

**Clinical trial results:****A Phase 3, Randomized, Observer-blind, Controlled, Multi-Center Study to Compare the Safety of One Dose of Novartis Meningococcal ACWY Conjugate Vaccine with that of a Licensed Meningococcal ACWY Polysaccharide Vaccine (Menomune®) Administered to Healthy Children 2 to 10 Years of Age**

Due to a system error, the data reported in v1 is not correct and has been removed from public view.

**Summary**

EudraCT number	2014-003514-91
Trial protocol	Outside EU/EEA
Global end of trial date	21 March 2007

**Results information**

Result version number	v2 (current)
This version publication date	10 June 2016
First version publication date	20 November 2014
Version creation reason	

**Trial information****Trial identification**

Sponsor protocol code	V59P10
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**Additional study identifiers**

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT00329849
WHO universal trial number (UTN)	-
Other trial identifiers	Sample data: Sample data

Notes:

**Sponsors**

Sponsor organisation name	Novartis Vaccines and Diagnostics s.r.l
Sponsor organisation address	Via Fiorentina, 1, Siena, Italy, 53100
Public contact	Posting Director, Novartis Vaccines, RegistryContactVaccinesUS@novartis.com
Scientific contact	Posting Director, Novartis Vaccines, RegistryContactVaccinesUS@novartis.com

Notes:

**Paediatric regulatory details**

Is trial part of an agreed paediatric investigation plan (PIP)	Yes
EMA paediatric investigation plan number(s)	EMA-000032-PIP01-07
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No	Yes

1901/2006 apply to this trial?
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Notes:

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### Results analysis stage

Analysis stage	Final
Date of interim/final analysis	05 November 2007
Is this the analysis of the primary completion data?	Yes
Primary completion date	21 March 2007
Global end of trial reached?	Yes
Global end of trial date	21 March 2007
Was the trial ended prematurely?	No

Notes:

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### General information about the trial

Main objective of the trial:

To compare the percentage of subjects presenting at least one severe (solicited) systemic reaction to the Novartis MenACWY conjugate vaccine with the percentage presenting at least one severe systemic reaction to the licensed meningococcal ACWY polysaccharide (PS) vaccine (Menomune) during the first 7 days (day 1 to 7) following a single injection administered to healthy children 2 to 10 years of age

To compare the immunogenicity of a single injection of Novartis MenACWY conjugate vaccine with the immunogenicity of a single injection of PS vaccine (Menomune), defined as the percentage of subjects with seroresponse in human serum bactericidal assay against N meningitidis serogroups A, C, W135, and Y at 1 month after vaccination, when administered to healthy children 2 to 10 years of age.

Protection of trial subjects:

Study vaccines were not administered to individuals with known hypersensitivity to any component of the vaccines. An oral temperature  $\geq 38.0^{\circ}\text{C}$  ( $\geq 100.4^{\circ}\text{F}$ ) or serious active infection was a reason for delaying vaccination. Standard immunization practices were observed and care was taken to administer the injection intramuscularly. As with all injectable vaccines, appropriate medical treatment and supervision was readily available in case of rare anaphylactic reactions following administration of the study vaccine. Epinephrine 1:1000 and diphenhydramine was available in case of any anaphylactic reactions. Care was taken to ensure that the vaccine was not injected into a blood vessel.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	24 May 2006
Long term follow-up planned	Yes
Long term follow-up rationale	Efficacy
Long term follow-up duration	6 Months
Independent data monitoring committee (IDMC) involvement?	No

Notes:

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### Population of trial subjects

#### Subjects enrolled per country

Country: Number of subjects enrolled	Argentina: 1500
Worldwide total number of subjects	1500
EEA total number of subjects	0

Notes:

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**Subjects enrolled per age group**

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In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	0
Infants and toddlers (28 days-23 months)	0
Children (2-11 years)	1500
Adolescents (12-17 years)	0
Adults (18-64 years)	0
From 65 to 84 years	0
85 years and over	0

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## Subject disposition

### Recruitment

Recruitment details:

Subjects were enrolled at 3 study centers in Argentina.

### Pre-assignment

Screening details:

All enrolled subjects were included in the trial.

### Period 1

Period 1 title	Overall Study (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Double blind
Roles blinded	Subject, Investigator, Monitor

### Arms

Are arms mutually exclusive?	Yes
<b>Arm title</b>	Men ACWY-PS

Arm description:

Subjects  $\geq 2$  to  $\leq 10$  years of age received one dose of a quadrivalent meningococcal PS vaccine

Arm type	Active comparator
Investigational medicinal product name	Menomune (MenACWY PS vaccine)
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Subcutaneous use

Dosage and administration details:

One 0.5 mL injection of PS vaccine was administered by SC injection

<b>Arm title</b>	Men ACWY- CRM
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Arm description:

Subjects  $\geq 2$  to  $\leq 10$  years of age received one dose of a quadrivalent meningococcal conjugate vaccine

Arm type	Experimental
Investigational medicinal product name	Novartis MenACWY conjugate vaccine
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intramuscular use

Dosage and administration details:

One 0.5 mL injection of the MenACWY conjugate vaccine was administered by IM injection

<b>Number of subjects in period 1</b>	Men ACWY-PS	Men ACWY- CRM
Started	550	950
Completed	546	944
Not completed	4	6
Consent withdrawn by subject	4	6



## Baseline characteristics

### Reporting groups

Reporting group title	Men ACWY-PS
Reporting group description:	
Subjects $\geq 2$ to $\leq 10$ years of age received one dose of a quadrivalent meningococcal PS vaccine	
Reporting group title	Men ACWY- CRM
Reporting group description:	
Subjects $\geq 2$ to $\leq 10$ years of age received one dose of a quadrivalent meningococcal conjugate vaccine	

Reporting group values	Men ACWY-PS	Men ACWY- CRM	Total
Number of subjects	550	950	1500
Age categorical Units: Subjects			
Age continuous Units: years			
arithmetic mean	5.7	5.8	
standard deviation	$\pm 2.5$	$\pm 2.5$	-
Gender categorical Units: Subjects			
Female	288	482	770
Male	262	468	730

## End points

### End points reporting groups

Reporting group title	Men ACWY-PS
Reporting group description: Subjects $\geq 2$ to $\leq 10$ years of age received one dose of a quadrivalent meningococcal PS vaccine	
Reporting group title	Men ACWY- CRM
Reporting group description: Subjects $\geq 2$ to $\leq 10$ years of age received one dose of a quadrivalent meningococcal conjugate vaccine	
Subject analysis set title	Per Protocol-primary -Men ACWY-CRM
Subject analysis set type	Per protocol
Subject analysis set description: All subjects in the MITT (Modified Intention to treat) population who received the dose of vaccine correctly, and provide evaluable serum samples at the relevant time points, and have no major protocol violation as defined prior to unbinding.	
Subject analysis set title	Per Protocol-primary -Men ACWY-PS
Subject analysis set type	Per protocol
Subject analysis set description: All subjects in the MITT population who received the dose of vaccine correctly, and provide evaluable serum samples at the relevant time points, and have no major protocol violation as defined prior to unbinding.	
Subject analysis set title	Per Protocol-Persistence-Men ACWY-CRM
Subject analysis set type	Per protocol
Subject analysis set description: All subjects in the MITT population who received the dose of vaccine correctly, and provide evaluable serum samples at the relevant time points, and have no major protocol violation as defined prior to unbinding.	
Subject analysis set title	Per Protocol-persistence-Men ACWY-PS
Subject analysis set type	Per protocol
Subject analysis set description: All subjects in the MITT population who received the dose of vaccine correctly, and provide evaluable serum samples at the relevant time points, and have no major protocol violation as defined prior to unbinding.	
Subject analysis set title	Safety-MenACWY-CRM_2 to 5 Years
Subject analysis set type	Safety analysis
Subject analysis set description: All subjects who have received a study vaccine and have post-baseline safety data.	
Subject analysis set title	Safety-MenACWY-PS_2 to 5 Years
Subject analysis set type	Safety analysis
Subject analysis set description: All subjects who have received a study vaccine and have post-baseline safety data.	
Subject analysis set title	Safety-MenACWY-CRM_6 to 10 Years
Subject analysis set type	Safety analysis
Subject analysis set description: All subjects who have received a study vaccine and have post-baseline safety data.	
Subject analysis set title	Safety-MenACWY-PS_6 to 10 Years
Subject analysis set type	Safety analysis
Subject analysis set description: All subjects who have received a study vaccine and have post-baseline safety data.	
Subject analysis set title	Safety-MenACWY-CRM_2 to 10 Years
Subject analysis set type	Safety analysis
Subject analysis set description: All subjects who have received a study vaccine and have post-baseline safety data.	

Subject analysis set title	Safety-MenACWY-PS_2 to 10 Years
Subject analysis set type	Safety analysis

Subject analysis set description:

All subjects who have received a study vaccine and have post-baseline safety data.

**Primary: Percentage of Subjects With hSBA Seroreponse Against Serogroups A, C, W and Y One Month After Vaccination With MenACWY-CRM or MenACWY-PS**

End point title	Percentage of Subjects With hSBA Seroreponse Against Serogroups A, C, W and Y One Month After Vaccination With MenACWY-CRM or MenACWY-PS
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End point description:

Immunogenicity was measured as the percentage of subjects with hSBA Seroreponse, directed against each of meningococcal Serogroups A, C, W and Y, evaluated by serum bactericidal assay using human complement (hSBA), one month after vaccination (day 29) with MenACWY-CRM or MenACWY-PS vaccine.

Seroreponse was defined as: for subjects with a prevaccination hSBA titer <1:4, a post vaccination hSBA titer ≥1:8;

For subjects with a prevaccination hSBA titer ≥1:4, an increase in hSBA titer of atleast four times the prevaccination titer.

End point type	Primary
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End point timeframe:

1 month after vaccination (day 29)

End point values	Men ACWY-PS	Men ACWY-CRM		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	148	148		
Units: Percentages of Subjects				
number (confidence interval 95%)				
Serogroup A	55 (46 to 63)	93 (87 to 96)		
Serogroup C (N=144,147)	52 (44 to 60)	82 (74 to 88)		
Serogroup W (N=142, 143)	46 (37 to 54)	74 (66 to 81)		
Serogroup Y(N=146, 146)	63 (55 to 71)	82 (74 to 87)		

**Statistical analyses**

Statistical analysis title	Statistical analysis 1
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Statistical analysis description:

Comparison of hSBA Seroreponse for the Serogroups A one month after vaccination of MenACWYCRM and MenACWY-PS

Comparison groups	Men ACWY-PS v Men ACWY- CRM
Number of subjects included in analysis	296
Analysis specification	Pre-specified
Analysis type	non-inferiority <sup>[1]</sup>
Method	Chi-squared
Parameter estimate	Group Difference
Point estimate	38

Confidence interval	
level	95 %
sides	2-sided
lower limit	29
upper limit	47
Variability estimate	Standard deviation

Notes:

[1] - The null hypothesis was that for the serogroup A, the seroresponse percentage in the MenACWY-CRM group would be at least 10% lower than that in the MenACWY-PS group at one month postvaccination, i.e. the lower limit of the 95% CI of the difference in response rates (MenACWY-CRM minus MenACWY-PS)  $\leq$ -10%.

<b>Statistical analysis title</b>	Statistical Analysis 2
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Statistical analysis description:

Comparison of hSBA seroresponse for the serogroup C one month after vaccination of MenACWY-CRM and MenACWY-PS

Comparison groups	Men ACWY- CRM v Men ACWY-PS
Number of subjects included in analysis	296
Analysis specification	Pre-specified
Analysis type	non-inferiority <sup>[2]</sup>
Method	Chi-squared corrected
Parameter estimate	Group Difference
Point estimate	30
Confidence interval	
level	95 %
sides	2-sided
lower limit	19
upper limit	40

Notes:

[2] - The null hypothesis was that for the serogroup C, the seroresponse percentage in the MenACWY-CRM group would be at least 10% lower than that in the MenACWY-PS group at one month postvaccination, i.e. the lower limit of the 95% CI of the difference in response rates (MenACWY-CRM minus MenACWY-PS)  $\leq$ -10%.

<b>Statistical analysis title</b>	Statistical Analysis 3
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Statistical analysis description:

Comparison of hSBA seroresponse for the serogroup W one month after vaccination of MenACWYCRM and MenACWY-PS

Comparison groups	Men ACWY- CRM v Men ACWY-PS
Number of subjects included in analysis	296
Analysis specification	Pre-specified
Analysis type	non-inferiority <sup>[3]</sup>
Method	Chi-squared
Parameter estimate	Group Difference
Point estimate	28
Confidence interval	
level	95 %
sides	2-sided
lower limit	17
upper limit	39

Notes:

[3] - The null hypothesis was that for the serogroup W, the seroresponse percentage in the MenACWY-CRM group would be at least 10% lower than that in the MenACWY-PS group at one month post vaccination, i.e. the lower limit of the 95% CI of the difference in response rates (MenACWY-CRM minus MenACWY-PS)  $\leq$ -10%.

<b>Statistical analysis title</b>	Statistical Analysis 4
Statistical analysis description:	
Comparison of hSBA seroresponse for the serogroup Y one month after vaccination of MenACWYCRM and MenACWY-PS	
Comparison groups	Men ACWY- CRM v Men ACWY-PS
Number of subjects included in analysis	296
Analysis specification	Pre-specified
Analysis type	non-inferiority <sup>[4]</sup>
Method	Chi-squared
Parameter estimate	Group Difference
Point estimate	18
Confidence interval	
level	95 %
sides	2-sided
lower limit	8
upper limit	28

Notes:

[4] - The null hypothesis was that for the serogroup Y, the seroresponse percentage in the MenACWY-CRM group would be at least 10% lower than that in the MenACWY-PS group at one month postvaccination, i.e. the lower limit of the 95% CI of the difference in response rates (MenACWY-CRM minus MenACWY-PS)  $\leq -10\%$ .

### **Primary: Percentages of Subjects With At Least One Severe Systemic Reaction to MenACWY-CRM or MenACWY-PS Within 7 Days Post vaccination**

End point title	Percentages of Subjects With At Least One Severe Systemic Reaction to MenACWY-CRM or MenACWY-PS Within 7 Days Post vaccination
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End point description:

Safety was assessed in terms of the percentage of subjects who reported at least one severe systemic reaction after vaccination with MenACWY-CRM or MenACWY-PS from day 1 to day 7 after vaccination.

\* Value for MenACWY-PS is >1 as it is not possible to add the symbols

End point type	Primary
End point timeframe:	
Day 1 to 7 post vaccination	

<b>End point values</b>	Men ACWY-PS	Men ACWY-CRM		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	550	950		
Units: Percentages of Subjects				
number (not applicable)	1	1		

### **Statistical analyses**

<b>Statistical analysis title</b>	Statistical Analysis 1
Comparison groups	Men ACWY- CRM v Men ACWY-PS
Number of subjects included in analysis	1500
Analysis specification	Pre-specified
Analysis type	non-inferiority <sup>[5]</sup>
Method	[Risk ratio(MenACWY-CRM/MenACWY-PS)]
Parameter estimate	Risk ratio (RR)
Point estimate	6.37
Confidence interval	
level	95 %
sides	2-sided
lower limit	0.82
upper limit	49.2

Notes:

[5] - Safety of MenACWY-CRM vaccination was considered non-inferior to the safety of MenACWY-PS vaccination if the upper limit of the two-sided 95% CI of the ratio (MenACWY-CRM group divided by MenACWY-PS group) of the percentage of subjects experiencing at least one severe systemic reaction during 1 to 7 days after vaccination was less than 3.

**Secondary: Percentage of Subjects With hSBA Titers  $\geq 1:4$  and  $\geq 1:8$  Against Serogroups A, C, W and Y One Month After Vaccination With MenACWY-CRM or MenACWY-PS**

End point title	Percentage of Subjects With hSBA Titers $\geq 1:4$ and $\geq 1:8$ Against Serogroups A, C, W and Y One Month After Vaccination With MenACWY-CRM or MenACWY-PS
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End point description:

Immunogenicity was measured as the percentage of subjects who achieved hSBA titers  $\geq 1:4$  and  $\geq 1:8$  against each of four meningococcal serogroups A, C, W and Y at baseline (day 1) and one month (day 29) after one vaccination with MenACWY-CRM or MenACWY-PS.

End point type	Secondary
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End point timeframe:

Day 1 and 29

<b>End point values</b>	Men ACWY-PS	Men ACWY-CRM		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	148	148		
Units: Percentages of subjects				
number (confidence interval 95%)				
Serogroup A (hSBA $\geq 1:4$ )- Day 1	3 (1 to 8)	5 (2 to 10)		
Serogroup A (hSBA $\geq 1:4$ )- Day 29	55 (47 to 64)	95 (90 to 98)		
Serogroup C (hSBA $\geq 1:4$ )- Day 1 (N=144,147)	31 (23 to 39)	26 (19 to 34)		
Serogroup C (hSBA $\geq 1:4$ )- Day 29 (N=144,147)	80 (72 to 86)	91 (85 to 95)		
Serogroup W (hSBA $\geq 1:4$ )- Day 1 (N=142,143)	37 (29 to 46)	40 (32 to 48)		
Serogroup W (hSBA $\geq 1:4$ )- Day 29 (N=142,143)	78 (70 to 85)	99 (96 to 100)		
Serogroup Y (hSBA $\geq 1:4$ )- Day 1 (N=146,146)	15 (10 to 22)	17 (11 to 24)		
Serogroup Y (hSBA $\geq 1:4$ )- Day 29 (N=146,146)	77 (69 to 83)	90 (84 to 95)		

Serogroup A (hSBA $\geq 1:8$ )- Day 1	2 (0 to 6)	4 (2 to 9)		
Serogroup A (hSBA $\geq 1:8$ )- Day 29	55 (47 to 64)	95 (90 to 98)		
Serogroup C (hSBA $\geq 1:8$ )- Day 1 (N=147,144)	20 (14 to 28)	16 (10 to 23)		
Serogroup C (hSBA $\geq 1:8$ )- Day 29 (N=147,144)	70 (62 to 77)	88 (82 to 93)		
Serogroup W (hSBA $\geq 1:8$ )- Day 1 (N=143,142)	35 (27 to 43)	38 (30 to 46)		
Serogroup W (hSBA $\geq 1:8$ )- Day 29 (N=143,142)	73 (64 to 80)	99 (96 to 100)		
Serogroup Y (hSBA $\geq 1:8$ )- Day 1 (N=146,146)	11 (6 to 17)	14 (9 to 21)		
Serogroup Y (hSBA $\geq 1:8$ )- Day 29 (N=146,146)	66 (58 to 74)	89 (83 to 94)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: The hSBA Geometric Mean Titers Against Serogroups A, C, W and Y One Month after Vaccination With MenACWY-CRM or MenACWY-PS

End point title	The hSBA Geometric Mean Titers Against Serogroups A, C, W and Y One Month after Vaccination With MenACWY-CRM or MenACWY-PS
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End point description:

Immunogenicity was measured as the percentage of subjects who achieved hSBA titers  $\geq 1:4$  and  $\geq 1:8$  against each of four meningococcal serogroups A, C, W and Y at baseline (day 1) and one month (day 29) after one vaccination with MenACWY-CRM or MenACWY-PS.

End point type	Secondary
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End point timeframe:

Day 1 and 29

End point values	Men ACWY-PS	Men ACWY-CRM		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	148	148		
Units: GMT				
geometric mean (confidence interval 95%)				
Serogroup A - Day 1	2.09 (1.95 to 2.24)	2.25 (2.1 to 2.41)		
Serogroup A - Day 29	11 (8.66 to 14)	65 (51 to 82)		
Serogroup C (N=144,147) - Day 1	3.27 (2.85 to 3.75)	3.09 (2.69 to 3.53)		
Serogroup C (N=144,147) - Day 29	20 (15 to 26)	42 (32 to 54)		
Serogroup W (N=143,142) - Day 1	5.4 (4.25 to 6.87)	6.22 (4.9 to 7.9)		
Serogroup W (N=142,143) - Day 29	20 (16 to 26)	72 (56 to 92)		
Serogroup Y (N=146,146) - Day 1	2.64 (2.33 to 2.99)	2.81 (2.48 to 3.19)		
Serogroup Y (N=146,146) - Day 29	25 (19 to 34)	47 (35 to 63)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: Percentage of Subjects With Persisting hSBA Titers $\geq 1:4$ and $\geq 1:8$ Against Serogroups A, C, W and Y at Day 181 After Vaccination With MenACWY-CRM or MenACWY-PS

End point title	Percentage of Subjects With Persisting hSBA Titers $\geq 1:4$ and $\geq 1:8$ Against Serogroups A, C, W and Y at Day 181 After Vaccination With MenACWY-CRM or MenACWY-PS
End point description:	The persistence of immune response was measured as the percentage of subjects with hSBA titers $\geq 1:4$ and $\geq 1:8$ against each of four meningococcal serogroups A, C, W and Y at day 181 after vaccination with MenACWY-CRM or MenACWY-PS.
End point type	Secondary
End point timeframe:	Day 181

End point values	Men ACWY-PS	Men ACWY-CRM		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	144	145		
Units: Percentage of Subjects				
number (confidence interval 95%)				
Serogroup A ( $\geq 1:4$ )-Day 29	54 (46 to 62)	96 (91 to 98)		
Serogroup A ( $\geq 1:4$ )-Day 181	41 (33 to 49)	39 (31 to 47)		
Serogroup C (hSBA $\geq 1:4$ ) - Day 29 (N=139,141)	79 (71 to 86)	91 (85 to 95)		
Serogroup C (hSBA $\geq 1:4$ ) - Day 181 (N=139,141)	71 (63 to 79)	87 (81 to 92)		
Serogroup W (hSBA $\geq 1:4$ ) - Day 29 (N=137,137)	78 (70 to 85)	99 (96 to 100)		
Serogroup W (hSBA $\geq 1:4$ ) - Day 181 (N=137,137)	69 (60 to 76)	97 (93 to 99)		
Serogroup Y (hSBA $\geq 1:4$ ) - Day 29 (N=141,140)	77 (69 to 83)	90 (84 to 94)		
Serogroup Y (hSBA $\geq 1:4$ ) - Day 181 (N=141,140)	65 (56 to 72)	94 (88 to 97)		
Serogroup A (hSBA $\geq 1:8$ ) - Day 29	54 (46 to 62)	95 (90 to 98)		
Serogroup A (hSBA $\geq 1:8$ ) - Day 181	38 (30 to 47)	35 (27 to 44)		
Serogroup C (hSBA $\geq 1:8$ ) - Day 29 (N=139,141)	70 (61 to 77)	88 (81 to 93)		
Serogroup C (hSBA $\geq 1:8$ ) - Day 181 (N=139,141)	55 (47 to 64)	81 (73 to 87)		
Serogroup W (hSBA $\geq 1:8$ ) - Day 29 (N=137,137)	72 (64 to 80)	99 (96 to 100)		

Serogroup W (hSBA $\geq$ 1:8) - Day 181 (N=137,137)	66 (57 to 74)	96 (92 to 99)		
Serogroup Y (hSBA $\geq$ 1:8) - Day 29 (N=141,140)	67 (59 to 75)	89 (82 to 93)		
Serogroup Y (hSBA $\geq$ 1:8) - Day 181 (N=141,140)	59 (50 to 67)	89 (83 to 94)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: The hSBA Geometric Mean Titers Persisting Against Meningococcal Serogroups A, C, W and Y at Day 181 After Vaccination With MenACWY-CRM or MenACWYPS

End point title	The hSBA Geometric Mean Titers Persisting Against Meningococcal Serogroups A, C, W and Y at Day 181 After Vaccination With MenACWY-CRM or MenACWYPS
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End point description:

The persistence of immune response was measured in terms of the hSBA GMTs persisting at day 181 against each of four meningococcal serogroups A, C, W and Y after vaccination with MenACWY-CRM or MenACWY-PS

End point type	Secondary
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End point timeframe:

Day 181

End point values	Men ACWY-PS	Men ACWY-CRM		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	144	145		
Units: GMT				
geometric mean (confidence interval 95%)				
Serogroup A - Day 29	11 (8.33 to 13)	66 (52 to 83)		
Serogroup A - Day 181	5.85 (4.68 to 7.32)	5.06 (4.05 to 6.33)		
Serogroup C (N=141,139) - Day 29	20 (15 to 27)	41 (31 to 54)		
Serogroup C (N=141,139) - Day 181	11 (8.84 to 14)	22 (17 to 28)		
Serogroup W (N=137,137) - Day 29	21 (16 to 27)	74 (58 to 95)		
Serogroup W (N=137,137) - Day 181	16 (13 to 21)	69 (54 to 89)		
Serogroup Y (N=141, 140)- Day 29	26 (19 to 35)	47 (35 to 64)		
Serogroup Y (N=141, 140)- Day 181	14 (11 to 19)	39 (29 to 51)		

## Statistical analyses

No statistical analyses for this end point

### Secondary: Number of Subjects Reporting Local and Systemic Reactions and Axillary

## Temperature During 7-Day Period After Vaccination With MenACWY-CRM or MenACWY-PS

End point title	Number of Subjects Reporting Local and Systemic Reactions and Axillary Temperature During 7-Day Period After Vaccination With MenACWY-CRM or MenACWY-PS
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End point description:

Safety was assessed as the number of subjects who reported local and systemic reactions and axillary temperature during day 1 to day 7 after vaccination with MenACWY-CRM or MenACWY-PS.

End point type	Secondary
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End point timeframe:

Day 1 to 7 post vaccination

End point values	Safety-MenACWY-CRM_2 to 5 Years	Safety-MenACWY-PS_2 to 5 Years	Safety-MenACWY-CRM_6 to 10 Years	Safety-MenACWY-PS_6 to 10 Years
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	452	264	498	286
Units: Number of Subjects				
Any local reaction	138	99	189	125
Injection site pain	89	68	132	100
Injection site erythema	75	34	91	37
Injection site induration	59	23	84	38
Any systemic reaction	130	73	119	69
Change in Eating Habits	36	24	0	0
Sleepiness	29	13	0	0
Irritability	36	18	0	0
Vomiting	21	9	0	0
Diarrhea	31	20	0	0
Arthralgia	26	11	18	15
Headache	46	22	74	46
Chills	0	0	18	17
Nausea	0	0	16	11
Malaise	0	0	50	28
Myalgia	0	0	35	25
Any other AE	69	42	69	47
Axillary Temperature $\geq 38$ °C	35	18	20	16
Analgesic/Antipyretic medicine	69	42	69	47

### Statistical analyses

No statistical analyses for this end point

### Secondary: Overview of SAEs

End point title	Overview of SAEs
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End point description:

End point type	Secondary
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End point timeframe:

Throughout the study

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<b>End point values</b>	Men ACWY-PS	Men ACWY-CRM		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	550	950		
Units: Numbers				
Any Serious Adverse Events	1	9		
Adverse Events Leading to Premature Withdrawal	0	0		
Deaths	0	0		

### **Statistical analyses**

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No statistical analyses for this end point

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

Solicited adverse events (AEs) were collected from Day 1 through 7, serious AEs were collected from day 1 to day 181 after vaccination.

Assessment type	Non-systematic
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### Dictionary used

Dictionary name	MedDRA
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Dictionary version	7.1
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### Reporting groups

Reporting group title	MenACWY-PS
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Reporting group description:

Subjects  $\geq 2$  to  $\leq 10$  years of age received one dose of a quadrivalent meningococcal polysaccharide vaccine

Reporting group title	MenACWYCRM
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Reporting group description:

Subjects  $\geq 2$  to  $\leq 10$  years of age received one dose of a quadrivalent meningococcal conjugate vaccine

<b>Serious adverse events</b>	MenACWY-PS	MenACWYCRM	
Total subjects affected by serious adverse events			
subjects affected / exposed	1 / 550 (0.18%)	9 / 950 (0.95%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Injury, poisoning and procedural complications			
Injury			
subjects affected / exposed	0 / 550 (0.00%)	1 / 950 (0.11%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Nervous system disorders			
Febrile Convulsion			
subjects affected / exposed	0 / 550 (0.00%)	1 / 950 (0.11%)	
occurrences causally related to treatment / all	0 / 0	1 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Tonic Convulsion			
subjects affected / exposed	0 / 550 (0.00%)	1 / 950 (0.11%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Respiratory, thoracic and mediastinal disorders			

Asthmatic Crisis			
subjects affected / exposed	0 / 550 (0.00%)	1 / 950 (0.11%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Infections and infestations			
Appendicitis			
subjects affected / exposed	0 / 550 (0.00%)	2 / 950 (0.21%)	
occurrences causally related to treatment / all	0 / 0	0 / 2	
deaths causally related to treatment / all	0 / 0	0 / 0	
Lobar Pneumonia			
subjects affected / exposed	1 / 550 (0.18%)	0 / 950 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Pneumonia			
subjects affected / exposed	0 / 550 (0.00%)	3 / 950 (0.32%)	
occurrences causally related to treatment / all	0 / 0	0 / 3	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 5 %

<b>Non-serious adverse events</b>	MenACWY-PS	MenACWYCRM	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	292 / 550 (53.09%)	459 / 950 (48.32%)	
Nervous system disorders			
Headache			
subjects affected / exposed	72 / 550 (13.09%)	125 / 950 (13.16%)	
occurrences (all)	81	141	
Somnolence			
subjects affected / exposed	14 / 550 (2.55%)	30 / 950 (3.16%)	
occurrences (all)	15	32	
General disorders and administration site conditions			
Injection site erythema			
subjects affected / exposed	71 / 550 (12.91%)	166 / 950 (17.47%)	
occurrences (all)	73	174	
Injection site pain			

subjects affected / exposed occurrences (all)	168 / 550 (30.55%) 169	221 / 950 (23.26%) 223	
Injection site induration subjects affected / exposed occurrences (all)	61 / 550 (11.09%) 62	143 / 950 (15.05%) 146	
Malaise subjects affected / exposed occurrences (all)	28 / 550 (5.09%) 30	50 / 950 (5.26%) 58	
Pyrexia subjects affected / exposed occurrences (all)	49 / 550 (8.91%) 51	75 / 950 (7.89%) 84	
Chills subjects affected / exposed occurrences (all)	18 / 550 (3.27%) 19	18 / 950 (1.89%) 18	
Gastrointestinal disorders Diarrhoea subjects affected / exposed occurrences (all)	21 / 550 (3.82%) 24	36 / 950 (3.79%) 43	
Psychiatric disorders Eating disorder subjects affected / exposed occurrences (all)	24 / 550 (4.36%) 27	36 / 950 (3.79%) 40	
Irritability subjects affected / exposed occurrences (all)	18 / 550 (3.27%) 36	18 / 950 (1.89%) 41	
Musculoskeletal and connective tissue disorders Arthralgia subjects affected / exposed occurrences (all)	26 / 550 (4.73%) 27	44 / 950 (4.63%) 45	
Myalgia subjects affected / exposed occurrences (all)	26 / 550 (4.73%) 35	30 / 950 (3.16%) 37	
Infections and infestations Varicella subjects affected / exposed occurrences (all)	23 / 550 (4.18%) 23	43 / 950 (4.53%) 43	



## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
16 March 2007	To modify study endpoints and expand analyses to address regulatory concerns

Notes:

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### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

Limitations of the trial such as small numbers of subjects analysed or technical problems leading to unreliable data.

NA
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Notes:

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### Online references

<http://www.ncbi.nlm.nih.gov/pubmed/19895922>