kinderen van 9 kunnen wel tegen een stootje."
Hoe kan de organisatie rondom de massa vaccinatiesessies worden verbeterd?	Verbetering organisatie	"…Maar niet standaard een herinnering. Daar zou wel veel winst behaald kunnen worden, met of een appje of een sms'je of even iets of ja facebook berichtje. Als ouders gewoon gelinkt zijn aan al die social media dan moet daar toch wel veel mogelijkheden zijn. Om ze in elk geval even te attenderen dat er weer zo'n moment is." "Nee, dat weet ik niet."
Hoe denken zorgprofessionals erover om de vaccinatiesessies te verschuiven naar basisscholen?	Basisschool	"Het zou een oplossing, het zou iets kunnen zijn. Waarom wij het nog niet doen, je hebt zoveel soorten basisscholen. Je zit met de dekking zeg maar van je uitvoerbaarheid dat er een arts aanwezig moet zijn voor medische vragen dan wel voor situaties die kunnen gebeuren. Dus als verpleegkundige of doktersassistente kun je het nooit zelfstandig uitvoeren. Je zit met je cold chain borging. Je moet de koeling van de vaccins borgen. Je krijgt heel erg een versnippering. Het zou je onderaan de streep wellicht meer personele kosten opleveren. De winst is misschien wel dat als je op school komt de hele klas in een keer meegaat. Dat zou kunnen. Wat je niet hebt is, dan zou je ook ouders erbij uit moeten nodigen per 2019. De 9-jarigen prikken wij niet zonder de ouder erbij. 12-jarige meisjes mag wel. Dat heeft echt met juridische leeftijd te maken. Dus je moet de

		ouder erbij hebben. Naja ouders, zoals je wel weet, die werken tegenwoordig allemaal. Dus dan de klant staat bij ons wel centraal. Daar hebben we nooit een reden gehad met name door al deze punten wel om het dusdanig aan te gaan. Je kan snel het rekensommetje maken. Aan het einde van de streep zal het ons alleen maar wat kosten. Maar de weerstand van ouders is ook dusdanig, wat als die ouder niet kan, hoe gaan we dat dan doen? Tot nog toe zijn de middagen de prikmiddagen omdat de aanname is nog steeds dat de meeste moeders vrij zijn, want dat is de speelmiddag. Nu met al die continue roosters schuift dat ook alweer. Het is wel de maatschappij die veranderd. Ja, je moet ook kritisch blijven kijken wat zijn de oplossingen. Dus vooralsnog voor scholen hebben wij dan zeg maar als je het echt wil samenvatten vanwege de borging, de kwaliteit, de financiën is er niet voor gekozen." "Ja dan moeten de omstandigheden wel goed zijn dat je ook een kind in een afgeschermde ruimte kunt prikken. Materialen moeten gewoon aanwezig zijn ook als een kind flauwvalt. Dus hè. Kijk op je spreekuur locatie. Ik kan me ook voorstellen dat is een onafhankelijke locatie daar doe je al je spreekuren. Daar heb je betere omstandigheden. Dan zou dat meer mijn voorkeur zijn, maar ik kan me ook voorstellen omdat de doktersassistente groep 7 kinderen op school ziet. Dat je inhaakt op school, maar ja dan ben je wel

		beperkt. Wat ik net als voorbeeld stelde van je hebt je eigen spreekuur dan doe je dat niet op die desbetreffende school. Dus dat betekent het dat je, ja, je spreekuur op een locatie moet gaan inbedden. Dan ben je wat minder in contact met de scholen, wat minder zichtbaar op de scholen. Vraagt nog wel wat. Denk ik. Er zitten nog wel wat haken en ogen aan. Het kan een voordeel zijn, dan kun je dus niet je eigen spreekuur draaien als je dat zou willen. Dan nodig je kinderen uit van andere scholen uit op die ene school."
Welke invloed oefent de media uit op de vaccinatiegraad?	Media	"Ik denk het goed is dat de media er aandacht aan schenkt. Dat mag, bedoel we leven in zo'n land dat het allemaal kan. Daarentegen heb je ook wel last van. De discussie kan gevoerd worden, mag gevoerd worden. Je bent heel erg afhankelijk wie is de interviewer en wat zijn de bronnen die eronder liggen en hoe wordt het opgepakt en hoe gaat het leven. Dat merk je nu heel erg met artikelen, interviews die in het eten gepropt worden. Mensen doen er altijd wat mee. Daar heb je soms last van." "Volgens mij is dat ook al heel lang, die discussie. Volgens mij laait die ook elke keer weer op. Je hebt natuurlijk wel de social media veel meer nu. Ik denk dat dat heel erg meehelpt. Dat is met alles nu met de ziekte van Lyme met de processierups en mensen gaan googelen en wordt gelezen als probleem. Dus als jij een verhaal op internet zet wat niet waar is, is het waarschijnlijk al een miljoen keer gedeeld."

		“het gevaar is dus dat ze geen betrouwbare informatie verschaffen. En dat maakt dus wel dat is zodanig nadelig op de vaccinatiegraad. En kijk zoals een aantal maar dan vanuit landelijk bestuur van de jeugdartsen. Beroepsvereniging, ie zijn een keer op tv geweest bij Pauw en Witteman dat soort informatieve programma’s. Dan kun je media goed gebruiken om de juiste informatie te geven. Als we het hebben ook over social media, internet daar staan zoveel dingen op die niet op goeie informatie berust zijn. Dan krijg je natuurlijk dat mensen verkeerd zijn voorgelicht.”
Welke aanbeveling wordt door de zorgprofessionals gedaan om de organisatie rondom het vaccineren te verbeteren?	Aanbevelingen organisatie	“Waar we echt kritisch naar aan het kijken zijn of de uitvoering zoals we het nu doen, de groepsvaccinaties, we doen nu zeg maar de cohort in het voorjaar in het najaar. Eerder deden we alles in een keer. Dus ouders hebben nu twee mogelijkheden en als ze het vergeten, krijgen ze nog een herinnering zeg maar. De sessie wordt kleiner, wordt beheersbaarder. Het is niet vervelend voor het kind en voor de ouder. Tenminste dat is onze insteek geweest. Je hebt verschillende data wat je aanbiedt. De mogelijkheden om te komen wordt daardoor groter, als dat mee zou spelen. Waar we nu naar op zoek zijn om de uitvoerbaarheid in het voor- en najaar of dat de juiste oplossing is of dat we naar nog kleinere sessies moeten op spreekuur locaties. Dus de consultatiebureau locaties om daar, zodat ouders het ook weten en kennen, het team kennen. Is dat de optie?

		Vooralsnog zijn we daar nu bezig met klantonderzoek. Zijn ouders vooralsnog tevreden met hoe wij het doen? En daar hebben we het dorp voor geïnterviewd nu. Ook al Hengelo en Almelo. Ook daar zijn ze wel tevreden. Met de uitkomst van de ouders kun je tot nog toe niet veel. Dit zijn ook de ouders die komen, dan heb je ze al. Om de vaccinatiegraad te vergroten denk ik als je dat echt zou willen dan zou je naar een hele andere vorm moeten. Toch wel bij die scholen. Ik heb geen idee, zoals Almelo is laag, wat laten we daar liggen?" "Als ik, naja als dit het verschil uitmaakt tussen 0-4 en 9-jarige vaccinatie om dan toch het anders is georganiseerd. En nu ik zie dat als wij de massale vaccinatie naar Borne halen, dat de vaccinatiegraad nog onder de gemiddelde van Twente ligt. Dan denk ik dat het niet veel heeft uitgemaakt, want in Borne doen we het al twee jaar. Mensen zijn dan al bekend. Dat is dan heel mooi dan is er al minder massaliteit, maar je doet het nog in een grote groep. En als je het linkt naar individuele contactmomenten dan kun je ook gerichter advies geven of gerichter uitleg geven over bijwerkingen of Ook gericht voorlichting geven over wat staat er te gebeuren met 12 jaar of 14 jaar. Het heeft alleen maar voordeel als je die individuele ouder ziet. Het vraagt wel veel meer aan consulten." "Stel je voor je gaat naar de scholen dan nog heb je ouders, die niet prikken of kinderen, die niet willen. Of de vaccinatiegraad dan hoger wordt, is een

		zoektocht. Dit is wel een discussie die ook landelijk heel erg leeft, omdat de vaccinatiegraad van het BMR met name dalende is. Ze zijn weer bang in de toekomst voor een epidemie. Het is ook een golfbeweging. Eén keer in de zoveel tijd heb je ook epidemieën. Epidemiologen houden daar ook rekening mee. In de gezondheidsraad stemmen, heb je daar echt een opdracht liggen. Daar zijn ze op hoog niveau over aan het nadenken hoe te doen. Maar wij op lokaal niveau. Bij hun is het al een ding. Bij ons iets minder, want wij zijn de uitvoerders. Zo langzamerhand wordt het een ding, omdat het naar gemeentes toe gaat en wij moeten daar bewust van zijn. Alleen de oplossing ligt nog niet zo voor de hand. Dat is wel… prikken bij de scholen moet je veel investeren als je dat allemaal loslaat dan heb je alle kinderen dan zien wij alle kinderen. Dan moet je het toch op zo'n manier doen misschien." "Individueel uitnodigen. Dat worden ze nu natuurlijk ook. Ze krijgen allemaal een kaart" "Ik denk dat er gekeken moet worden naar de huidige vorm van vaccineren. We doen het in bepaalde gemeentes nog inderdaad in die grote massale sportzalen. Of we toch moeten overwegen om het te koppelen aan een individueel contactmoment. Dat moet dan goed worden uitgezocht, want ik denk dat je een kostenplaatje erbij moet maken. Ik weet niet of er in landen al op die manier wordt gekeken naar de 9-jarige vaccinatie. Dat je dat, dat je ook contact hebt met

		andere organisaties die het RVP uitvoeren en eigenlijk zou je meer, want iedereen is hier mee bezig. Als ik dat dan zie via de besloten facebookgroepen is iedereen toch wel aan het zoeken naar de juiste manier hoe dienen we nou de vaccinaties toe? Krijgen we een groter bereik? Als je nou de handen ineenslaat. Het zou jammer zijn om het wiel opnieuw uit te vinden." "Misschien zijn er ook wel goede voorbeelden vanuit het buitenland wat je kunt omzetten naar de Nederlandse praktijk. Dan moet je daar goed onderzoek in doen." En daarnaast denk ik wel dat het belangrijk blijft om je professionals goed te blijven scholen. In die zin dat we de ouders, die vragen hebben, de juiste informatie te geven. Dat we ook weten waar we dat kunnen vinden. Dat je ook leert met behulp van gesprekstechnieken. Ik bedoel het is nog altijd een vrije keuze he. We hebben dit niet verplicht gesteld in Nederland. Dat je wel met behulp van gesprekstechnieken en maar ja, uiteindelijk die ouder aan het denken kan zetten. Uiteindelijk beslist een ouder zelf om wel of niet te vaccineren." "qua organisatie is het gewoon makkelijk om het te houden zoals het is" "Ik denk dat het nog het meeste zin heeft om het aantal mogelijkheden uit te bereiden."
Wat is er nodig om de aanbevelingen in de praktijk te brengen?	Nodig in praktijk	"Nou het zou heel mooi zijn als er nog een student is die dit verder kan uitzoeken. Het zou een heel mooi vervolg kunnen zijn. Ik zou dat echt wel als aanbeveling willen

		meegeven omdat, zoals we eerder hadden besproken per januari de gemeentes het geld krijgen. Dat vraagt natuurlijk weer om een mogelijke wijziging of maar ik vind het altijd wel heel fijn als dat als een bepaalde werkwijze wordt ondersteund vanuit wetenschappelijk onderzoek. Dus, ik zou zeggen van kan er niet een vervolg komen vanuit een student van de UT die dit verder gaat uitzoeken? Dan kan dat gelinkt worden aan de academische werkplaats. Als nieuwe coördinator vanuit de academische werkplaats sta ik er hel mooi achter hoe kunnen we dat voor onze organisatie verbeteren, want je hebt een stukje effectiviteit nodig dus er moet een kosteneffectiviteit analyse worden gemaakt. Je hebt een stukje literatuurstudie hoe is dat in andere omgevende landen georganiseerd. En wat is effectief daarin? Wat is bewezen effectief? Dat kunnen wij niet vanuit de GGD zelf. Bedoel snap je wat ik bedoel? Dus het moet wel ondersteunt worden. Het zou mooi zijn als je dat kunt ondersteunen met wetenschappelijk onderzoek, waardoor wij dus weten zo moeten we het aanpakken. Dat je een soort ook dan een implementatiestrategie gaat formuleren van hoe kunnen we omslaan naar een andere manier van werken waarop we onze vaccinatiegraad kunnen verbeteren.” “Kijk we hebben natuurlijk wel een management en iemand van de cijfertjes, maar die kijkt puur naar Oké contactmoment zoveel tijd, maar ik wil ook weten van oké als we dit helemaal

		loskoppelen. Hoeveel kost het en dat je dan ook gewoon met een theoretisch model, ik ben dan ook weer van de wetenschap. Ik vind at zo'n mooie combi dat je de wetenschap kan gebruiken voor de praktijk. Dan zou je dat moeten doen. Dan heb je dat echt wel nodig om een goede kosteneffectiviteit analyse erop los te slaan. Als we dit willen doen wat betekent dat dan? Want goed, de begroting van 2019 moet ook worden gemaakt. Zeker nu de gemeentes het geld krijgen, ja dan moet je wel op tijd mee zijn. Het zou heel mooi zijn als jouw onderzoek een vervolg kan hebben." "Ik denk sowieso commitment hier vanuit de GGD, de opdracht vanuit de gemeente straks. Om het voor elkaar te krijgen moet je draagvlak krijgen vanuit de medewerkers, die moeten het uit gaan voeren. Zij moeten de nut en de noodzaak ervan inzien. Hetzelfde geld ook voor het management, want het zal geld kosten. Dus dan is daar het helder krijgen van nut en noodzaak moet heel goed verwoord zijn. Dan moet er een keuze gemaakt worden door iemand." "Sowieso een flexibele houding, want het betekend dat alles wat vertrouwd is overboord wordt gegooid. Dus je moet enthousiaste, flexibele werknemers hebben. Ja, daar is natuurlijk ook tijd voor nodig en dat is wel een ding. Om iets veranderen, kost natuurlijk tijd. Dat moet je voorbereiden en dat moet misschien wel getest worden en moet naast je andere

		werkzaamheden geboren. Daar moet dan gewoon tijd voor gemaakt worden. Ja. Dat is denk ik wel het belangrijkste." "Ja personeel wat iets vaker. (…) Of je een sporthal nou voor drie dagen huurt in plaats van één. En daar dan goed reclame voor maken. Er zijn weer vaccinatieweken Jippiee. Weet ik veel zoiets. Je krijgt thuis natuurlijk een persoonlijke uitnodiging in de bus, maar ook zoiets. Ze hangen ook overal reclame op van de scholen zijn weer begonnen, maar je zou dat ook kunnen doen van de vaccinatieweken zijn weer begonnen."