



## Clinical trial results:

### Maternal pertussis (Tdap) vaccination and its effects on the immune response of the newborn up to 12 months of age.

#### Summary

EudraCT number	2013-003090-98
Trial protocol	NL
Global end of trial date	22 April 2020

#### Results information

Result version number	v1 (current)
This version publication date	05 November 2023
First version publication date	05 November 2023

#### Trial information

##### Trial identification

Sponsor protocol code	IIV-266
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##### Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	-
WHO universal trial number (UTN)	-
Other trial identifiers	ABR: NL-45652.000.13, NTR: 4314

Notes:

##### Sponsors

Sponsor organisation name	RIVM
Sponsor organisation address	Antonie van Leeuwenhoeklaan 9, Bilthoven, Netherlands, 3721 MA
Public contact	Clinical Expertise Centre IIV, National Institute for Public Health and the Environment, mensgebonden-onderzoek@rivm.nl
Scientific contact	Clinical Expertise Centre IIV, National Institute for Public Health and the Environment, mensgebonden-onderzoek@rivm.nl

Notes:

##### Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	No
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial?	No

Notes:

## Results analysis stage

Analysis stage	Interim
Date of interim/final analysis	19 October 2020
Is this the analysis of the primary completion data?	Yes
Primary completion date	22 April 2020
Global end of trial reached?	Yes
Global end of trial date	22 April 2020
Was the trial ended prematurely?	No

Notes:

## General information about the trial

Main objective of the trial:

To evaluate superiority of IgG antibody levels against pertussis toxin (Ptx), present in the acellular vaccines, in infants at the age of 3 months of mothers having received a pertussis vaccine during pregnancy versus infants of mothers who have been vaccinated postpartum.

Protection of trial subjects:

All subjects were supervised after vaccination. Vaccination and blood-collection was done by qualified and trained personnel. Vaccines were administered only to eligible subjects that had no contraindications to any components of the vaccines. Most blood-collection were done by heel/finger stick. To reduce the burden of two 8 ml blood collections the children in each group were divided in two groups A, and B. Half of the infants of each group had a 8 ml blood collection at the age of 11 months pre booster, the other half 7-9 days after booster vaccination.

Half of the infants of each group had a 8 ml blood collection at the age of 4 years pre booster, the other half one month after booster vaccination at 4 years of age.

To reduce the burden of 11-12 visits, home visits were performed.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	01 November 2013
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	No

Notes:

## Population of trial subjects

### Subjects enrolled per country

Country: Number of subjects enrolled	Netherlands: 236
Worldwide total number of subjects	236
EEA total number of subjects	236

Notes:

### Subjects enrolled per age group

In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	118
Infants and toddlers (28 days-23 months)	0
Children (2-11 years)	0

Adolescents (12-17 years)	0
Adults (18-64 years)	118
From 65 to 84 years	0
85 years and over	0

## Subject disposition

### Recruitment

Recruitment details:

Pregnant women aged 18–40 years with a low risk of pregnancy complications were recruited through independent midwives at 36 midwife clinics. Women received a leaflet with information about the trial and a reply card around 20 weeks of pregnancy.

### Pre-assignment

Screening details:

237 woman were assessed for eligibility, 119 women were excluded and 118 women were enrolled.

### Period 1

Period 1 title	primary vaccination series (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Not blinded

### Arms

Are arms mutually exclusive?	Yes
<b>Arm title</b>	Woman immunized during pregnancy

Arm description:

Women receiving a Tdap vaccine during pregnancy between 30 weeks and 32 weeks of gestation and their newborn

Arm type	Experimental
Investigational medicinal product name	Boostrix
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Suspension for injection in pre-filled syringe
Routes of administration	Intramuscular use

Dosage and administration details:

1 dose of Boostrix containing 2,5 limit of flocculation [Lf ] diphtheria toxoid, 5 Lf tetanus toxoid and B pertussis antigens; 8 µg pertussis toxin, 8 µg filamentous haemagglutinin, and 2,5 µg pertactin during weeks 30–32 of pregnancy.

<b>Arm title</b>	Woman immunized after pregnancy
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Arm description:

Women receiving a Tdap vaccine after giving birth and their newborn.

Arm type	control
Investigational medicinal product name	Boostrix
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Suspension for injection in pre-filled syringe
Routes of administration	Intramuscular use

Dosage and administration details:

1 dose of Boostrix containing 2,5 limit of flocculation [Lf ] diphtheria toxoid, 5 Lf tetanus toxoid and B pertussis antigens; 8 µg pertussis toxin, 8 µg filamentous haemagglutinin, and 2,5 µg pertactin 48 hours after giving birth.

<b>Arm title</b>	Newborns of woman immunized during pregnancy
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Arm description: -

Arm type	Experimental
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Investigational medicinal product name	Boostrix
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Suspension for injection in pre-filled syringe
Routes of administration	Intramuscular use
Dosage and administration details:	
1 dose of Boostrix containing 2,5 limit of flocculation [Lf ] diphtheria toxoid, 5 Lf tetanus toxoid and B pertussis antigens; 8 µg pertussis toxin, 8 µg filamentous haemagglutinin, and 2,5 µg pertactin during weeks 30–32 of pregnancy.	
<b>Arm title</b>	Newborn of woman immunized after pregnancy
Arm description: -	
Arm type	control
No investigational medicinal product assigned in this arm	

Number of subjects in period 1	Woman immunized during pregnancy	Woman immunized after pregnancy	Newborns of woman immunized during pregnancy
Started	58	60	58
Birth	55	56	55
2 months	55	55	55
3 months	55	54	55
6 months	54	50	54
11 months	54	50	54
Completed	53	50	53
Not completed	5	10	5
Consent withdrawn by subject	1	5	1
Physician decision	1	2	1
premature delivery	3	2	3
Lost to follow-up	-	1	-

Number of subjects in period 1	Newborn of woman immunized after pregnancy
Started	60
Birth	56
2 months	55
3 months	54
6 months	50
11 months	50
Completed	50
Not completed	10
Consent withdrawn by subject	5
Physician decision	2
premature delivery	2

Lost to follow-up	1
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## Baseline characteristics

### Reporting groups

Reporting group title	Woman immunized during pregnancy
Reporting group description: Women receiving a Tdap vaccine during pregnancy between 30 weeks and 32 weeks of gestation and their newborn	
Reporting group title	Woman immunized after pregnancy
Reporting group description: Women receiving a Tdap vaccine after giving birth and their newborn.	
Reporting group title	Newborns of woman immunized during pregnancy
Reporting group description: -	
Reporting group title	Newborn of woman immunized after pregnancy
Reporting group description: -	

Reporting group values	Woman immunized during pregnancy	Woman immunized after pregnancy	Newborns of woman immunized during pregnancy
Number of subjects	58	60	58
Age categorical			
Units: Subjects			
In utero	0	0	0
Preterm newborn infants (gestational age < 37 wks)	0	0	0
Newborns (0-27 days)	0	0	58
Infants and toddlers (28 days-23 months)	0	0	0
Children (2-11 years)	0	0	0
Adolescents (12-17 years)	0	0	0
Adults (18-64 years)	58	60	0
From 65-84 years	0	0	0
85 years and over	0	0	0
Age continuous			
Age mothers at delivery			
0=no baseline characteristics available			
Units: years			
arithmetic mean	32.2	32.3	0
standard deviation	± 3.3	± 3.9	± 0
Gender categorical			
Units: Subjects			
Female	58	60	34
Male	0	0	24
Gestational age at immunisation			
Gestational age of woman at immunisation			
0=no baseline characteristics available			
Units: weeks			
arithmetic mean	31.2	0	0
standard deviation	± 0.8	± 0	± 0
gestational age			
0=no baseline characteristics available			

Units: weeks			
arithmetic mean	0	0	39.7
standard deviation	± 0	± 0	± 1.5
Birthweight			
0=no baseline characteristics available			
Units: gram(s)			
arithmetic mean	0	0	3425
standard deviation	± 0	± 0	± 480
Interval between vaccination and delivery			
0=no baseline characteristics available			
Units: days			
arithmetic mean	61	0	0
standard deviation	± 6	± 0	± 0
Age at first infant blood sample			
Age of the infant at the moment of blood sampling			
0=no baseline characteristics available			
Units: day			
arithmetic mean	0	0	61.0
standard deviation	± 0	± 0	± 2.1
Age at second blood sample and first Infanrix Hexa dose			
Age of the infant at the moment of blood sampling and vaccination			
0=no baseline characteristics available			
Units: day			
arithmetic mean	0	0	91
standard deviation	± 0	± 0	± 3.4
Age at second Infanrix Hexa dose			
Age of the infant at the moment of vaccination			
0=no baseline characteristics available			
Units: day			
arithmetic mean	0	0	153
standard deviation	± 0	± 0	± 3.3
Age at third blood sample, after primary vaccinations			
Age of the infant at the moment of blood sampling			
0=no baseline characteristics available			
Units: day			
arithmetic mean	0	0	183
standard deviation	± 0	± 0	± 3.5
Age at fourth blood sample, before booster vaccination			
Age of the infant at the moment of blood sampling and vaccination			
0=no baseline characteristics available			
Units: day			
arithmetic mean	0	0	335
standard deviation	± 0	± 0	± 4.2
Age at fifth blood sample, after booster vaccination			
Age of the infant at the moment of blood sampling			
0=no baseline characteristics available			

Units: day			
arithmetic mean	0	0	365
standard deviation	± 0	± 0	± 4.5

<b>Reporting group values</b>	Newborn of woman immunized after pregnancy	Total	
Number of subjects	60	236	
Age categorical			
Units: Subjects			
In utero	0	0	
Preterm newborn infants (gestational age < 37 wks)	0	0	
Newborns (0-27 days)	60	118	
Infants and toddlers (28 days-23 months)	0	0	
Children (2-11 years)	0	0	
Adolescents (12-17 years)	0	0	
Adults (18-64 years)	0	118	
From 65-84 years	0	0	
85 years and over	0	0	
Age continuous			
Age mothers at delivery			
0=no baseline characteristics available			
Units: years			
arithmetic mean	0		
standard deviation	± 0	-	
Gender categorical			
Units: Subjects			
Female	38	190	
Male	22	46	
Gestational age at immunisation			
Gestational age of woman at immunisation			
0=no baseline characteristics available			
Units: weeks			
arithmetic mean	0		
standard deviation	± 0	-	
gestational age			
0=no baseline characteristics available			
Units: weeks			
arithmetic mean	39.7		
standard deviation	± 1.2	-	
Birthweight			
0=no baseline characteristics available			
Units: gram(s)			
arithmetic mean	3439		
standard deviation	± 456	-	
Interval between vaccination and delivery			
0=no baseline characteristics available			
Units: days			
arithmetic mean	0		

standard deviation	± 0	-	
Age at first infant blood sample			
Age of the infant at the moment of blood sampling			
0=no baseline characteristics available			
Units: day			
arithmetic mean	61.0		
standard deviation	± 1.8	-	
Age at second blood sample and first Infanrix Hexa dose			
Age of the infant at the moment of blood sampling and vaccination			
0=no baseline characteristics available			
Units: day			
arithmetic mean	91		
standard deviation	± 2.7	-	
Age at second Infanrix Hexa dose			
Age of the infant at the moment of vaccination			
0=no baseline characteristics available			
Units: day			
arithmetic mean	153		
standard deviation	± 2.7	-	
Age at third blood sample, after primary vaccinations			
Age of the infant at the moment of blood sampling			
0=no baseline characteristics available			
Units: day			
arithmetic mean	184		
standard deviation	± 3.9	-	
Age at fourth blood sample, before booster vaccination			
Age of the infant at the moment of blood sampling and vaccination			
0=no baseline characteristics available			
Units: day			
arithmetic mean	334		
standard deviation	± 4.5	-	
Age at fifth blood sample, after booster vaccination			
Age of the infant at the moment of blood sampling			
0=no baseline characteristics available			
Units: day			
arithmetic mean	364		
standard deviation	± 4.7	-	

## End points

### End points reporting groups

Reporting group title	Woman immunized during pregnancy
Reporting group description: Women receiving a Tdap vaccine during pregnancy between 30 weeks and 32 weeks of gestation and their newborn	
Reporting group title	Woman immunized after pregnancy
Reporting group description: Women receiving a Tdap vaccine after giving birth and their newborn.	
Reporting group title	Newborns of woman immunized during pregnancy
Reporting group description: -	
Reporting group title	Newborn of woman immunized after pregnancy
Reporting group description: -	

### Primary: serum IgG pertussis toxin antibody concentrations of infants at age 3 months

End point title	serum IgG pertussis toxin antibody concentrations of infants at age 3 months <sup>[1]</sup>
End point description: Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.	
End point type	Primary
End point timeframe: 91 days +/- 5 days after birth	

Notes:

[1] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: No blood was drawn from the mothers of the newborns at this timepoint.

End point values	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	54	50		
Units: IU/ml				
geometric mean (confidence interval 95%)	16.6 (12.6 to 21.9)	1.0 (0.7 to 1.4)		

### Statistical analyses

Statistical analysis title	PT GMC ratio maternal vs control at 3 months
Statistical analysis description: PT GMC ratio of the maternal infant Tdap group vs the control infant group at the age of 3 months	
Comparison groups	Newborns of woman immunized during pregnancy v Newborn of woman immunized after pregnancy

Number of subjects included in analysis	104
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.05
Method	t-test, 2-sided

### Secondary: Serum IgG antibody levels against pertussis vaccine antigens at birth

End point title	Serum IgG antibody levels against pertussis vaccine antigens at birth
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in infants and mothers after maternal Tdap vaccination at 30-32 weeks of gestation and control group without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

blood collected through cordblood at birth or within 48 hours after birth.

End point values	Woman immunized during pregnancy	Woman immunized after pregnancy	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	55	55	54	53
Units: IU/ml				
geometric mean (confidence interval 95%)				
Pertusis Toxin (Ptx)	61.8 (46.8 to 81.7)	3.4 (2.4 to 4.9)	125.1 (94.0 to 166.3)	5.6 (3.7 to 8.6)
Filamentous Haemagglutinin (FHA)	163.4 (130.5 to 204.59)	8.6 (6.3 to 11.8)	330.9 (261.2 to 419.3)	15.6 (11.1 to 22.0)
Pertactin (Prn)	286.0 (182.4 to 448.3)	6.4 (4.4 to 9.1)	500.5 (322.5 to 776.7)	11.4 (7.7 to 16.9)

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against pertussis vaccine antigens 2 months after birth

End point title	serum IgG antibody levels against pertussis vaccine antigens 2 months after birth <sup>[2]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

61 +/- 5 days after birth

Notes:

[2] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: No blood was drawn from the mothers of the newborns at this timepoint.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	55	53		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Pertussis Toxin (Ptx)	27.3 (20.1 to 37.1)	1.8 (1.2 to 2.5)		
Filamentous Haemagglutinin (FHA)	83.7 (67.4 to 103.9)	5.0 (3.5 to 7.0)		
Pertactin (Prn)	110.3 (71.6 to 170.0)	3.6 (2.3 to 5.4)		

## Statistical analyses

No statistical analyses for this end point

## Secondary: serum IgG antibody levels against pertussis vaccine antigens 3 months after birth

End point title	serum IgG antibody levels against pertussis vaccine antigens 3 months after birth <sup>[3]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

91 +/- 5 days after birth

Notes:

[3] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: No blood was drawn from the mothers of the newborns at this timepoint.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	54	50		
Units: IU/ml				
geometric mean (confidence interval 95%)				

Pertussis Toxin (Ptx)	16.6 (12.6 to 21.9)	1.0 (0.7 to 1.4)		
Filamentous Haemagglutinin (FHA)	48.5 (38.5 to 61.1)	2.8 (2.0 to 3.8)		
Pertactin (prn)	65.5 (41.9 to 102.43)	2.0 (1.4 to 2.8)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: Serum IgG antibody levels against pertussis vaccine antigens 6 months after birth

End point title	Serum IgG antibody levels against pertussis vaccine antigens 6 months after birth
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in infants and mothers after maternal Tdap vaccination at 30-32 weeks of gestation and control group without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

183 days +/- 5 days after birth

End point values	Woman immunized during pregnancy	Woman immunized after pregnancy	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	53	50	53	50
Units: IU/ml				
geometric mean (confidence interval 95%)				
Pertussis Toxin (Ptx)	42.2 (30.5 to 58.3)	26.6 (18.4 to 38.5)	35.6 (28.1 to 45.0)	83.0 (65.6 to 105.2)
Filamentous Haemagglutinin (FHA)	125.6 (96.3 to 163.7)	144.5 (107.5 to 194.1)	31.2 (25.8 to 37.8)	82.6 (69.8 to 97.7)
Pertactin (Prn)	218.9 (139.5 to 343.3)	214.8 (138.1 to 334.1)	28.9 (21.9 to 38.0)	61.9 (47.7 to 80.4)

## Statistical analyses

No statistical analyses for this end point

### Secondary: Serum IgG antibody levels against pertussis vaccine antigens 11 months after birth

End point title	Serum IgG antibody levels against pertussis vaccine antigens 11 months after birth <sup>[4]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type Secondary

End point timeframe:

335 +/- 5 days after birth

Notes:

[4] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: No blood was drawn from the mothers of the newborns at this timepoint.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	51	48		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Pertussis Toxin (Ptx)	8.4 (6.1 to 11.5)	16.6 (13.2 to 20.8)		
Filamentous Haemagglutinin (FHA)	7.3 (5.3 to 10.1)	19.9 (15.7 to 25.2)		
Pertactin (Prn)	2.9 (2.2 to 3.8)	8.4 (6.3 to 11.3)		

## Statistical analyses

No statistical analyses for this end point

## Secondary: Serum IgG antibody levels against pertussis vaccine antigens 12 months after birth

End point title Serum IgG antibody levels against pertussis vaccine antigens 12 months after birth

End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in infants and mothers after maternal Tdap vaccination at 30-32 weeks of gestation and control group without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type Secondary

End point timeframe:

366 +/- 5 days after birth

<b>End point values</b>	Woman immunized during pregnancy	Woman immunized after pregnancy	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	52	50	53	50
Units: IU/ml				
geometric mean (confidence interval 95%)				
Pertussis Toxin (Ptx)	31.9 (23.0 to 44.4)	17.4 (12.0 to 25.3)	75.7 (62.0 to 92.3)	157.7 (124.6 to 199.5)
Filamentous Haemagglutinin (FHA)	85.6 (64.6 to 113.4)	84.9 (63.6 to 113.3)	67.3 (54.9 to 82.6)	125.5 (102.68 to 153.25)
Pertactin (Prn)	166.5 (104.6 to 265.1)	124.4 (79.9 to 193.8)	91.7 (69.2 to 121.4)	142.0 (109.7 to 183.7)

## Statistical analyses

No statistical analyses for this end point

### Secondary: Serum IgG antibody levels against pertussis vaccine antigens during pregnancy, before DTaP vaccination

End point title	Serum IgG antibody levels against pertussis vaccine antigens during pregnancy, before DTaP vaccination <sup>[5]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies against Pertussis Toxin, Filamentous Haemagglutinin and Pertactin in mothers after maternal Tdap vaccination at 30-32 weeks of gestation.

End point type	Secondary
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End point timeframe:

30-32 weeks pregnancy

Notes:

[5] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: No blood was drawn from the mothers in the control group at this timepoint.

<b>End point values</b>	Woman immunized during pregnancy			
Subject group type	Reporting group			
Number of subjects analysed	58			
Units: IU/ml				
geometric mean (confidence interval 95%)				
Pertussis Toxin (Ptx)	6.2 (4.0 to 9.8)			
Filamentous Haemagglutinin (FHA)	9.86 (7.0 to 14.1)			
Pertactin (prn)	9.3 (6.1 to 14.1)			

## Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid at birth

End point title	serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid at birth <sup>[6]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for Diphteria toxoid (Dt) and Tetanus toxoid (Tt) in (IU/ml) in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

blood collected through cordblood at birth or within 48 hours after birth.

Notes:

[6] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

End point values	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	54	53		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Diphteria toxoid (Dt)	0.64 (0.48 to 0.86)	0.12 (0.08 to 0.17)		
Tetanus toxoid (Tt)	7.39 (6.19 to 8.82)	1.82 (1.43 to 2.31)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid 2 months after birth

End point title	serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid 2 months after birth <sup>[7]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for Diphteria toxoid (Dt) and Tetanus toxoid (Tt) in (IU/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

61 +/- 5 days after birth

Notes:

[7] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: No blood was drawn from the mothers of the newborns at this timepoint.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	55	53		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Diphtheria toxoid (Dt)	0.13 (0.10 to 0.17)	0.03 (0.02 to 0.04)		
Tetanus toxoid (Tt)	1.67 (1.42 to 1.97)	0.49 (0.38 to 0.61)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Diphtheria toxoid and Tetanus toxoid at 3 months after birth

End point title	serum IgG antibody levels against Diphtheria toxoid and Tetanus toxoid at 3 months after birth <sup>[8]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for Diphtheria toxoid (Dt) and Tetanus toxoid (Tt) in (IU/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

91 +/- 5 days after birth

Notes:

[8] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: No blood was drawn from the mothers of the newborns at this timepoint.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	54	50		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Diphtheria toxoid (Dt)	0.07 (0.06 to 0.10)	0.01 (0.01 to 0.02)		
Tetanus toxoid (Tt)	0.96 (0.81 to 1.14)	0.29 (0.23 to 0.36)		

<b>Attachments (see zip file)</b>	Publication MIKI study Lancet Infect Dis vol 19 2019 Barug et
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### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid 6 months after birth

End point title	serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid 6 months after birth <sup>[9]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for Diphteria toxoid (Dt) and Tetanus toxoid (Tt) in (IU/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

183 days +/- 5 days after birth

Notes:

[9] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period. Justification: serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	53	50		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Diphteria toxoid (Dt)	0.14 (0.10 to 0.18)	0.35 (0.24 to 0.51)		
Tetanus toxoid (Tt)	0.80 (0.68 to 0.95)	0.92 (0.70 to 1.21)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Diphteria toxoid and Tetanus toxoid 11 months after birth

End point title	serum IgG antibody levels against Diphteria toxoid and Tetanus
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## End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for Diphtheria toxoid (Dt) and Tetanus toxoid (Tt) in (IU/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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## End point timeframe:

335 +/- 5 days after birth

## Notes:

[10] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: No blood was drawn from the mothers of the newborns at this timepoint.

End point values	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	51	47		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Diphtheria toxoid (Dt)	0.04 (0.03 to 0.05)	0.07 (0.05 to 0.09)		
Tetanus toxoid (Tt)	0.32 (0.26 to 0.39)	0.30 (0.24 to 0.39)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Diphtheria toxoid and Tetanus toxoid 12 months after birth

End point title	serum IgG antibody levels against Diphtheria toxoid and Tetanus toxoid 12 months after birth <sup>[11]</sup>
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## End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for Diphtheria toxoid (Dt) and Tetanus toxoid (Tt) in (IU/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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## End point timeframe:

366 +/- 5 days after birth

## Notes:

[11] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: serum IgG antibody levels against Diphtheria toxoid and Tetanus toxoid for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	53	50		
Units: IU/ml				
geometric mean (confidence interval 95%)				
Diphtheria toxoid (Dt)	0.81 (0.65 to 1.00)	1.24 (0.98 to 1.58)		
Tetanus toxoid (Tt)	4.05 (3.36 to 4.90)	4.05 (3.34 to 4.92)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Haemophilus influenzae type-b PRP at birth

End point title	serum IgG antibody levels against Haemophilus influenzae type-b PRP at birth <sup>[12]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for anti PRP IgG antibodies for Haemophilus influenzae type-b (ug/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

blood collected through cordblood at birth or within 48 hours after birth.

Notes:

[12] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: serum IgG antibody levels against Haemophilus influenzae type-b PRP for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	52	53		
Units: ug/ml				
geometric mean (confidence interval 95%)	0.29 (0.18 to 0.48)	0.33 (0.19 to 0.55)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Haemophilus influenzae type-b PRP 2 months after birth

End point title serum IgG antibody levels against Haemophilus influenzae type-b PRP 2 months after birth<sup>[13]</sup>

End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for anti PRP IgG antibodies for Haemophilus influenzae type-b (ug/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type Secondary

End point timeframe:

61 +/- 5 days after birth

Notes:

[13] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: No blood was drawn from the mothers of the newborns at this timepoint.

End point values	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	55	52		
Units: ug/ml				
geometric mean (confidence interval 95%)	0.09 (0.06 to 0.13)	0.09 (0.05 to 0.15)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Haemophilus influenzae type-b PRP 3 months after birth

End point title serum IgG antibody levels against Haemophilus influenzae type-b PRP 3 months after birth<sup>[14]</sup>

End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for anti PRP IgG antibodies for Haemophilus influenzae type-b (ug/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type Secondary

End point timeframe:

91 +/- 5 days after birth

Notes:

[14] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: No blood was drawn from the mothers of the newborns at this timepoint.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	54	50		
Units: ug/ml				
geometric mean (confidence interval 95%)	0.06 (0.04 to 0.09)	0.06 (0.04 to 0.09)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Haemophilus influenzae type-b PRP 6 months after birth

End point title	serum IgG antibody levels against Haemophilus influenzae type-b PRP 6 months after birth <sup>[15]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for anti PRP IgG antibodies for Haemophilus influenzae type-b (ug/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

183 days +/- 5 days after birth

Notes:

[15] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: serum IgG antibody levels against Haemophilus influenzae type-b PRP for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	50	49		
Units: ug/ml				
geometric mean (confidence interval 95%)	0.28 (0.17 to 0.44)	0.30 (0.20 to 0.45)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Haemophilus influenzae type-b PRP 11 months after birth

End point title	serum IgG antibody levels against Haemophilus influenzae type-b PRP 11 months after birth <sup>[16]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for anti PRP IgG antibodies for Haemophilus influenzae type-b (ug/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

335 +/- 5 days after birth

Notes:

[16] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: No blood was drawn from the mothers of the newborns at this timepoint.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	47	46		
Units: ug/ml				
geometric mean (confidence interval 95%)	0.37 (0.24 to 0.57)	0.40 (0.29 to 0.55)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against Haemophilus influenzae type-b PRP 12 months after birth

End point title	serum IgG antibody levels against Haemophilus influenzae type-b PRP 12 months after birth <sup>[17]</sup>
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End point description:

Geometric mean concentrations and 95% confidence interval of IgG antibodies for anti PRP IgG antibodies for Haemophilus influenzae type-b (ug/ml) in infants during the first year of life in infants after maternal Tdap vaccination at 30-32 weeks of gestation and control infants without maternal Tdap vaccination. All infants received DTaP-IPV-Hib-HepB and PhiD-CV10 at 3, 5 and 11 months of age.

End point type	Secondary
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End point timeframe:

366 +/- 5 days after birth

Notes:

[17] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: serum IgG antibody levels against Haemophilus influenzae type-b PRP for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	51	47		
Units: ug/ml				
geometric mean (confidence interval 95%)	10.24 (6.32 to 16.60)	12.72 (8.39 to 19.31)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against pneumococcal serotypes 6 months after birth

End point title	serum IgG antibody levels against pneumococcal serotypes 6 months after birth <sup>[18]</sup>
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End point description:

Geometric mean concentrations (ug/ml) and their 95% confidence interval of IgG antibodies for serotypes 1, 4, 5, 6B, 7F, 9V, 14, 18C, 19F and 23F included in the 10 valent pneumococcal conjugate vaccine PhiD-CV10 and extra serotypes 3, 6A and 19A in infants one month post primary vaccinations at age 3 and 5 months and one month after booster vaccination with PhiD-CV10 at age 11 months.

End point type	Secondary
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End point timeframe:

183 days +/- 5 days after birth

Notes:

[18] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: serum IgG antibody levels against pneumococcal serotypes for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

<b>End point values</b>	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	52	51		
Units: ug/ml				
geometric mean (confidence interval 95%)				
serotype 1	2.48 (1.74 to 3.54)	2.96 (2.09 to 4.20)		
serotype 4	0.57 (0.42 to 0.77)	0.67 (0.51 to 0.88)		
serotype 5	1.64 (1.17 to 2.29)	1.57 (1.15 to 2.14)		
serotype 6B	0.33 (0.20 to 0.56)	0.32 (0.19 to 0.53)		
serotype 7F	3.95 (2.95 to 5.30)	3.64 (2.75 to 4.82)		
serotype 9V	1.43 (1.05 to 1.97)	1.72 (1.34 to 2.21)		

serotype 14	2.69 (1.97 to 3.66)	2.86 (2.09 to 3.91)		
serotype 18C	0.89 (0.58 to 1.37)	0.97 (0.66 to 1.45)		
serotype 19F	4.77 (2.99 to 7.61)	11.45 (7.22 to 18.17)		
serotype 23 F	0.59 (0.39 to 0.90)	0.52 (0.34 to 0.80)		
serotype 3	0.17 (0.14 to 0.20)	0.16 (0.14 to 0.18)		
serotype 6A	0.04 (0.03 to 0.07)	0.05 (0.03 to 0.08)		
serotype 19A	0.07 (0.04 to 0.10)	0.12 (0.08 to 0.17)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: serum IgG antibody levels against pneumococcal serotypes 12 months after birth

End point title	serum IgG antibody levels against pneumococcal serotypes 12 months after birth <sup>[19]</sup>
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End point description:

Geometric mean concentrations (ug/ml) and their 95% confidence interval of IgG antibodies for serotypes 1, 4, 5, 6B, 7F, 9V, 14, 18C, 19F and 23F included in the 10 valent pneumococcal conjugate vaccine PhiD-CV10 and extra serotypes 3, 6A and 19A in infants one month post primary vaccinations at age 3 and 5 months and one month after booster vaccination with PhiD-CV10 at age 11 months.

End point type	Secondary
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End point timeframe:

366 +/- 5 days after birth

Notes:

[19] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: serum IgG antibody levels against pneumococcal serotypes for the mothers were not measured. This was not one of the endpoints of this study. Only the levels for the children have been measured.

End point values	Newborns of woman immunized during pregnancy	Newborn of woman immunized after pregnancy		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	51	47		
Units: ug/ml				
geometric mean (confidence interval 95%)				
serotype 1	9.11 (7.03 to 11.81)	10.37 (7.84 to 13.70)		
serotype 4	1.78 (1.46 to 2.19)	1.83 (1.47 to 2.28)		
serotype 5	5.30 (4.13 to 6.80)	5.74 (4.32 to 7.61)		
serotype 6B	5.52 (4.34 to 7.02)	4.77 (3.67 to 6.19)		

serotype 7F	10.36 (8.24 to 13.04)	9.32 (7.47 to 11.64)		
serotype 9V	5.56 (4.62 to 6.69)	6.11 (4.85 to 7.71)		
serotype 14	4.65 (3.54 to 6.10)	4.86 (3.64 to 6.50)		
serotype 18C	8.22 (6.47 to 10.46)	7.43 (5.60 to 9.85)		
serotype 19F	32.36 (25.16 to 41.64)	40.56 (29.95 to 54.91)		
serotype 23F	4.14 (3.26 to 5.26)	3.73 (2.95 to 4.72)		
serotype 3	0.25 (0.22 to 0.29)	0.28 (0.24 to 0.34)		
serotype 6A	0.58 (0.34 to 0.98)	0.52 (0.30 to 0.91)		
serotype 19A	0.45 (0.29 to 0.70)	0.73 (0.48 to 1.11)		

## Statistical analyses

No statistical analyses for this end point

## Secondary: Frequency of local and systemic reactions after Booster vaccination during pregnancy

End point title	Frequency of local and systemic reactions after Booster vaccination during pregnancy <sup>[20]</sup>
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End point description:

MedDRA version 22.0. Assessed solicited local symptoms were: Vaccination site reaction (= any occurrence of the symptoms), Vaccination site pain, Vaccination site erythema, Vaccination site plaque, Vaccination site bruising and Vaccination site swelling. Regardless of intensity grade. Assessed systemic symptoms were: Post vaccination systemic reaction (= any systemic reaction), Post vaccination fever\*, Headache, Fatigue Arthralgia and Myalgia. \*defined as body temperature of 38 degrees Celsius or higher. No cases >39.5 degrees Celsius were reported.

The number of local site reactions and systemic reactions within 7 days after the Boostrix vaccination in pregnant women were in accordance with the European Public Assessment Report for Boostrix, although more accounts of fatigue and pain were recorded. Fatigue was also reported before Tdap vaccination and did not increase afterwards.

End point type	Secondary
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End point timeframe:

0-14 days after maternal vaccination

Notes:

[20] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.

Justification: Only woman immunized during pregnancy have systematical reported local and systemic adverse events up to 15 days after vaccination.

<b>End point values</b>	Woman immunized during pregnancy			
Subject group type	Reporting group			
Number of subjects analysed	57			
Units: N/A				
Vaccination site reaction (any)	100			

Vaccination site erythema	13			
Vaccination site swelling	7			
Vaccination site plaque	8			
Vaccination site bruising	8			
Vaccination site pain	48			
Vaccination site warmth	1			
Injection site pruritus	2			
Vaccination site movement impairment	13			
systemic reaction (any)	93			
Pyrexia	1			
Headache	8			
Fatigue	25			
Myalgia	37			
Arthralgia	1			
Malaise	12			
Tachycardia foetal	1			
Rash pruritic	1			
Erythema	1			
Nausea	4			
Vomiting	1			
Dizziness	1			

## Statistical analyses

No statistical analyses for this end point

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

Potential related SAE's to Boostrix vaccination of pregnant woman were reported till 6 months after vaccination.

SAE's related to pertussis disease or unrelated SAE's resulting in death were reported till the end of the trial.

Assessment type	Non-systematic
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### Dictionary used

Dictionary name	MedDRA
Dictionary version	22.0

### Reporting groups

Reporting group title	Maternal Tdap group Woman
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Reporting group description: -

Reporting group title	control group Woman
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Reporting group description:

no maternal Tdap vaccination

Reporting group title	Maternal Tdap group Infants
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Reporting group description: -

Reporting group title	control group Infants
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Reporting group description: -

<b>Serious adverse events</b>	Maternal Tdap group Woman	control group Woman	Maternal Tdap group Infants
<b>Total subjects affected by serious adverse events</b>			
subjects affected / exposed	27 / 58 (46.55%)	17 / 60 (28.33%)	6 / 58 (10.34%)
number of deaths (all causes)	0	0	0
number of deaths resulting from adverse events	0	0	0
<b>Neoplasms benign, malignant and unspecified (incl cysts and polyps)</b>			
Nephroblastoma			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Injury, poisoning and procedural complications</b>			
Burns third degree			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Perineal injury			

subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Cardiac disorders</b>			
Bradycardia neonatal			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Neonatal tachycardia			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Surgical and medical procedures</b>			
Labour stimulation			
subjects affected / exposed	6 / 58 (10.34%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 6	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Caesarean section			
subjects affected / exposed	7 / 58 (12.07%)	4 / 60 (6.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 7	0 / 4	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Labour induction			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	1 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Retained placenta operation			
subjects affected / exposed	3 / 58 (5.17%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 3	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Vacuum extractor delivery			
subjects affected / exposed	1 / 58 (1.72%)	5 / 60 (8.33%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 5	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Nervous system disorders</b>			

Loss of consciousness			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Pregnancy, puerperium and perinatal conditions			
Arrested labour			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Breech presentation			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Gestational diabetes			
subjects affected / exposed	0 / 58 (0.00%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Gestational hypertension			
subjects affected / exposed	1 / 58 (1.72%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Induced labour			
subjects affected / exposed	2 / 58 (3.45%)	3 / 60 (5.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 2	0 / 3	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Intrapartum haemorrhage			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	1 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Labour pain			
subjects affected / exposed	0 / 58 (0.00%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0

Low birth weight baby			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Meconium in amniotic fluid			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Obstructed labour			
subjects affected / exposed	0 / 58 (0.00%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Postpartum haemorrhage			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Precipitate labour			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Retained placenta or membranes			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Prolonged rupture of membranes			
subjects affected / exposed	1 / 58 (1.72%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Prolonged labour			
subjects affected / exposed	7 / 58 (12.07%)	3 / 60 (5.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	1 / 7	0 / 3	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Premature rupture of membranes			

subjects affected / exposed	2 / 58 (3.45%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 2	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Premature delivery	Additional description: Born before 37 weeks gestational age		
subjects affected / exposed	3 / 58 (5.17%)	2 / 60 (3.33%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	1 / 3	0 / 2	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
General disorders and administration site conditions			
Fever neonatal			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Pyrexia			
subjects affected / exposed	1 / 58 (1.72%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Gastrointestinal disorders			
Nausea			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Infantile vomiting			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Reproductive system and breast disorders			
Vaginal haemorrhage			
subjects affected / exposed	1 / 58 (1.72%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Renal and urinary disorders			
Kidney congestion			

subjects affected / exposed	0 / 58 (0.00%)	1 / 60 (1.67%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 1	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Infections and infestations</b>			
<b>Bacterial infection</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Gastroenteritis viral</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Meningitis enteroviral</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Neonatal infection</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Peritonsillar abscess</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Respiratory syncytial virus infection</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Staphylococcal scalded skin syndrome</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Wound infection</b>			

subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Metabolism and nutrition disorders</b>			
Dehydration			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
<b>Neonatal insufficient breast milk syndrome</b>			
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0

<b>Serious adverse events</b>	control group Infants		
Total subjects affected by serious adverse events			
subjects affected / exposed	11 / 60 (18.33%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events	0		
<b>Neoplasms benign, malignant and unspecified (incl cysts and polyps)</b>			
Nephroblastoma			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
<b>Injury, poisoning and procedural complications</b>			
Burns third degree			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Perineal injury			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Cardiac disorders</b>			
Bradycardia neonatal			

subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Neonatal tachycardia			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Surgical and medical procedures			
Labour stimulation			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Caesarean section			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Labour induction			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Retained placenta operation			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Vacuum extractor delivery			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Nervous system disorders			
Loss of consciousness			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Pregnancy, puerperium and perinatal			

conditions				
Arrested labour				
subjects affected / exposed	0 / 60 (0.00%)			
occurrences causally related to treatment / all	0 / 0			
deaths causally related to treatment / all	0 / 0			
Breech presentation				
subjects affected / exposed	0 / 60 (0.00%)			
occurrences causally related to treatment / all	0 / 0			
deaths causally related to treatment / all	0 / 0			
Gestational diabetes				
subjects affected / exposed	0 / 60 (0.00%)			
occurrences causally related to treatment / all	0 / 0			
deaths causally related to treatment / all	0 / 0			
Gestational hypertension				
subjects affected / exposed	0 / 60 (0.00%)			
occurrences causally related to treatment / all	0 / 0			
deaths causally related to treatment / all	0 / 0			
Induced labour				
subjects affected / exposed	0 / 60 (0.00%)			
occurrences causally related to treatment / all	0 / 0			
deaths causally related to treatment / all	0 / 0			
Intrapartum haemorrhage				
subjects affected / exposed	0 / 60 (0.00%)			
occurrences causally related to treatment / all	0 / 0			
deaths causally related to treatment / all	0 / 0			
Labour pain				
subjects affected / exposed	0 / 60 (0.00%)			
occurrences causally related to treatment / all	0 / 0			
deaths causally related to treatment / all	0 / 0			
Low birth weight baby				
subjects affected / exposed	1 / 60 (1.67%)			
occurrences causally related to treatment / all	0 / 1			
deaths causally related to treatment / all	0 / 0			
Meconium in amniotic fluid				

subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Obstructed labour			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Postpartum haemorrhage			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Precipitate labour			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Retained placenta or membranes			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Prolonged rupture of membranes			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Prolonged labour			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Premature rupture of membranes			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Premature delivery	Additional description: Born before 37 weeks gestational age		

subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>General disorders and administration site conditions</b>			
Fever neonatal			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Pyrexia			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
<b>Gastrointestinal disorders</b>			
Nausea			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Infantile vomiting			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Reproductive system and breast disorders</b>			
Vaginal haemorrhage			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Renal and urinary disorders</b>			
Kidney congestion			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Infections and infestations</b>			
Bacterial infection			

subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Gastroenteritis viral</b>			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Meningitis enteroviral</b>			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
<b>Neonatal infection</b>			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
<b>Peritonsillar abscess</b>			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
<b>Respiratory syncytial virus infection</b>			
subjects affected / exposed	1 / 60 (1.67%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
<b>Staphylococcal scalded skin syndrome</b>			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Wound infection</b>			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
<b>Metabolism and nutrition disorders</b>			
Dehydration			

subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Neonatal insufficient breast milk syndrome			
subjects affected / exposed	0 / 60 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		

Frequency threshold for reporting non-serious adverse events: 2 %

<b>Non-serious adverse events</b>	Maternal Tdap group Woman	control group Woman	Maternal Tdap group Infants
Total subjects affected by non-serious adverse events			
subjects affected / exposed	57 / 58 (98.28%)	5 / 60 (8.33%)	19 / 58 (32.76%)
Surgical and medical procedures			
Ear tube insertion	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences (all)	0	0	1
Tonsillectomy	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed	0 / 58 (0.00%)	0 / 60 (0.00%)	1 / 58 (1.72%)
occurrences (all)	0	0	1
Nervous system disorders			
Headache	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed	8 / 58 (13.79%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences (all)	8	0	0
General disorders and administration site conditions			
Vaccination site erythema	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed	13 / 58 (22.41%)	0 / 60 (0.00%)	0 / 58 (0.00%)
occurrences (all)	13	0	0
Vaccination site swelling	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed	7 / 58 (12.07%)	1 / 60 (1.67%)	1 / 58 (1.72%)
occurrences (all)	7	1	2
Vaccination site movement	Additional description: Systematic assessment was only done by woman		

impairment	vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	13 / 58 (22.41%) 13	0 / 60 (0.00%) 0	0 / 58 (0.00%) 0
Vaccination site pain	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	48 / 58 (82.76%) 48	2 / 60 (3.33%) 2	0 / 58 (0.00%) 0
Vaccination site haematoma	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	8 / 58 (13.79%) 8	0 / 60 (0.00%) 0	0 / 58 (0.00%) 0
Fatigue	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	25 / 58 (43.10%) 25	0 / 60 (0.00%) 0	0 / 58 (0.00%) 0
Vaccination site plaque	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	8 / 58 (13.79%) 8	0 / 60 (0.00%) 0	4 / 58 (6.90%) 7
Malaise	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	12 / 58 (20.69%) 12	0 / 60 (0.00%) 0	0 / 58 (0.00%) 0
Pyrexia	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	1 / 58 (1.72%) 1	1 / 60 (1.67%) 1	4 / 58 (6.90%) 4
Nausea	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	4 / 58 (6.90%) 4	0 / 60 (0.00%) 0	0 / 58 (0.00%) 0
Immune system disorders			
Milk allergy	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 58 (0.00%) 0	0 / 60 (0.00%) 0	3 / 58 (5.17%) 3
Gastrointestinal disorders			
Gastrooesophageal reflux disease	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		

subjects affected / exposed occurrences (all)	0 / 58 (0.00%) 0	0 / 60 (0.00%) 0	5 / 58 (8.62%) 5
Respiratory, thoracic and mediastinal disorders Cough	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	1 / 58 (1.72%) 1	1 / 60 (1.67%) 1	1 / 58 (1.72%) 1
Skin and subcutaneous tissue disorders Eczema	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 58 (0.00%) 0	0 / 60 (0.00%) 0	0 / 58 (0.00%) 0
Musculoskeletal and connective tissue disorders Myalgia	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	38 / 58 (65.52%) 38	0 / 60 (0.00%) 0	0 / 58 (0.00%) 0
Infections and infestations Gastroenteritis viral	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 58 (0.00%) 0	0 / 60 (0.00%) 0	1 / 58 (1.72%) 1
Otitis media	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 58 (0.00%) 0	0 / 60 (0.00%) 0	6 / 58 (10.34%) 9
Respiratory tract infection	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 58 (0.00%) 0	1 / 60 (1.67%) 1	1 / 58 (1.72%) 1

<b>Non-serious adverse events</b>	control group Infants		
Total subjects affected by non-serious adverse events subjects affected / exposed	18 / 60 (30.00%)		
Surgical and medical procedures Ear tube insertion	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	4 / 60 (6.67%) 5		

Tonsillectomy	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	3 / 60 (5.00%)	
occurrences (all)	3	
Nervous system disorders	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
Headache	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	0 / 60 (0.00%)	
occurrences (all)	0	
General disorders and administration site conditions	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
Vaccination site erythema	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	0 / 60 (0.00%)	
occurrences (all)	0	
Vaccination site swelling	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	1 / 60 (1.67%)	
occurrences (all)	1	
Vaccination site movement impairment	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	0 / 60 (0.00%)	
occurrences (all)	0	
Vaccination site pain	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	1 / 60 (1.67%)	
occurrences (all)	1	
Vaccination site haematoma	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	2 / 60 (3.33%)	
occurrences (all)	3	
Fatigue	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	0 / 60 (0.00%)	
occurrences (all)	0	
Vaccination site plaque	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	
subjects affected / exposed	5 / 60 (8.33%)	
occurrences (all)	8	
Malaise	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's	

subjects affected / exposed occurrences (all)	1 / 60 (1.67%) 1		
Pyrexia	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	2 / 60 (3.33%) 2		
Nausea	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 60 (0.00%) 0		
Immune system disorders Milk allergy	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 60 (0.00%) 0		
Gastrointestinal disorders Gastroesophageal reflux disease	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	4 / 60 (6.67%) 4		
Respiratory, thoracic and mediastinal disorders Cough	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	2 / 60 (3.33%) 3		
Skin and subcutaneous tissue disorders Eczema	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	2 / 60 (3.33%) 3		
Musculoskeletal and connective tissue disorders Myalgia	Additional description: Systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	0 / 60 (0.00%) 0		
Infections and infestations Gastroenteritis viral	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		

subjects affected / exposed occurrences (all)	2 / 60 (3.33%) 3		
Otitis media	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	3 / 60 (5.00%) 7		
Respiratory tract infection	Additional description: systematic assessment was only done by woman vaccinated during pregnancy by means of a questionnaire. Woman vaccinated after birth were asked to self report AE's		
subjects affected / exposed occurrences (all)	3 / 60 (5.00%) 3		

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
19 August 2014	Adding collection of breast milk, comparison of pain related to blood collection methods, collection of serum sample at visit 7 and 8
30 April 2015	interim analysis of primary endpoint, change in recruitment strategy, addition of an 2nd participating center
19 February 2016	extension of follow-up period to 1 month after Pertussis booster vaccination at 4 years of age to evaluate if maternal pertussis vaccination has a longterm effect on the immune response to this booster dose.
31 October 2017	optional blood collection by venipuncture at visit 11 or 12 to asses cellular immunity.

Notes:

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### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

None reported

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### Online references

<http://www.ncbi.nlm.nih.gov/pubmed/32448624>

<http://www.ncbi.nlm.nih.gov/pubmed/30938299>

<http://www.ncbi.nlm.nih.gov/pubmed/31250812>