National Institute
for Public Health
and the Environment

Report 230421001/2009

L. Mollema et al.

PIENTER 2-project: second research project on the protection against infectious diseases offered by the national immunization programme in the Netherlands

rivm

RIVM report 230421001/2009

PIENTER 2-project: second research project on the protection against infectious diseases offered by the national immunization programme in the Netherlands

This report contains an erratum d.d. 2 March 2010 on the last page

L. Mollema
H.E. de Melker
S.J.M. Hahné
J.W.M. van Weert
G.A.M. Berbers
F.R.M. van der Klis

Contact:
L. Mollema
Centre for Infectious Disease Control Netherlands, Epidemiology and Surveillance Unit
Liesbeth.Mollema@rivm.nl

This investigation has been performed by order and for the account of the Ministry of Health, Welfare and Sports, within the framework of project no. V/230421/01/PS, PIENTER study

rivm

Abstract

PIENTER 2-project: second research project on the protection against infectious diseases offered by the national immunization programme in the Netherlands

In 2006 and 2007 the RIVM carried out the second PIENTER-study by order of the Ministry of Health, Welfare and Sports (VWS). PIENTER is a Dutch acronym for: Peiling Immunisatie Effect Nederland Ter Evaluatie van het Rijksvaccinatieprogramma. The aim of this study is to gain insight into how well the Dutch population is protected against vaccine-preventable diseases through the national immunization programme (NIP). The results will enable further improvements of the immunization programme to be made as well as identifying those population groups who are less protected.

This report describes the design of the study and provides background information on the participants. The people who took part were between 0-79 years old and lived scattered throughout the Netherlands. They completed a questionnaire on their personal details, their state of health and any diseases they have had in the past. In addition, blood samples were taken from the participants to determine the antibody levels of the diseases covered by the programme. Finally, they were asked which vaccinations they have already had. An extra group of non-Western migrants and a group of orthodox-reformed individuals, who refuse vaccination on religious grounds, were also invited to participate. The study provides insight into disease protection levels that were obtained either through vaccination or because a person has had the disease itself. It also provides information on the spread of infectious diseases.

In total, 24,147 people were invited to take part in the study. Thirty-three percent of those asked, agreed to participate. Currently, blood samples are available from 7,904 people that will be tested for the presence of antibodies against all of the infectious diseases covered by the programme as well as other infectious diseases. The blood results and questionnaire information will be compared with the results of the first PIENTER-study, which was performed ten years ago. The data will be reported separately.

Key words:
national immunization programme, PIENTER, population-based study, determining antibody levels, immunosurveillance, vaccine-preventable diseases

rivm

Rapport in het kort

PIENTER 2-project: tweede onderzoek naar de bescherming tegen infectieziekten waartegen in het Rijksvaccinatieprogramma wordt ingeënt

In 2006 en 2007 heeft het RIVM in opdracht van het ministerie van VWS het tweede PIENTER-project uitgevoerd. Dit staat voor Peiling Immunisatie Effect Nederland ter Evaluatie van het Rijksvaccinatieprogramma. Het doel is te onderzoeken of Nederland goed beschermd is tegen infectieziekten waartegen in het Rijksvaccinatieprogramma (RVP) wordt ingeënt. De resultaten van het onderzoek kunnen bijdragen aan eventuele verbeteringen van het RVP en zullen groepen personen met minder goede bescherming tegen infectieziekten aan het licht brengen.

Dit rapport beschrijft de opzet van dit onderzoek en geeft achtergrondinformatie over de deelnemers. De deelnemers waren tussen de 0 en 79 jaar en woonden verspreid door heel Nederland. Zij hebben een vragenlijst ingevuld over hun persoonlijke gegevens, gezondheid en doorgemaakte ziekten. Daarnaast is er bloed afgenomen om te kijken hoeveel antistoffen de deelnemers hebben tegen de ziekten uit het RVP. Tot slot is aan hen gevraagd welke inentingen ze hebben gehad. Er is een extra groep mensen uitgenodigd uit de groep niet-westerse migranten en uit de groep orthodox-gereformeerden die vaccinatie afwijzen. Dit onderzoek verschaft inzicht in de mate van afweer tegen ziekten die mensen verkrijgen nadat ze zijn gevaccineerd of de ziekte hebben doorgemaakt, en in het voorkomen van infectieziekten.

In totaal zijn er 24.147 personen uitgenodigd en daarvan was 33 procent bereid om mee te doen aan het onderzoek. Van 7904 personen is bloed aanwezig dat in het laboratorium zal worden onderzocht op de aanwezigheid van antistoffen tegen alle infectieziekten van het RVP en andere infectieziekten. De resultaten van het bloedonderzoek en de vragenlijst gegevens zullen worden vergeleken met die van het eerste PIENTER-onderzoek, dat tien jaar eerder is uitgevoerd, en zullen apart worden gerapporteerd.

Trefwoorden:
Rijksvaccinatieprogramma, PIENTER, populatieonderzoek, antistofbepalingen, immuunsurveillance, infectieziekten waartegen wordt ingeënt

Acknowledgement

The realization of the PIENTER 2-project could only be fulfilled through the elaborate co-operation of many parties: the Public Health Services who mediated between the municipalities and participants on the one hand and the RIVM on the other hand and facilitated the data-collection, the municipalities who drew the sample from the population register, the printing office of the RIVM who managed to get the mailing out in time every week, the PIENTER 2-project team (Nienke Jones, Nelleke Bakker, Carola Troll, Cindy Dierikx, Michiel van de Wetering), Nel Rutters, Carola Wouters-van Tellingen, Francoise van Heiningen and other colleagues of the RIVM involved in the project for their contribution to the performance of the P2 project. Last but not least we thank the participants without whom this project never could have been realized.

List of abbreviations

CBS	Statistics Netherlands / Centraal Bureau voor de Statistiek
CIb	Centre for Infectious Disease Control
COPD	Chronic Obstructive Pulmonary Disease
EMI	Expertise Centre for Methodology and Information Services
EPI	Epidemiology and Surveillance unit
GCP	General clinical practice
GMT	Geometric mean titre
GP	General Practitioner
LCR	National co-ordination of vaccinations for travelers / Landelijke coördinatie reizigersvaccinatie
LIS	Laboratory for Infectious Diseases and Perinatal Screening
LOI	National consultation about infectious diseases / Landelijk overleg infectieziekten
LVCS	Low immunization coverage sample
NIP	National Immunization Program / Rijksvaccinatieprogramma (RVP)
NMI	Net monthly income
NS	Nationwide sample
ORI	Orthodox reformed individual
PC	Protestant Christian
PEA	Local authority for registration of vaccinations
PHS	Public Health Service
PIENTER	Dutch acronym for: Peiling Immunisatie Effect Nederland Ter Evaluatie van het Rijksvaccinatieprogramma
P1	PIENTER 1-study
P2	PIENTER 2-study
PR	Public relations
RB	Reformed Bond
RC	Reformed Congregation
RIVM	National Institute for Public Health and the Environment / Rijksinstituut voor Volksgezondheid en Milieu
SAS	Statistical package
SOP	Standard Operating Procedure
STD	Sexually transmitted disease

rivm

Contents

rivm

List of tables and figures

Tables

Figures

rivm

Summary

Background and objectives: In 2006/7 a second serum bank was set-up in the Netherlands within the PIENTER 2-project (P2). This second serum bank was completed about ten years after the first nationwide serum bank. The aim of this project is primarily to provide insight into age-specific levels of antibodies against the vaccine preventable infectious diseases in the National Immunization Program (NIP) in the general Dutch population and also in two more specific populations namely, the low immunization coverage (LVC) municipalities and non-Western migrants. In addition, the aim is to estimate the incidence of infectious diseases, particularly those with a frequent sub clinical course. This report describes the design of the study and the back-ground information from the questionnaires from the participants of the P2-project.
Three sub studies were integrated in the P2-project: 1. to gain insight into the spread of air-borne infections by estimating the number of social contacts between individuals of various age groups; 2. to gain insight into genetic differences between vaccine responders; and 3. to investigate a possible association of vaccination with allergies.
Methods: A two-stage cluster sampling technique was used to draw a nationwide sample. In each of five geographic regions of the Netherlands, eight municipalities were randomly selected proportionally to their size. The over sampling of non-Western migrants took place in 12 of these 40 municipalities. In addition, eight municipalities were selected where many persons live who refuse vaccination on religious grounds. Within each municipality, an age-stratified sample of 372-1,971 individuals (0-79 yrs) was drawn from the population register. In total 24,291 persons were invited to participate in the study. Invitees were asked to complete a questionnaire and to donate a blood sample. For the genetic study an extra blood sample was taken (or a buccal swab in children less than five years old). For the estimation of social contacts between individuals of various age groups a diary was handed out to about 1000 participants of the P2 study. Invitees who did not want to participate were invited to fill in a non-response questionnaire.
Results and conclusions: The response was 34% (5,860 out of 11,363) in the nationwide sample, 26% (668 out of 2,558) in the extra sample of migrants and 36% (1,561 out of 4,366) in the LVC sample. In total a number of 7,904 serum samples are available for many sero-epidemiological studies. For 80% of the participants with a serum sample, who were eligible for the NIP, the vaccination history was confirmed. From all invitees about 50% supplied information via the questionnaires. From the other invitees information from the population registers of the municipalities is available.
Age-specific antibody levels against the different vaccine preventable diseases in the NIP, but also against other infectious diseases will be determined about which will be reported separately. The data from the questionnaires will be used for the interpretation of the antibody levels and to obtain information on incidence and risk factors related to infectious diseases.
The assessment of antibody levels in serum for the evaluation of the NIP, by means of large population-based studies like PIENTER, becomes more and more important in view of low disease incidence and smaller numbers of cases, which is due to the success of the NIP. By repeating such studies within ten year intervals we gain insight into the changes of the immunity of the population over time and in changes in infection pressure to improve the NIP further.

1 Introduction

Measuring the serological effects of vaccination and natural infection (i.e. serosurveillance) is an important tool for the evaluation of the effectiveness of the Nationwide Immunization Program (NIP). Other surveillance tools for evaluating the effectiveness and safety of the NIP are: pathogen surveillance, clinical surveillance, surveillance of adverse events of vaccines and surveillance of the vaccination coverage. The focus of this report is serosurveillance, which provides insight into the level of antibodies in the population, by identifying subpopulations at risk and by assessing the (re)-emergence of disease. Moreover, it can also give insight into the long term effects of mass vaccination such as the duration of both vaccine-induced immunity and natural immunity. Under the influence of mass vaccination, the circulation of pathogens and thereupon the force of infection will decrease. As a consequence, unless adequate vaccination coverage is achieved, the mean age of infection will increase with for some pathogens a higher risk of complications for unvaccinated individuals. Due to the decrease in the circulation of pathogens, the necessary boost in the immunity which protects the newborn through maternal antibodies may be of shorter duration.

In 1995/6 the Nationwide Institute for Public Health and the Environment (RIVM) set-up a first serum bank to evaluate the (long-term) epidemiological effects of the NIP.[1] In this study, called PIENTER 1 (P1), it was shown that the NIP induced good protection. However, for certain age groups and diseases the antibody titres were below the protective level, which is supported by the fact that several epidemics have taken place in the past ten years (pertussis (1996, 1999, 2002, 2005), measles (1999), rubella (2004) and mumps (2007)). Furthermore, since the completion of the first serum bank, many changes in the NIP have taken place such as the introduction of new (combination) vaccines and a change in the immunization scheme. These changes will also have an effect on the immune status of the Dutch population. To gain insight into the protection level of antibodies in the Dutch population, we established a second population-based immunosurveillance study. As similar data were collected ten years ago, albeit from different individuals, we are now also able to compare the results of both studies.

Since 1952 vaccinations have been offered to the Dutch population programmatically and from 1957 the NIP has been implemented. At present the NIP provides vaccinations against twelve diseases: diphtheria, tetanus, pertussis, poliomyelitis, *Haemophilus influenzae* (type B), meningococcal group C disease, measles, mumps, rubella, hepatitis B, pneumococcal disease and cervical cancer. The nationwide vaccination coverage is high and ranges between 95% and 97% depending on the different vaccine combinations.[2] However, the vaccination coverage in some municipalities is much lower, which is due to that part of the population in those municipalities refuses vaccination based on religious grounds.

From February 2006 to June 2007 the second serosurveillance study (PIENTER 2 (P2)) was carried out. A representative sample of the Dutch population, aged 0 – 79 years, was invited to participate in this cross-sectional population-based study. They were asked to complete a questionnaire and to provide a blood sample.
The main objective of this study was to determine age-specific levels of antibodies against diseases included in the NIP (and for potential candidates in NIP) for the general Dutch population and for two more specific populations namely the orthodox reformed individuals who refuse vaccination on religious grounds and non-Western migrants as their immunity might be lower compared to the general population.
Three additional studies were incorporated in this seroprevalence study, in contrast to the previous P1 study. The first additional study, which is part of the European modelling project Polymod, will

provide insight into the spread of air-borne infections by estimating the number of social contacts between individuals from various age groups by means of a diary.[3] The second additional study will try to provide insight in genetic factors involved in vaccine response and the third additional study aims to estimate the seroprevalence of food-allergies and will try to assess the suggested association of vaccination with (reported) allergies. [4]
The information from the questionnaires will be used to verify whether the study population is comparable to the general Dutch population and to obtain information on incidence and risk factors related to infectious diseases. Also data from non-participants were collected, which offered us the opportunity of correcting the seroprevalence data for possible selective non-participation.

In this report a description of the set-up of the serum bank is given and information on the participants from the questionnaires is described in detail with the aim to provide a background document, which can be used for further reference to this study and for future seroprevalence studies.

2 Methods

This is a cross-sectional population-based study performed in the Netherlands.
Data were collected from the general population and from eight low vaccination coverage (LVC) municipalities. In twelve of the municipalities in the nationwide sample (NS) a number of non-Western migrants were over sampled. Individuals aged between 0 and 79 years were invited. The age strata were 0 years, 1-4 years and thereafter intervals of five years 5-9, ..., 75-79. The study also included a non response survey. The study design is described below in detail.

2.1 Sample size calculation

2.1.1 Nationwide sample

The sample size calculation for P2 was performed by examining the precision of the results of P1. In P1, 40 clusters (municipalities) were included; in each of these clusters, 380 individuals were invited (total number of invited individuals 15,200). The number of clusters was chosen such that the half-width of the confidence interval for a seroprevalence would be 2.5%, assuming an overall seroprevalence of 50% (see Table A1.1). Table A1.1 shows the half-width decreases with an increase of the number of clusters (municipalities). Note that the half-width is less influenced by the total number of participants. An assumed seroprevalence of 50% was taken since for this value the inaccuracy is likely to be greatest. We confirmed that the half-width for the overall seroprevalences of the diseases under study in P1 was 2.5%.[5-10] Apart from determining overall seroprevalences, the total number of participants should also be sufficient to calculate age-specific seroprevalences. For this we accepted a confidence interval with a half-width of 10-15%. In several P1 studies these criteria were met.[6,11-12] Considering the above we aimed to invite in P2 as many individuals as were included in P1.

Adjusting sample size for non-participation:
Particularly in young age groups, a sufficient number of participants are needed to obtain insight into the level and rate of decay of maternal antibodies, mean age at possible natural infection and response after vaccination in the first years of life. In P1, a response of 25% was assumed for the age strata of 0 and 1-4 years and of 50% for the age strata of 5-9, 10-14 till 75-79 years.
Results of P1 showed that the response was good (above 40%) for the age strata: 0 and 1-4 years. However, the amount of blood left over for subsequent analysis of some diseases was very low for individuals aged zero years (187 of the 663 (28%) and also somewhat lower for individuals aged 1-4 years (709 of the 832 (85%) compared to the other age strata (98-100%).[12] As the two youngest age strata are very important for this research and because less serum may be present for persons of these age strata, these age strata were sampled in the same way as in P1. The reasons for not inviting more individuals in the youngest age stratum were that with the new method for detection of antibodies (i.e. Luminex) less serum is needed for analysis. In each of the first two age strata therefore 40 individuals were sampled, while in each of the following age strata 20 individuals were sampled.

It was decided to start with the same number of clusters and the same number of individuals per cluster as in P1. The number of participants needed was 6,800 (=10 persons*17 age strata*40 municipalities). This meant that in total 15,200 persons (25% response for the age strata 0 and 1-4 years and 50% response for the age strata 5-9 till 75-79 years) had to be invited in the NS of P2. However, after systematically checking the response rate during data collection it turned out that the response rate in

certain age-groups was lower than expected. It was therefore decided by the project team members to enhance the number of invited individuals of certain age groups several times during the data collection (see Table A1.2). The number of invited individuals per municipality varied between 380 – 500 individuals. In total 17,341 persons were invited in the NS. The exact number of persons invited in each municipality is shown in Table A1.3.

2.1.2 Non-Western migrants

An additional sample was taken of non-Western migrants from 12 municipalities in the NS as the number of non-Western migrants in the NS would be too small to determine the seroprevalence in this group with sufficient precision. We distinguished three main groups of migrants, based on the most common countries of birth of migrants in the Netherlands and on similar conditions for infectious diseases and geographic position: 1. Morocco and Turkey, 2. Suriname, Aruba and Netherlands Antilles and 3. Other non-Western countries. Furthermore three age strata (0-9 years, 10-49 years and 50-79 years) were defined, with only for the youngest age stratum a distinction between first and second generation migrants. This resulted into 12 migrant groups (see Table 2.1).

We aimed to estimate seroprevalences for each migrant group separately. Furthermore we aimed to compare non-Western migrants in urbanization degree 1 with non-Western migrants in urbanization degrees 2-5 (in this comparison migrant groups 1-3 were combined).

The seroprevalence in young (<10 years), first generation migrants will be used to assess the effectiveness of current catch-up program for migrants (up to 12 yrs). The seroprevalence in young (<10 years), second generation migrants will be used to assess the effectiveness of the current NIP for this groups. For the older age groups no distinction was made between first and second generation.

To calculate an expected seroprevalence of 50% with a precision of 10% (one-way test) and an alpha error of 5%, 68 individuals per migrant group were needed to be included.[13] In total 68*12 = 816 individuals were needed to be included in the migrant sample.

First it was estimated how many individuals in each migrant group were expected to be included in the NS. Subsequently, an additional sample was drawn from 12 municipalities of the NS, such that the numbers of individuals as listed in Table A2.1 were invited. See section 2.2. for the details about the sampling method. Also for the migrant groups we had to increase the number of invited people during the study to ensure that we would include the minimal number of participants needed. In some of the municipalities almost all migrants living in that municipality were invited. In Table A1.3 the total number of invited migrants in each municipality is given and in Table A2.2 the number of invited individuals per migrant group is given. In total 2,574 migrants were invited.

Table 2.1 Migrant groups distinguished by country of birth, age and generation

Country of birth	Generation	Age group	Group no.
Turkey or Morocco	1st	0 – 9	1
	2nd	0 – 9	4
	1st and 2nd	10 – 49	7
	1st and 2nd	50 – 79	10
Suriname or Dutch Antilles or Aruba	1st	0 – 9	2
	2nd	0 – 9	5
	1st and 2nd	10 – 49	8
	1st and 2nd	50 – 79	11
Other non-Western countries of birth	1st	0 – 9	3
	2nd	0 – 9	6
	1st and 2nd	10 – 49	9
	1st and 2nd	50 – 79	12

2.1.3 Low immunization coverage municipalities

Individuals were selected from eight additional municipalities with low vaccination coverage to assess the seroprevalence in three age groups (0-9, 10-49 and 50-79 years of age) in socio-geographically clustered orthodox reformed groups who refuse vaccination for religious reasons. The potential for epidemics of NIP diseases is high in this group as susceptibility levels increase as a result of low circulation of pathogens and absence of vaccine induced immunity. As a result of the socio-geographical clustering, transmission of infectious pathogens can easily occur. Several outbreaks have occurred in these communities namely polio type 3 in 1992/1993, measles in 1999/2000, rubella in 2004 and mumps in 2007/2008.[14-17]
Non-vaccinated orthodox reformed individuals (ORIs) are of particular interest for the evaluation of the NIP. Their number would be too small to determine the seroprevalence in this group and therefore extra individuals are invited within the LVC sample (LVCS). To estimate an expected seroprevalence of 50% with a precision of 10% (one-way test) and an alpha error of 5%, 68 individuals will need to be included in each group.[13] The number of individuals to be invited per LVC municipality was based on the response rates for ORIs in P1 and were listed in Tables A3.1 and A3.2. The same enhancement of the number of invited individuals as in the NS was made in the LVCS. An additional enhancement of invited individuals in the last two municipalities (Neder-Betuwe and Korendijk) was needed to have a sufficient number of non-vaccinated ORIs. The number of invited individuals per municipality varied between 380 – 952 individuals. In Table A1.3 the exact number of invited individuals in each municipality is given. In total 4,376 persons were invited in the LVCS.

2.2 Sampling

2.2.1 Nationwide sample

A two-stage cluster sampling technique was used to draw the NS. To ensure that all geographic regions were presented, the Netherlands was first divided into five geographical regions of approximately equal population size (see Table 2.2). Within each of the five geographic regions, eight municipalities were sampled with a probability proportional to their size. Within each of these 40 municipalities an age-stratified sample of individuals was randomly drawn from the population register of the municipality. The study design was similar to the study design of the first serum bank collection in 1995/6 to ensure

maximal comparability between the two studies.[1] Figure 2.1 shows the selected municipalities in the study.

Table 2.2 The Netherlands were divided into five geographic regions: provinces and the number of inhabitants per region

Region	Provinces	No. of inhabitants (x 1,000 1st of January 2005)
North-East	Groningen, Friesland, Drenthe, Overijssel	2,810.9
Central	Utrecht and Gelderland	3,143.3
North-West	Noord-Holland and Flevoland	2,965.0
South-West	Zuid-Holland and Zeeland	3,838.4
South-East	Brabant and Limburg	3,548.1

The population register contained all individuals with a home or postal address. Homeless without a postal address and illegal individuals were not included in the register. The first eight municipalities from each region on the list were asked to participate. When a municipality or Public Health Service (PHS) refused or dropped out, the next municipality or PHS on the list was approached.

2.2.2 Migrants

New in the P2 study was that we aimed to determine the seroprevalence in non-Western migrants. This group has become relatively large in the Netherlands (11% of the total population in 2007, in 1996 this was 8%) and not much is known about the level of antibodies against vaccine preventable diseases in this group. Van der Wal et al. [18] showed that in 2003 the vaccination coverage for DTP-IPV for 5-12 year old first generation migrants born in Surinam, Morocco or Turkey, and living in Amsterdam, varied between 82 and 86%, which was lower than the average vaccination rate of 93%. In addition, Pauw-Plomp et al. [19] showed that in 1984 the vaccination coverage for DTP-IPV for 1-14 year olds whose mothers were born in Turkey or Morocco was respectively 41% and 43%. However, in 2003 the vaccination rates were similar for 5-12 year old children with indigenous Dutch parents and children (secondary generation) of migrants.[18] Although the data from these studies might not apply for the current situation, the level of protection against infectious diseases in the non-Western migrants may still be lower in certain age-groups than in the general Dutch population. Good surveillance of the level of antibodies against infectious diseases in these migrant groups is also relevant because certain infectious diseases are still endemic in these non-Western countries, different immunization schemes are used and frequent travelling to these countries takes place.
For the over sampling of migrants we used the distribution of migrants per urbanization degree in the Netherlands to select the municipalities in which the over sampling over migrants took place as the municipalities in the NS were not chosen based on the number of migrants but on the number of the total inhabitants in a municipality. Initially one or two municipalities in the NS were selected so that each of the five urbanization degrees was represented. As the response of migrants after the first three municipalities with an over sampling of migrants, was lower than expected we decided to invite extra individuals within the selected municipalities and also to expand the number of municipalities to invite individuals from. To decide how many individuals to invite and from which municipalities, we took into account: 1) the percentage of migrants living in the Netherlands in urbanization degree 1 versus urbanization degrees 2-5 (50%:50%); and 2) the number of individuals necessary for a reliable seroprevalence in each of the twelve migrant groups (see Table A2.2). Most of the sampling had to be done in the urbanization degrees 2-5 in order to achieve the above 50%:50%. This meant that most individuals were sampled from municipalities from urbanization degree 2 (and not from 3-5) as most migrants lived in those municipalities.
The sampling of the individuals from the population registers within each municipality was random similar to the NS. Only in Amsterdam individuals were not drawn from the whole population register but from four neighbourhoods (groups of postal codes) with the highest percentage of non-Western

migrants. In this way we expected a higher response rate than when a sample was drawn from the whole population register.

2.2.3 Low vaccination coverage sample

The municipalities in the LVCS were chosen based on a consistently low vaccination coverage (MMR and DTP-IPV; birth cohorts 1997-2001) and geographical distribution of LVC municipalities in the Netherlands (see also Figure A3.1). The vaccination coverage in these municipalities for three DTP-IPV immunizations for birth cohort 2001 varied between 68% and 83% in 2004. Subsequently within each municipality the village or town with the lowest vaccination coverage (primary series and full immunization of DTP-IPV for birth cohorts 1993-2002) was chosen from which the individuals were invited. These data were based on information from the local authorities for registration of vaccinations (PEAs). Only if insufficient individuals of a certain age (in most cases 0-1 year olds) lived in that village or town, individuals were invited from a second village or town in that particular municipality. This was the case for municipalities Tholen and Korendijk. The sampling of the individuals from the population registers of each municipality was done at random, which was similar to the NS.

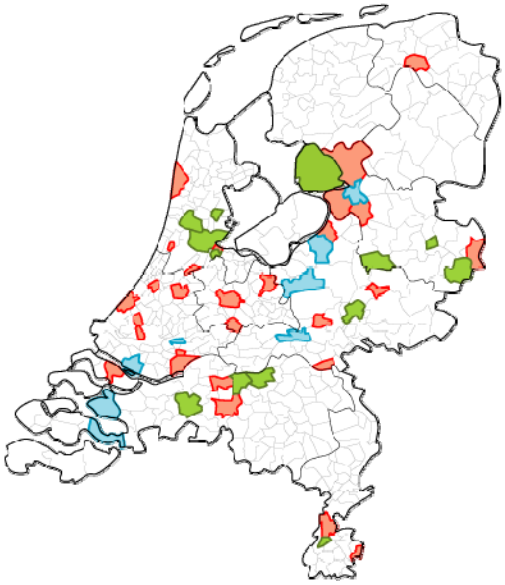

Figure 2.1 Selected municipalities in the study. Red and green municipalities are included in the nationwide sample, in the green municipalities also over sampling of migrants took place. The blue municipalities are included in the LVC sample.

2.2.4 Sampling for additional objectives

The first additional study, which is part of the European modelling project Polymod, will provide insight into the spread of air-borne infections by estimating the number of social contacts between individuals by means of a diary.[3] About 1000 participants in the NS were randomly asked to complete the diary. This one-day diary contained detailed questions on the characteristics of their social contacts (age, gender, location, duration, frequency and occurrence of physical contact).
The second sub study will provide insight in genetic factors involved in vaccine response. For this purpose an extra blood sample or buccal swab for children less than five years old was taken for DNA isolation.

The third sub study aims to estimate the seroprevalence of food allergies and to investigate the suggested association of vaccination with (reported) allergies.[4] A special question on having disorders (e.g. COPD/asthma, eczema, hay fever, food allergy (and which specific food allergy) and other allergies) and whether these disorders were diagnosed by the GP was included in the questionnaire.

2.3 Co-operation with Public Health Services

The Public Health Services (PHSs) were essential partners in this project as they are a well known organization for the general population in their region. The data collection was carried out per PHS and covered a period of 17 months (February 2006 – June 2007). The PHSs were visited in a random order so that regions were mixed. All municipalities belonging to the same PHS were visited after each other. In November 2006 all PHSs received a letter kindly requesting their participation in the P2 project. All PHSs were willing to participate and a co-operation contract was sent. Thereafter additional information was sent about the global planning of the blood clinics and the number of individuals to be invited in each municipality. Each PHS was contacted by telephone about nine months before the data collection in that particular municipality (or region) started. In this telephone call the following subjects were covered: background of the P2 project, activities expected of the PHS (see Appendix 4 for details about these activities), possible locations in the selected municipality (or village or city) for the clinics, contact person of the municipality, time schedule and local PR activities. After the telephone call a binder containing all the study materials of the P2 project was sent. See Appendix 5 for these study materials.

2.4 Co-operation with municipalities

After receiving the name of the contact person of a municipality from the PHS and at least 6 months before the first sampling started in the municipality a telephone call was made. In this telephone call the following subjects were covered: background P2 project, participation of municipality, time schedule of drawing sample from population register, type of sample(s) drawn (NS and/or over sampling of migrants, LVCS), and if assistance was required with drawing of sample. After the telephone call a letter explaining in detail the sample procedure and a letter with some background information on the P2 project was sent. A few weeks later the municipality was called again asking if they were willing to participate. The person from the municipality and the RIVM had direct contact on the sampling survey without mediation of the PHS. In case the RIVM was drawing the sample, the data from the municipality (e.g. PC-dump of population register) had to include an identification number (A-number) and date of birth of the participants. In case migrants had to be over sampled also country of birth of the participant and country of birth of mother and father had to be known in order to be able to draw the sample.
The sample had to be drawn approximately one month before the data collection in the municipality. After receiving the sample from the municipality, the RIVM (department EMI) was completing the sample, which took about one week, by collecting the following data of the participant: sex, date of birth, initials, use of maiden name or husband family name, whole name, family name, prefix, maiden name, prefix, street, house number, postal code (four numbers and two letters), town, country of birth, country of birth father, country of birth mother.
The sample was completed approximately two weeks before the data collection in the municipality but not much sooner because of possible changes in the accuracy of the sample through deaths or relocation of the invitees.

2.5 Approach of the participants

Participants received two weeks prior to the prescheduled appointment time for blood donation an invitation package by mail including the invitation letter, a brochure containing information on the study, a questionnaire and an informed consent form. Three versions of invitation letters were available: for persons of 0-14 years, 15-18 years and 19-79 years. A full translation of the letter in Turkish was available. This translated letter together with the Dutch letter was sent to individuals born in Turkey and to Dutch children aged 0-14 years old with one of their parents born in Turkey. Part of the invitation letter was also translated in Arabian, French and English (added into one letter) and was sent together with the Dutch letter to all individuals born in a foreign country (except Turkey) and to Dutch children aged 0-14 years old with one of their parents born in a foreign country (except Turkey). On the invitation letter the initials, family name, address, town of the invited person were given. Initially no date of birth was mentioned however after some confusion with participants with identical initials and same address, the date of birth was included (best is in the letter and not in the address window). The letter contained a special P2 logo, a logo of 'GGD Nederland', which is the umbrella organization of all PHSs, and a logo of the RIVM. The letter was signed by the director of Centre for infectious disease control (CIb) at the RIVM. An unique individual number (U number) was assigned to every invited person, which was printed on the invitation letter. Also the date, time of the appointment and the address of the location of the clinic was printed on the invitation letter.
In some municipalities with a large number of (invited) migrants, the mailing package also contained a flyer to clarify the contents of the letter by visualization. On this flyer three photographs were shown of: 1) taking a blood sample; 2) filling in the questionnaire; and
3) receiving the gift voucher. Also present on the flyer were the dates, time and addresses of the clinics on one side and a street map and photographs of the locations of the clinics on the other side.

The invited persons were asked to complete the questionnaire at home and to visit the special clinic to donate a blood sample. In addition, for the DNA research, individuals older than 5 years were asked to give one more extra blood sample and children less than 5 years were asked for a buccal swab. About 1000 participants of the NS were asked to fill in a diary (see Appendix 6). Participants had also been asked to bring their immunization certificates to the clinic.

With help of a planning tool in the P2 database (see Tables A7.1 and A7.2), individual appointments were proposed at times when it would suit individuals best; school-going children were invited after school hours, individuals probably having jobs were invited in the late afternoon or in the evening and older individuals (>65 years) and the youngest children (0-4 years old) had appointments in the early afternoon. Turkish and Moroccan individuals were invited at days when translators (own language and culture) were appointed. These measures were taken to enhance the response in these groups. However, after several municipalities we noticed that these efforts were not needed.

One week before the clinics in a municipality, all invited persons were approached by phone by a call centre to ask if they were willing to participate, to answer their questions, and to remind them of the study. When individuals refused to participate, they were asked to complete the questionnaire and if they also refused this, to answer some questions for the non-response survey (by telephone or by mail). When individuals were unable to come at the proposed time of appointment, they were offered an alternative: the open house clinic in the evening, the extra clinic the week after the regular hours or during the regular hours. Individuals who could not be reached by phone after three attempts were sent a written reminder card. This card was sent four of five days before the start of the first clinic in a municipality. For more information on the P2 project individuals could call the telephone number of the P2 project provided in the invitation letter and in the brochure. The telephone was staffed by a member of the P2 team at working days from 9.00 a.m. till 16.00 p.m. and half way the project from 9.00 a.m. till 12.00 p.m. If the telephone was not staffed by a member of the P2 team then the voice mail was on.

Persons, who had not shown up at the clinic and had stated that they intended to come, were approached again to invite them to the extra clinic one week later, which was mostly on Tuesday. Also individuals who could not be reached by phone before the regular clinics and who had not responded were approached again. Persons who refused to come to the extra clinic were asked to fill in the questionnaire and in a second instance to fill in the non-response questionnaire (by phone or mail). Individuals, who could not be reached by phone after three attempts, were sent a written reminder letter and the short non-response questionnaire.

The approach of all invited persons summarized:

Days before/after clinic

- Sending mailing package -14 days
- Reminder by phone (or mail) -(5-7) days
- Start of clinics 0 days
- Non-response by phone (or mail) + 1 day
- Start of extra clinic +8/6 days

2.6 Clinic

The clinics were planned weekly, with the exceptions of holidays, in the period of February 2006 until June 2007. Appointments were made in general on Mondays and Wednesdays from 13.00 a.m. to 7.00 p.m. but individuals were allowed to come in until 7.30 p.m. at the open house clinic or in second instance at their own preferred time. One day in the following week an extra clinic was planned from 6.00 p.m. to 7.00 p.m. (variable time). Half way the project all clinics in a municipality were mentioned in the invitation letter so that if the appointment was not convenient, the participants could come at their own preferred time. The duration of the clinic and the number of clinics were in consultation with the municipalities.
The personal data of the invitees were downloaded to laptops. At the site wireless contact with the database at the RIVM was possible when needed. All study materials were also available at the site to change to hard copy in case of computer failure.
Participants were called in order of entry of the waiting room. Firstly, several questions were asked to verify that the participant was the invited person and did meet all inclusion criteria and the participant was asked for its informed consent. Secondly, the participant was registered in the database. An unique sample number was assigned to the participant, coupled to the U number, and scanned in the database. Subsequently a sticker with this sample number was put on all materials received from the participant. Both in the database and at the questionnaire the sample number was coupled to the U number of the participant. Thereafter, questions from the participant were answered and remarks could be made. The participant could also state whether he/she was willing to participate in the additional DNA sub study. The informed consent was checked whether this option was signed for. According to the Dutch law, both parents had to sign the informed consent in case a participant was under eighteen. Furthermore all participants over the age of twelve had to sign the informed consent. A member of the P2 project team also signed the informed consent showing the investigators were committed to perform the study according to the protocol.

The questionnaire was checked on completeness and the registered sample number was attached to the questionnaire. If necessary, missing or unclear answers were clarified, except when it concerned a question on diagnosis of sexual transmittable diseases or sexual history in order not to discomfort the participant. If the participant had been unable to fill in the questionnaire him/herself (e.g. migrants with

insufficient knowledge of the Dutch language), the questionnaire was completed in co-operation with a team member.

The vaccination certificates from the participants were photocopied and a personal sample number was attached to the copied certificate. If the participant forgot to bring the vaccination certificate(s) then he/she was asked to send a copy to the RIVM or a copy was retrieved from the PEAs.

In each of the 40 municipalities in the NS about 30 diaries were handed out during the regular clinics on Monday and Wednesday. There were three versions of the diary for: children (0-8 years), teenagers (9-17 years) and adults (18 years and older). Six diaries were handed out in the first two age groups and 18 diaries were handed out in the adult group. The participant was asked to record the number of conversations he/she had during a certain day of the week. If the participant refused to participate, the next participant in the same age group was asked. The diary was also marked with the personal sample number.

After the intake, three tubes of 10 ml blood volume (for children between 5 and 12 years old 2-3 tubes of 10 ml blood volume and for children younger than 5 years old, 2 (maximum 4) tubes of 5 ml blood volume) were taken from each participant and marked with the personal sample numbers. If participants had agreed to participate in the additional DNA research then for children younger than 5 years a buccal swab was taken and for individuals older than 5 years an extra EDTA tube of 2.5 ml blood volume was taken, again marked with the personal sample number.

Participants were offered a gift voucher of €10 as a token of gratitude and children also received a small present. The participant signed for receipt (hard copy). At each clinic all obtained materials were registered in the computer.

The team consisted of three external medical workers and one research assistant of the RIVM. The main task of the external medical workers was drawing blood but often one of them had an administrative task and was helping the research assistant. There were two teams of three external medical workers who alternated each other every week except for the extra clinic the following week so that in general the same team was cooperating in one municipality. Depending on the number of invitees extra external personnel or personnel from the RIVM could stand in.

The materials present at the clinics are described in Appendix 8.

2.7 Location clinics

The location for the blood sampling was arranged by the RIVM in cooperation with the PHS. This could be at the PHS itself if located in the selected municipality or in any other appropriate building in that municipality. The criteria for the location are given in Appendix 9.
In general the P2 clinics were held at well known locations. For larger cities a number of clinics were planned at different locations spread throughout the cities and as close as possible to most invitees.

2.8 Questionnaires

There were two versions of the questionnaire, one for 0-14 year-olds (A) and one for 15-79 year-olds (B) with relevant questions for these age groups (see Appendix 10 and 11). As a consequence no sexual related information is gathered among 13 and 14 year-olds despite the fact that they might be already

sexual active. The questionnaire was composed to gather information on personal details, vaccinations, state of health, any diseases they have had in the past, activities possibly related to infectious diseases, sexual history and sexual related diseases (only for 15-79 year-olds) and opinion on vaccination related topics (only for 0-14 year-olds). The questionnaire was supplemented with questions requested by other RIVM researchers. The experience from the P1 study as well as the information from the pilot for the P2 questionnaire was taken into account. There were no versions of the questionnaires available in other languages.

2.9 Non-response questionnaires

Non-response questionnaires were also composed in the same two versions as the questionnaire and covered the reason for non participation, date of birth, gender, marital status (for individuals of 15 years and older), country of birth and in case the invitee was not born in the Netherlands since when inhabitant in the Netherlands, level of education (level of education of mother for children below 15 years), religion, participation in NIP, state of health and what influences their opinion on vaccination.

2.10 Vaccination certificates

The information on the certificates is important for interpreting the results of the antibodies measured in the sera. The vaccination data are also used to verify some answers in the questionnaire. A copy of the type, date and number of vaccinations received was retrieved from the PEAs for those participants who could not hand over their vaccination data. Vaccination certificates that could be retrieved were for Amsterdam for participants born in or after 1963, for the province Gelderland (prepas) for participants from birth cohort 1968 and for the other PEAs for participants from birth cohort 1970-1974.

2.11 Serum isolation and storage

The blood samples collected at the clinics were kept at room temperature. At the end of the clinics all blood and DNA samples were transported to the RIVM and stored in a refrigerator (4 °C) overnight. All materials were registered by scanning the sample number in the central P2 database.
The DNA tubes and buccal swabs were stored in a freezer at -20 °C until further processing. The tubes with blood were centrifuged for 10 minutes at 2500 rpm, 15 °C in the Hettich Rotixa/p-centrifuge. The serum was divided into portions of 5 ml serum in a bio-safety cabinet thereby keeping the samples sterile and was stored at -80 oC. Barcodes were checked throughout the aliquot procedure. After the collection of samples was finished, one tube of serum per participant was thawed and aliquoted with a robot (Tecan 150) into 10 separate Micronic blocks with different volumes and stored at -80 °C until analysis. In case the volume was lower than 5 ml not all Micronic blocks could be filled. All available volumes were recorded into the P2 database. If more than 5 ml serum was available then the second (or third) tube remained stored for future use at -80 °C.

2.12 Complaint procedure

In the information brochure (and in the invitation letter) a telephone number of the RIVM P2 project team was given. If necessary the participant could also approach the independent GP, who was not involved in the P2 project.
Complaints expressed at the clinic to the research assistant of the RIVM were passed through to the project manager. Complaints were registered at a special form and were tried to be solved at the clinic. If the complaint could not be solved at location then the project manager took further actions if necessary. The complaint procedure of the RIVM was applicable.

2.13 Public relations

The communication department of the RIVM advised the project team not to seek publicity in the national media at the start of the project in February 2006. Only a relatively small number of individuals would be invited, therefore it was thought that the effect of national media would be minor. Two weeks before the onset of the study in a municipality, the PHS informed GPs and the local health services in that particular municipality by a standard letter for the mediators. In addition, posters in various languages were sent to the PHS by the RIVM with an accompanied letter to distribute the posters in the municipality. Also, a standard press release was available for the local press or radio. In various municipalities the P2 project was mentioned or P2 project members were interviewed in the newspaper, at the radio and/or regional television. In January 2007 the project manager was interviewed for the national television (NOS).

2.14 Ethical issues and privacy

The study proposal was submitted to the Medical Ethical Testing Committee of the foundation of therapeutic evaluation of medicines (METC-STEG) in Almere and was approved (11th of October 2005) (clinical trial number: ISRCTN 20164309).
The P2 database was only accessible for the P2 team members. The samples drawn from the population registers and other documents containing participant data (call centre and printing office at RIVM) were saved at the server, which was only accessible for the members of the P2 team. Personal data received by email or by CD were destroyed after the data were saved at the server. The preparations for the mailing took place by a small team at the printing office at the RIVM. The telephone calls were made at the call centre and the files containing personal data were deleted after use.
All personal data had to be anonymous six months after the last clinic in a municipality. However, in some municipalities this period had to be extended because some municipalities were re-visited or information about the participants was needed to request vaccination certificates from the PEAs. The informed consents have been kept in a lockable fire-resistant safe during data collection and were thereafter archived within the RIVM for the period of minimal 15 years.

2.15 Data-entry

Questionnaires were entered via the website (https://webcollect.rivm.nl/PienterProject) in the data-entry database by an employee of an external company. All data were checked (100% control) by a second employee of the same company.
In general, the questionnaire was entered via the sample number and it was checked whether the

U number at the backside of the questionnaire was the same as was displayed in the data-entry database. If a questionnaire did not contain a sample number the questionnaire was entered via the U number.
Answers at supplement question(s) were entered in the database also in case the main question was not answered. After having entered a certain answer at a question in the database, the program turned automatically to the next question. Intermediate question(s) were therefore not entered in the database. The number zero was only entered if it was relevant like for example with age. If two answers were given but only one answer was allowed to, then the upper or first answer was taken, except for education where the highest education was taken. In case the years of birth of housemates were given, the age was calculated by subtracting the year of filling in the questionnaire from the year of birth. Regarding open questions, the answers were entered into the database as concise as possible.

The vaccination certificates were entered in the P2 database by several P2 team members and all vaccinations were checked once by the same P2 team members. All vaccinations given were recorded in de database by month and year. In the Statistical Package SAS (9.1.3 for Windows) the day of the vaccination date was automatically set at 15. When only the year of the vaccination date was available the month was set at December.

2.16 Data validation

A comparison of the variables date of birth and gender provided in the questionnaires and in the file of the population registers was done to select possible non-invited persons who did fill in the questionnaire and possibly donated blood (e.g. instead of a family member). When a discrepancy was found between the variables then the date of birth in the population register was considered the right one (the same was true for gender). Obtained DNA samples were removed if no consent was given at the intake form. The non-response questionnaires were removed if an invited person also had filled in the long questionnaire and if the person participated in the study. In case a person did not participate, the non-response questionnaire was kept for the extra information why the person did not want to take part in the study. In the latter case the questionnaire was leading.
Answers to questions that were not plausible (e.g. a man who is pregnant) or inconsistent (answering 14b but not 14a), wrong referenced answers (filling in a question when one should have skipped it on the basis of the answer on the previous question), or ‘missed’ answers (e.g. filling in eating daily raw meat but not have filled in eating raw meat at all) were checked in the questionnaire and corrected if possible. All adjustments were logged and signed according to GCP.

2.17 Data-analysis

Data will be analyzed in SAS. Procedure Surveyfreq will be used for calculating seroprevalences and procedure Surveymeans will be used for calculating geometric mean titres (GMTs).

2.17.1 Nationwide sample and migrants

Overall and age-specific seroprevalences and geometric mean titres will be determined for the general Dutch population for various diseases. The migrants who participated in the over sampling will be included in the analysis of the NS to increase the power, but their will be adjustment for their over representation. In case the number of participants is large enough, the seroprevalence will also be calculated by age, especially for the youngest age-strata. GMTs will be calculated taking both the positive and negative samples into account. The seroprevalence and GMT will also be determined for

each migrant group and for migrant groups in urbanization degree 1 versus migrant groups in urbanization degrees 2-5.
For the analysis of seroprevalences, GMTs and questionnaire data, the data will be weighted by age, gender, ethnicity and urbanization degree to match the true population distribution in the Dutch population at 1st of January 2007. The variables age, ethnicity and urbanization degree were re-categorized to have weight factors between 0.25 and 4. Urbanization degree was now divided into two classes namely urbanization degree 1 and urbanization degrees 2 to 5. New age groups were made for the different countries of birth. For the Dutch inhabitants the following five age groups were defined: 0-9, 10-19, 20-39, 40-59 and 60-79 years. For the other Western migrants two age-groups were defined: 0-49 and 50-79 years. For each of the three non-Western migrant groups (Morocco and Turkey, Suriname and Aruba and Netherlands Antilles, other non-Western countries) the following three age groups were distinguished: 0-4, 5-49 and 50-79 years. No distinction could be made between first and second generation individuals due to too low numbers. We also adjusted for the two-stage cluster sampling by taking into account the strata (regions) and clusters (municipalities).

2.17.2 Low vaccination coverage sample

Overall and age-specific seroprevalences and GMTs will also be determined for the LVCS and for the ORIs who refuse vaccination based on religious grounds. To be able to compare the seroprevalences, GMTs and questionnaire data in the LVCS with those in the NS, the data will be weighted by age and gender according to the Dutch population (1st of January 2007). To have weight factors between 0.25 and 4, the variable age had to be re-categorized into fifteen instead of seventeen age strata by combining the age strata 0 and 1-4 years and the age strata 40-44 and 45-49 years. We also adjusted for the one stage cluster sampling by taking into account the clusters (municipalities).

2.18 Classifications of net monthly income, religion and education

In this study persons with a net monthly income (NMI) per household less than € 1,150, between € 1,151 and € 3,050, or more than € 3,050 were classified as persons with respectively a low, middle and a high NMI, according to Statistics Netherlands (CBS).
Furthermore ORIs are defined in this study as persons with one of the following specific Protestant Christian (PC) beliefs: Reformed bond within PKN, Reaffirmed reformed church, Reformed congregations, Reformed congregations in the Netherlands or Old reformed congregations. Within the group ORIs we distinguished Reformed Bond (RB) (Reformed bond within PKN and Reaffirmed reformed church) and Reformed Congregation (RC) (Reformed congregations, Reformed congregations in the Netherlands or Old reformed congregations).
Educational degree was classified as low (no education or primary education), middle (junior technical school, lower general or intermediate vocational secondary education) or high (higher vocational or higher general secondary education, pre-university or university education), according to CBS.

3 Results

In this report the weighted distribution of answer categories is shown for participants (i.e. persons with blood and a questionnaire) in the P2-project in the NS (including the over sampling of migrants) and in the LVCS.

3.1 Response in the P2-project

All municipalities, except one, and their PHS were willing to participate in the P2 project. Only the municipality 'Mook and Middelaar' did not want to participate. Therefore the next municipality on the list in that region, Heusden, was asked (and willing) to participate.

In total 24,291 persons were invited to participate. With 107 persons no contact could be made, mostly due to relocations and a in a few cases the person had died. Furthermore 37 persons were excluded because they were mentally disabled and therefore not eligible to participate in the study (exclusion criterion). In a few cases we were not convinced that the participated person was the invited person so we had to remove these materials. The following materials were removed:
6 times blood and a questionnaire, 6 times only blood, 26 times a questionnaire and 18 times a non-response questionnaire. In total 24,147 persons were taken into account in the calculation of the response rate. A responder was defined as a person who had visited the clinic for blood sampling irrespective blood sampling succeeded. The overall response was 33.5% (N = 8,089). Table 3.1 shows the number of materials collected.

Table 3.1 Materials obtained and response in the PIENTER2-project

	NS	LVCS
	N (%)	**N (%)**
Total invited	19,781	4,366
Total materials present of persons who visited the clinic:		
Blood and questionnaire	6,348 (32.1%)	1,517 (34.7%)
Blood no info questionnaire	38 (0.2%)	1 (0.02%)
DNA*	6,207 (31.4%)	1,469 (33.6%)
Questionnaire (visited consult)	135 (0.7%)	43 (1.0%)
Diary*	824 (4.2%)	NA
Vaccination booklet*	4,583 (23.2%)	932 (21.3%)
Only information from population register	7 (0.04%)	
Materials obtained otherwise:		
Questionnaire	1,200 (6.1%)	354 (8.1%)
Short questionnaire	1,652 (8.4%)	450 (10.3%)
Information population register	10,401 (52.6%)	2,001 (45.8%)

*these materials should not be included in the total number of invited persons

In the NS, 6,386 persons donated a blood sample. Thirty five of those 6,386 had not filled in a questionnaire; however 4 of them did fill in a non-response questionnaire. A participant was defined as an invited person who participated in the P2 project and who gave blood and completed the original questionnaire. In the NS the number of participants was 6,348 (32%). In the LVCS the number of participants was 1,517 (35%), resulting in a total of 7,865 (33%) participants. Of the participants in the NS, 97% (n = 6,134) also gave a blood sample for DNA isolation and from 70% (n = 4,431) of the participants vaccination data were present. In the LVCS this was 96% (n = 1,462) and 59% (n = 895), respectively. In total 824 of the 1,162 (71%) diaries were completed of which 814 (99%) diaries were from participants. In Table 3.2 the number of participants in the two age groups is shown for the NS and LVCS.

Table 3.2 Number of participants per age group

	NS	LVCS
	N	N
0–14 years	1,894	506
15–79 years	4,454	1,011
0–79 years (total)	6,348	1,517

Some remarks that have to made: 1) the number of invited persons per municipality was not always exactly the number of persons imported in de database, which was due to deaths or relocations; 2) for municipalities with low inhabitant numbers (e.g. Renkum and Barneveld) there was a higher chance of inviting more than one person living at the same address, which happened several times; and 3) in the municipality Dordrecht the upper age in each age class was missing because the boundaries for the age groups were not set properly. (e.g. the age 4 was missing in the age group 1-4 years; the age 9 was missing in the age group 5-9 years et cetera). Unfortunately, there was no time to draw a new sample from the population register.

In total six complaint forms or letters were received at the RIVM. To each of the six individuals a personal letter was sent by the P2 project manager. Reasons for reporting the complaints were: blood sampling did not went well; despite a secret number the person was phoned by the call centre; an adverse event (stiff arm) after the blood sampling; and three times there was a misunderstanding about the appointment for the blood sampling (e.g. other location of the clinics, project team arrived too late due to traffic jam).

3.2 Questionnaire

This section describes whether the participant or a proxy filled in the questionnaire (Table 3.3). Furthermore, questions that had the most missing values, questions mistaken and proportion of ‘don’t know’ answers are described.

3.2.1 Completing the questionnaire

Most of the questionnaires were completed by the invitee him/herself and in case the invitee was below 15 years old the questionnaire was completed by a parent or caretaker (see Table 3.3).

Table 3.3 Who filled in the questionnaire per age group

NS	0 – 14 years	15 years and older
	N (%)	**N (%)**
Participant	96 (5.2%)	4,208 (96%)
Parents/caretakers	1,675 (90.5%)	33 (0.8%)
Other person	80 (4.3%)	89 (2.0%)
Child of participant	NA	53 (1.2%)
Missing	43	71
LVCS		
Participant	20 (4.0%)	960 (96.9%)
Parents/caretakers	484 (95.8%)	11 (1.1%)
Other person	1 (0.2%)	13 (1.3%)
Child of participant	NA	7 (0.7%)
Missing	1	20

3.2.2 Clarity of questions

In the NS in total 759 (12.0%, of which 320 (16.9%) 0-14 year-olds and 439 (9.8%) 15-79 year- olds) persons reported that one or more questions were not clear to them. The following questions were noted most frequently: number of conversations with persons in varying age groups (respectively 120 times for 0-14 year-olds and 106 times for 15-79 year-olds) and opinion on vaccination for persons aged 0-14 years (68 times) and previous experience with sexual transmitted diseases for persons aged 15-79 years (31 times). It was also reported that questions on being vegetarian, eating raw meat or unwashed vegetables were a bit strange in case the invitee was an infant. Furthermore, the question on how much time a child was playing in the sandbox was found to be difficult to answer as parents were not all the time present. Finally some invitees reported they were not familiar with vaccinations for hepatitis A and B.

In the LVCS in total 148 (9.8%, of which 65 (12.8%) 0-14 year-olds and 83 (8.2%) 15-79 year- olds) persons reported that one or more questions were not clear to them. Also in the LVCS the question on the number of conversations with persons in varying age groups was found most difficult to answer, respectively 27 and 20 times. It was also mentioned that the definition of a household member was not very clear and the word inclusive was found to be difficult.

3.2.3 Missing values

In both samples the question that showed the most missing values was the total number of persons one had a conversation with. In NS there were 387 (20%) and 473 (11%) missing values and in the LVCS 79 (16%) and 114 times (11%) for respectively 0-14 and 15-79 year-olds. Secondly, for persons 0-14 years old in the NS, the question on the maximum number of injections (340 (18%)) and in the LVCS the contact day and the reason for not vaccinating their child (both 59 (12%)) had the most missing values. For persons 15-79 years old in both samples the question on having had symptoms (e.g. diarrhoea, vomiting, fever et cetera, question 35a) during last month (332 (7%) - 583 (13%) in NS and 104 (10%) – 168 (17%) in LVCS) had the most missing values. Thirdly, for persons aged 0-14 years in the NS the question on the contact day (345 (18%)) and for persons aged 15-79 years in both samples how many times a person had suffered from a wound during the last month (469 (11%) in NS and 99 (10%) in LVCS) showed the most missing values.

3.2.4 'Don't know' and 'Won't answer' answers

The questions that showed the most 'don't know' answers were for the 0-14 year-olds, how many times a person had suffered from a wound during the last month, 389 (22%) and 134 (28%) in respectively the NS and the LVCS. Also the question about having received a vaccination against hepatitis B scored a lot don't know answers for the 0-14 year-olds in the NS (231 (13%)).

For the 15-79 year-olds the question about having experienced chicken pox showed the most don't know answers, 1,291 (30%) and 308 (31%) in respectively the NS and the LVCS. Furthermore, the question on having received vaccination against tuberculosis showed a lot of don't know answers in the NS (1,156 (27%)) and the question on having suffered from a wound during the last month in the LVCS (276 (30%)).

The question that showed the most 'won't answer' answers was the question on the NMI per household, 19% (n = 342), 28% (n = 140) for the 0-14 year-olds and 18% (n = 769) and 24% (n = 232) for the 15-79 year-olds in respectively the NS and LVCS.

3.2.5 Questions mistaken

The most misinterpreted question was the question about what specific food allergy one might have. This question was part c of the main question (question 36) on having disorders (asthma/COPD, eczema, hay fever, food allergy, other allergy). Many persons had answered 'no' on the questions about lactose intolerance and gluten hypersensitivity without filling in they had an allergy for milk or grain products, probably because this part of the question was at the following page. It also happened that a certain disorder was diagnosed by the GP (part b of question 36) but that the participant did not report this disorder in the preceding question (part a of question 36). Furthermore, it was not clear what answer was expected at question 36b given the outcome of the open category. Both certain disorders and persons who had diagnosed the disorder were reported.

3.3 Demographic information

3.3.1 Distribution of gender

Table 3.4 Percentage of men among the participants per age group

NS				
	N (total)	**N (men)**	**% men**	**95% CI**
0 – 14	1,894	963	52.6	49.8-55.4
15 – 79	4,454	1,926	49.3	47.4-51.1
Total	6,348	2,889	50.1	48.6-51.5
LVCS				
0 – 14	506	279	51.2	46.4-56.0
15 – 79	1,011	455	49.8	46.7-53.0
Total	1,517	734	50.1	46.9-53.3

In the NS the mean percentage of participating men was somewhat lower in the adult group (15-79 years) compared to the children group (0-14 years) (Table 3.4). The percentage of men in the Dutch population on 1 January 2007 (CBS) is 51.2% for 0-14 year-olds, 49.8% for 15-79 year-olds and overall for men 50.1%.

In Figure 3.1 the number of participants per age group is shown for both men and women in the NS. It is clear that the number of participants in the age groups 0-4 and 5-9 years old was highest. Note that the number of invited persons in the age group 0-4 years old was twice as high as in the older age groups. While in the older age groups (except 70-79 years) females were slightly overrepresented, males were overrepresented in the younger age groups (0-9 years).

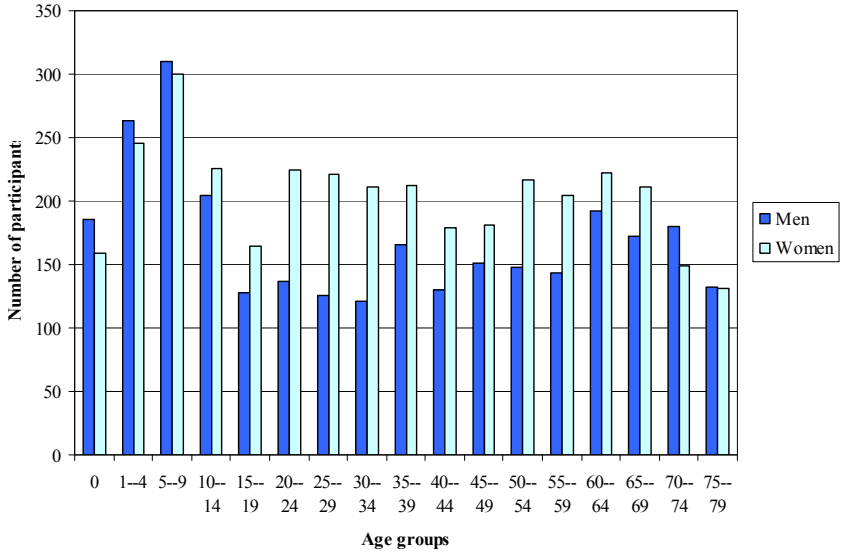

Figure3.1Number of participants per age stratum in the NS, stratified by gender

3.3.2 Net monthly income per household

In the NS the distribution of participants according to their net monthly income (NMI) was similar for the children and adult group, whereas in the LVCS more adult participants had a low NMI and less adult participants had a middle NMI compared to the children group (Table 3.5). The difference in the distribution of NMI between adult participants and the children group in the LVCS became less when we took only participants of 20-50 years old into account in the adult group, who resembled the parents of the 0-14 year-olds. The CBS found that 16% of the households in 2006 (most recent available data) could be denoted as having a low NMI, 54% a middle NMI and 31% a high NMI. In the NS the percentage of households with a high NMI was thus lower compared to CBS.

Table 3.5 Distribution of net monthly income (NMI*) per household per age group

NS		Low NMI			Middle NMI			High NMI		
	N (tot)	N	%	95%CI	N	%	95%CI	N	%	95%CI
0-14**	1,497	277	17.9	9.8-26.0	854	56.9	51.7-62.2	366	25.2	19.4-30.9
15-79$	3,546	727	17.6	15.5-19.7	2,097	60.1	57.1-63.0	722	22.3	19.6-25.1
Total	5,043	1,004	17.7	14.5-20.9	2,951	59.3	56.2-62.5	1,088	23.0	19.9-26.1
LVCS										
0-14#	353	14	4.5	0.9-8.1	294	82.4	76.2-88.7	45	13.1	7.3-18.9
15-79^	738	168	18.0	13.4-22.6	484	69.0	61.9-76.2	86	12.9	8.2-17.7
Total	1,091	182	15.6	12.3-19.0	778	71.4	65.5-77.4	131	13.0	8.5-17.5

*Net monthly income was categorized as low (less than € 1.150 and less than € 1.167 by CBS), middle (€ 1.151 - € 3.050 and € 1.168 - € 2.917 by CBS) and high (more than € 3.051 and more than € 2.918 by CBS).
**Won't answer 0-14: 342 and missing: 55
$Won't answer 15-79: 769 and missing: 139
#Won't answer 0-14: 140 and missing 0-14: 13
^Won't answer 15-79: 232 and missing 15-79: 41

3.3.3 Marital status

Most participants reported to be married, with a higher percentage (73%) in LVCS than in NS (59%) (see Table 3.6). For comparison with CBS data, the option 'sharing house' was added to the option 'single'. In the NS about 58% is married, 32% single, 5% divorced and 4% widowed, which was 73%, 22%, 2% and 3% in the LVCS. The CBS found the following percentages for the Dutch population: married 53%, single 36%, divorced 4% and widowed 8%. Especially in the LVCS the percentage of married persons was much higher compared to the general Dutch population.

Table 3.6 Marital status of the participants aged 15 years and older

	NS			LVCS		
	N	%	95% CI	N	%	95% CI
Single	908	21.2	19.4-23.0	194	18.8	16.3-21.1
Sharing house	469	11.2	10.0-12.4	31	3.0	1.7-4.4
Married	2,546	58.5	56.1-60.8	691	72.5	68.5-76.6
Divorced	240	5.2	4.5-5.8	23	2.4	0.7-4.2
Widow(er)	227	3.9	3.4-4.5	52	3.3	1.3-5.3
Missing	64			20		

3.3.4 Nationality, native country and ethnicity

A participant could report more than one nationality; therefore below Table 3.7 the classification of persons with two or more nationalities is given. In the NS, German (9% (23/250)) is most frequently answered by other nationality and Indonesia (11.9% (45/413)) by other native country. The CBS found that on January 2007, 95.7% of the Dutch population had the Dutch nationality, 0.6% was Turkish, 0.5% was Moroccan, 0.05% had the Surinam nationality and 3.2% had another nationality. Due to the over sampling of migrants, the percentage of non-Western migrants was higher in the NS compared to the Dutch population. When excluding the non-Western migrants in the over sampling the distribution of nationality was 95.3% Dutch, 0.8% Turkish, 0.4% Moroccan, 0.05% Surinam, 3.5% other nationality. In the LVCS almost all participants have the Dutch nationality (Table 3.7).

Table 3.7 Nationality* and native country

NS	Nationality			Native country		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Dutch	5,745	92.6	89.5-95.8	5,450	89.3	83.7-94.9
Turkish	127	1.7	0.6-2.7	111	1.5	0.3-2.8
Moroccan	101	1.3	0.04-2.6	93	1.4	0.00-2.9
Surinam	19	0.2	0.00-0.4	154	1.2	0.00-2.7
Aruba	9	0.1	0.01-0.2	15	0.1	0.01-0.3
Netherlands-Antilles	39	0.3	0.2-0.5	51	0.5	0.2-0.8
Other	250	3.8	2.9-4.7	413	6.0	4.5-7.4
Missing	58			61		
LVCS						
Dutch	1,491	99.4	98.9-100	1,465	98.3	97.3-99.2
Turkish						
Moroccan	2	0.1	0.00-0.4	2	0.1	0.00-0.4
Surinam	1	0.02	0.00-0.7			
Aruba						
Netherlands-Antilles	1	0.1	0.00-0.3			
Other	7	0.3	0.04-0.7	24	1.6	0.7-2.5
Missing	15			26		

*In the NS 55 persons reported both Turkish and Dutch, 54 persons Moroccan and Dutch, 10 persons Surinam and Dutch, 5 persons Aruba and Dutch, 14 persons Netherlands-Antilles and Dutch and 76 persons other nationality and Dutch. Further one person reported Surinam and other nationality, one person Netherlands-Antilles and Aruba, 2 persons Turkish and other nationality, one person Moroccan and other nationality, one person Surinam, Dutch and other nationality, one person Netherlands-Antilles, Netherlands and Aruba and one person Moroccan and Dutch and other nationality. In the LVCS only 1 person reported the Moroccan and Dutch nationality. The underlined nationalities were leading.

The CBS found that 80% of the Dutch population was indigenous Dutch, and the other ethnicities were respectively 9% other Western, 4% Moroccan and Turkish, 3% Surinam, Aruba and Netherlands Antilles, 4% other non-Western. In the NS (excluding the over sampled non-Western migrants) there were 86% indigenous Dutch persons, 9% other Western, 2% Moroccan and Turkish, 1% Surinam, Aruba and Netherlands Antilles and 2% other non-Western. In Table 3.8, the native country of father and mother, the ethnicity of participants (based on country of birth participant and both parents) and the frequency of first and second generation migrants were shown for the NS and LVCS.

Table 3.8 Native country parents and ethnicity

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Native country father						
Netherlands	5,081	84.2	77.3-91.1	1,473	97.8	96.3-99.3
Other	1,227	15.8	8.9-22.7	36	2.2	0.7-3.7
Missing	40			8		
Native country mother						
Netherlands	5,056	83.7	77.0-90.3	1,457	97.5	96.2-98.8
Other	1,256	16.3	9.7-23.0	48	2.5	1.2-3.8
Missing	36			12		
Ethnicity*						
Dutch	4,862	80.2	73.1-87.3	1,453	96.2	94.2-98.2
Moroccan and Turkish	442	8.8	7.1-10.4	47	3.1	1.1-5.1
Surinam and Aruba and Netherlands-Antilles	334	4.4	1.4-7.5	3	0.2	0.00-0.5
Other non-Western	352	2.9	0.3-5.5	3	0.1	0.00-0.3
Western	358	3.7	1.7-5.6	11	0.4	0.09-0.8
Generation						
First	799	50.5	39.5-61.5	21	36.3	23.3-49.4
Second	687	49.5	38.5-60.5	43	63.7	50.6-76.7

*The ethnicities other than Dutch contain both first and second generation migrants. Data from questionnaire and population registers of municipalities were combined. The ethnic origin of participants born in the Netherlands and of whom both parents were born in the Netherlands was defined as indigenous Dutch. The ethnic origin of participants of whom one or both parents were born abroad was defined as allochthonous. Countries of origin were either Western (Europe, North-America, Oceania, Indonesia or Japan) or non-Western (Africa, Latin-America or Asia excluding Indonesia and Japan), whereby Morocco, Turkey, Surinam, the Netherlands Antilles and Aruba were excluded from non-Western.

3.3.5 Educational level

The distribution of highest accomplished education level was classified into three categories; low, middle and high (Table 3.9). For the younger participants (0-14 years) the highest accomplished educational category of the mother was asked for. The educational level in the NS was similar for the children (0-14 years) and the adult group (15-79 years). In the LVCS the adults had a higher percentage of persons classified with a low educational level and a lower percentage of persons classified with a middle or high educational level compared to the younger participants. However, this difference disappeared when we looked at the distribution of educational level in participants aged 20-50 years, resembling the parents of the 0-14 year-olds, in stead of 15-79 years. For comparison with CBS data (2005 and for 15-64 year-olds) low educational level did not include no education. In the NS 6% had a low, 51% a middle and 43% a high educational level compared to respectively 9%, 55% and 36% found by CBS.

Table 3.9 Distribution of educational level* per age group

NS[$]										
		Low			Middle			High		
	N (tot)	N	%	95%CI	N	%	95%CI	N	%	95%CI
0-14	1,866	202	10.8	3.4-18.1	911	48.7	44.1-53.3	753	40.5	34.4-46.7
15-79	4,401	526	9.6	8.2-10.9	2,225	50.9	46.9-54.9	1,650	39.6	35.6-43.5
Total	6,267	728	9.8	7.3-12.4	3,136	50.4	46.5-54.2	2,403	39.8	35.9-43.7
LVC[&]										
0-14	505	16	3.8	1.3-6.3	379	75.3	68.6-82.1	110	20.9	14.7-27.0
15-79	1,004	183	14.1	8.3-19.9	653	68.9	62.7-75.1	168	17.0	11.6-22.4
Total	1,509	199	12.1	7.7-16.6	1,032	70.1	64.4-75.8	278	17.7	12.6-22.9

*Low educational level includes no education and primary education, middle educational level includes junior technical school, lower general secondary education and intermediate vocational education and high educational level includes senior/higher secondary education, pre-university education and university
$Missing 0-14: 28 and 15-79: 53
&Missing 0-14: 1 and 15-79: 7

3.3.6 Religion

In the NS 23% of the persons of 18 years and older considered themselves PC, which was 19% by CBS (2007) and 75% in the LVCS. Furthermore 29% considered themselves Roman Catholic, which was 28% by CBS and 4% in the LVCS, 10% had another religion, which was 10% and 2% in respectively CBS and LVCS and 37% had no religion, which was 43% and 20% in respectively CBS and LVCS. Table 3.10 shows the reported religions of the participants also specified for the Protestant Christian (PC) belief.

From the PC sub group in the NS 5.3% (n = 71) persons belonged to the RB, 11.6% (n = 159) to the RC and 83.1% (n = 1132) to another specific PC religion. Hundred and eight persons did not report their specific PC background. In the LVCS this was respectively 27.8% (n = 326), 28.9% (n = 294), 43.4% (n = 450) and 73 persons did not report their specific PC background.

Table 3.10 Reported religion of participants, specified for the Protestant Christian belief

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Protestant Christian:	1,470	23.4	17.7-29.1	1,143	74.5	63.5-85.6
Reformed bond within PKN	97	7.3	3.9-10.7	140	14.6	5.1-24.0
PKN, not reformed bond	777	57.4	51.5-63.4	387	37.3	30.0-44.6
Reaffirmed reformed church	62	4.3	1.7-6.9	154	14.3	4.5-24.1
Reformed congregations	61	4.4	2.3-6.4	223	18.6	12.6-24.6
Reformed congregations in the Netherlands	6	0.5	0.09-1.0	81	6.8	0.00-14.1
Old reformed congregations	4	0.4	0.00-1.0	22	2.4	0.00-6.3
Christian reformed churches	65	4.9	3.5-6.3	13	1.0	0.00-2.4
Reformed churches	81	6.2	4.2-8.2	9	1.0	0.04-2.0
Netherlands reformed churches	39	2.9	1.5-4.3	7	0.5	0.00-1.2
Pentecostal church and Gospel church	87	5.9	3.8-7.9	23	2.3	0.4-4.3
Mennonite Brotherhood	6	0.4	0.02-0.7	0		
Remonstrant Brotherhood	12	0.7	0.03-1.4	0		
Baptist congregations	28	2.2	1.2-3.3	0		
Other	37	2.5	1.3-3.7	11	1.1	0.5-1.7
Missing	108			73		
Roman Catholic	1,806	29.1	23.9-34.2	53	3.5	1.6-5.4
Islam	460	5.8	2.1-9.5	11	0.5	0.1-0.8
Jewish	5	0.1	0.01-0.1	0		
Buddhist	24	0.4	0.2-0.5	1	0.1	0.00-0.3
Hindu	84	0.6	0.2-1.1	0		
Other	239	3.6	2.9-4.2	28	1.7	0.9-2.5
No religion	2,212	37.1	32.9-41.3	273	19.7	10.8-28.6
Missing	48			8		

Participants were asked to state whether they participated in the NIP in their youth. The NIP in the Netherlands was introduced in 1957; however already from 1952 onwards vaccinations have been administered to the Dutch population. In the analysis on participation in the NIP therefore only participants less than 56 years of age were included. In the NS 92% of these participants reported they participated in the NIP, while this was 70% in the LVCS.
For the individuals aged less than 56 years and with vaccination data present 3.5% reported not to have participated in the NIP and 3.4% did not know whether he/she had participated in the NIP. This could be due to that the vaccination data only contained vaccinations not given within the NIP or to for example recall bias.

In the NS 82% of all RB participants had stated that they have participated in the NIP. For other PC religions this percentage was higher (>90%) (Table 3.11). Not surprisingly in the LVCS the percentage of RB participants who had stated they had participated in the NIP is lower compared to the NS.

In general the percentage of participants who had stated they had participated in the NIP was higher than the percentage of participants with vaccination data except for the RB individuals in the LVCS.

Table 3.11 Participation in the NIP and vaccination data present for different religious groups with a Protestant Christian belief* (0-55 years)

NS						
	N Participation NIP	**%**	**95% CI**	**N Vac data present**	**%**	**95% CI**
RB	60			60		
Yes	49	81.6	72.0-91.2	47	76.3	65.7-86.9
No	10	16.4	6.9-25.9	13	23.7	13.1-34.3
Don't know	1	2.0	0.00-6.3	NA		
Missing	0					
RC	128			128		
Yes	118	90.7	87.3-94.1	107	80.9	72.4-89.3
No	10	9.3	5.9-12.7	21	19.1	10.7-27.6
Don't know	0			NA		
Missing	0					
Other specific PC religion	757			757		
Yes	718	95.7	94.2-97.2	622	79.6	75.9-83.2
No	21	2.3	1.4-3.3	135	20.4	16.8-24.1
Don't know	14	2.0	0.7-3.2	NA		
Missing	4					
Total	945			945		
Yes	885	94.1	92.6-95.7	776	79.5	76.3-82.8
No	41	4.1	2.7-5.6	169	20.5	17.2-23.7
Don't know	15	1.7	0.7-2.8	NA		
Missing	4					
LVCS						
RB	285			285		
Yes	96	28.0	19.4-36.6	122	36.0	25.8-46.2
No	184	69.8	58.6-80.9	163	64.0	53.8-74.2
Don't know	5	2.3	0.00-5.5	NA		
Missing	0					
RC	215			215		
Yes	158	69.3	51.7-86.9	151	62.0	47.4-76.7
No	48	25.4	8.6-42.3	64	38.0	23.3-52.6
Don't know	8	5.2	1.7-8.8	NA		
Missing	1					
Other specific PC religion	321			321		
Yes	282	84.1	75.5-92.8	273	77.4	68.9-85.9
No	17	7.4	1.1-13.8	48	22.6	14.1-31.1
Don't know	18	8.4	4.6-12.3	NA		
Missing	4					
Total	821			821		
Yes	536	62.1	50.7-73.5	546	60.0	52.2-67.8
No	249	32.3	20.6-44.0	275	40.0	32.2-47.8
Don't know	31	5.6	4.1-7.1	NA		
Missing	5					

*RB: Reformed congregations, Reformed congregations in the Netherlands and Old reformed congregations. RC: Reformed bond within PKN and Reaffirmed reformed church. Other PC religion: rest.

The opinion on the necessity of vaccinations had not changed for most participants with a specific PC belief in both samples in the last five years (Table 3.12). Furthermore a larger percentage feels more inclined than less inclined compared to five years ago, both in the NS and in the LVCS.

Table 3.12 Change in opinion on necessity of immunization in past five years for participants with a specific Protestant Christian belief

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
RB	71			326		
No	62	87.9	81.9-94.0	261	80.9	72.3-89.6
More inclined	6	7.0	1.8-12.2	26	8.7	3.9-13.5
Less inclined	1	2.5	0.00-6.8	20	5.0	2.1-8.0
Don't know	2	2.6	0.00-5.4	15	5.2	2.1-8.3
Missing	0			4		
RC	159			294		
No	123	78.0	69.4-86.7	239	82.9	77.1-88.7
More inclined	10	7.4	3.0-11.8	20	8.3	3.6-13.0
Less inclined	10	6.1	2.5-9.8	5	2.0	0.00-4.2
Don't know	13	8.4	3.8-13.1	21	6.8	4.2-9.4
Missing	3			9		
Other specific PC religion	1,132			450		
No	956	85.4	83.3-87.5	363	83.5	80.0-86.9
More inclined	84	7.6	5.8-9.5	39	9.2	6.6-11.8
Less inclined	23	2.1	1.2-2.9	16	2.3	0.3-4.3
Don't know	58	4.9	3.5-6.2	24	5.0	2.8-7.2
Missing	11			8		
Total	1,362			1,070		
No	1,141	84.7	82.5-86.9	863	82.6	78.9-86.3
More inclined	100	7.6	6.0-9.2	85	8.8	6.0-11.6
Less inclined	34	2.6	1.7-3.4	41	3.0	1.5-4.5
Don't know	73	5.2	3.7-6.6	60	5.6	4.1-7.0
Missing	14			21		

3.4 Other vaccinations

In this section vaccinations other than those received as part of the NIP are discussed. These are vaccinations against DTP (at older ages used for revaccination by travellers), tetanus (revaccination because of injury) and against hepatitis A and B (used by travellers, since 2003 hepatitis B in NIP for specials groups).

3.4.1 Latest tetanus (re)vaccination because of an injury

A tetanus vaccination outside the NIP (due to an injury) was given to 9% of the children (0-14 years) and 41% adults (15-79 years) in the NS, which was respectively 8% and 36% in the LVCS (Table 3.13). The supplement question on tetanus vaccination because of an injury later on in the questionnaire resulted in lower percentages. Probably participants also reported their tetanus vaccinations received in the NIP. Most children reported that they received the latest vaccination 1 to 5 years ago and most adults reported over 20 years ago. The overall percentage of participants (0-79 years) who reported they did get immunized against tetanus outside the NIP was 36% and 31% in respectively NS and LVCS.

Table 3.13 Latest tetanus (re)vaccination because of an injury per age group

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Not applicable, not vaccinated						
0-14	1,525	81.0	75.2-86.2	454	88.8	87.5-90.0
15-79	1,886	41.8	40.4-43.2	501	49.4	44.7-54.1
Applicable, vaccinated						
0-14	144	9.2	6.8-11.7	29	7.9	4.0-11.8
15-79	1,710	41.4	39.8-43.0	339	36.1	30.4-41.8
<12 mnths ago						
0-14	27	17.7	12.1-23.3	9	21.8	4.3-39.3
15-79	71	4.2	3.0-5.3	17	5.0	1.3-8.6
1 to 5 yrs ago						
0-14	88	61.1	52.4-69.7	16	59.4	41.6-77.2
15-79	333	20.1	18.3-22.0	63	18.8	12.6-24.9
5 to 10 yrs ago						
0-14	29	21.2	12.9-29.5	3	14.8	0.00-30.5
15-79	327	19.3	17.8-20.9	51	15.1	12.3-17.9
Over 10 yrs ago						
0-14	0			1	4.0	0.00-12.2
10 to 15 yrs ago						
15-79	255	14.7	13.2-16.1	45	13.6	9.9-17.4
15 to 20 yrs ago						
15-79	203	12.2	10.3-14.2	42	13.0	8.8-17.1
Over 20 yrs ago						
15-79	521	29.4	27.4-31.5	121	34.6	25.2-43.9
Don't know						
0-14	167	9.8	6.3-13.3	13	3.3	0.3-6.3
15-79	738	16.8	15.5-18.0	135	14.6	12.0-17.1
Missing						
0-14	58			10		
15-79	120			36		
No. of wounds per person	1,365	3.3 (mean no.)	3.1-3.6	432	4.2 (mean no.)	3.5-4.9
Tetanus vac. because of wound						
Yes	35	2.6	1.6-3.5	13	3.5	1.4-5.7
No	1,308	97.4	96.5-98.4	411	96.5	94.3-98.6
Missing	22			8		

3.4.2 Latest DTP (re)vaccination

Diphtheria and tetanus vaccination was already administered to Dutch citizens in 1952. From 1962 DT was combined with IPV. DT-IPV was administered to men joining the military service, to people with professions with a higher risk at infection like (para)medics and to travellers. Sixty five percent of the participants (15-79 years) in the NS reported they have been vaccinated against DT-IPV and 57% in the LVCS (Table 3.14). When asking whether the participant has been vaccinated because of its profession the percentages were lower, which was probably due to extra vaccinations related to travelling (see also Table 3.22). Most of the participants reported that they received their latest vaccination over 20 years ago.

Table 3.14 Latest DTP (re)vaccination for participants aged 15-79 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Not applicable, not vaccinated	601	13.6	12.5-14.8	266	26.5	16.9-36.1
Applicable, vaccinated	2,641	65.2	63.4-66.9	504	56.9	48.6-65.1
<12 mnths ago	153	6.0	5.1-6.9	27	5.4	3.3-7.5
1 to 5 yrs ago	546	20.4	18.7-22.0	79	14.8	10.2-19.3
5 to 10 yrs ago	444	16.3	14.9-17.6	49	9.9	7.3-12.6
10 to 15 yrs ago	331	12.4	11.0-13.8	75	13.5	10.4-16.5
15 to 20 yrs ago	185	7.0	6.0-8.0	53	10.8	8.2-13.3
Over 20 yrs ago	982	38.0	36.2-39.9	221	45.7	39.8-51.5
Don’t know	932	21.2	19.7-22.8	158	16.7	12.1-21.3
Missing	280			83		

3.4.3 Hepatitis A vaccination

Of the children and adults in the NS 13% and 26% had reported they have been vaccinated against hepatitis A (Table 3.15). In the LVCS this percentage was 4% and 13% for the children and adults, respectively. Most of the children and adults reported that they had received the vaccination 1 to 5 years ago. The overall percentage of participants (0-79 years) who had received a hepatitis A vaccination was respectively 23% and 11% in both samples.

Table 3.15 Immunization against hepatitis A per age group

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes						
0-14	227	13.1	8.4-17.9	18	4.1	1.2-7.0
15-79	1,095	25.8	23.8-27.8	127	13.1	10.1-16.0
<12 mnths ago						
0-14	43	23.4	15.0-31.8	4	22.7	0.00-46.8
15-79	175	17.7	15.3-20.2	19	18.0	10.0-25.9
1 to 5 yrs ago						
0-14	93	50.7	42.3-59.0	8	48.0	10.1-85.8
15-79	452	43.7	40.8-46.6	48	37.7	27.6-47.8
5 to 10 yrs ago						
0-14	14	8.8	3.7-13.8	0		
15-79	195	19.3	16.6-21.9	25	23.5	11.5-35.5
Over 10 yrs ago						
0-14	1	0.7	0.00-2.3	0		
10 to 15 yrs ago						
15-79	102	10.0	8.3-11.6	12	8.8	4.0-13.7
15 to 20 yrs ago						
15-79	32	3.1	1.9-4.3	3	2.4	0.00-6.1
Over 20 yrs ago						
15-79	72	6.2	4.3-8.1	12	9.7	0.6-18.7
Don't know						
0-14	33	16.4	10.0-22.9	4	29.3	3.8-54.8
Missing						
0-14	43			2		
15-79	67			8		
No						
0-14	1,482	80.0	72.8-87.1	459	92.7	86.8-98.7
15-79	2,653	61.4	58.8-63.9	756	76.7	71.9-81.4
Don't know						
0-14	125	6.9	4.1-9.7	16	3.2	0.00-6.7
15-79	568	12.9	11.5-14.3	101	10.3	7.7-12.9
Missing						
0-14	60			13		
15-79	138			27		

3.4.4 Hepatitis B vaccination

In the NS 11% of the children reported that they had received that vaccination and 14% of the adults (Table 3.16). In the LVCS this percentage was 3% and 8% for the children and adults, respectively. Most participants had received the vaccination 1 to 5 years ago. The overall percentage of participants (0-79 years) who had received a hepatitis B vaccination was respectively 13% and 7% in both samples.

Table 3.16 Immunization against hepatitis B per age group

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes						
0-14	223	11.1	8.2-14.0	19	3.0	1.0-5.0
15-79	605	14.2	12.8-15.6	88	8.3	5.8-10.8
<12 mnths ago						
0-14	54	28.2	18.5-37.9	4	19.2	0.9-37.4
15-79	95	16.2	13.4-19.0	18	26.3	12.9-39.7
1 to 5 yrs ago						
0-14	69	37.4	21.0-45.8	7	33.8	0.00-77.7
15-79	201	37.0	32.0-42.0	29	35.0	19.9-50.1
5 to 10 yrs ago						
0-14	16	12.3	6.4-18.3	2	21.2	0.00-42.6
15-79	144	26.0	21.9-30.1	16	20.5	13.6-27.5
Over 10 yrs ago						
0-14	3	2.3	0.00-5.0	0		
10 to 15 yrs ago						
15-79	47	8.2	5.8-10.6	4	5.3	0.00-13.6
15 to 20 yrs ago						
15-79	40	6.9	4.6-9.1	1	0.5	0.00-1.5
Over 20 yrs ago						
15-79	38	5.7	3.8-7.6	10	12.4	2.2-22.6
Don't know						
0-14	33	19.8	11.8-27.8	3	25.8	0.00-61.5
Missing						
0-14	48			3		
15-79	40			10		
No						
0-14	1,339	75.7	69.1-82.2	439	90.8	85.9-95.7
15-79	2,942	68.4	66.7-70.2	757	78.6	74.6-82.6
Don't know						
0-14	231	13.2	8.8-17.7	28	6.2	1.7-10.6
15-79	746	17.4	15.8-19.0	121	13.1	11.4-14.8
Missing						
0-14	101			20		
15-79	161			45		

3.5 State of health

In both samples most persons reported to have a good health (Table 3.17). Minor differences in the distributions were found between the two samples. For comparison with CBS data the category excellent was added to category very good and the category bad to the category fair. In the NS the

percentage of participants who reported their own health was very good was 47%, good 45% and fair 8%, which was 43%, 49% and 8% in the LVCS. The CBS found that 26% of the Dutch population (all ages, 2007) reported that their own health was very good, 55% reported it was good and 19% reported it was fair. Note the classification of own health in general from five categories into three categories could have caused part of the difference in distribution of this variable between the two samples and CBS data.

Table 3.17 Opinion on their own state of health

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Excellent	1,350	21.4	20.2-22.6	349	21.5	17.2-25.9
Very good	1,591	25.8	24.3-27.2	336	21.8	20.1-23.6
Good	2,805	44.9	43.2-46.5	698	48.9	46.2-51.5
Fair	510	7.4	6.7-8.2	119	7.5	5.2-9.7
Bad	44	0.6	0.3-0.8	5	0.3	0.00-0.6
Missing	48			10		

In the questionnaire the participants could state whether they suffered from certain chronic diseases or allergies and whether this was confirmed by a GP (see Table 3.18). It was possible to report more than one chronic disease/allergy. In both samples about 70% of the participants reported no chronic diseases or allergies. Most cases of chronic diseases/allergies were diagnosed and confirmed by a GP (about 80%). Most reported chronic disease/allergy was hay fever.

CBS (2007) found that the percentage of persons (0+) who reported having asthma/COPD, chronic eczema or psoriasis or having had one of these chronic diseases during last twelve months was 7.2%, 4.4% and 1.5%, respectively. In both samples the percentage of persons reporting chronic eczema was higher, the percentage of persons reporting asthma/COPD was similar and the percentage of persons reporting psoriasis was lower (0.2% in both samples). Note that in P2 it was asked whether the participant has a chronic disease and not whether they had had a chronic disease during last twelve months. Also only participants of 79 years and younger were included in the P2 study. Most frequently given answer by other allergy was contact dermatitis in both samples (145 and 16 times). Other allergy diagnosed by GP was mainly contact dermatitis in NS (51 times) and bronchitis in LVCS (10 times).

Table 3.18 Chronic diseases or allergies reported by participants

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Asthma or COPD	415	6.4	5.8-7.1	101	6.7	3.7-9.6
Hay fever	855	14.7	13.4-16.1	168	13.0	11.4-14.7
Eczema	657	10.5	9.6-11.3	155	10.1	7.4-12.8
Food allergy	366	5.6	5.0-6.3	58	3.4	2.2-4.5
Milk	116	29.5	24.1-34.8	28	39.7	25.7-53.7
missing	3				2	
Egg	20	5.2	2.9-7.5	3	5.4	0.00-14.1
Peanut	52	13.1	9.1-17.1	11	19.1	5.7-32.4
Nuts	65	18.4	13.7-23.1	10	21.4	5.8-36.9
Fish	18	4.9	2.8-7.0	2	2.1	0.00-7.1
Crustacean	34	9.5	6.4-12.6	2	2.1	0.00-7.1
Soya	14	3.7	1.8-5.6	3	4.8	0.00-10.6
Cereal products	35	8.5	6.0-11.1	4	4.8	0.00-14.2
missing	0				0	
Other food allergy	154	43.2	37.9-48.5	18	39.0	26.1-51.9
Other allergy	428	6.9	6.1-7.6	68	4.7	3.5-5.8
missing	20			2		
None	4,316	68.8	67.1-70.4	1,066	71.2	69.0-73.4
Missing	115			33		
Diagnosed by GP						
Yes	1,544	82.2	80.4-84.0	336	84.4	78.0-90.7
Asthma or COPD	369	23.3	20.8-25.8	92	26.1	18.7-33.6
Hay fever	598	41.2	38.4-44.1	111	38.4	32.5-44.2
Eczema	529	34.1	31.5-36.7	123	34.8	26.0-43.6
Food allergy	175	10.4	8.5-12.3	28	5.9	3.4-8.4
Other allergy	275	17.8	15.7-20.0	41	13.0	7.7-18.3
missing	12			0		
No	320	17.8	16.0-19.6	66	15.6	9.3-22.0
Missing	71			17		

The number of participants suffering from several acute symptoms during the last month is listed in Table 3.19. It was possible to report more than one acute symptom. CBS (2007) found that the percentage of reported diarrhoea and vomiting during the last two months by persons of 12 years and older was 10% and 3% respectively, which was somewhat higher for diarrhoea but similar for vomiting in both samples (15% and 3% and 13% and 4% in respectively the NS and the LVCS). Note that in P2 the acute symptoms during the last month in stead of the last two months have been asked.

Table 3.19 Acute symptoms during last month reported by participants

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Diarrhoea						
Yes	957	15.8	14.8-16.9	207	13.6	11.1-16.2
No	4,763	83.5	82.4-84.6	1,143	85.9	83.3-88.5
Don't know	42	0.7	0.4-0.9	6	0.5	0.00-1.0
Missing	586			161		
Vomiting						
Yes	283	4.3	3.6-5.0	71	4.5	2.7-6.4
No	5,304	95.4	94.6-96.3	1,249	95.3	93.4-97.2
Don't know	18	0.3	0.04-0.5	4	0.2	0.00-0.5
Missing	743			193		
Fever						
Yes	680	10.2	9.3-11.2	170	8.9	6.3-11.5
No	4,895	87.9	86.8-89.0	1,155	90.2	87.8-92.7
Don't know	99	1.8	1.4-2.3	10	0.9	0.4-1.4
Missing	674			182		
Nauseous						
Yes	1,008	17.5	16.4-18.6	195	15.0	11.9-18.1
No	4,523	80.0	79.8-82.1	1,090	84.0	80.8-87.2
Don't know	121	1.5	1.3-1.8	32	1.0	0.6-1.5
Missing	696			200		
Pain in stomach						
Yes	1,696	28.5	27.0-29.9	330	24.1	20.4-27.8
No	3,945	70.6	69.1-72.0	982	74.9	71.1-78.7
Don't know	83	1.0	0.8-1.2	28	1.0	0.5-1.5
Missing	624			177		
Blood in excrements						
Yes	108	2.1	1.7-2.4	12	1.2	0.7-1.7
No	5,398	96.9	96.4-97.3	1,280	98.2	97.6-98.7
Don't know	59	1.1	0.8-1.4	10	0.7	0.3-1.0
Missing	783			215		
Mucus in excrements						
Yes	187	3.0	2.5-3.5	36	2.6	1.6-3.6
No	5,233	94.5	93.8-95.2	1,246	95.9	94.7-97.1
Don't know	142	2.5	2.1-2.9	22	1.5	0.7-2.3
Missing	786			213		
Coughing						
Yes	1,934	31.0	29.0-33.0	337	22.3	16.0-28.6
No	3,844	68.6	66.5-70.6	1,000	77.3	70.9-83.7
Don't know	25	0.5	0.3-0.6	8	0.4	0.00-0.8
Missing	545			172		
Running nose						
Yes	2,945	48.6	46.2-50.9	590	39.0	31.0-47.0
No	2,952	51.1	48.8-53.3	800	60.9	52.8-68.9
Don't know	23	0.4	0.2-0.6	2	0.1	0.00-0.4
Missing	428			125		

Visited GP						
Yes	757	16.8	14.8-18.7	148	15.3	12.8-17.8
No	3,281	83.2	81.3-85.2	710	84.7	82.2-87.2
Missing	59			17		
No. days reported sick	719	4.1 (mean no.)	3.5-4.8	124	3.5 (mean no.)	2.7-4.4
Missing	119			16		
Work loss						
Yes	252	38.4	33.8-43.1	43	45.8	33.7-57.9
No	435	61.6	56.9-66.2	79	54.2	42.1-66.3
Missing	32			2		
Work loss yes						
Paid	214	90.1	86.2-93.9	36	83.7	68.9-98.5
Not paid	22	9.9	6.1-13.8	5	16.3	1.5-31.1
Missing	16			2		

3.6 General features of the participants

Crowding and contact with children are important factors in the spread of infectious diseases. To have some indication on this aspect we informed about household and day-care contacts (Table 3.20). The mean size of the household is 3.2 in the NS, which was somewhat larger in the LVCS. However, both samples seem to have a larger mean household size than found by the CBS (2.3 people per household in January 2007). Maybe this could have been caused by the lower percentage of singles in our study population. Furthermore, Table 3.20 shows that more children attend a day-care centre in the NS compared to the LVCS.

Table 3.20 General features of the participants

	NS			**LVCS**		
	N	**Mean no.**	**95% CI**	**N**	**Mean no.**	**95% CI**
No. persons in household*	6,305	3.2	3.1-3.3	1,513	3.9	3.7-4.2
Missing	43			4		
No. rooms in house**	6,288	4.7	4.6-4.8	1,510	5.1	4.9-5.3
Missing	60			7		
No. children household visiting day-care	344	4.4	4.0-4.9	70	2.9	1.9-3.9
Missing	1256			448		

*in NS range: 1-12, 15, 16, 20, 23 and 34 and in LVCS range is 1-14
**in NS range is 1-16, 18, 19, 25 and 35 and in LVCS range is 1-13

3.7 Military service

Upon entry in military service (men/women older than 17 years) many vaccinations are given. Data on which vaccinations were given are recorded in a military passport. Participants were asked to also bring

their military passport to the blood clinic. The number of participants reporting they have served military service is listed in Table 3.21.

Table 3.21 Military service of participants aged 17*-79 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
In military service	717	17.4	15.7-19.1	179	18.8	13.5-24.1

*One can join the military service in the Netherlands from 17 years old

About 25% (NS) and 21% (LVCS) of the participants has been vaccinated because of their profession(s) (Table 3.22). Participants could have received vaccinations related to more than one profession. Most participants reported they had received vaccinations in military service. The percentage of participants who reported to have received vaccinations in military service (12%) is somewhat less than the percentage of participants who reported to have joined military service (17%). Most reported answer by other profession was travelling for work to a foreign country (58 and 11 times in both samples).

Table 3.22 Having been vaccinated because of their profession for participants aged 15-79 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	1,077	25.2	23.4-27.1	206	20.9	16.6-25.1
Military service	485	11.6	10.1-13.1	114	11.7	8.4-15.1
(para)medical	415	9.6	8.5-10.6	61	5.7	4.8-6.6
Other	239	5.5	4.8-6.3	36	3.8	2.2-5.3
No	3,248	74.8	72.9-76.6	767	79.1	74.9-83.4
Missing	129			38		

3.8 Travelling data of participants

Most participants have never travelled to Asia, Africa or South/Middle America (Table 3.23). Of the participants who had travelled, most went to Asia. Most participants went for holidays and reported the duration of the visit was less than six weeks. Most reported answer by other reason for last visit was going to their country of birth (44 times) and military service (10 times) in the NS and LVCS, respectively. Note participants could have travelled to more than one part of the world and could have more than one reason for their journey.

Table 3.23 Travelling data

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Ever been in one or more of following countries	2,430	39.2	35.1-43.3	275	21.2	17.2-25.2
Asia	1,489	24.9	22.7-27.0	160	11.8	8.2-15.5
Africa	1,035	17.5	15.5-19.5	135	10.8	7.5-14.1
South/ Middle America	882	13.8	12.1-15.6	98	7.8	4.8-10.8
None of above	3,853	60.8	56.7-64.9	1,221	78.8	74.8-82.8
Missing	65			21		
Duration last visit						
< 6 weeks	1,686	73.3	67.9-78.8	218	83.4	78.0-88.9
6 weeks and 3 mnths	178	6.5	4.4-8.6	13	4.1	1.1-7.1
3 and 12 mnths	165	6.4	4.9-7.9	14	5.4	2.3-8.6
> 12 mnths	332	13.8	11.2-16.3	25	7.0	4.0-10.1
Missing	69			5		
Reason for last visit						
Holidays	1,756	75.0	70.5-79.5	211	78.2	73.0-83.4
Visiting family/ Friends	551	18.7	13.0-24.3	37	12.9	7.0-18.8
Work	172	8.4	6.7-10.0	21	7.8	4.0-11.7
Other	193	6.9	5.2-8.7	29	10.1	4.9-15.4
Missing	29			1		

3.9 Pregnant women

In the NS 2.9% and in the LVCS 4.5% women were pregnant at the time of inclusion (Table 3.24). According to CBS data (2007) we would expect at least 5.5% pregnant female participants (181,336 live births from 3,281858 women aged 15-45 years).

Table 3.24 Pregnancy of female participants aged 19-44* years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	33	2.9	2.0-3.9	16	4.5	2.0-7.1
missing	3			2		

* In both samples no women younger than 19 and older than 44 years of age reported to be pregnant

3.10 Infectious diseases participants have had in the past

The percentage of participants who reported having had tuberculosis in the past was about 1% in both samples (Table 3.25).

Table 3.25 Having had tuberculosis in the past

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Ever tbc						
Yes	75	1.2	0.8-1.5	14	0.9	0.2-1.5
No	6,042	96.5	95.4-97.6	1,463	97.5	96.4-98.5
Don't know	168	2.3	1.4-3.3	21	1.7	1.2-2.2
Missing	63			19		
Positive mantouxtest						
Yes	323	5.3	4.8-5.8	75	5.4	4.1-6.7
No	5,438	87.2	86.2-88.3	1,339	88.6	86.7-90.5
Don't know	481	7.4	6.5-8.4	82	6.0	5.0-7.1
Missing	106			21		
Participated in GGD contact research						
Yes	651	10.7	9.7-11.8	172	13.5	10.5-16.5
No	5,105	81.5	79.6-83.5	1,235	79.5	75.3-83.8
Don't know	484	7.7	6.5-9.0	86	6.9	5.0-8.9
Missing	108			24		
Vaccinated against tbc*						
Yes	533	8.7	7.2-10.1	64	5.4	3.0-7.8
No	4,280	68.8	66.4-71.2	1,231	79.1	73.0-85.3
Don't know	1,328	22.5	20.8-24.3	181	15.5	11.4-19.6
Missing	207			41		

*In the Netherlands children 0-12 years of age who have at least one parent born in a high endemic country for tuberculosis receive vaccination against tuberculosis (not in NIP)

The percentage of participants who reported coughing for more than two weeks during the last twelve months was 22% and 19% in respectively the NS and LVCS (Table 3.26). Most participants reported that the coughing for more than two weeks took place longer than 3 months ago and that they had recovered. Most participants, who reported coughing for more than two weeks, did not visit the GP (63% and 62% in NS and LVCS, respectively). Of those who visited the GP, only a small percentage of the reported coughing for more than two weeks was diagnosed as pertussis by the GP (5% in both samples).

Table 3.26 Coughing and fever during last 12 months and pertussis diagnosed

	NS			LVC		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Coughing						
Yes	1,464	22.2	21.1-23.3	315	18.8	14.9-22.8
< 3 mnths ago and still coughing	366	28.0	24.7-31.4	75	28.4	19.9-36.9
< 3 mnths ago, not coughing anymore	473	37.4	34.4-40.3	109	38.1	28.0-48.2
3-6 mnths ago	210	16.6	13.7-19.6	57	19.7	7.9-31.5
6-12 mnths ago	207	18.0	14.3-21.6	33	13.8	5.3-22.3
missing	208			41		
No	4,696	75.9	74.8-77.0	1,172	79.9	76.2-83.7
Don't know	116	1.9	1.5-2.2	19	1.2	0.7-1.8
Missing	72			11		
Visited GP						
Yes, diagnosed pertussis	30	2.1	1.3-2.9	6	1.4	0.00-3.2
Yes, not diagnosed pertussis	523	34.4	31.5-37.3	122	35.9	28.4-43.4
No	866	62.8	59.8-65.8	176	61.6	54.8-68.3
Don't know	14	0.8	0.2-1.3	4	1.1	0.3-2.0
Missing	31			7		

The percentage of participants who reported swollen painful cheeks with or without fever during the last twelve months was 1.6% and 1.4% in NS and LVCS, respectively. Most participants (46% and 35%, respectively) did not visit the GP for these complaints (Table 3.27). Of those who visited the GP, 19% was diagnosed as mumps by the GP in the NS, which was 14% in the LVCS.

Table 3.27 Swollen painful cheeks and fever during last 12 months and mumps diagnosed

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes, painful cheeks with fever	59	0.9	0.6-1.1	12	0.6	0.2-0.9
Yes, painful cheeks without fever	42	0.7	0.4-1.0	10	0.9	0.2-1.6
No	5,995	97.5	96.8-98.2	1,440	97.7	96.6-98.7
Don't know	72	0.9	0.6-1.3	15	0.9	0.4-1.4
missing	180			40		
Visited GP						
Yes, diagnosed mumps	9	8.4	2.6-14.2	2	8.5	0.00-20.2
Yes, not diagnosed mumps	38	42.2	30.6-53.8	12	56.9	37.1-76.7
No	44	46.3	36.8-55.9	6	34.6	18.3-50.9
Don't know	3	3.1	0.00-6.9	0		
Missing	7			2		

The percentage of participants who reported red spots on their body with or without fever during the last twelve months was 4.3% and 3.1% in NS and LVCS, respectively. Most participants (62% and 70%, respectively) did not visit a GP for these symptoms (Table 3.28).

Table 3.28 Red spots on body and fever during last 12 months and measles diagnosed

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes, red spots body with fever	92	1.1	0.8-1.5	29	0.7	0.3-1.0
Yes, red spots body without fever	222	3.2	2.7-3.6	60	2.4	2.0-2.8
No	5,810	94.2	93.5-94.9	1,382	95.5	94.9-96.2
Don't know	95	1.5	1.1-1.9	22	1.3	0.8-1.9
missing	129			24		
Visited GP						
Yes	117	36.1	30.2-42.0	26	30.3	23.5-37.0
No	190	62.1	56.0-68.3	63	69.7	63.0-76.5
Don't know	4	1.8	0.00-4.0	0		
Missing	3			0		

More than 60% of all participants reported they have had chickenpox in the past (Table 3.29).
A relative large percentage of all participants (23% and 25%, respectively) could not remember they have had chickenpox in the past.

Table 3.29 Having had chicken pox in the past

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	3,725	62.3	60.6-64.0	859	61.5	56.8-66.2
No	1,098	14.6	12.6-16.6	300	13.9	11.2-16.6
Don't know	1,364	23.1	21.9-24.3	322	24.6	19.2-30.0
missing	161			36		

3.11 Blood donor, having received blood products and having a piercing or tattoo

Donating or receiving blood products in foreign countries and skin penetrating procedures (like a tattoo) could be considered a risk for getting an infectious disease through blood contact. The percentage of participants aged 18-79 years who donate or have donated blood was respectively 24% and 30% in NS and LVCS (Table 3.30).

Table 3.30 Blood donor for participants aged 18*-79 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	941	23.5	21.4-25.6	265	29.7	20.4-39.0
No	3,288	76.5	74.4-78.6	678	70.3	61.0-79.6
Missing	32			15		

*Nobody below 18 years old had answered that they donated blood

The percentage of adults (15-79 years) who had received blood products was 11% and 9% in NS and LVCS, respectively (Table 3.31). Almost all participants had received these products in the Netherlands.

Table 3.31 Having received blood products for participants aged 15-79 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	528	11.2	10.2-12.2	107	9.3	6.5-12.1
No	3,442	80.0	78.6-81.3	805	83.4	79.9-86.8
Don't know	402	8.8	7.9-9.8	77	7.3	4.8-9.8
Missing	82			22		
Blood products received in						
The Netherlands	492	96.1	94.3-98.0	102	99.6	98.7-100
Other country	23	3.9	2.0-5.7	1	0.4	0.00-1.3
Missing	13			4		

The percentage of participants with a piercing or a tattoo was 8% and 5% in NS and LVCS, respectively (Table 3.32).

Table 3.32 Piercing or tattoo

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	476	8.0	7.0-9.0	66	5.3	3.3-7.4
No	5,786	92.0	91.0-93.0	1,435	94.7	92.6-96.7
Missing	86			16		

3.12 Outdoor activities possibly related to infectious diseases

The percentage of children (< 5 years old) playing in a sandbox was 53% and 63% in NS and LVCS, respectively (Table 3.33). Note participants could play in sandboxes at more than one location. Most children in NS played in the sandbox located at school and in LVCS in the sandbox at home. The children played on average 4.1 and 4.7 hours in a sandbox per week and most children never put sand in their mouth, respectively 57% and 62%.

Table 3.33 Playing in sandbox for participants less than five years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	450	53.4	48.7-58.1	174	62.8	51.7-74.0
No	392	46.6	41.9-51.3	103	37.2	26.0-48.3
Missing	12			0		
Place sandbox						
Own garden	255	62.3	53.8-70.8	131	75.6	68.9-82.3
School	348	76.5	70.7-82.4	93	53.5	47.6-59.5
Park/playing ground	234	52.6	46.4-58.8	75	42.5	14.5-70.5
Missing	1			0		
Duration time per week	418	4.1 (mean no.)	3.6-4.5	167	4.7 (mean no.)	3.6-5.9
Missing	32			7		
Putting sand in mouth						
Never	270	57.2	52.4-62.0	107	62.1	57.0-67.2
Sometimes	168	40.9	36.3-45.5	61	34.9	29.9-39.9
Often	9	1.9	0.6-3.3	5	3.0	0.2-5.7
Missing	3			1		

More adults than children were working/playing in the garden and also spent more time in the garden (Table 3.34). The percentage of participants working/playing in the garden was higher in the LVCS in both age groups compared to the NS.

Table 3.34 Working or playing in garden per age group

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes						
0-14	938	51.1	45.7-56.5	291	60.6	56.4-64.7
15-79	2,935	69.3	66.0-72.5	784	80.6	76.0-85.3
No						
0-14	828	43.3	38.5-48.2	189	34.7	32.0-37.5
15-79	1,464	30.7	27.5-34.0	220	19.4	14.7-24.0
Don't know						
0-14	95	5.6	4.3-6.8	21	4.7	1.9-7.5
Missing						
0-14	33			5		
15-79	55			7		
Time per week						
0-14	824	3.0 (mean no.)	2.7-3.4	270	3.0 (mean no.)	1.7-4.4
15-79	2,767	3.8 (mean no.)	3.4-4.2	738	4.6 (mean no.)	3.4-5.8
Missing						
0-14	114			21		
15-79	168			46		

3.13 Contact with cats and keeping pets and farm animals

The percentage of children with contact with cats was somewhat lower than for adults in NS and similar in LVCS (Table 3.35).

Table 3.35 Contact with cats per age group

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
0-14 years						
Yes	903	49.8	42.1-57.5	224	47.1	40.0-54.2
No	861	44.4	36.4-52.3	245	46.0	38.6-53.5
Don't know	105	5.8	4.5-7.1	32	6.9	5.0-8.7
Missing	25			5		
Yes,						
with cats < 1 yr	80	9.1	6.6-11.7	31	13.0	7.4-18.6
with cats > 1 yr	642	71.7	67.1-76.4	137	60.4	48.8-72.0
with cats <1 and >1 yr	163	19.1	15.7-22.6	52	26.6	13.5-39.7
missing	18			4		
15-79 years						
Yes	2,413	57.5	54.9-60.1	464	47.3	36.3-58.3
No	1,991	42.5	39.9-45.1	536	52.7	41.7-63.7
Missing	50			11		
Yes,						
with cats < 1 yr	127	5.6	4.6-6.6	41	8.9	5.6-12.3
with cats > 1 yr	1,773	74.8	72.5-77.0	316	70.7	62.8-78.7
with cats <1 and >1 yr	459	19.7	17.7-21.6	93	20.3	14.3-26.4
missing	54			14		

In both samples about 60% of the participants kept one or more pets at home, which were mostly dogs followed by cats (Table 3.36). Note participants may keep more than one pet. Most reported answer by other pets was reptile, 71 and 13 times in NS and LVCS, respectively.

Table 3.36 Keeping pets

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	3,564	59.1	55.4-62.8	907	62.4	58.6-66.3
No	2,737	40.9	37.2-44.6	603	37.6	33.7-41.4
Missing	47			7		
Dog	1,461	42.1	39.2-45.0	442	49.6	41.7-57.5
Cat	1,491	42.0	39.1-44.8	354	38.9	30.5-47.3
Bird	625	17.3	15.6-19.0	216	23.5	21.0-25.9
Rabbit/ guinea pig/ hamster	1,190	33.2	31.7-34.6	326	35.8	31.6-40.0
Mouse/rat	134	4.1	3.4-4.8	22	2.3	0.7-3.8
Fish	955	26.5	24.8-28.1	247	26.2	22.3-30.1
Other	157	4.5	3.6-5.3	38	4.0	1.4-6.5
Missing	10			1		

The percentage of participants keeping farm animals was higher in LVCS than in NS, respectively 17% and 6% (Table 3.37). Note participants may keep more than one specific farm animal. In both samples most participants kept poultry, respectively 56% and 57%. Most reported answer by other farm animals was horses, respectively 101 and 48 times.

Table 3.37 Keeping farm animals

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	386	6.4	4.7-8.2	243	17.1	8.5-25.7
No	5,850	93.6	91.8-95.3	1,254	82.9	74.3-91.5
Missing	112			20		
Pig	17	4.4	2.1-6.8	28	11.5	1.3-21.7
Cow	84	22.2	16.1-28.4	58	23.4	8.6-38.1
Sheep	89	22.9	17.7-28.2	71	31.9	25.3-38.4
Goat	73	19.3	15.1-23.5	49	20.5	16.4-24.7
Poultry	210	55.8	49.9-61.6	143	57.4	44.5-70.4
Other	114	30.9	25.6-36.2	57	23.3	14.7-31.9
Missing	13			2		

3.14 Bitten by ticks

About 80% of the participants were never bitten by ticks (see Table 3.38). Of the participants who were bitten by ticks most participants were bitten 1-4 times, respectively 11% and 9% in NS and LVCS.

Table 3.38 Bitten by ticks

	NS			LVC		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Never	4,969	78.3	76.7-79.9	1252	81.8	75.8-87.8
1-4 times	650	11.2	9.6-12.7	117	8.7	4.3-13.0
5-9 times	46	0.7	0.5-1.0	8	0.7	0.00-1.7
10 or more times	34	0.7	0.4-0.9	8	0.5	0.00-1.3
Don’t know	547	9.1	7.9-10.3	108	8.3	6.8-9.8
Missing	102			24		

3.15 Vegetarian, eating raw meat and unwashed vegetables

Only a small percentage of the participants reported to be vegetarian, respectively 1.8% and 0.8% in NS and LVCS (Table 3.39).

Table 3.39 Being vegetarian

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	122	1.8	1.3-2.2	13	0.8	0.2-1.4
No	6,145	98.2	97.8-98.7	1,492	99.2	98.6-99.8
Missing	81			12		

The percentage of participants who have eaten raw or half-baked products during the last 12 months was 60% in NS and 54% in LVCS (Table 3.40). Most of the participants ate beef products and ate the raw or half-baked meat products with a frequency of less than a month. Despite fish is not a meat product, most participants reported fish by other raw or half-baked meat product, respectively 49 and 6 times. Note participants could have eaten more than one specific raw or half-baked meat product.

Table 3.40 Eating raw or half-baked meat products during last 12 months

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	3,344	59.8	55.4-64.2	697	53.9	49.1-58.7
No	1,381	21.5	19.6-23.4	395	29.7	25.9-33.4
Don't know	1,398	18.7	15.3-22.0	390	16.4	13.7-19.1
Missing	225			35		
Beef	3,244	97.3	96.6-97.9	682	97.6	95.6-99.6
Pork	1103	34.6	32.4-36.9	174	26.5	20.0-33.0
Fowl	252	7.7	6.6-8.9	33	5.0	2.8-7.2
Other	80	2.4	1.8-3.1	7	1.0	0.4-1.6
Eating frequency						
Daily	40	1.1	0.7-1.5	5	0.4	0.00-1.0
Weekly	744	23.5	21.8-25.1	137	21.6	16.5-26.8
Monthly	967	30.3	28.6-31.9	215	33.1	27.5-38.8
Less than monthly	1,357	40.5	38.3-42.6	302	41.6	35.3-48.0
Don't know	148	4.7	4.0-5.5	21	3.2	1.0-5.5
Missing	88			17		

The percentage of participants who ate unwashed raw vegetables was 30% in NS and 24% in LVCS (Table 3.41). Most of those participants ate weekly unwashed raw vegetables.

Table 3.41 Regular eating unwashed raw vegetables

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Yes	1,715	29.6	27.5-31.7	340	24.1	19.4-28.8
No	4,492	69.2	67.1-71.3	1,148	74.8	70.6-79.0
Don't know	72	1.2	0.9-1.5	14	1.1	0.2-1.9
Missing	69			15		
Eating frequency						
Daily	189	11.0	8.7-13.3	27	6.5	2.1-11.0
Weekly	831	49.1	46.6-51.5	165	51.6	40.3-62.9
Monthly	357	21.4	19.0-23.8	81	23.9	13.4-34.4
Less than monthly	338	18.6	16.6-20.6	67	18.0	11.4-24.6
Missing	0			0		

3.16 Social contacts

The number and type of social contacts is an important factor for determining the spread of airborne infectious diseases. Participants could have contact with various groups of individuals within their

profession or as a volunteer, which was applicable for about 55% in both samples. For those with contact with groups of individuals, most reported to have contact with clients, 68% and 67% in NS and LVC, respectively (Table 3.42).

Table 3.42 Contact with groups of individuals within profession or as a volunteer for participants aged 15-79 years

	NS			LVC		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Applicable	2,259	56.3	54.1-58.6	507	55.2	51.1-59.3
Not applicable	2,033	43.7	41.4-45.9	462	44.8	40.7-48.9
Missing	162			42		
Patients	452	18.7	16.6-20.8	91	15.6	13.0-18.3
Clients	1,472	67.5	65.4-69.7	323	67.1	59.9-74.3
Children/students	834	35.8	33.6-37.9	185	36.0	28.5-43.4
Animals	273	11.9	10.2-13.7	105	20.9	13.0-28.9

Most contacts were made with individuals in the age-class 10-19 years old; the mean number of contacts was respectively 7.2 and 6.2 in NS and LVCS (Table 3.43). Most participants reported the number of conversations on Tuesday.

Table 3.43 Mean number of conversations with persons in a certain age group and the day of the week the conversations took place

	NS			LVC		
	N	**Mean no.**	**95% CI**	**N**	**Mean no.**	**95% CI**
0-9 yrs	2352	5.9	5.2-6.5	683	5.4	4.7-6.0
0-4 yrs	1351	3.1	2.8-3.3	439	2.6	2.0-3.2
5-9 yrs	1600	5.4	4.6-6.1	477	4.7	4.2-5.1
missing	198			56		
10-19 yrs	2009	7.2	6.7-7.6	584	6.2	4.8-7.6
20-29 yrs	2498	4.1	3.9-4.4	656	4.0	3.1-4.8
30-39 yrs	3187	4.1	3.9-4.4	755	3.9	3.3-4.5
40-49 yrs	3025	3.9	3.7-4.2	688	3.5	3.0-4.1
50-59 yrs	2461	3.3	3.1-3.4	592	2.9	2.6-3.2
60-69 yrs	1671	3.0	2.8-3.2	403	2.8	2.4-3.2
70-79 yrs	1015	2.7	2.5-3.0	273	2.5	2.0-3.0
80-89 yrs	467	2.7	2.2-3.2	127	2.1	1.4-2.8
90+	116	2.2	1.6-2.8	35	1.7	0.6-2.9
missing	33			10		
Total	5488	15.2	14.6-15.9	1324	15.2	13.2-17.1
Missing	860			193		
		%			**%**	
Monday	1028	18.9	16.5-21.4	212	16.6	11.6-21.6
Tuesday	1379	24.8	22.5-27.1	345	25.7	18.1-33.2
Wednesday	710	12.9	11.1-14.8	202	14.8	10.8-18.8
Thursday	514	9.3	7.7-11.0	159	12.1	7.2-16.9
Friday	412	7.6	6.4-8.8	106	8.0	5.6-10.4
Saturday	664	12.6	10.9-14.3	122	9.9	6.9-12.8
Sunday	750	13.8	12.6-15.1	172	13.0	10.2-15.8
Missing	31			6		

3.17 Sexual history

No large differences were found in the sexual history of the participants between NS and LVCS. The distribution of variables on sexual behaviour among the participants in NS and LVCS was compared to the sexual behaviour reported in sexual behaviour studies in the Netherlands.[20-21]. The percentage of participants aged 12-25 years in the study by De Graaf et al.[20] with a steady partner (at this moment) was 58% for girls and 45% for boys. When comparing these values with those in NS and LVCS, it was found that the percentage with a steady partner was similar for girls (in both samples 56%) but lower for boys (respectively, 39% and 32% in NS and LVCS). Looking at the total adult population (15-79 years old) about 80% had a steady partner (Table 3.44)
For participants aged 12-25 years in the study by De Graaf et al. [20] the mean age at first sexual intercourse was 16.7 years, which was 16.9 and 17.3 in respectively NS and LVCS. In both samples for 15-79 year-olds, the mean age at first sexual intercourse was about 19 years and the number of sexual partners during the last six months was on average one. Of the participants, aged 19-69 years, in the study by Bakker [21] most participants (73%) also reported to have one sexual partner during the last six months.
Most participants (15-79 years old) reported they never used a condom with their steady partner and also not with a casual partner (note, very low numbers). The condom use with steady partner for participants aged 19-69 years in the study by Bakker et al. [21] was similar when compared to both samples.
In the NS the percentage of males who reported to have sex with only males (concerning only sexual partners during the last 6 months) was 1.0% (12 of the 1218), which was similar for women who reported to have sex with only women (1.1%, 18 out of 1534). In the LVCS only one (0.4%) man reported to have sex with only males and only one (0.4%) woman reported to have sex with only females. Bakker et al. [21] found that 4.0% of the men identified themselves as homosexual, 3.1% bisexual and 92.9% heterosexual, which was respectively 2.6%, 3.3% and 94.1% for women. Note that in P2 only participants with a sexual partner during the last six months have been asked to report the gender of their sexual partners, whether in the study by Bakker et al. [21] all participants were asked how they identified themselves not taking into account any sexual partner.

Table 3.44 Sexual history for participants aged 15-79 years

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Steady partner						
Yes	3,356	78.6	77.2-80.0	784	81.2	77.2-85.2
No	950	20.9	19.5-22.3	200	18.1	14.0-22.2
Won't answer	26	0.5	0.3-0.7	7	0.7	0.06-1.4
Missing	122			20		
Sexual intercourse						
Yes	3,247	76.8	75.2-78.4	629	65.4	60.7-70.0
Not applicable	368	8.2	7.4-9.0	110	10.8	8.2-13.3
Don't know	292	6.7	5.7-7.7	88	9.0	5.7-12.3
Won't answer	378	8.3	7.4-9.3	143	14.9	11.4-18.5
Missing	169			41		
Mean age at first sexual intercourse	3,245	19.3 (mean age)	19.2-19.5	629	19.5 (mean age)	19.0-20.0

Missing	2			0		
Sexual partners last 6 months						
Yes	3,453	94.1	93.2-95.0	711	91.5	89.3-93.8
Won't answer	244	5.9	5.0-6.8	71	8.5	6.2-10.7
Missing	757			229		
No. sexual partners last 6 mnths	2,788	1.1 (mean no.)	1.0-1.1	600	1.0 (mean no.)	1.0-1.1
Missing	665			111		
Sexes of these sexual partners						
Male	1,521	48.6	46.5-50.7	305	46.0	42.0-50.1
Male and female	8	0.3	0.08-0.4	4	0.5	0.00-1.1
Female	1,220	51.0	48.9-53.2	280	53.5	49.0-58.0
Won't answer	3	0.1	0.00-0.2	0		
Missing	701			122		
Condom use last time*						
Yes	349	12.3	11.1-13.5	58	8.8	6.7-10.9
No	2,435	83.5	82.3-84.8	551	82.0	78.0-86.0
Won't answer	146	4.2	3.3-5.0	68	9.1	6.2-12.0
Missing	1194			242		
Condom use last month with steady partner**						
always	163	6.4	5.7-7.1	34	5.6	3.3-7.9
Most times yes	74	3.0	2.3-3.7	9	1.2	0.2-2.2
Sometimes yes/no	86	3.3	2.7-4.0	23	4.0	2.4-5.6
Most times no	127	4.8	4.0-5.6	25	3.9	1.9-6.0
never	1,888	72.7	70.7-74.7	436	70.6	65.1-76.1
Won't answer	53	1.9	1.3-2.5	36	5.7	3.9-7.5
Not applicable	235	7.8	6.8-8.9	61	8.9	6.1-11.7
Missing	836			183		
Condom use last month with casual partner***						
always	67	4.1	3.2-5.0	9	2.2	0.6-3.7

Most times yes	29	1.8	1.2-2.4	3	0.6	0.00-1.2
Sometimes yes/no	15	0.8	0.3-1.3	0		
Most times no	13	0.8	0.3-1.3	3	1.0	0.00-2.2
never	117	6.2	5.0-7.3	22	4.4	2.6-6.2
Won't answer	47	2.5	1.7-3.2	20	5.1	2.9-7.3
Not applicable	1,449	83.8	82.1-85.6	317	86.7	83.0-90.5
Missing	2,717			637		

*the participants who could have filled in this question should have met one of the following conditions: marital status is married or living together or steady partner is yes or won't answer or sexual intercourse is yes, don't know or won't answer or number of sexual partners last 6 months is yes or won't answer or sex of sexual partner has been filled in
**the participants who could have filled in this question should have met one of the following conditions: marital status is married or living together or steady partner is yes or won't answer
***the participants who could have filled in this question should have met one of the following conditions: number of sexual partners last 6 months is yes or won't answer or country of casual partner is known

In NS the percentage of participants reporting one or more STDs was 5.2%, which was higher than in the LVCS (2.4%). The percentage of participants (aged 12-25 years) reporting one or more STDs (without HIV) in the study by De Graaf et al. [20] was 0.6% for boys and 1.2% for girls, which was 0.4% and 4.1% in NS and 0.0% and 1.6% in LVCS. The percentage of participants (aged 12-25 years) who reported having HIV was 0.0% in the study by De Graaf [20] and also 0.0% in NS and LVCS. In NS the most reported sexual transmitted disease was Chlamydia and in the LVCS this was genital warts (Table 3.45). Respectively 8 (0.2%) and 3 (0.3%) persons reported they used drugs in NS and LVCS, respectively. In the report by Rodenburg et al. [22] the percentages of individuals aged 15-64 years who reported in 2005 to have ever used drugs are much higher (0.6% for heroin, 1.4% for LSD, 2.1% for amphetamine, 3.4% for cocaine, 4.3% for ecstasy, 6.1% for hard drug and 22.6% for cannabis).

Table 3.45 Reported sexually transmitted diseases (STD)* and drug use for participants aged 15-79 years old

	NS			**LVCS**		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Chlamydia	83	2.1	1.5-2.7	4	0.6	0.08-1.1
Hepatitis B	21	0.5	0.2-0.7	1	0.1	0.00-0.4
Gonorrhoea	40	1.1	0.6-1.5	1	0.04	0.00-0.1
Syphilis	10	0.2	0.05-0.4	0		
Herpes genitals	36	0.9	0.6-1.2	8	0.8	0.09-1.6
Genital warts	52	1.3	1.0-1.7	7	0.9	0.3-1.5
HIV	3	0.09	0.00-0.2	0		
Drug use						
Yes	8	0.2	0.01-0.4	3	0.3	0.00-0.7
No	4,340	99.7	99.4-99.9	985	99.7	99.3-100
Won't answer	7	0.1	0.02-0.2	0		
Missing	99			23		

*possible answers per STD were yes, no, won't answer, number of missing in respectively NS and LVCS were for Chlamydia 328/87, hepatitis B 393/100, Gonorrhoea 403/102, Syphilis 396/100, herpes genitals 375/95, genital warts 369/97, HIV 390/97

3.18 Opinion on vaccinations

Participants sometimes reported more than one opinion on childhood vaccinations, although this was not reported as an option in the questionnaire. The data were however analyzed as if there was an option to report more than one answer. The percentage of participants in NS who reported their opinion was influenced by anthroposophic, homeopathic or alternative medicine ideas was respectively, 11%, 18% and 12%. Remarkably, no participant in the LVCS reported they were influenced by anthroposophic ideas (Table 3.46).

Table 3.46 Opinion on childhood vaccinations

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Applicable	493	8.2	7.0-9.3	415	26.0	18.9-33.0
Not applicable	5,509	91.8	90.7-93.0	1,038	74.0	67.0-81.1
Missing	346			64		
Anthroposophic	52	10.6	7.2-14.0	0		
Homeopathic	90	18.2	14.4-22.0	16	3.7	0.00-7.7
Alternative medicine	65	12.4	9.0-15.9	17	5.3	2.6-7.9
Religion	91	18.7	10.7-26.8	349	84.5	75.2-93.8
Other	196	40.2	34.4-46.0	33	6.5	1.1-12.0

Most parents were very sure that their child would receive the future vaccinations, respectively 64% and 43% in NS and LVCS (Table 3.47). In the LVCS the percentage of parents who would surely not administer the future vaccinations to their child was 13% whereas this was 0.4% in the NS.

Table 3.47 Future vaccinations for child to receive will be administered for participants aged 0-14 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Very sure	1,184	63.7	60.6-66.8	227	42.8	38.4-47.2
Sure	387	21.1	18.8-23.4	112	20.4	12.7-28.1
Probably yes	63	3.6	2.8-4.4	25	5.6	1.2-10.0
Probably yes/no	32	2.0	1.1-3.0	13	2.9	1.5-4.3
Probably no	14	0.8	0.4-1.3	13	2.9	1.8-4.0
Surely not	7	0.4	0.00-0.9	61	12.5	3.0-22.0
Not applicable	123	8.3	6.9-9.8	50	12.8	5.6-20.1
Missing	84			5		

Most parents reported that two injections per consultation visit would be the maximum that still was acceptable (Table 3.48). Note the relative high percentage of parents reporting zero injections in the LVCS.

Table 3.48 Maximum number of injections still acceptable for participants aged 0-14 years old

	NS			LVCS		
	N	%	95% CI	N	%	95% CI
None	24	1.6	0.7-2.5	94	22.3	8.8-35.8
1 per time	245	15.5	11.6-19.4	53	10.1	7.1-13.1
2 per time	1,235	79.7	75.1-84.2	307	66.5	53.5-79.4
3 per time	32	2.0	1.1-3.0	1	0.3	0.00-0.9
4 per time	16	1.1	0.3-1.9	4	0.8	0.00-2.2
Each number is acceptable	2	0.1	0.00-0.3	0		
missing	340			47		

Most parents reported it was true that childhood vaccinations are good for the protection of the health of their child (Table 3.49). In the LVCS the percentage of parents who reported neutral, not true and very not true was higher compared to the NS.

Table 3.49 Childhood vaccinations are good for the protection of the health of my child for participants aged 0-14 years old

	NS			LVCS		
	N	%	95% CI	N	%	95% CI
Very true	817	45.0	41.3-48.7	119	23.5	18.7-28.3
True	877	48.6	44.7-52.5	245	48.8	42.6-55.0
neutral	86	5.1	3.8-6.4	68	12.6	8.2-16.9
Not true	17	1.0	0.4-1.6	40	9.0	3.9-14.2
Very not true	4	0.3	0.03-0.6	30	6.1	1.8-10.5
missing	93			4		

Most parents reported it was not true that there is no need for vaccinating healthy children (Table 3.50). The percentage of parents who reported very true, true and neutral was higher in the LVCS than in the NS.

Table 3.50 There is no need for vaccinating healthy children for participants aged 0-14 years old

	NS			LVCS		
	N	%	95% CI	N	%	95% CI
Very true	26	1.3	0.7-1.8	42	8.7	0.6-16.7
True	71	3.7	2.0-5.4	41	9.3	5.8-12.8
neutral	139	8.4	6.9-9.9	73	15.5	11.8-19.3
Not true	934	52.5	48.7-56.2	256	49.4	40.0-58.8
Very not true	615	34.2	31.6-36.8	89	17.1	12.9-21.3
missing	109			5		

Most parents reported that they had no doubts about the safety of the vaccinations their children received (Table 3.51). However, also a relative high percentage of parents reported neutral in the NS and neutral or true in the LVCS.

Table 3.51 I have doubts about the safety of the vaccinations children receive for participants aged 0-14 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Very true	29	1.6	1.0-2.2	24	4.9	0.6-9.2
True	147	8.0	6.6-9.4	86	18.5	14.4-22.7
Neutral	395	22.2	20.6-23.9	151	27.6	21.8-33.5
Not true	924	52.2	48.6-55.9	217	43.7	36.1-51.4
Very not true	287	15.9	13.0-18.8	22	5.2	1.3-9.0
Missing	112			6		

Most parents reported that the immune system of their child would not be negatively affected by vaccination (Table 3.52). However, also a relative high percentage of parents reported neutral in the NS and neutral or true in the LVCS.

Table 3.52The immune system of my child will negatively be affected by vaccination for participants aged 0-14 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Very true	59	3.3	1.3-5.4	23	5.2	1.2-9.1
True	130	7.4	6.0-8.7	65	14.2	9.2-19.2
Neutral	373	20.8	18.8-22.9	118	24.9	20.6-29.2
Not true	979	56.0	51.5-60.4	253	48.7	41.3-56.2
Very not true	224	12.5	10.4-14.6	36	7.0	2.9-11.2
Missing	129			11		

Most parents reported that the childhood vaccinations are good for the health protection of others (Table 3.53). However, also a relative high percentage of the parents reported neutral in the NS and neutral or not true in the LVCS.

Table 3.53 Childhood vaccinations are good for the health protection of others for participants aged 0-14 years old

	NS			LVCS		
	N	**%**	**95% CI**	**N**	**%**	**95% CI**
Very true	347	19.3	15.7-22.8	48	10.3	6.1-14.4
True	961	54.1	50.5-57.7	228	45.0	31.2-58.7
Neutral	363	20.5	17.8-23.2	142	27.3	18.2-36.4
Not true	88	4.8	3.7-6.0	63	13.5	9.0-17.9
Very not true	20	1.2	0.6-1.9	19	4.0	1.6-6.4
Missing	115			6		

4 Conclusions/discussion

In the P2-study, a large serum bank has been established with 6,386 samples in the nationwide sample including the over sampling of migrants and 1,518 in the low immunization coverage sample. Furthermore, from 99.5% of the persons with serum a detailed questionnaire is available and from 80% of the persons with serum, who are eligible for participating in the NIP, also vaccination data are confirmed by the local authority for registration of vaccinations.
The response in the P2-study was lower than in the P1-study, performed in 1995/6 (33% vs. 50%). Invitees who did not want to participate have been asked to fill in the non-response questionnaire. Most frequently reported reason for non-participation was that they were too busy or that they did not feel like to participate in this study.
By comparing non-responders with participants, the non-responders were more likely to be male aged between 5-9 and 55-59 years old, to live in a very high urbanization degree, to be widower, to be less healthy and not participating in the NIP. The non-responders resembled the participants for the distribution of ethnicity, region, educational level and religion. Men between the age-categories 5-9 and 65-69 years old, non-Western migrants, persons living in the regions South-West and South-East and persons living in a very high urbanization degree were more likely to be absolute non-responder than participant. For the absolute non-responders only information from the population registers was available.
One of the possible reasons for the difference in response between P1 and P2 is that in the last ten years municipalities have expanded, which made that the invitees had to travel for longer distances to the blood sampling clinic. In 2007 the number of municipalities was 443, which was 625 in 1996 (CBS). From P1 it was clear that a telephone reminder increased the response rate.[23] Due to the increase of mobile phones and not registered telephone numbers in the last ten years, less invitees could be reminded by a telephone call, which also could have led to a lower response. Another explanation could be the relatively high percentage (~15%) of addresses that were incorrect in larger cities like Amsterdam. It was however not clear whether this percentage had increased during the last ten years. Some points for improvement for a next PIENTER 3 study are given in Appendix 12 together with a short evaluation regarding the logistics and design of the study.
The number of participants per each age stratum in the NS was about 300, which was the minimum number of participants aimed for. In most age strata the number of participants was even higher, for instance 413, 558 and 635 participants in the age strata 0, 1-4 and 5-9 years old, respectively. Only the age stratum 75-79 years contained less participants (n = 263).
In the low immunization coverage sample the number of participants per age strata varied between 69 (35-39 years and 50-54 years) and 210 (1-4 years). These numbers are sufficient (at least 68 participants) to determine the seroprevalence in the three age groups of orthodox reformed individuals, which were the groups most difficult to include in the study.
The number of participants per migrant group was also above 68 except for the group of first and second generation participants from Morocco or Turkey aged 50-79 years (n = 60). This makes it also possible to calculate the seroprevalence for each migrant group. Furthermore, the seroprevalence for migrants living in municipalities belonging to the highest urbanization degree (1) and migrants living in municipalities belonging to the lower urbanization degrees (2-5) will be compared.

In general, the participants in the nationwide sample resemble very well the overall Dutch population. For example, the distribution by education level, religion, net monthly income, marital status, condom use with steady partner in the nationwide sample was comparable with the distribution in the Dutch population. Furthermore the mean age at first sexual intercourse was similar. Inevitable some differences do exist, for instance participants were more likely to live in the regions North-East and North-West, to have a higher mean household size and not using drugs.

Whether these differences between our study population and the general Dutch population will be of influence for determining antibody levels in the general Dutch population should be further investigated. For some characteristics (age, gender, ethnicity, and urbanisation degree) the frequencies of seropositives can be weighted to the Dutch population.

The large serum bank that has been set-up will be used by many researchers who have been involved in the P2 project. Antibody levels as marker for protection against various infectious diseases will be determined: primarily against the infectious diseases included in the NIP (diphtheria, tetanus, pertussis, poliomyelitis, Haemophilus influenzae (type B), meningococcal group C disease, measles, mumps, rubella, hepatitis B, pneumococcal disease and cervical cancer); secondarily against diseases that might be vaccine preventable in the near future (gastroenteritis caused by rotavirus, varicella, herpes zoster) and against those diseases with a frequent sub clinical course; thirdly against other infectious diseases such as respiratory diseases (influenza), gastrointestinal diseases (salmonellosis, campylobacteriosis, gastroenteritis caused by norovirus, hepatitis A), zoonotic diseases (q fever, toxoplasmosis, toxocarosis, echinococcosis, hantavirus disease, hepatitis E), vector borne diseases (Lyme borreliosis, West Nile fever, dengue fever) or infections related to sexually transmitted diseases (herpes simplex, hepatitis C). Furthermore the collected diaries, DNA samples and supplementary questions in the questionnaire, for instance about allergies, will be used in additional studies.
The assessment of antibody levels in serum for the evaluation of the NIP, by means of large population-based studies like PIENTER, becomes more important in view of low disease incidence and smaller numbers of cases, which is due to the success of the NIP. By repeating such studies within ten year intervals we gain a lot of insight into the changes of the immunity of the population over time and in changes in infection pressure to further improve the NIP.

rivm

References

1. De Melker HE, Conyn-van Spaendonck MAE. Immunosurveillance and the evaluation of national immunization programmes: a population-based approach. Epidemiol Infect. 1998; 121:637-643
2. Van Lier EA, et al. Vaccinatiegraad Rijksvaccinatieprogramma Nederland. Verslag 2006-2008. [In Dutch] (Immunization coverage National Immunization Programme in the Netherlands, year of report 2006-2008) RIVM Report 210021007, Bilthoven, the Netherlands, 2008.
3. Mossong J, et al. Social contacts and mixing patterns relevant to the spread of infectious diseases. PLoS Med. 2008; 5; e74.
4. Kemp T, Pearce N, Fitzharris P, et al. Is infant immunization a risk factor for childhood asthma or allergy? Epidemiology 1997;8(6):678-80
5. Termorshuizen F, Dorigo-Zetsma JW, de Melker HE, van den Hof S, Conyn-van Spaendonck MAE. The prevalence of antibodies to hepatitis A virus and its determinants in The Netherlands: a population-based survey. Epidemiol Infect. 2000; 124: 459-466
6. Kortbeek LM, de Melker HE, Veldhuijzen IK, Conyn-van Spaendonck MAE. Population-based Toxoplasma seroprevalence study in The Netherlands. Epidemiol Infect. 2004; 132: 839-845
7. De Melker HE, van den Hof S, Berbers GAM, Conyn-van Spaendonck MAE. Evaluatie van het Rijksvaccinatieprogramma: immuniteit van de Nederlandse bevolking tegen difterie, tetanus en poliomyelitis. Ned Tijdschr Geneeskd. 2001; 145: 268-272
8. Van den Hof S, de Melker HE, Berbers GAM, de Haas R, Beaumont MTA, Conyn-van Spaendonck MAE. Evaluatie van het Rijksvaccinatieprogramma: immuniteit van de Nederlandse bevolking tegen bof, mazelen en rodehond. Ned Tijdschr Geneeskd. 2001; 145: 273-277
9. Van den Hof S, de Melker HE, Berbers GAM, van der Kraak PH, Conyn-van Spaendonck MAE. Antibodies to Haemophilus influenzae type b in the Netherlands a few years after the introduction of routine vaccination. Clin Infect Dis. 2001; 32: 2-8
10. Veldhuizen IK, Dorigo-Zetsma JW, Conyn-van Spaendonck MAE. Seroprevalantie van hepatitis B en C in de Nederlandse bevolking. Infectieziekten Bulletin. 1999; 10: 182-184
11. Van den Hof S, de Melker HE, Berbers GAM, van der Kraak PH, Conyn-van Spaendonck MAE. Antistoffen tegen Haemophilus influenzae type b in Nederland. Infectieziekten Bulletin 2000; 11: 267-269
12. De Melker HE, Berbers GAM, Nagelkerke NJD, Conyn-van Spaendonck MAE. Diphtheria antitoxin levels in the Netherlands: a population-based study. Emerging Inf Dis. 1999; 5: 694-700
13. Cochran WG. Sampling techniques. New York: John Wiley & Sons, 1997: page 75
14. Conyn-van Spaendonck MAE, de Melker HE, Abbink F, Elzinga-Gholozidea N, Kimman TG, van Loon AM. Immunity against poliomyelitis in the Netherlands. Am J Epidemiol 2001; 153: 207-214
15. Van den Hof S, Conyn-van Spaendonck MAE, van Steenbergen JE. Measles epidemic in the Netherlands, 1999-2000. J Infect Dis 2002; 186: 1483-1486

16. Van der Veen Y, Hahné S, Ruijs H, Time A, van Binnendijk R, van Loon T, de Melker H. Rubella-epidemie 2004-2005: congenitale gevolgen. Infectieziekten Bulletin. 2006; 17: 322-325
17. Karagiannis I, van Binnendijk RS, Ruijs WLM, Hahné SJM. Bof bij gevaccineerden. Infectieziekten Bulletin. 2008; 19 (no. 6)
18. Van der Wal MF, Diepenmaat AC, Pel JM, Hirasing RA. Vaccination rates in a multicultural population. Arch.Dis.Child 2005;90(1):36-40
19. Pauw-Plomp H and Van Wieringen JCM. Vaccination status of Amsterdam Children. Amsterdam: GG&GD. 1985;
20. De Graaf H, Meijer S, Poelman J, Vanwesenbeeck I. Seks onder je 25e. Seksuele gezondheid van jongeren in Nederland anno 2005. Utrecht: Rutgers Nissogroep/ Soa Aids Nederland; 2005
21. Bakker F, Vanwesenbeeck I. Seksuele gezondheid in Nederland 2006. Delft: Eburon; 2006
22. Rodenburg G, Spijkerman R, van den Eijnden R, van de Mheen D. Nationaal prevalentie onderzoek middelengebruik 2005. Rotterdam: IVO; 2007
23. De Melker HE, Nagelkerke NJD, Conyn-van Spaendonck MAE. Nonparticipation in a population-based seroprevalence study of vaccine-preventable diseases. Epidemiol Infect. 2000; 124:255-262

rivm

Appendix 1 Number of invited individuals and participants per municipality

Table A1.1 Half-width for the 95% CI for the seroprevalence estimate of 50%, depending on the number of participating municipalities (clusters) and the total number of participants

No. persons → Clusters ↓	2000	3000	4000	5000	6000	7000	8000	9000	10,000
20	3.56	3.56	3.55	3.55	3.55	3.55	3.55	3.55	3.55
25	3.18	3.17	3.16	3.16	3.16	3.16	3.16	3.16	3.16
30	2.89	2.89	2.88	2.88	2.88	2.88	2.88	2.88	2.88
35	2.67	2.66	2.66	2.65	2.65	2.65	2.65	2.65	2.65
40	2.49	2.48	2.48	2.47	2.47	**2.47**	2.47	2.47	2.47
45	2.34	2.33	2.33	2.32	2.32	2.32	2.32	2.32	2.32
50	2.21	2.21	2.20	2.20	2.20	2.20	2.19	2.19	2.19
55	2.11	2.10	2.09	2.09	2.09	2.09	2.08	2.08	2.08
60	2.01	2.0	2.0	1.99	1.99	1.99	1.99	1.99	1.99

Table A1.2 Increase of the number of invited individuals in certain age groups during the study

Municipalities*	No. invited persons per age-group	Reason
Vianen until Bergen (NH) and Uithoorn	40 in first two strata (0 and 1-4 years old), 20 in each of following strata (5-9, 10-14, …, 75-79 years old)	n/a, numbers are equal to the initial design
Dordrecht until Amsterdam	Similar as above and added another 20 20-24 year-olds and 25-29 year-olds	Response participants of 20-29 years old stayed behind
Waalwijk until Delft	Similar as above and added another 20 30-34 year-olds and 35-39 year-olds	Response participants of 30-39 years old stayed behind
Groningen until Noordoostpolder	Similar as above and added another 40 0 year-olds	Response participants of 0 years old stayed behind
Neder-Betuwe	Similar as above and added another 180 1-4 year-olds, 72 5-9 year-olds, 19 15-19 year-olds, 3 40-44 year-olds, 3 50-54 year-olds, 19 65-69 year-olds, 58 70-74 year-olds and 90 75-79 year-olds	Response orthodox reformed individuals who refuse vaccination on religious grounds stayed behind
Korendijk	Similar as above and added another 16 75-79 year-olds	Response orthodox reformed individuals who refuse vaccination on religious grounds stayed behind and not enough individuals aged 75-79 years were living in Neder-Betuwe

* see Table A1.3 below for the order of municipalities

Table A1.3 Number of invited individuals and number of participants per municipality

Municipality	Total no. invited individuals / Total no. participants	No. extra invited migrants / No. extra participating migrants	Public Health Service
Vianen	378 / 135		GGD Midden-Nederland
Breda	416 / 118	39 / 9	GGD West-Brabant
Rheden	385 / 124	10 / 4	HDV Gelderland Midden
Renkum	372 / 125		HDV Gelderland Midden
Barneveld*	380 / 146		HDV Gelderland Midden
Bergen (NH)	376 /121		GGD Noord-Kennemerland
Dordrecht	420 /121		GGD Zuid-Holland Zuid
Heemstede	414 / 146		HDV Kennemerland
Nieuw-Lekkerland*	420 / 155		GGD Zuid-Holland Zuid
Utrecht**	413 / 96		GG&GD Utrecht
Uithoorn	383 / 131		GGD Amstelland de Meerlanden
Sittard-Geleen	418 / 102		GGD Zuid-Limburg
Beek	454 / 154	37 / 13	GGD Zuid-Limburg
Kerkrade	411 / 105		GGD Zuid-Limburg
Elburg@	417 / 152		GGD Regio Noord-Veluwe
Nunspeet*	420 / 131		GGD Regio Noord-Veluwe
Reimerswaal*@	419 / 149		GGD Zeeland
Tholen*	415 / 137		GGD Zeeland
Zwolle@	417 / 147		GGD Regio IJssel-Vecht
Schiedam**	408 / 110		GGD Nieuwe Waterweg Noord
Leiden	418 / 145		GGD Hollands Midden
Alphen a/d Rijn	416 /145		GGD Hollands Midden
Zwartewaterland*	420 / 180		GGD Regio IJssel-Vecht
Kampen	418 / 179		GGD Regio IJssel-Vecht
Heumen	417 / 174		GGD Nijmegen
Amersfoort	416 / 137		GGD Eemland
Steenwijkerland	419 / 167		GGD Regio IJssel-Vecht
Diemen	413 / 128		GGD Amsterdam
Amsterdam	1971 / 388	1555 / 309	GGD Amsterdam
Waalwijk	460 / 162		GGD Hart voor Brabant
Den Bosch	498 / 160	38 / 16	GGD Hart voor Brabant
Tilburg	454 / 142		GGD Hart voor Brabant
Zaanstad	522 / 183	66 / 28	GGD Zaanstreek-Waterland
Purmerend	487 / 160	29 / 7	GGD Zaanstreek-Waterland
Heusden	517 / 161	59 / 20	GGD Hart voor Brabant
Deventer	487 / 176	30 / 11	GGD Gelre-IJssel
Zutphen	459 / 175		GGD Gelre-IJssel
Enschede	1005 / 326	548 / 170	GGD Regio Twente
Losser	457 / 201		GGD Regio Twente
Almelo	476 / 151	23 / 7	GGD Regio Twente
Papendrecht	457 / 186		GGD Zuid-Holland Zuid
Den Haag	459 / 111		GGD Den Haag
Delft	456 / 141		GGD Zuid-Holland West
Groningen	498 / 155		HDV Groningen
Neder-Betuwe*	938 / 291		GGD Rivierenland
Middelharnis	499 / 182		GGD Zuidhollandse Eilanden
Korendijk*	954 / 328		GGD Zuidhollandse Eilanden
Noordoostpolder	620 / 252	124 / 37	HDV Flevoland

* Low immunization coverage municipalities

** An extra consultation hour was planned because the response was below 25%

@ For the following eight municipalities the RIVM had drawn the sample: Alphen aan den Rijn, Elburg, Heumen, Reimerswaal, Steenwijkerland, Zuthpen, Zwartewaterland and Zwolle.

$ in the following municipalities a flyer was sent: Amsterdam, Den Bosch, Schiedam (second visit), Den Haag, Zaanstad, Purmerend, Enschede, Almelo and Noordoostpolder

Appendix 2 Number of invited and participating migrants

Table A2.1 Over sampling migrant groups: number of individuals by age group initially to be invited and expected

age group	to be invited	Cumulative (for all ethnic and generation groups) to be invited	expected response	expected number participating	Cumulative (for all ethnic and generation groups) expected to participate
0	80	480	30%	24	144
1--4	80	480	30%	24	144
5--9	80	480	30%	24	144
10--14	20	60	50%	10	30
15--19	20	60	50%	10	30
20--24	20	60	50%	10	30
25--29	20	60	50%	10	30
30--34	20	60	50%	10	30
35--39	20	60	50%	10	30
40--44	20	60	50%	10	30
45--49	20	60	50%	10	30
50--54	25	75	50%	13	38
55--59	25	75	50%	13	38
60--64	25	75	50%	13	38
65--69	25	75	50%	13	38
70--74	25	75	50%	13	38
75--79	25	75	50%	13	38
	550	**2,370**		**227**	**897**

Table A2.2 Actual number of invited individuals and number of participants per migrant group

Country of birth	Generation	Age group*	Group number	No. invited	No. participants
Turkey or Morocco	1st	0 – 9	1	342	111
	2nd	0 – 9	4	362	83
	1st and 2nd	10 – 49	7	524	79
	1st and 2nd	50 – 79	10	345	60
Suriname or Dutch Antilles/Aruba	1st	0 – 9	2	312	78
	2nd	0 – 9	5	339	85
	1st and 2nd	10 – 49	8	428	80
	1st and 2nd	50 – 79	11	357	109
Other first generation non-Western migrants	1st	0 – 9	3	316	78
	2nd	0 – 9	6	371	89
	1st and 2nd	10 – 49	9	486	112
	1st and 2nd	50 – 79	12	354	79

rivm

Appendix 3 Number of invited individuals and participants in low vaccination coverage sample

Table A3.1 Number of individuals in LVCS initially to be invited and expected by age group

Age group 1	No. in each LVC municipality to be invited	No. in eight LVC municipalities to be invited	Response of non-vaccinated ORIs expected (P1)	No. of non-vaccinated ORIs in LVC region expected
0	50	400	6%	24
1--4	50	400	7%	28
5--9	50	400	6%	24
10--14	20	160	6%	10
15-19	20	160	6%	10
20-24	20	160	6%	10
25-29	20	160	6%	10
30--34	20	160	6%	10
35--39	20	160	6%	10
40--44	20	160	6%	10
45--49	20	160	6%	10
50--54	15	120	10%	12
55--59	15	120	10%	12
60--64	15	120	10%	12
65--69	15	120	10%	12
70--74	15	120	10%	12
75--79	15	120	10%	12
Age group 2				
0--9	150	1200		76
10--49	160	1280		77
50--79	90	720		72
total	**400**	**3200**		**225**

Table A3.2 Actual number of invited individuals and number of participants in LVCS per age group

Age group	No. invited individuals	No. participants	No. of ORIs not participating in NIP
0 – 9	1370	412	84
10-49	1680	643	141
50- 79	1316	462	93

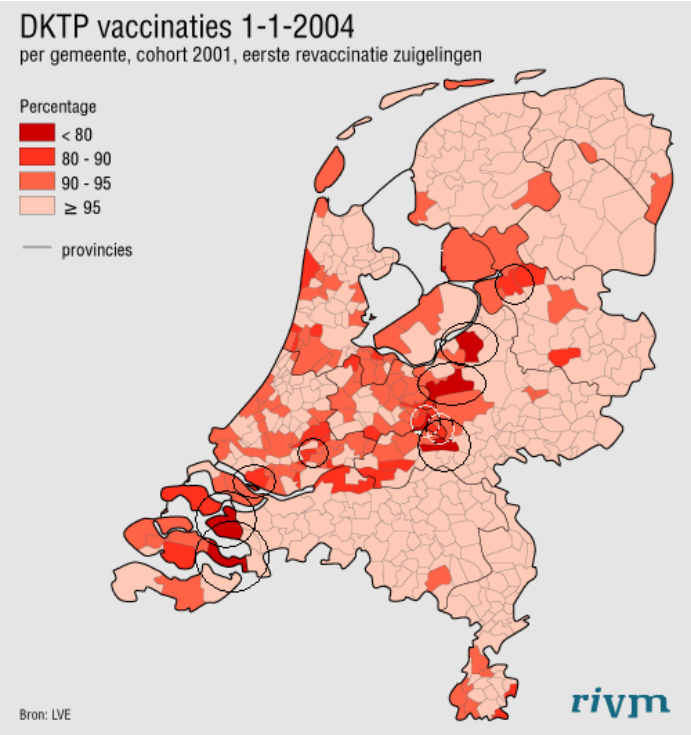

Figure A3.1 The vaccination coverage of DTP-IPV per municipality in the Netherlands at the first of January 2004 (birth cohort 2001). Eight municipalities with a relatively low vaccination coverage for DTP-IPV (with circle) are included in LVCS in P2 (Reimerswaal, Tholen, Korendijk, Nieuw-Lekkerland, Neder-Betuwe, Barneveld, Nunspeet, Zwartewaterland)

Appendix 4 Activities for contact person of Public Health Service

Activities for the contact person of the PHS were:

- Organizing that co-operation contract was signed by the director of the PHS.
- Examining whether the planned data for the clinics would not give problems for the municipality due to for example holidays or festivals.
- Informing the municipality about the P2 project and passing on the name of the contact person of the municipality. The epidemiologist of the RIVM takes care of sample drawing.
- Organizing a suitable location for the clinics at the planned data.
- Organizing that the translators (own language and culture) were present at the clinics if this was asked for.
- Organizing PR activities in the weeks before the invitations to the individuals were sent. The RIVM supported the PHS by taking care for the PR materials.

Appendix 5 Study materials in binder for Public Health Service

Study materials in binder for PHS were:

- P2 information brochure for participants
- Invitation letters for participants
- Questionnaires
- Informed consent form for the participants
- Standard press release
- Form with activities expected of the PHS together with contact persons of the RIVM
- Diary with information brochure
- Non response questionnaires
- Standard accompanied letter for the mediators
- Checklist for materials needed at the blood sampling clinics
- Poster in Dutch and poster in Dutch-Moroccan-Turkish (and later on during the study a poster in Dutch-English was available)

Appendix 6 Diary

Handleiding bij het invullen van het dagboekje

- Wij vragen u op de aan u toegewezen weekdag, om iedere persoon, met wie u op die dag contact had of ontmoette, in het dagboekje te noteren. Daarbij hoeft u alleen de leeftijd en het geslacht van deze persoon te vermelden.
- Contact hebben betekent dat u met de persoon heeft gesproken, (uitgezonderd telefoon/mobieltje), en de andere persoon moet dicht bij u geweest zijn, als dat niet het geval is hoeft u deze persoon niet in het dagboekje op te nemen. 'Contact hebben' kan ook betekenen, dat u de huid van de andere persoon aangeraakt heeft (bijvoorbeeld een hand geven, zoenen, haren wassen, contactsporten, ...).
  - Belangrijk is dat u geen contacten invult, die alleen over telefoon of mobieltje hebben plaatsgevonden.
  - Als u de precieze leeftijd van de persoon warmee u contact had niet weet, schat dan de leeftijd (bijvoorbeeld 40-45 jaar).
- Gebruik per contactpersoon één regel: Als u meerdere keren per dag contact met één en dezelfde persoon had, gebruikt u maar één regel daarvoor en schat u de totale tijd die u met deze persoon samen doorbracht. Dit vult u in de laatste kolom in.
- De volgorde van invullen van de contactpersonen is niet belangrijk. De meest eenvoudige manier is om de personen in chronologische volgorde op te voeren. U kunt bijvoorbeeld beginnen met het invullen van de persoon waarmee u het eerst op die dag contact had en daarna alle andere personen waarmee u contact had, als u nagaat welke activiteiten u op de dag verrichtte.
- Wij verzoeken u na het invullen van de vragenlijst nog een keer na te gaan of u alle contactpersonen heeft opgevoerd. Uw agenda kan daarbij behulpzaam zijn.
- Een dag loopt in deze studie van 5 uur 's ochtends tot 5 uur 's ochtends op de volgende dag.

Als u problemen heeft met het invullen van deze vragenlijst, kunt u contact opnemen met ..... .

rivm

Datum: ☐☐/☐☐/2005
(wanneer u het dagboekje heeft ingevuld)

weekdag:
☐ maandag
☐ dinsdag
☐ woensdag
☐ donderdag
☐ vrijdag
☐ zaterdag
☐ zondag

Algemeen
Hieronder worden u enkele vragen gesteld over uw persoonlijke omstandigheden en huishouden.

1. Wat is uw geboortedatum? ☐☐ dag ☐☐ maand ☐☐☐☐ jaar
2. Wat is uw geslacht? ☐ vrouw ☐ man
3. Wat is uw beroep? _____
4. Heeft u op dit moment een baan/betaalde arbeid?
   ☐ zelfstandig
   ☐ in loondienst
   ☐ gepensioneerd/met de VUT
   ☐ huisman(vrouw)
   ☐ in opleiding (school, hoger onderwijs)
   ☐ werkeloos
   ☐ arbeidsongeschikt (WAO, ...)
   ☐ anders, namelijk
   _____

5. Wat is uw hoogst voltooide opleiding?

☐ geen opleiding (lager onderwijs niet afgemaakt)
☐ lager onderwijs (basisschool, speciaal basisonderwijs)
☐ lager of voorbereidend beroepsonderwijs (zoals LTS, LEAO, LHNO, VMBO)
☐ middelbaar algemeen voortgezet onderwijs(zoals MAVO, (M)ULO, MBO-kort, VMBO-t)
☐ middelbaar beroepsonderwijs en beroepsbegeleidend onderwijs (zoals MBO-lang, MTS, MEAO, BOL, BBL, INAS)
☐ hoger algemeen en voorbereidend wetenschappelijk onderwijs (zoals HAVO, VWO, Atheneum, Gymnasium, HBS, MMS)
☐ hoger beroepsonderwijs (zoals HBO, HTS, HEAO, HBO-v, kandidaatswetenschappelijk onderwijs)
☐ wetenschappelijk onderwijs (universiteit)

6. Welke nationaliteit heeft u?

☐ Nederlandse
☐ Surinaamse
☐ Nederlands Antilliaanse
☐ Arubaanse
☐ Turkse
☐ Marokkaanse
☐ andere EU nationaliteit
☐ overig, namelijk _____

7. Uit hoeveel personen bestaat uw huishouden (inclusief u zelf)? ☐☐ personen

8. Wat is de leeftijd van uw huisgenoten, te beginnen met de jongste?

☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐,
☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐, ☐☐ jaar

9. Wat is uw woonplaats? _____

rivm

10. Wat is uw postcode? ☐☐☐☐

11. Heeft u een beroep waarin u veel contact heeft met andere mensen (klanten, patiënten, leerlingen, ...)?

    ☐ ja ☐ nee

    Indien ja, met hoeveel mensen (klanten, patiënten, leerlingen, ...) heeft u ongeveer contact per dag? ☐☐☐

    Als u met meer dan tien mensen (klanten, patiënten, leerlingen, ...) per dag contact heeft, hoeft u deze niet afzonderlijk in het dagboekje op te nemen. Noteert u dan alleen alle andere contacten, zoals leden van u huishouden, vrienden, collega's enzovoorts.

Vragen over contacten
Hieronder worden u enkele vragen gesteld over alle personen met wie u op de aan u toegewezen weekdag contact had of ontmoette.

Op de volgende pagina laten wij eerst een voorbeeld zien hoe u de vragen over contacten in het schema moet invullen, daarna volgt een leeg schema dat u zelf mag invullen.

rivm

Voorbeeld

leeftijd (evtl. range)	geslacht		plaats van contact (meerdere keuzes mogelijk)					
	vrouw	man	thuis	werk-plek	kinder-opvang/ school/ universiteit	vervoer (trein, bus, auto, ...)	vrije tijd	anders
9 (–)	☐	X	X	☐	☐	X	☐	☐
25 (–30)	X	☐	☐	☐	☐	☐	☐	X

Voorbeeld eerste rij: met uw negenjarige zoon heeft u 10 minuten gesproken tijdens de rit naar school voordat u naar uw werk ging. Bij het afscheid heeft u hem omarmd. 's avonds heeft u thuis met hem van 18.00 – 20.00 gespeeld, tot hij naar bed is gegaan.

Voorbeeld tweede rij: in uw favoriete schoenenzaak heeft u schoenen gepast en daarbij contact gehad met een jonge verkoopster. U schat haar leeftijd tussen 25 en 30 jaar. Als u de leeftijd niet nauwkeurig kunt schatten, kunt u ook een groter bereik aangeven, bijvoorbeeld 20 tot 30 jaar.

Hoe vaak heeft u normaal gesproken contact met deze persoon?					Heeft u zijn/haar huid geraakt?		Totale tijd, doorgebracht met persoon (over de hele dag optellen)				
(bijna) iedere dag	een paar keer per week	een paar keer per maand	een paar keer per jaar of minder	de eerste keer	(bijv. hand geven, zoenen, sport) ja	nee	minder dan 5 Min.	5 – 15 Min.	15 Min. – 1 uur	1 – 4 uur	4 uur of meer
X					X					X	
			X			X			X		

7

Lijst van personen, met wie u op de toegewezen dag tussen 5 uur 's ochtends tot de volgende dag 5 uur 's ochtends contact had

leeftijd (evtl. range)	geslacht		plaats van contact (meerdere keuzes mogelijk)					
	vrouw	man	thuis	werk-plek	kinder-opvang/ school/ universiteit	vervoer (trein, bus, auto, ...)	vrije tijd	anders
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐
☐☐ (–☐☐)	☐	☐	☐	☐	☐	☐	☐	☐

8

Hoe vaak heeft u normaal gesproken contact met deze persoon?					Heeft u zijn/haar huid geraakt? (bijv. hand geven, zoenen, sport)		Totale tijd, doorgebracht met persoon (over de hele dag optellen)				
(bijna) iedere dag	een paar keer per week	een paar keer per maand	een paar keer per jaar of minder	de eerste keer	ja	nee	minder dan 5 Min.	5 – 15 Min.	15 Min. – 1 uur	1 – 4 uur	4 uur of meer
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

9

rivm

12. Had u problemen bij het invullen van dit dagboekje? Zo ja, kunt u de problemen beschrijven?

_____

_____

_____

_____

13. Heeft u deze vragenlijst overdag of 's avonds ingevuld?

☐ overdag

☐ 's avonds

14. Hoeveel contacten denkt u niet te hebben ingevuld, of omdat u de contacten vergeten bent, of omdat het er teveel waren?

☐ 0

☐ 1 – 4

☐ 5 – 9

☐ 10 of meer

Bedankt voor uw deelname.

Alle informatie wordt strikt vertrouwelijk behandeld en is alleen voor wetenschappelijk onderzoek bedoeld.

Appendix 7 Explanation of the PIENTER 2-database

The P2 database, a SQL (Structured Query Language) database, was developed by an external company and consisted of the following three parts: 1) central database; 2) de-central database; and 3) a data-entry part; The P2 database was located at the KADMOS server of the RIVM.

Table A7.1 Explanation of actions in central database

Action	From	To
Importing samples of invited individuals	Population registers municipalities	RIVM, P2 team
Exporting list participants for reminder calls	RIVM, P2 team	Call centre
Importing list participants with data on participation and completed non response questionnaires	Call centre	RIVM, P2 team
Exporting list participants for invitation packages	RIVM, P2 team	Printing office of RIVM

Table A7.2 Various tools of central database

Tools
Planning dates for the blood sampling clinics
Planning dates for participants at clinics
Looking up details of a participant
Registration of tubes (blood and DNA), vaccination certificates, questionnaire and buccal swab*
Data-entry of vaccination certificates and non response questionnaires
Activating of a municipality**
Defining sub municipalities***
Making reports

*Initially all materials received from the participants were registered at the RIVM, later on only the tubes for serum and DNA and the buccal swabs were registered
** This was done for Utrecht and Schiedam
*** This was done for Amsterdam, Den Haag, Diemen, Enschede, Heusden, Korendijk, Schiedam, Tholen, Utrecht and Zaanstad. The sub municipalities were defined because more than one clinic at more than one location was needed. Individuals were then invited to the nearest clinic.

The de-central database was developed to register the individuals at the blood sampling clinics. Before and after each clinic contact with the central database was made to up- and download the most recent information.

Appendix 8 Materials present at the clinic

The materials present at the clinics were:

- Arrows to point the way to the waiting room in the building
- Brochure with information on the P2 project and posters for in the waiting room
- Material for the blood sampling
- Two laptops for the intake (three if it was expected to be busy)
- One GSM
- A reel and tape
- Pencils, red pencils, sell tape, stapler and notepaper
- List with stickers with sample numbers and a scanner for bar codes
- Information about the clinics in the municipality
- Lists with all invited individuals in a municipality for registration of the gift vouchers
- Blanco documents such as informed consents, questionnaires, diaries, intake forms (if laptop is not working), RIVM envelopes (for returning informed consents, questionnaires or vaccination certificates)
- Gift vouchers and little presents for the children
- Copying machine, paper and reserve toner
- Cool box (has not been used), plastic bags and absorption material
- Map with instructions for the blood sampling clinic

Appendix 9 Criteria for location of the clinic

The location had to meet certain criteria, which were flexible:

- Well-known location in the town/city
- Sufficient parking place
- Possibility for organizing clinics from 12.00 a.m. till 8.00 p.m.
- Waiting room
- Three tables with chairs in entrance/reception for the administration
- One to two consulting rooms with a table and several chairs (in total 2 chairs with armrests and without wheels and 2 chairs without armrest and possibly with wheels)
- Electric point in administration room (for laptops, copying machine et cetera)

Appendix 10 Questionnaire 0-14 year-olds

Toelichting op de vragenlijst

Deze vragenlijst bestaat uit 50 vragen, verdeeld in zes onderdelen (A t/m F). De vragenlijst begint met enkele algemene vragen over uw kind. Verder bevat de vragenlijst vragen over inentingen die uw kind heeft gehad en over de gezondheid van uw kind en ziekten die uw kind mogelijk heeft doorgemaakt. Ook worden enkele vragen gesteld over bezigheden die verband kunnen houden met blootstelling aan infectieziekten. Tenslotte worden enkele vragen gesteld over uw mening ten opzichte van inentingen.

Bij de meeste vragen staan meerdere antwoordmogelijkheden aangegeven. U wordt verzocht het antwoord dat voor uw kind van toepassing is of het meest overeenstemt, aan te kruisen. Wanneer u meer antwoorden kunt aankruisen, wordt dit uitdrukkelijk bij de vraag vermeld. Bij sommige onderdelen wordt om een toelichting gevraagd; u kunt dit in de daarvoor bestemde ruimte opschrijven. De nummertjes bij de antwoorden hebben voor u geen betekenis, zij dienen voor administratieve doeleinden.

Het invullen van de vragenlijst kost ongeveer 25 minuten. Wilt u bij **alle** vragen een antwoord aankruisen?

Veel succes bij het invullen van de vragenlijst!

Invullen van de vragenlijst door de ouder/verzorger

De vragen in de vragenlijst hebben betrekking op de persoon die vermeld staat op de uitnodigingsbrief (= uitgenodigde persoon). Aangezien de uitgenodigde persoon over het algemeen te jong zal zijn om de vragenlijst in te vullen, zijn de vragen gericht aan de ouder/verzorger. Hierbij is het belangrijk antwoorden in te vullen die voor het uitgenodigde kind gelden.

Stel bijvoorbeeld dat de vragenlijst gericht is aan P. Janssen, geboren 02-10-1993. De moeder van P. Janssen vult de vragenlijst in met de gegevens over haar zoon. Dan ziet het voorbeeld er als volgt uit:

3. Wat is de geboortedatum van uw kind?

0	2	1	0	1	9	9	3
dag		maand		jaar			

4. Wat is het geslacht van uw kind?

1. ● man
2. ○ vrouw

Indien uw kind de vragenlijst toch zelf invult dient uw kind bij de volgende vraag te lezen: "Wat is de geboortedatum van uw kind?" → "Wat is je geboortedatum?"

Dit geldt voor het invullen van **alle** vragen in de vragenlijst, tenzij anders is aangegeven.

A. Algemeen

Hieronder worden enkele vragen gesteld over de persoonlijke omstandigheden en het huishouden waar uw kind deel van uitmaakt. Deze informatie gebruiken wij om te bekijken of de steekproef een goede afspiegeling is van de Nederlandse samenleving.

1. Door wie wordt de vragenlijst ingevuld?

1. ○ Uitgenodigde persoon
2. ○ Ouder/verzorger van uitgenodigde persoon
3. ○ Iemand anders, namelijk ☐

2. Op welke datum vult u de vragenlijst in?

☐☐ ☐☐ ☐☐☐☐
dag maand jaar

3. Wat is de geboortedatum van uw kind?

☐☐ ☐☐ ☐☐☐☐
dag maand jaar

4. Wat is het geslacht van uw kind?

1. ○ Man
2. ○ Vrouw

5. Wat is de nationaliteit van uw kind?
Meerdere antwoorden mogelijk

1. ○ Nederlandse
2. ○ Surinaamse
3. ○ Nederlands Antilliaanse
4. ○ Arubaanse
5. ○ Turkse
6. ○ Marokkaanse
7. ○ Overig, namelijk ☐

6a. Wat is het geboorteland van uw kind?

1. ○ Nederland → *ga naar vraag 7*
2. ○ Suriname
3. ○ Nederlandse Antillen
4. ○ Aruba
5. ○ Turkije
6. ○ Marokko
7. ○ Een ander land, namelijk ☐

6b. Sinds wanneer woont uw kind in Nederland?

Sinds ☐☐☐☐
jaartal

7. Zijn de volgende familieleden van uw kind in Nederland geboren?

a. De vader 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ____

b. De moeder 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ____

c. De opa van vaders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ____

d. De oma van vaders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ____

e. De opa van moeders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ____

f. De oma van moeders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ____

8a. Uit hoeveel personen bestaat het huishouden waarvan uw kind deel uit maakt (inclusief uw kind)?
Met huishouden bedoelen wij alle personen waarmee uw kind in één huis woont. Dit kan het gezin zijn.

☐☐ personen

8b. Wat is de leeftijd van de huisgenoten van uw kind, te beginnen met de jongste?

☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar

9. Hoeveel verschillende kamers bevat het huis waar uw kind woont? (w.c., badkamer, hal en keuken NIET meetellen; alle andere kamers wel)

☐☐ kamers

10a. Bezoekt uw kind een crèche/kinderdagverblijf of peuterspeelzaal?
Eén dagdeel is een halve dag.

1. ○ Ja, namelijk ☐☐ dagdelen per week
2. ○ Nee

10b. Zijn er andere kinderen in het huishouden die een crèche/kinderdagverblijf of peuterspeelzaal bezoeken? *Wilt u bij meer kinderen de dagdelen optellen!*

1. ○ Ja, namelijk ☐☐ dagdelen per week
2. ○ Nee

11. Wat is de hoogst voltooide opleiding van de moeder van het kind?

1. ○ Geen opleiding (lager onderwijs niet afgemaakt)
2. ○ Lager onderwijs (basisschool, speciaal basisonderwijs)
3. ○ Lager of voorbereidend beroepsonderwijs (zoals LTS, LEAO, LHNO, VMBO)
4. ○ Middelbaar algemeen voortgezet onderwijs (zoals MAVO, (M)ULO, MBO-kort, VMBO-t)
5. ○ Middelbaar beroepsonderwijs en beroepsbegeleidend onderwijs (zoals MBO-lang, MTS, MEAO, BOL, BBL, INAS)
6. ○ Hoger algemeen en voorbereidend wetenschappelijk onderwijs (zoals HAVO, VWO, Atheneum, Gymnasium, HBS, MMS)
7. ○ Hoger beroepsonderwijs (zoals HBO, HTS, HEAO, kandidaatswetenschappelijk onderwijs)
8. ○ Wetenschappelijk onderwijs (universiteit)

12. Wat is het netto maandinkomen van de huishouding waar uw kind deel van uit maakt?
Netto is het bedrag dat u maandelijks op de bank- of girorekening krijgt. Dit zijn inkomsten uit arbeid, pensioen, uitkeringen of alimentatie. Kinderbijslag of vakantie-uitkering niet meerekenen

1. ○ Minder dan € 850,-
2. ○ € 851,- tot en met € 1.150,-
3. ○ € 1.151,- tot en met € 1.750,-
4. ○ € 1.751,- tot en met € 3.050,-
5. ○ € 3.051,- tot en met € 3.500,-
6. ○ €3.501,- of meer
7. ○ Wil ik niet beantwoorden

13a. Tot welk geloof of levensovertuiging rekent u (de ouder/verzorger) zich?

1. ○ Protestants Christelijk (Gereformeerd, Hervormd etc.) → *ga naar vraag 13b*
2. ○ Rooms Katholiek
3. ○ Islam
4. ○ Jodendom
5. ○ Boeddhisme
6. ○ Hindoeïsme
7. ○ Ander geloof of levensovertuiging
8. ○ Geen geloof

→ *ga naar vraag 14*

13b. Tot welk specifiek Protestants Christelijk kerkgenootschap rekent u (de ouder/verzorger) zich dan?

1. ○ Gereformeerde Bond binnen de Protestantse Kerk in Nederland
2. ○ Protestantse Kerk in Nederland (Nederlands Hervormd, Gereformeerd, Luthers), maar **niet** Gereformeerde Bond
3. ○ Hersteld Hervormde Kerk
4. ○ Gereformeerde Gemeenten
5. ○ Gereformeerde Gemeenten in Nederland
6. ○ Oud Gereformeerde Gemeenten
7. ○ Christelijke Gereformeerde Kerken
8. ○ Gereformeerde Kerken (vrijgemaakt)
9. ○ Nederlands Gereformeerde Kerken
10. ○ Pinkstergemeenten en Evangeliegemeenten
11. ○ Doopsgezinde Broederschap
12. ○ Remonstrantse Broederschap
13. ○ Baptistengemeenten
14. ○ Anders, namelijk

B. Inentingsgegevens

In dit deel van de vragenlijst worden vragen gesteld over inentingen die uw kind mogelijk heeft gehad en over reizen naar het buitenland. Informatie over inentingen kunt u in het inentingsboekje of andere vaccinatiebewijzen van uw kind opzoeken.

14. Heeft uw kind meegedaan/doet uw kind mee aan het gangbare vaccinatieprogramma/ inentingsprogramma?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

Wanneer uw kind een inentingsboekje of ander vaccinatiebewijs heeft, wilt u dit meebrengen naar het spreekuur voor bloedafname?

15. Wanneer is uw kind **voor het laatst** in verband met een **verwonding** ingeënt tegen *tetanus* (straatvuil)?

1. ○ Niet van toepassing, niet ingeënt in verband met een verwonding
2. ○ Minder dan 12 maanden geleden
3. ○ 1 tot 5 jaar geleden
4. ○ 5 tot 10 jaar geleden
5. ○ 10 jaar of langer geleden
6. ○ Weet ik niet

16a. Hoe vaak ongeveer heeft uw kind in de **afgelopen maand** *buiten* een wond(je) opgelopen?

1. ☐☐ Keer → *indien 0 keer: ga naar vraag 17*
2. ○ Weet ik niet

16b. Heeft uw kind voor deze wond een arts bezocht?

1. ○ Ja
2. ○ Nee

16c. Is uw kind in verband met deze wond ingeënt tegen tetanus?

1. ○ Ja
2. ○ Nee

17. Is uw kind ooit ingeënt tegen ***hepatitis A*** *(besmettelijke geelzucht overdraagbaar via voedsel/water)* bijvoorbeeld in verband met een reis naar het buitenland?
Dit betreft hepatitis A vaccin dat langdurig bescherming biedt na twee of drie injecties.

1. ○ Ja
    1. ○ Minder dan 12 maanden geleden
    2. ○ 1 tot 5 jaar geleden
    3. ○ 5 tot 10 jaar geleden
    4. ○ 10 jaar of langer geleden
    5. ○ Weet ik niet
2. ○ Nee
3. ○ Weet ik niet

Wanneer u een geel internationaal vaccinatieboekje heeft van uw kind, wilt u dit meenemen naar het spreekuur voor bloedafname?

18. Is uw kind ooit ingeënt tegen ***hepatitis B?*** *(een vorm van geelzucht welke onder andere overdraagbaar is via bloed)*

1. ○ Ja
    1. ○ Minder dan 12 maanden geleden
    2. ○ 1 tot 5 jaar geleden
    3. ○ 5 tot 10 jaar geleden
    4. ○ 10 jaar of langer geleden
    5. ○ Weet ik niet
2. ○ Nee
3. ○ Weet ik niet

19. Heeft uw kind ooit tuberculose gehad?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

20. Is er ooit bij uw kind een positieve Mantouxtest vastgesteld?
Dit wil zeggen een reactie op de huidtest voor tuberculose.

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

21. Heeft uw kind ooit deelgenomen aan tuberculose **contactonderzoek** door een GGD?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

22. Is uw kind ooit ingeënt tegen tuberculose(TBC (het vaccin heet BCG)

In Nederland wordt vaccinatie tegen tuberculose vrijwel uitsluitend gegeven bij de tuberculoseafdeling van de GGD. In landen waar tuberculose veel voorkomt, wordt de vaccinatie ertegen vaak direct na de geboorte gegeven.

De BCG wordt meestal op de linker bovenarm gegeven. Enkele weken nà de vaccinatie tegen tuberculose ontstaat er een zweertje dat vanzelf dichtgaat. In veel gevallen blijft er een (klein) litteken over.

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

23a. Is uw kind wel eens in Azië, Afrika of Zuid/Midden-Amerika geweest?

Meerdere antwoorden mogelijk

1. ○ Ja, in Azië (bijvoorbeeld Turkije, Thailand, Indonesië)
2. ○ Ja, in Afrika (bijvoorbeeld Marokko, Egypte, Kenia)
3. ○ Ja, in Zuid/Midden-Amerika (bijvoorbeeld Suriname, Mexico, Dominicaanse Republiek)
4. ○ Nee → *ga naar vraag 24*

23b. In welk land en hoe lang is uw kind **voor de laatste** keer in Azië, Afrika of Zuid/Midden-Amerika geweest?

In land ☐

1. ○ Korter dan 6 weken
2. ○ Tussen de 6 weken en 3 maanden
3. ○ Tussen de 3 maanden en 12 maanden
4. ○ Langer dan 12 maanden

23c. Wat was de reden voor dit **laatste bezoek** van uw kind in Azië, Afrika of Zuid/Midden-Amerika?

Meerdere antwoorden mogelijk

1. ○ Vakantie
2. ○ Familie/vrienden bezoek
3. ○ Werk van ouder/verzorger
4. ○ Anders namelijk

☐

C. Gezondheid en ziektegegevens

Dit onderdeel van de vragenlijst bevat vragen over de gezondheid van uw kind en welke ziekten uw kind heeft doorgemaakt.
Deze informatie gebruiken wij om te bekijken of de afweer tegen verschillende ziekten nog aanwezig is in het bloed.

24. Hoe is over het algemeen de gezondheidstoestand van uw kind?

1. ○ Uitstekend
2. ○ Zeer goed
3. ○ Goed
4. ○ Matig
5. ○ Slecht

25a. Heeft uw kind in de **afgelopen 12 maanden** gedurende **meer dan twee weken** veel gehoest?

1. ○ Ja
   1. ○ Minder dan 3 maanden geleden, mijn kind hoest nu nog
   2. ○ Minder dan 3 maanden geleden, mijn kind hoest nu niet meer
   3. ○ 3 -6 maanden geleden
   4. ○ 6-12 maanden geleden
2. ○ Nee → *ga naar vraag 26*
3. ○ Weet ik niet

25b. Indien ja, heeft uw kind daarvoor een arts bezocht?

1. ○ Ja, de arts heeft de diagnose 'kinkhoest' gesteld
2. ○ Ja, de arts heeft **niet** de diagnose 'kinkhoest' gesteld
3. ○ Nee, geen arts bezocht
4. ○ Weet ik niet

26a. Heeft uw kind in de **afgelopen 12 maanden** een opgezette, pijnlijke wang(-en) en koorts gehad waarbij dat **niet** te maken had met tandproblemen?

1. ○ Ja, opgezette pijnlijke wang(-en) **met** koorts
2. ○ Ja, opgezette pijnlijke wang(-en) **zonder** koorts
3. ○ Nee → *ga naar vraag 27*
4. ○ Weet ik niet

26b. Indien ja, heeft uw kind daarvoor een arts bezocht?

1. ○ Ja, de arts heeft de diagnose 'bof' gesteld
2. ○ Ja, de arts heeft **niet** de diagnose 'bof' gesteld
3. ○ Nee, geen arts bezocht
4. ○ Weet ik niet

27a. Heeft uw kind in **de afgelopen 12 maanden** plotseling optredende rode vlekjes op de romp gehad die binnen een week weer weg waren?

1. ○ Ja, rode vlekjes op *romp* **met** koorts
2. ○ Ja, rode vlekjes op *romp* **zonder** koorts
3. ○ Nee → *ga naar vraag 28*
4. ○ Weet ik niet

27b. Indien ja, heeft uw kind daarvoor een arts bezocht?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

28. Heeft uw kind ooit waterpokken doorgemaakt?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

29a. Heeft uw kind u in de **afgelopen maand** last gehad van één of meer van de volgende klachten?
Meerdere antwoorden mogelijk

	1. **Ja**	2. **Nee**	3. **Weet ik niet**
a. Diarree (= tenminste 3 maal dunne ontlasting in een periode van 24 uur)	○	○	○
b. Braken (= tenminste 3 maal braken in een periode van 24 uur)	○	○	○
c. Koorts (38° C of hoger)	○	○	○
d. Misselijkheid	○	○	○
e. Buikpijn/buikkrampen	○	○	○
f. Bloed in ontlasting	○	○	○
g. Slijm in ontlasting	○	○	○
h. Hoesten	○	○	○
i. Loopneus/verstopte neus	○	○	○

Indien geen klachten → *ga naar vraag 30*

29b. Is uw kind voor deze klachten bij de huisarts geweest?

1. ○ Ja
2. ○ Nee

29c. Toen uw kind **afgelopen maand** bovenstaande klachten had; hoeveel dagen heeft uw kind zich ziek gemeld?

1. ☐☐ Dagen
2. ○ Niet van toepassing, niet ziek gemeld → *ga naar vraag 30*

29d. Heeft iemand of hebben meerdere personen tijdens die keer dat uw kind ziek was **betaald** en/of **onbetaald** werk afgezegd om voor uw kind te zorgen?
Onbetaald werk is bijvoorbeeld huishoudelijk werk of vrijwilligerswerk.

Indien meerdere personen dan dagen en uren bij elkaar optellen.

1. ○ Ja, er is
   1. ○ **Betaald** werk afgezegd, namelijk ongeveer
      1. ☐☐ dagen
      2. ☐☐ uren per dag
   2. ○ **Onbetaald** werk afgezegd, namelijk ongeveer
      1. ☐☐ dagen
      2. ☐☐ uren per dag
2. ○ Nee

30a. Heeft uw kind één van de volgende aandoeningen:
Meerdere antwoorden mogelijk

1. ○ Astma of COPD
2. ○ Hooikoorts
3. ○ Eczeem
4. ○ Voedselallergie
5. ○ Andere allergieën, namelijk ☐
6. ○ Nee → *ga naar vraag 31*

30b. Is of zijn deze aandoeningen door een arts vastgesteld?
Meerdere antwoorden mogelijk

1. ○ Ja, door een arts vastgesteld, namelijk
   1. ○ Astma of COPD
   2. ○ Hooikoorts
   3. ○ Eczeem
   4. ○ Voedselallergie
   5. ○ Anders, namelijk ☐
2. ○ Nee, niet door een arts vastgesteld

Indien uw kind *geen* voedselallergie heeft → ga naar vraag 31.

30c. Als uw kind een voedselallergie heeft is hij/zij dan allergisch tegen één van de volgende producten?
Meerdere antwoorden mogelijk

1. ○ Melk → zo ja, gaat dat om lactose intolerantie?
   1. ○ Ja
   2. ○ Nee
   3. ○ Weet ik niet
2. ○ Ei
3. ○ Pinda
4. ○ Noten
5. ○ Vis
6. ○ Schaaldieren
7. ○ Soja
8. ○ Graanproducten → zo ja, gaat dat om gluten-overgevoeligheid?
   1. ○ Ja
   2. ○ Nee
   3. ○ Weet ik niet
9. ○ Andere voedselallergie

31. Heeft uw kind een piercing of tatoeage (gehad)?
(Oorbellen niet meegeteld)

1. ○ Ja,
   In welk jaar (voor het eerst) □□□□
   Jaartal
2. ○ Nee

D. Bezigheden

Hieronder volgen enkele vragen over bezigheden. Deze vragen stellen we omdat deze bezigheden verband kunnen houden met blootstelling aan infectieziekten.

32a. Speelt uw kind wel eens in een zandbak?

1. ○ Ja
2. ○ Nee → *ga naar vraag 33*

32b. Zo ja, in welke zandbakken speelt uw kind wel eens?
Meerdere antwoorden mogelijk

1. ○ Zandbak in eigen tuin
2. ○ Zandbak op school/ kinderdagverblijf/crèche of peuterspeelzaal
3. ○ Zandbak in park/speeltuin

32c. Hoeveel tijd **per week** (in de lente/zomer) speelt uw kind gemiddeld in een zandbak?

☐☐ uur per week

32d. Stopt uw kind wel eens zand in zijn/haar mond?

1. ○ Nee, nooit
2. ○ Soms
3. ○ Vaak

33a. Heeft uw kind in de **afgelopen 12 maanden** wel eens in de tuin of op het land gespeeld of 'gewerkt', waarbij uw kind **met *blote* handen in de aarde** bezig was?

1. ○ Ja
2. ○ Nee → *ga naar vraag 34*
3. ○ Weet ik niet

33b. Hoeveel tijd **per week** (in de lente/zomer) heeft uw kind hieraan gemiddeld besteed?

Gemiddeld ☐☐ uur per week

34. Heeft uw kind in **de afgelopen 12 maanden** contact met katten gehad door ze te aaien of er mee te spelen?

1. ○ Ja met
   1. ○ Jonge katjes (jonger dan een jaar)
   2. ○ Volwassen katten
2. ○ Nee
3. ○ Weet ik niet

35a. Werden er in het huishouden van uw kind in **de afgelopen 5 jaar** huisdieren gehouden?

1. ○ Ja
2. ○ Nee → *ga naar vraag 36*

35b. Zo ja, welke huisdieren?
Meerdere antwoorden mogelijk

1. ○ Hond
2. ○ Kat
3. ○ Vogel
4. ○ Konijn, cavia of hamster
5. ○ Muis of rat
6. ○ Vis
7. ○ Anders, namelijk

36a. Werden er in het huishouden van uw kind in **de afgelopen 5 jaar** landbouwdieren gehouden?

1. ○ Ja
2. ○ Nee → *ga naar vraag 37*

36b. Zo ja, welke landbouwdieren?
Meerdere antwoorden mogelijk

1. ○ Varken
2. ○ Rund
3. ○ Schaap
4. ○ Geit
5. ○ Pluimvee
6. ○ Anders, namelijk

37. Hoe vaak is uw kind in **de afgelopen 5 jaar** door een teek gebeten?

1. ○ Nooit
2. ○ 1-4 keer
3. ○ 5-9 keer
4. ○ 10 of meer keer
5. ○ Weet ik niet

38. Eet uw kind uitsluitend vegetarisch?

1. ○ Ja, sinds ongeveer ☐☐☐☐ → *ga naar vraag 40*
   jaartal
2. ○ Nee

39a. Heeft uw kind in **de afgelopen 12 maanden** een van de onderstaande **rauwe** of **halfgare** vleesproducten gegeten?
Meerdere antwoorden mogelijk

1. ○ Rundvlees (bijvoorbeeld filet américain, halfgaar rundergehakt, tartaar, niet helemaal doorbakken hamburger)
2. ○ Varkensvlees (bijvoorbeeld fricandeau, halfgaar gehakt (varkens/halfomhalf))
3. ○ Gevogelte (bijvoorbeeld halfgare kip)
4. ○ Anders, namelijk
   ☐
5. ○ Weet ik niet
6. ○ Nee → *ga naar vraag 40*

39b. Indien ja, hoe vaak was dat dan?

1. ○ Ja, dagelijks
2. ○ Ja, wekelijks
3. ○ Ja, maandelijks
4. ○ Ja, minder vaak dan maandelijks
5. ○ Weet ik niet

40. Eet uw kind regelmatig ***ongewassen*** rauwe groenten? (sla, radijs, komkommer, etc)

1. ○ Nee
2. ○ Ja, dagelijks
3. ○ Ja, wekelijks
4. ○ Ja, maandelijks
5. ○ Ja, minder vaak dan maandelijks
6. ○ Weet ik niet

41. Met hoeveel verschillende personen per leeftijdsklasse, huisgenoten niet meegerekend, heeft uw kind **gisteren** 'een praatje' gemaakt of gespeeld en **welke dag van de week** was dat?
We bedoelen hier met 'een praatje' dat uw kind tenminste enkele woorden heeft gewisseld, heeft gespeeld en/of iemand heeft aangeraakt, telefoongesprekken tellen niet mee.

Dit is een lastige vraag daarom willen we benadrukken dat het gaat om een antwoord bij benadering!

Indien uw kind gisteren **geen** 'praatje' heeft gemaakt → *ga naar vraag 42*

1. 0-9 jaar ☐☐ personen,
   namelijk 1. ☐☐ personen van 0-4 jaar
   2. ☐☐ personen van 5 tot 9 jaar
2. 10-19 jaar ☐☐ personen
3. 20-29 jaar ☐☐ personen
4. 30-39 jaar ☐☐ personen
5. 40-49 jaar ☐☐ personen
6. 50-59 jaar ☐☐ personen
7. 60-69 jaar ☐☐ personen
8. 70-79 jaar ☐☐ personen
9. 80-89 jaar ☐☐ personen
10. 90+ jaar ☐☐ personen

11. Totaal ☐☐ personen

Gisteren was het:

1. ○ Maandag
2. ○ Dinsdag
3. ○ Woensdag
4. ○ Donderdag
5. ○ Vrijdag
6. ○ Zaterdag
7. ○ Zondag

E. Houding ten opzichte van inentingen

Onderstaande vragen hebben betrekking op uw mening over inentingen. Deze vragen zijn gericht aan de ouder/verzorger van het uitgenodigde kind. Uw mening over vaccinatie is van belang bij eventuele aanpassingen van het vaccinatieprogramma.

42. Is uw mening over wel of niet vaccineren **in de afgelopen 5 jaar** veranderd?

1. ○ Nee
2. ○ Ja, nu **meer** geneigd tot vaccineren
3. ○ Ja, nu **minder** geneigd tot vaccineren
4. ○ Weet ik niet

43. Heeft een van de onderstaande zaken invloed op uw denkwijze over kindervaccinaties?

1. ○ Antroposofie
2. ○ Homeopathie
3. ○ Natuurgeneeswijzen
4. ○ Geloofsovertuiging
5. ○ Anders, namelijk
6. ○ Geen van bovengenoemde antwoorden

44. Bent u van plan om de vaccinaties die uw kind nog moet krijgen (volgens het gangbare vaccinatieprogramma) aan uw kind te laten toedienen?

1. ○ Zeer zeker wel
2. ○ Wel
3. ○ Waarschijnlijk wel
4. ○ Misschien wel, misschien niet
5. ○ Waarschijnlijk niet
6. ○ Zeer zeker niet
7. ○ Niet van toepassing

45. Wat is voor u de belangrijkste reden om uw kind **wel** te laten vaccineren volgens het Rijksvaccinatieprogramma?

1.

2. ○ Niet van toepassing

46. Wat is voor u de belangrijkste reden om uw kind **niet** te laten vaccineren volgens het Rijksvaccinatieprogramma?

1. ☐

2. ○ Niet van toepassing

47. Momenteel zijn de vaccinaties in het Rijksvaccinatieprogramma zo gecombineerd dat uw kind maximaal 2 prikken per keer krijgt toegediend. Wilt u hieronder aangeven hoeveel prikken per keer voor u aanvaardbaar is, als het niet anders kan? (slechts 1 antwoord aankruisen)

1. ○ Ik wil mijn kind niet één keer laten prikken voor deze vaccinaties
2. ○ Maximaal 1 prik per keer
3. ○ Maximaal 2 prikken per keer
4. ○ Maximaal 3 prikken per keer
5. ○ Maximaal 4 prikken per keer
6. ○ Ik vind elk aantal acceptabel

48. Hieronder volgen 5 stellingen. Wilt u per stelling aangeven in welke mate u het hiermee eens bent? (slechts 1 antwoord aankruisen)

48a. 'Kindervaccinaties zijn goed voor de bescherming van de gezondheid van mijn kind.'

1. ○ Zeer eens
2. ○ Eens
3. ○ Neutraal
4. ○ Oneens
5. ○ Zeer oneens

48b. 'Er is geen enkele noodzaak om gezonde kinderen te vaccineren tegen kinderziekten.'

1. ○ Zeer eens
2. ○ Eens
3. ○ Neutraal
4. ○ Oneens
5. ○ Zeer oneens

48c. 'Ik twijfel aan de veiligheid van de vaccinaties die kinderen krijgen.'

1. ○ Zeer eens
2. ○ Eens
3. ○ Neutraal
4. ○ Oneens
5. ○ Zeer oneens

48d. 'Door te vaccineren bouwt mijn kind zelf geen goede afweer op.'

1. ○ Zeer eens
2. ○ Eens
3. ○ Neutraal
4. ○ Oneens
5. ○ Zeer oneens

48e. 'Kindervaccinaties zijn goed voor de bescherming van de gezondheid van anderen.'

1. ○ Zeer eens
2. ○ Eens
3. ○ Neutraal
4. ○ Oneens
5. ○ Zeer oneens

F. Opmerkingen vragenlijst en project

Tot slot willen wij graag weten wat uw mening over de vragenlijst is en of u nog opmerkingen heeft.

49. Welke vragen uit de vragenlijst vond u onduidelijk?
Vraagnummer(s):

1. ☐
2. ○ Alle vragen waren duidelijk

50. Heeft u nog opmerkingen over de vragenlijst of het onderzoek?

U bent klaar met het invullen van de vragenlijst.
Wilt u de vragenlijst nog een keer doorlopen om te kijken of u alle vragen heeft beantwoord?

Ten slotte ter herinnering:

Meenemen naar het spreekuur

- Het inentingsboekje en andere vaccinatiebewijzen, zoals het geel internationaal vaccinatieboekje;
- De ingevulde vragenlijst;
- De ingevulde toestemmingsverklaring: ondertekenen door beide ouders van deelnemers jonger dan 18 jaar; deelnemers vanaf 12 jaar moeten zelf eveneens een toestemmingsverklaring ondertekenen

Hartelijk bedankt voor uw medewerking!

Appendix 11 Questionnaire 15-79 year-olds

Toelichting op de vragenlijst

Deze vragenlijst bestaat uit 57 vragen verdeeld in zes onderdelen (A t/m F). De vragenlijst begint met enkele algemene vragen. Verder bevat de vragenlijst vragen over inentingen die u heeft gehad en over uw gezondheid en ziekten die u mogelijk heeft doorgemaakt. Ook worden enkele vragen gesteld over bezigheden die verband kunnen houden met blootstelling aan infectieziekten. Tenslotte worden een aantal persoonlijke vragen gesteld die betrekking hebben op seksueel overdraagbare infectieziekten.

Bij de meeste vragen staan meerdere antwoordmogelijkheden aangegeven. U wordt verzocht het antwoord dat voor u van toepassing is, of het meest overeenstemt, aan te kruisen.
Wanneer u meer antwoorden kunt aankruisen, wordt dit uitdrukkelijk bij de vraag vermeld.
Bij sommige onderdelen vragen we om een toelichting; u kunt dit in de daarvoor bestemde ruimte opschrijven. De nummertjes bij de vragen hebben voor u geen betekenis, zij dienen voor administratieve doeleinden.

Het invullen van de vragenlijst kost ongeveer 25 minuten. Wilt u bij **alle** vragen een antwoord aankruisen?

Veel succes bij het invullen van de vragenlijst!

Belangrijk voor personen die de vragenlijst niet zelf kunnen invullen

De vragen in de vragenlijst hebben betrekking op de persoon die vermeld staat op de uitnodigingsbrief (= uitgenodigde persoon). Het kan zijn dat deze persoon de vragen niet zelf kan invullen. De antwoorden op de vragen kunnen dan door iemand anders ingevuld worden. Hierbij is het belangrijk antwoorden in te vullen die voor de uitgenodigde persoon gelden.

Stel bijvoorbeeld dat de vragenlijst gericht is aan de heer P. Janssen, geboren op 02-10-1923.
De dochter van de heer P. Janssen vult de vragenlijst in met de gegevens over haar vader. Dan moet u bij vraag 3 'Wat is uw geboortedatum?' lezen: 'Wat is de geboortedatum van de heer P. Janssen?'. Het voorbeeld ziet er dan als volgt uit:

3. Wat is uw geboortedatum?

0	2	1	0	1	9	2	3
dag		maand		jaar			

Hetzelfde geldt voor de vraag over geslacht. U leest dan voor 'Wat is uw geslacht?': 'Wat is het geslacht van de heer P. Janssen?'

4. Wat is uw geslacht?

1. ● man
2. ○ vrouw

Dit geldt voor het invullen van **alle** vragen in de vragenlijst.

A. Algemeen

Hieronder worden enkele vragen gesteld over uw persoonlijke omstandigheden en huishouden. Deze informatie gebruiken wij om te bekijken of de steekproef een goede afspiegeling is van de Nederlandse samenleving.

1. Door wie wordt de vragenlijst ingevuld?

1. ○ Uitgenodigde persoon
2. ○ Ouder/verzorger van uitgenodigde persoon
3. ○ Kind van uitgenodigde persoon
4. ○ Iemand anders, namelijk

2. Op welke datum vult u de vragenlijst in?

☐☐ ☐☐ ☐☐☐☐
dag maand jaar

3. Wat is uw geboortedatum?

☐☐ ☐☐ ☐☐☐☐
dag maand jaar

4. Wat is uw geslacht?

1. ○ Man
2. ○ Vrouw

5. Wat is uw burgelijke staat?

1. ○ Gehuwd/geregistreerd partnerschap
2. ○ Samenwonend
3. ○ Ongehuwd, nooit getrouwd
4. ○ Gescheiden, gescheiden levend
5. ○ Weduwe/weduwnaar

6. Welke nationaliteit heeft u?
Meerdere antwoorden mogelijk

1. ○ Nederlandse
2. ○ Surinaamse
3. ○ Nederlands Antilliaanse
4. ○ Arubaanse
5. ○ Turkse
6. ○ Marokkaanse
7. ○ Overig, namelijk

7a. Wat is uw geboorteland?

1. ○ Nederland → *ga naar vraag 8*
2. ○ Suriname
3. ○ Nederlandse Antillen
4. ○ Aruba
5. ○ Turkije
6. ○ Marokko
7. ○ Een ander land, namelijk

7D. Sinds wanneer woont u in Nederland? Sinds ☐☐☐☐
jaartal

8. Zijn de volgende familieleden in Nederland geboren?

a. Uw vader 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ☐

b. Uw moeder 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ☐

c. Grootvader van vaders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ☐

d. Grootmoeder van vaders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ☐

e. Grootvader van moeders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ☐

f. Grootmoeder van moeders kant 1. ○ Ja 2. ○ Nee, niet in Nederland, maar in ☐

9a. Uit hoeveel personen bestaat uw huishouden? (inclusief u zelf) *Met huishouden bedoelen wij alle personen waarmee u in één huis woont. Dit kan het gezin zijn.*
☐☐ personen

9b. Wat is de leeftijd van uw huisgenoten, te beginnen met de jongste?
☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar ☐☐ Jaar

10. Hoeveel verschillende kamers heeft uw huis? (w.c., badkamer, hal en keuken NIET meetellen; alle andere kamers wel)
☐☐ kamers

11. Zijn er kinderen in uw huishouden die een crèche/ kinderdagverblijf of peuterspeelzaal bezoeken?
Eén dagdeel is een halve dag. Wilt u bij meer kinderen de dagdelen optellen?
1. ○ Ja, namelijk ☐☐ dagdelen per week
2. ○ Nee

12. Wat is uw hoogst voltooide opleiding?

1. ○ Geen opleiding (lager onderwijs niet afgemaakt)
2. ○ Lager onderwijs (basisschool, speciaal basisonderwijs)
3. ○ Lager of voorbereidend beroepsonderwijs (zoals LTS, LEAO, LHNO, VMBO)
4. ○ Middelbaar algemeen voortgezet onderwijs (zoals MAVO, (M)ULO, MBO-kort, VMBO-t)
5. ○ Middelbaar beroepsonderwijs en beroepsbegeleidend onderwijs (zoals MBO-lang, MTS, MEAO, BOL, BBL, INAS)
6. ○ Hoger algemeen en voorbereidend wetenschappelijk onderwijs (zoals HAVO, VWO, Atheneum, Gymnasium, HBS, MMS)
7. ○ Hoger beroepsonderwijs (zoals HBO, HTS, HEAO, kandidaatswetenschappelijk onderwijs)
8. ○ Wetenschappelijk onderwijs (universiteit)

13. Wat is het **netto** maandinkomen van uw huishouding?
Netto is het bedrag dat u maandelijks op de bank- of girorekening krijgt. Dit zijn inkomsten uit arbeid, pensioen, uitkeringen of alimentatie. Kinderbijslag of vakantie-uitkering niet meerekenen

1. ○ Minder dan € 850,-
2. ○ € 851,- tot en met € 1.150,-
3. ○ € 1.151,- tot en met € 1.750,-
4. ○ € 1.751,- tot en met € 3.050,-
5. ○ € 3.051,- tot en met € 3.500,-
6. ○ € 3.501,- of meer
7. ○ Wil ik niet beantwoorden

14a. Tot welk geloof of levensovertuiging rekent u zichzelf?

1. ○ Protestants Christelijk (Gereformeerd, Hervormd etc.) → *ga naar vraag 14b*
2. ○ Rooms Katholiek
3. ○ Islam
4. ○ Jodendom
5. ○ Boeddhisme
6. ○ Hindoeïsme
7. ○ Ander geloof of levensovertuiging
8. ○ Geen geloof

→ *ga naar vraag 15*

14b. Tot welk specifiek Protestants Christelijk kerkgenootschap rekent u zichzelf dan?

1. ○ Gereformeerde Bond binnen de Protestantse Kerk in Nederland
2. ○ Protestantse Kerk in Nederland (Nederlands Hervormd, Gereformeerd, Luthers), maar **niet** Gereformeerde Bond
3. ○ Hersteld Hervormde Kerk
4. ○ Gereformeerde Gemeenten
5. ○ Gereformeerde Gemeenten in Nederland
6. ○ Oud Gereformeerde Gemeenten
7. ○ Christelijke Gereformeerde Kerken
8. ○ Gereformeerde Kerken (vrijgemaakt)
9. ○ Nederlands Gereformeerde Kerken
10. ○ Pinkstergemeenten en Evangeliegemeenten
11. ○ Doopsgezinde Broederschap
12. ○ Remonstrantse Broederschap
13. ○ Baptistengemeenten
14. ○ Anders, namelijk

B. Inentingsgegevens

In dit deel van de vragenlijst worden vragen gesteld over inentingen die u mogelijk heeft gehad en over reizen naar het buitenland. Informatie over inentingen kunt u in uw inentingsboekje of in uw andere vaccinatiebewijzen opzoeken.

15. Heeft u als kind meegedaan aan het gangbare vaccinatieprogramma/inentingsprogramma?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

Wanneer u een inentingsboekje of ander vaccinatiebewijs heeft, wilt u dit meebrengen naar het spreekuur voor bloedafname?

16a. Bent u vanwege uw beroep ingeënt?
Meerdere antwoorden mogelijk

1. ○ Ja, vanwege militaire dienst/beroepsmilitair
2. ○ Ja, vanwege een (para)medisch beroep
3. ○ Ja, anders namelijk
   _____
4. ○ Nee

16b. Indien u in militaire dienst bent geweest (of beroepsmilitair bent/was) wanneer bent u in dienst getreden?

□□□□
jaartal

Wanneer u een militair paspoort heeft, wilt u dit meebrengen naar het spreekuur voor bloedafname?

17. Wanneer bent u **voor het laatst** ingeënt tegen DTP (Difterie, Tetanus, Polio) bijvoorbeeld in verband met militaire dienst, beroep of reis naar het buitenland?

1. ○ Niet van toepassing, niet ingeënt
2. ○ Minder dan 12 maanden geleden
3. ○ 1 tot 5 jaar geleden
4. ○ 5 tot 10 jaar geleden
5. ○ 10 tot 15 jaar geleden
6. ○ 15 tot 20 jaar geleden
7. ○ Langer dan 20 jaar geleden
8. ○ Weet ik niet

18. Wanneer bent u **voor het laatst** in verband met een **verwonding** ingeënt tegen ***tetanus*** (straatvuil)?

1. ○ Niet van toepassing, niet ingeënt in verband met een verwonding
2. ○ Minder dan 12 maanden geleden
3. ○ 1 tot 5 jaar geleden
4. ○ 5 tot 10 jaar geleden
5. ○ 10 tot 15 jaar geleden
6. ○ 15 tot 20 jaar geleden
7. ○ Langer dan 20 jaar geleden
8. ○ Weet ik niet

19a. Hoe vaak ongeveer heeft u in de **afgelopen maand** ***buiten*** een wond(je) opgelopen?

1. ☐☐ Keer → *indien 0 keer: ga naar vraag 20*
2. ○ Weet ik niet

19b. Hebt u voor deze wond een arts bezocht?

1. ○ Ja
2. ○ Nee

19c. Bent u in verband met deze wond ingeënt tegen tetanus?

1. ○ Ja
2. ○ Nee

20. Bent u ooit ingeënt tegen ***hepatitis A*** (*besmettelijke geelzucht overdraagbaar via voedsel/water*) bijvoorbeeld in verband met een reis naar het buitenland?
Dit betreft hepatitis A vaccin dat langdurig bescherming biedt na twee of drie injecties.

1. ○ Ja
   1. ○ Minder dan 12 maanden geleden
   2. ○ 1 tot 5 jaar geleden
   3. ○ 5 tot 10 jaar geleden
   4. ○ 10 tot 15 jaar geleden
   5. ○ 15 tot 20 jaar geleden
   6. ○ Langer dan 20 jaar geleden
2. ○ Nee
3. ○ Weet ik niet

Wanneer u een geel internationaal vaccinatieboekje heeft, wilt u dit meenemen naar het spreekuur voor bloedafname?

21. Bent u ooit ingeënt tegen ***hepatitis B?*** *(een vorm van geelzucht welke onder andere overdraagbaar is via bloed)* bijvoorbeeld in verband met beroep of langdurig verblijf in het buitenland?

1. ○ Ja
    1. ○ Minder dan 12 maanden geleden
    2. ○ 1 tot 5 jaar geleden
    3. ○ 5 tot 10 jaar geleden
    4. ○ 10 tot 15 jaar geleden
    5. ○ 15 tot 20 jaar geleden
    6. ○ Langer dan 20 jaar geleden
2. ○ Nee
3. ○ Weet ik niet

22. Heeft u ooit tuberculose gehad?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

23. Is er ooit bij u een positieve Mantouxtest vastgesteld?
Dit wil zeggen een reactie op de huidtest voor tuberculose.

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

24. Heeft u ooit deelgenomen aan tuberculose **contactonderzoek** door een GGD?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

25. Bent u ooit ingeënt tegen tuberculose/TBC (het vaccin heet BCG)
In Nederland wordt vaccinatie tegen tuberculose vrijwel uitsluitend gegeven bij de tuberculoseafdeling van de GGD. In landen waar tuberculose veel voorkomt, wordt de vaccinatie ertegen vaak direct na de geboorte gegeven.

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

26a. Bent u wel eens in Azië, Afrika of Zuid/Midden-Amerika geweest?
Meerdere antwoorden mogelijk

1. ○ Ja, in Azië (bijvoorbeeld Turkije, Thailand, Indonesië)
2. ○ Ja, in Afrika (bijvoorbeeld Marokko, Egypte, Kenia)
3. ○ Ja, in Zuid/Midden-Amerika (bijvoorbeeld Suriname, Mexico, Dominicaanse Republiek)
4. ○ Nee → *ga naar vraag 27*

26b. In welk land en hoe lang bent u **de laatste** keer in Azië, Afrika of Zuid/Midden-Amerika geweest?

In land ☐

1. ○ Korter dan 6 weken
2. ○ Tussen de 6 weken en 3 maanden
3. ○ Tussen de drie maanden en 12 maanden
4. ○ Meer dan 12 maanden

26c. Wat was de reden voor dit **laatste bezoek** in Azië, Afrika of Zuid/Midden-Amerika?
Meerdere antwoorden mogelijk

1. ○ Vakantie
2. ○ Familie/vrienden bezoek
3. ○ Werk
4. ○ Anders, namelijk ☐

27. Is uw mening over wel of niet vaccineren **in de afgelopen 5 jaar** veranderd?

1. ○ Nee
2. ○ Ja, nu **meer** geneigd tot vaccineren
3. ○ Ja, nu **minder** geneigd tot vaccineren
4. ○ Weet ik niet

28. Heeft een van de onderstaande zaken invloed op uw denkwijze over vaccinaties?

1. ○ Antroposofie
2. ○ Homeopathie
3. ○ Natuurgeneeswijzen
4. ○ Geloofsovertuiging
5. ○ Anders, namelijk ☐
6. ○ Geen van bovengenoemde antwoorden

C. Gezondheid en ziektegegevens

Dit onderdeel van de vragenlijst bevat vragen over uw gezondheid en welke ziekten u heeft doorgemaakt. Deze informatie gebruiken wij om bijvoorbeeld te onderzoeken of de afweerstoffen tegen verschillende ziekten nog aanwezig zijn in het bloed.

29. Hoe is over het algemeen uw gezondheidstoestand?

1. ○ Uitstekend
2. ○ Zeer goed
3. ○ Goed
4. ○ Matig
5. ○ Slecht

30. Bent u momenteel zwanger?

1. ○ Ja
2. ○ Nee
3. ○ Niet van toepassing

31a. Heeft u in de **afgelopen 12 maanden** gedurende **meer dan twee weken** veel gehoest?

1. ○ Ja
   1. ○ Minder dan 3 maanden geleden, ik hoest nu nog steeds
   2. ○ Minder dan 3 maanden geleden, maar ik hoest nu niet meer
   3. ○ 3 -6 maanden geleden
   4. ○ 6-12 maanden geleden
2. ○ Nee → *ga naar vraag 32*
3. ○ Weet ik niet

31b. Indien ja, heeft u daarvoor een arts bezocht?

1. ○ Ja, de arts heeft de diagnose 'kinkhoest' gesteld
2. ○ Ja, de arts heeft **niet** de diagnose 'kinkhoest' gesteld
3. ○ Nee
4. ○ Weet ik niet

32a. Heeft u in de **afgelopen 12 maanden** een opgezette, pijnlijke wang(-en) en koorts gehad waarbij dat **niet** te maken had met tandproblemen?

1. ○ Ja, opgezette pijnlijke wang(-en) **met** koorts
2. ○ Ja, opgezette pijnlijke wang(-en) **zonder** koorts
3. ○ Nee → *ga naar vraag 33*
4. ○ Weet ik niet

32b. Indien ja, heeft u daarvoor een arts bezocht?

1. ○ Ja, de arts heeft de diagnose 'bof' gesteld
2. ○ Ja, de arts heeft **niet** de diagnose 'bof' gesteld
3. ○ Nee, geen arts bezocht
4. ○ Weet ik niet

33a. Heeft u in de **afgelopen 12 maanden** plotseling optredende rode vlekjes op de romp gehad die binnen een week weer weg waren?

1. ○ Ja, rode vlekjes op *romp* **met** koorts
2. ○ Ja, rode vlekjes op *romp* **zonder** koorts
3. ○ Nee → *ga naar vraag 34*
4. ○ Weet ik niet

33b. Indien ja, heeft u daarvoor een arts bezocht?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

34. Heeft u ooit waterpokken doorgemaakt?

1. ○ Ja
2. ○ Nee
3. ○ Weet ik niet

35a. Heeft u in de **afgelopen maand** last gehad van één of meer van de volgende klachten?
Meerdere antwoorden mogelijk

	1. **Ja**	2. **Nee**	3. **Weet ik niet**
a. Diarree (= tenminste 3 maal dunne ontlasting in een periode van 24 uur)	○	○	○
b. Braken (= tenminste 3 maal braken in een periode van 24 uur)	○	○	○
c. Koorts (38° C of hoger)	○	○	○
d. Misselijkheid	○	○	○
e. Buikpijn/buikkrampen	○	○	○
f. Bloed in ontlasting	○	○	○
g. Slijm in ontlasting	○	○	○
h. Hoesten	○	○	○
i. Loopneus/verstopte neus	○	○	○

Indien geen klachten → *ga naar vraag 36*

35b. Bent u voor **deze klachten** bij de huisarts geweest?

1. ○ Ja
2. ○ Nee

35c. Hoeveel dagen heeft u zich ziek gemeld vanwege deze klachten?

1. ☐☐ Dagen
2. ○ Niet van toepassing, niet ziek gemeld → *ga naar vraag 36*

35d. Heeft u of hebben anderen vanwege uw ziekteverschijnselen **betaald** en/of **onbetaald** werk afgezegd?
Onbetaald werk is bijvoorbeeld huishoudelijk werk of vrijwilligerswerk.

Indien meerdere personen dan dagen en uren bij elkaar optellen.

1. ○ Ja, er is
   1. ○ **Betaald** werk afgezegd, namelijk ongeveer
      1. ☐☐ dagen
      2. ☐☐ uren per dag
   2. ○ **Onbetaald** werk afgezegd, namelijk ongeveer
      1. ☐☐ dagen
      2. ☐☐ uren per dag
2. ○ Nee

36a. Heeft u één van de volgende aandoeningen:
Meerdere antwoorden mogelijk

1. ○ Astma of COPD
2. ○ Hooikoorts
3. ○ Eczeem
4. ○ Voedselallergie
5. ○ Andere allergieën, namelijk ☐
6. ○ Nee → *ga naar vraag 37*

36b. Is of zijn deze aandoeningen door een arts vastgesteld?
Meerdere antwoorden mogelijk

1. ○ Ja, door een arts vastgesteld, namelijk
   1. ○ Astma of COPD
   2. ○ Hooikoorts
   3. ○ Eczeem
   4. ○ Voedselallergie
   5. ○ Anders, namelijk ☐
2. ○ Nee , niet door een arts vastgesteld

Indien u *geen* voedselallergie heeft → ga naar vraag 37.

36c. Als u een voedselallergie heeft, bent u dan allergisch tegen één van de volgende producten?
Meerdere antwoorden mogelijk

1. ○ Melk → zo ja, gaat dat om lactose intolerantie?
   1. ○ Ja
   2. ○ Nee
   3. ○ Weet ik niet
2. ○ Ei
3. ○ Pinda
4. ○ Noten
5. ○ Vis
6. ○ Schaaldieren
7. ○ Soja
8. ○ Graanproducten → zo ja, gaat dat om gluten-overgevoeligheid?
   1. ○ Ja
   2. ○ Nee
   3. ○ Weet ik niet
9. ○ Andere voedselallergie

37a. Bent u bloeddonor (geweest)?

1. ○ Ja
2. ○ Nee → *ga naar vraag 38*

37b. In welk jaar heeft u voor **het laatst** bloed gegeven?

□□□□
Jaartal

38a. Heeft u ooit een bloedtransfusie en/of bloedproducten, zoals gammaglobuline of stollingsproducten ontvangen?

1. ○ Ja
2. ○ Nee → *Ga door naar vraag 39*
3. ○ Weet ik niet

38b. Zo ja, in welk jaar voor **het laatst**?

□□□□
Jaartal

38c. Heeft u deze bloedtransfusie en/of bloedproducten in Nederland of in het buitenland ontvangen?

1. ○ Nederland
2. ○ Buitenland, namelijk in

39. Heeft u een piercing of tatoeage (gehad)?
(Oorbellen niet meegeteld)

1. ○ Ja,
   In welk jaar (voor het eerst) ☐☐☐☐
   Jaartal
2. ○ Nee

D. Bezigheden

Hieronder volgen enkele vragen over bezigheden. Deze vragen stellen we u omdat deze bezigheden verband kunnen houden met blootstelling aan infectieziekten.

40a. Bent u in de **afgelopen 12 maanden** wel eens in de tuin of op het land bezig geweest, waarbij u **met uw *blote* handen in de aarde** werkte?

1. ○ Ja
2. ○ Nee → *ga naar vraag 41*

40b. Hoeveel tijd **per week** (in de **lente/zomer**) heeft u hieraan gemiddeld besteed?

Gemiddeld ☐☐ uur per week

41. Heeft u in **de afgelopen 12 maanden** contact met katten gehad door ze te aaien of er mee te spelen?

1. ○ Ja met
   1. ○ Jonge katjes (jonger dan een jaar)
   2. ○ Volwassen katten
2. ○ Nee

42a. Heeft u in **de afgelopen 5 jaar** huisdieren gehouden?

1. ○ Ja
2. ○ Nee → *ga naar vraag 43*

42b. Zo ja, welke huisdieren?
Meerdere antwoorden mogelijk

1. ○ Hond
2. ○ Kat
3. ○ Vogel
4. ○ Konijn, cavia of hamster
5. ○ Muis of rat
6. ○ Vis
7. ○ Anders, namelijk

43a. Heeft u in **de afgelopen 5 jaar** landbouwdieren gehouden?

1. ○ Ja
2. ○ Nee → *ga naar vraag 44*

43b. Zo ja, welke landbouwdieren?
Meerdere antwoorden mogelijk

1. ○ Varken
2. ○ Rund
3. ○ Schaap
4. ○ Geit
5. ○ Pluimvee
6. ○ Anders, namelijk

44. Hoe vaak bent u in **de afgelopen 5 jaar** door een teek gebeten?

1. ○ Nooit
2. ○ 1-4 keer
3. ○ 5-9 keer
4. ○ 10 of meer keer
5. ○ Weet ik niet

45. Eet u uitsluitend vegetarisch?

1. ○ Ja, sinds ongeveer ☐☐☐☐ → *ga naar vraag 47*
   jaartal
2. ○ Nee

46a. Heeft u in **de afgelopen 12 maanden** een van de onderstaande **rauwe** of **halfgare** vleesproducten gegeten?
Meerdere antwoorden mogelijk

1. ○ Rundvlees (bijvoorbeeld filet américain, halfgaar rundergehakt, tartaar, niet helemaal doorbakken hamburger)
2. ○ Varkensvlees (bijvoorbeeld fricandeau, halfgaar gehakt (varkens/halfomhalf))
3. ○ Gevogelte (bijvoorbeeld halfgare kip)
4. ○ Anders, namelijk
5. ○ Nee → *ga naar vraag 47*
6. ○ Weet ik niet

46b. Indien ja, hoe vaak was dat dan?

1. ○ Ja, dagelijks
2. ○ Ja, wekelijks
3. ○ Ja, maandelijks
4. ○ Ja, minder vaak dan maandelijks
5. ○ Weet ik niet

47. Eet u regelmatig ***ongewassen*** rauwe groenten? (sla, radijs, komkommer, etc)

1. ○ Nee
2. ○ Ja, dagelijks
3. ○ Ja, wekelijks
4. ○ Ja, maandelijks
5. ○ Ja, minder vaak dan maandelijks
6. ○ Weet ik niet

48. Met welke van de volgende groepen heeft u in uw beroep/vrijwilligerswerk contact?
Telefoongesprekken en e-mail tellen niet mee, meerdere antwoorden mogelijk

1. ○ Patiënten
2. ○ Cliënten/klanten
3. ○ Kinderen/leerlingen
4. ○ Dieren
5. ○ Niet van toepassing

49. Met hoeveel verschillende personen per leeftijdsklasse, huisgenoten niet meegerekend, heeft u **gisteren** 'een praatje' gemaakt en **welke dag van de week** was dat?
We bedoelen hier met 'een praatje' dat u tenminste enkele woorden heeft gewisseld met iemand en/of iemand heeft aangeraakt, telefoongesprekken tellen niet mee.

Dit is een lastige vraag daarom willen we benadrukken dat het gaat om een antwoord bij benadering!

Indien u gisteren **geen** 'praatje' heeft gemaakt → *ga naar vraag 50*

1.	0-9 jaar	☐☐ personen, namelijk	1. ☐☐ personen van 0-4 jaar 2. ☐☐ personen van 5 tot 9 jaar
2.	10-19 jaar	☐☐ personen	
3.	20-29 jaar	☐☐ personen	
4.	30-39 jaar	☐☐ personen	
5.	40-49 jaar	☐☐ personen	
6.	50-59 jaar	☐☐ personen	
7.	60-69 jaar	☐☐ personen	
8.	70-79 jaar	☐☐ personen	
9.	80-89 jaar	☐☐ personen	
10.	90+ jaar	☐☐ personen	
11.	Totaal	☐☐ personen	

Gisteren was het:

1. ○ Maandag
2. ○ Dinsdag
3. ○ Woensdag
4. ○ Donderdag
5. ○ Vrijdag
6. ○ Zaterdag
7. ○ Zondag

E. Seksueel overdraagbare infectieziekten

De volgende vragen zijn persoonlijk van aard en hebben betrekking op seksueel overdraagbare infectieziekten. Deze vragen leveren informatie op over het voorkomen van deze specifieke ziekten. Wilt u deze vragen zo goed mogelijk beantwoorden.
Nogmaals willen wij benadrukken dat alle vragen volledig anoniem worden verwerkt.

50a. Hebt u op dit moment een vaste partner?
Met vaste partner wordt bedoeld iemand die u zelf als vaste partner beschouwd. Weet u dat niet dan kunt u de volgende definitie aanhouden: persoon met wie u minimaal 3 maanden een relatie heeft. Wel of niet geslachtsgemeenschap maakt niet uit.

1. ○ Ja
2. ○ Nee
3. ○ Wil ik niet beantwoorden

50b. Uit welk land is uw vaste partner afkomstig?

1. ○ Nederland
2. ○ Suriname
3. ○ Nederlandse Antillen
4. ○ Aruba
5. ○ Turkije
6. ○ Marokko
7. ○ Uit een ander land namelijk

51. Hoe oud was u toen u voor **het eerst** geslachtsgemeenschap had?

1. ○ ☐☐ jaar oud
2. ○ Niet van toepassing → *ga naar vraag 54*
3. ○ Weet ik niet
4. ○ Wil ik niet beantwoorden

52a. Hoeveel seksuele partners heeft u gehad in de **afgelopen 6 maanden**?
Met seksuele partner wordt bedoeld: persoon met wie u geslachtsgemeenschap heeft gehad

1. ☐☐ Partner(s) → *indien 0, ga naar vraag 54*
2. ○ Wil ik niet beantwoorden

52b. Wat was het geslacht van deze seksuele partners?
Uw eventuele vaste partner meetellen.

1. ○ Mannelijk
2. ○ Mannelijk en vrouwelijk
3. ○ Vrouwelijk
4. ○ Wil ik niet beantwoorden

52c. Als u één of meer losse partners heeft, uit **welk land** is **uw laatste** losse partner dan afkomstig?
Met losse partners worden alle personen bedoeld waarmee u sex heeft gehad en die niet uw vaste partner zijn.

1. ○ Nederland
2. ○ Suriname
3. ○ Nederlandse Antillen
4. ○ Aruba
5. ○ Turkije
6. ○ Marokko
7. ○ Uit een ander land namelijk,
8. ○ Niet van toepassing

53a. Als u terugdenkt aan **de laatste keer** dat u geslachtsgemeenschap had, heeft u toen een condoom gebruikt?

1. ○ Ja
2. ○ Nee
3. ○ Wil ik niet beantwoorden

53b. Hoe vaak heeft u de **afgelopen 6 maanden** condooms gebruikt met:

Uw vaste partner?

1. ○ Altijd
2. ○ Meestal wel
3. ○ Soms wel, soms niet
4. ○ Meestal niet
5. ○ Nooit
6. ○ Wil ik niet beantwoorden
7. ○ Niet van toepassing

Uw laatste losse partner?

1. ○ Altijd
2. ○ Meestal wel
3. ○ Soms wel, soms niet
4. ○ Meestal niet
5. ○ Nooit
6. ○ Wil ik niet beantwoorden
7. ○ Niet van toepassing

54. Is bij u ooit één van de volgende aandoeningen geconstateerd?

	1. Ja	2. Nee	3. Wil ik niet beantwoorden
a. Chlamydia	○	○	○
b. Hepatitis B	○	○	○
c. Gonorroe (druiper)	○	○	○
d. Syfilis (harde sjanker)	○	○	○
e. Herpes genitalis	○	○	○
f. Genitale wratten (humaan papillomavirus)	○	○	○
g. HIV	○	○	○

55. Hebt u ooit drugs gespoten?

1. ○ Ja
2. ○ Nee
3. ○ Wil ik niet beantwoorden

F. Opmerkingen vragenlijst en project

Tot slot willen wij graag weten wat uw mening over de vragenlijst is en of u nog opmerkingen heeft.

56. Welke vragen uit de vragenlijst vond u onduidelijk?
Vraagnummer(s):

1. ☐
2. ○ Alle vragen waren duidelijk

57. Heeft u nog opmerkingen over de vragenlijst of het onderzoek?

U bent klaar met het invullen van de vragenlijst.
Wilt u de vragenlijst nog een keer doorlopen om te kijken of u alle vragen heeft beantwoord?

Ten slotte ter herinnering:

Meenemen naar het spreekuur

- Het inentingsboekje en andere vaccinatiebewijzen, zoals het geel internationaal vaccinatieboekje en het militair paspoort;
- De ingevulde vragenlijst;
- De ondertekende toestemmingsverklaring
- Let op, voor deelnemers jonger dan 18 jaar dienen ***beide*** **ouders/verzorgers ook** een toestemmingsverklaring te ondertekenen;

Hartelijk bedankt voor uw medewerking!

Appendix 12 Evaluation and recommendations

Questionnaire

- Questions that were not included were questions for example about smoking and breastfeeding.
- Questions about which vaccinations one had received could have better geared to LCR as some vaccinations were not clear for the participants.
- The question about which specific Protestant Christian religion one practices was found to be too difficult to answer. Participants, call centre and project team members did not have enough knowledge on this subject.
- Some questions were not very relevant for babies (e.g. vegetarian, eating raw meat products and unwashed vegetables).
- In case a child was adopted it was not clear whether the questions for parents/caretakers were meant for the biological parents or the adoption parents.

Design

- Not all provinces were included in the sample, e.g. no municipalities were drawn in Friesland and Drenthe. If a better regional representation of the Netherlands would be preferable (e.g. infectious diseases with large regional differences in incidence) then the study design should be adapted by choosing smaller regions and/or clusters.
- Municipalities have expanded compared to ten years ago (P1 study), which could have resulted into a lower response rate. To increase the response rate smaller clusters or more locations per municipality should be arranged.

Communication

- At the start of the project we would have preferred more input from the communication department of the RIVM.
- We regret the negative advice from the communication department to bring the P2 project to public notice in the nationwide newspapers and television.

Contacts with municipalities

- It is easier (always at the same way and quicker) when RIVM draws the sample from the population register of a municipality.
- It would be preferable to have access to the population registers of all municipalities in the Netherlands. In that case, we did not have to ask each municipality to draw a sample from its population register

Contacts with public health services (PHSs)

- The cooperation with the PHSs was good, we think the actions below have contributed to that:
  - Announcement of the start of the P2 project at the LOI meeting;
  - Article in bulletin of infectious diseases;
  - Kick-off meeting was organized, which was also accessible for the PHSs

Call centre

- For the consistency in the approach of invited individuals it is important to have the same group operating during the whole study.
- The communication between call centre and RIVM could be improved. More feed-back was needed about difficulties experienced by the call centre team members and on how to deal with those difficulties. This call centre was located in Leeuwarden (contact person lived nearby), maybe it would have been better if the call centre was located nearer to the RIVM.

Printing office RIVM

- It was very practical to have the printing office at the RIVM because there were many situations where the time was limited or some extra printing had to be done. In most cases this was possible.
- Often several project members had to help with the mailing packages. On the one hand this took a lot of time, on the other hand this created commitment.
- Vulnerable, because if the head of the printing office was sick there was no one to replace him.

External medical workers

- Good choice, nice and qualified personnel.
- It is important to have a good procedure about the work at the clinics and the blood sampling. The team member of the RIVM at the clinics should keep an eye on how things are going and report this at the weekly meetings of the project team members.

PIENTER 2 database

- Nice and practical database.
- Company, designing the database, was chosen on advice of EMI; we regret that EMI did not want to build a more general database that could have been used for many other studies.
- Communication between company and RIVM was good.
- Most difficulties occurred with the import (from municipality and call centre) and export (to call centre and repro) of documents. Probably help of a data manager at the RIVM could have solved these problems easier. It would be preferable to involve a data manager already at the start of building a database.

Location clinics

- Next time it would be nice to have a mobile location or to have more different locations in one municipality to decrease the travel distance for the participants.

Clinics

- More instructions were needed with copying of vaccination data (vaccination data were not complete or not readable). Hopefully next time Praeventis (i.e. nationwide database containing information from all local authorities for registration of vaccinations) can be used for retrieving vaccination data of the participants.
- Better check of date of birth, gender and unanswered questions in the questionnaire.

Materials

- More support needed from communication department (e.g. posters).

Over sampling migrants

- Different approach is needed for the migrants than for the indigenous Dutch persons (e.g. fully translated materials) as the response was lower in migrants than in indigenous Dutch persons. We think that the flyer with date, time and address of the consultations hours, a street map with a photograph of the clinics and three photographs for clarifying this study (about blood sampling, filling in the questionnaire and receiving a gift voucher), which was sent to the migrants, had increased the response of the migrants.

Sample

- Wrong addresses especially in the larger cities (movements and many migrants).

Pienter telephone

- In the beginning of the study the invited individuals could call the Pienter telephone during the whole day and five days per week. During the study we changed this to only mornings. In this way the project team members were less interrupted in their daily work. Voicemail was sometimes difficult to analyze.
- Should be done by the project team members themselves.
- Meetings
- Weekly meetings with the project team members were good.
- Twice a year a meeting with a larger group of project members about the continuity of the project, was also adequate.
- Other

- External workers were also asked for the blood processing at the lab, which was very helpful.
- The day after each consultation hour the gathered materials should be checked on inconsistencies and solved right away.
- Import of questionnaire answers by import bureau was practical, again better feed-back should have taken place about difficulties experienced by the import of questionnaire answers and how to deal with these difficulties.
- Vaccination data should have been imported right away (after receiving) and the missing vaccination data should have been retrieved much earlier (import of vaccination data and retrieving of vaccination data from the local authorities for registration of vaccination was a big effort for two project team members and also for the local authorities for registration of vaccinations). Next time, the day the vaccination was given should also be registered in stead of only the month and year. Vaccinations which were given after the blood sampling date should not be imported into the db.
- HIV was excluded in the laboratory tests for the following reasons: it was not found ethical as the test results would be available several years after the blood sampling; it was thought that it would not be approved by the medical ethical committee; already a lot information is available on HIV and in the P1 study HIV was also not tested for.

ERRATUM by report 230421001 (2009): PIENTER 2-project: second research project on the protection against infectious diseases offered by the national immunization programme in the Netherlands

In section 3.3.6 in the second paragraph, in Tables 3.11 and 3.12 and in the footnote below Table 3.11, the abbreviations RB and RC have accidentally been reversed and should be RC and RB. In the same section in the text below Table 3.10 in the second paragraph three times the abbreviation RB has been used, which should be RC.

Agreement, 2 March 2010

Dr. M.A.B. van der Sande
Head of the Epidemiology and Surveillance Unit

RIVM

National Institute
for Public Health
and the Environment

P.O. Box 1
3720 BA Bilthoven
The Netherlands
www.rivm.com