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OKIDOKI-6: Research on carriage of pneumococcal bacteria and other bacteria and viruses in children and their parents

Submission date
08/11/2022

Recruitment status
No longer recruiting

Registration date
16/02/2023

Overall study status
Completed

Last Edited
04/03/2024

Condition category
Infections and Infestations

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and aims
In this research we monitor how many pneumococcal bacteria, other bacteria and viruses occur in the nose and throat.
Using the information on the different subtypes of the pneumococcal bacteria we can asses how well the currently used vaccine works. We can determine if a pneumococcal vaccine is needed that protects against more subtypes of the pneumococcal bacteria. We will also determine if the carriage of other bacteria and viruses is different than before SARS-CoV-2 occurred.

The current study is part of our continuous surveillance intended to monitor changes in serotype specific pneumococcal carriage in vaccinated children and their unvaccinated parents to establish effectiveness of the national pneumococcal vaccination program in the Netherlands. Since 2009 five pneumococcal carriage surveillance studies have been performed to establish the possible change in serotypes, and the suitableness of the vaccines. The effect of SARS-CoV-2 transmission prevention measures, that have been implemented since March 2020 on carriage of respiratory pathogens will also be determined. These non-pharmaceutical interventions led to rapid reductions in transmission not only of SARS-CoV-2 but also of other respiratory viruses such as influenza and respiratory syncytial virus.

Who can participate?
24-month-old children that have been vaccinated according to the NIP and one of the parents /legal guardians of each child.

What does the study involve?
The study involves a single home visit where a trained team member takes two saliva samples, an oropharyngeal swab and a nasopharyngeal swab of both the child and the parent. Also a questionnaire is used to record demographic and lifestyle data and relevant medical history information with respect to acquisition of pneumococcal carriage.

What are the possible benefits and risks of participating?
The children and parents themselves have no direct benefit in participating in this study.

However, they may indirectly profit from societal changes in disease-incidence if the national immunization program will change. Furthermore, they are the only possible group that can participate for comparison with six previous surveillance studies, MINOES, OKIDOKI-1 to -5. The outcomes of this study are applicable to children in this age group that have followed the vaccination program according to the Dutch NIP. The risks are minimal, a minor self-limiting nose bleeding (less than 1:3000 from own experience).

Where is the study run from?
The Spaarne Hospital in Hoofddorp, the Netherlands.

When is the study starting and how long is it expected to run for?
January 2022 to February 2023

Who is funding the study?
The study is designed and coordinated by the RIVM (National Institute for Public Health and the Environment). The funding comes from the Ministry of Health, Welfare and Sport (the Netherlands)

Who is the main contact?
Alienke Wijmenga-Monsuur, OKIDOKI-6@rivm.nl

Study website
https://www.rivm.nl/vaccinonderzoek/pneumokokken/okidoki

Contact information

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
IIV-563

Study information

Scientific Title
Cross-sectional surveillance study on pneumococcal carriage to establish a baseline before putative introduction of more-valent pneumococcal conjugate vaccine and to assess the impact of 2 years of SARS-CoV-2 containment measures on immunity and carriage of S. pneumonia and other microbes.

Acronym
OKIDOKI-6

Study objectives
The current study is part of our continuous surveillance intended to monitor changes in serotype specific pneumococcal nasopharyngeal carriage in vaccinated children and their unvaccinated parents to establish effectiveness of our national pneumococcal vaccination program. In this study bacterial colonization of commensals like S. pneumoniae, S. aureus, H. influenzae, HSTR as well as the presence of a panel of respiratory viruses will be determined in nasopharyngeal and oropharyngeal swabs. The panel of bacteria and viruses, with the addition of SARS-CoV-2, will be the same as in the five previous carriage studies. Potential changes in local and systemic immune status will be evaluated by measuring mucosal antibodies against these microbiota locally and compare these to levels measured in earlier OKIDOKI-3 to -5 studies.

Ethics approval required
Old ethics approval format

Ethics approval(s)
The Centre for Clinical Expertise at the RIVM assessed the above-mentioned research proposal. They verified whether the work complies with the specific conditions as stated in the law for

medical research involving human subjects (WMO). They are of the opinion that the research does not fulfill one or both of these conditions and therefore conclude it is exempted for further approval by the ethical research committee.

Study design
Observational cross-sectional surveillance study

Primary study design
Observational

Secondary study design
Cross sectional study

Study setting(s)
Home

Study type(s)
Other

Participant information sheet
See additional files

Health condition(s) or problem(s) studied
Pneumococcal carriage in children and their parents

Interventions
The study is an observational, cross-sectional surveillance study, in 24-month-old children that have been vaccinated according to the National Immunization Program, and one of the parents /legal guardians of each child. In total, 330 24-month-old children and 330 parents/legal guardians of the children will participate.

The study involves only a single home visit during which demographic and lifestyle data and relevant medical history information with respect to acquisition of pneumococcal carriage will be collected through an interview of the parents/legal guardians. Thereafter, a trained member of the research team will collect two saliva samples, an oropharyngeal swab and a nasopharyngeal swab from the children and one of the parents/legal guardians of each child. Tests will be done for presence and sub types of pneumococcal bacteria and other bacteria. The following micro-organisms can be screened by PCR, MPLA or conventional bacterial culture: S. aureus, H. influenzae, Mycoplasma pneumoniae, and Bordetella pertussis, human influenza virus A and B, human parainfluenza virus, human respiratory syncytial virus (RSV) A and B, adenovirus, coronavirus, human metapneumovirus (hMPV), human rhinovirus and bocavirus

Intervention Type
Other

Primary outcome measure
Pneumococcal (multi-) serotype carriage is measured in naso- (oro) pharyngeal swabs at a single time point.

Secondary outcome measures

At a single time point:
1. Respiratory viral and non-pneumococcal bacterial carriage is measured in naso- (oro) pharyngeal swabs
2. Antibiotic (non-) susceptibility of pathogens is measured in naso- (oro) pharyngeal swabs
3. (Functional) antibody levels against respiratory bacterial and viral pathogens is measured in saliva
4. Demographic, lifestyle and medical data influencing bacterial colonization are collected by verbal questions

Overall study start date
01/01/2022

Completion date
20/02/2023

Eligibility

Key inclusion criteria
1. The children have to be of normal health (same health criteria apply as used in well-baby clinics when a child receives a vaccination, e.g. also children with small increases in temperature or cold are seen as children with normal health, fever >38.5°C in the last two days is not considered as normal health)
2. The parents/legal guardians have to be willing and able to participate in the trial according to procedure
3. The child is 24-months-old (± 4 weeks)
4. The child has been vaccinated according to the Dutch NIP
5. Presence of a signed informed consent (the parents/legal guardians have given written informed consent after receiving oral and written information)
6. Parents/legal guardians of 24-month-old children are included when the child fulfils the inclusion criteria and sign their own informed consent

Participant type(s)
Healthy volunteer

Age group
Mixed

Sex
Both

Target number of participants
660

Key exclusion criteria
A potential participating child who meets any of the following criteria will be excluded from participation in this study:
1. Previous vaccinations with PCV using a vaccine and schedule that differs from the Dutch NIP of that age group
2. Medical conditions that will severely affect immunological responses to vaccinations or

nasopharyngeal carriage rates (certain chromosomal abnormalities or craniofacial abnormalities (like Trisomy 21 or schisis), known or suspected immunodeficiency disease or other medical conditions)

A parent/legal guardian who meets any of the following criteria will be excluded from participation in this study:
3. Medical conditions that will severely affect immunological responses to vaccinations or nasopharyngeal carriage rates (certain chromosomal abnormalities or craniofacial abnormalities (like Trisomy 21 or schisis), known or suspected immunodeficiency disease or other medical conditions)

Date of first enrolment
26/09/2022

Date of final enrolment
20/02/2023

Locations

Countries of recruitment
Netherlands

Study participating centre
Spaarne Gasthuis Hoofddorp
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Sponsor type
Research organisation

Website

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ROR
https://ror.org/01cesdt21

Funder(s)

Funder type
Government

Funder Name
Ministerie van Volksgezondheid, Welzijn en Sport

Alternative Name(s)
Dutch Ministry of Health, Welfare and Sport, VWS

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Netherlands

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal

Intention to publish date
20/02/2025

Individual participant data (IPD) sharing plan
The data-sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version 4	01/09/2022	11/11/2022	No	Yes