# Clinical trial results:
# A Phase 2b, Controlled, Observer-Blind, Multi-Center Study Assessing the Effectiveness, Immunogenicity and Safety of the 3rd Dose of GlaxoSmithKline Biologicals Meningococcal ABCWY Vaccine Administered to Healthy Adolescents in the U.S.

## Summary

| | |
|---|---|
| EudraCT number | 2015-001030-16 |
| Trial protocol | Outside EU/EEA |
| Global end of trial date | 11 June 2015 |

**Results information**

| | |
|---|---|
| Result version number | v2 |
| This version publication date | 14 October 2017 |
| First version publication date | 24 June 2016 |
| Version creation reason | • New data added to full data set<br>New data added to full data set |

## Trial information

**Trial identification**

| | |
|---|---|
| Sponsor protocol code | 205232 |

**Additional study identifiers**

| | |
|---|---|
| ISRCTN number | - |
| ClinicalTrials.gov id (NCT number) | NCT02285777 |
| WHO universal trial number (UTN) | - |

Notes:

**Sponsors**

| | |
|---|---|
| Sponsor organisation name | GlaxoSmithKline Biologicals |
| Sponsor organisation address | Rue de l'Institut 89, Rixensart, Belgium, B-1330 |
| Public contact | Clinical Trials Call Center, GlaxoSmithKline Biologicals, 44 2089904466, GSKClinicalSupportHD@gsk.com |
| Scientific contact | Clinical Trials Call Center, GlaxoSmithKline Biologicals, 44 2089904466, GSKClinicalSupportHD@gsk.com |

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 | Final |
| Date of interim/final analysis | 20 June 2017 |
| Is this the analysis of the primary completion data? | Yes |
| Primary completion date | 26 March 2015 |
| Global end of trial reached? | Yes |
| Global end of trial date | 11 June 2015 |
| Was the trial ended prematurely? | No |

Notes:

## General information about the trial

Main objective of the trial:

To assess the effectiveness of the MenABCWY vaccine against a randomly selected panel of endemic US N. meningitidis serogroup B invasive disease strains as measured by bactericidal activity at 1:4 dilution using enc-hSBA at one month after the 3-dose series, when compared to a single dose of MenACWY.

Protection of trial subjects:

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 is not injected into a blood vessel. The measures of safety used in this study are routine clinical procedures. They include a close vigilance for, and stringent reporting of, selected local and systemic adverse events routinely monitored in vaccine clinical studies as indicators of reactogenicity. The period of observation for AEs extends from the time the subject signs informed consent until he or she completes the final study visit (Visit Month 4) or terminates the study early (whichever comes first).

Background therapy: -

Evidence for comparator: -

| | |
|---|---|
| Actual start date of recruitment | 01 December 2014 |
| 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 | United States: 189 |
| Worldwide total number of subjects | 189 |
| EEA total number of subjects | 0 |

Notes:

### Subjects enrolled per age group

| | |
|---|---|
| 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) | 81 |

| | |
|---|---|
| Adolescents (12-17 years) | 97 |
| Adults (18-64 years) | 11 |
| From 65 to 84 years | 0 |
| 85 years and over | 0 |

## Subject disposition

### Recruitment

Recruitment details: -

### Pre-assignment

Screening details:

An Interactive Response Technology (IRT) will be used in the study. At Month 6 Visit of the parent study, IRT will allocate the study vaccines (either MenABCWY or placebo) to the subject. Subjects will receive either a 3rd dose of MenABCWY or one dose of a placebo, depending on their assigned vaccine group in parent study.

### 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, Carer, Assessor |

Blinding implementation details:

Trial is observer-blinded. Observer-blind means that during the course of study, the subject, the parents/guardians of the subjects and the study personnel
responsible for the evaluation of any study endpoint (e.g. safety and reactogenicity) will be unaware which vaccine was administered. The vaccine preparation and administration will be done by designated medical personnel who will not participate in any of the clinical study evaluations.

### Arms

| | |
|---|---|
| Are arms mutually exclusive? | Yes |
| **Arm title** | MenABCWY |

Arm description:

Subjects who received 2 doses of MenABCWY vaccine in the parent study, now receive a 3rd dose of MenABCWY vaccine in the current study.

| | |
|---|---|
| Arm type | Experimental |
| Investigational medicinal product name | Meningococcal (groups A, C, W, and Y) oligosaccharide diphtheria CRM-197 conjugate combined with meningococcal (group B) multicomponent recombinant vaccine |
| Investigational medicinal product code | MenABCWY |
| Other name | |
| Pharmaceutical forms | Powder and solvent for solution for injection |
| Routes of administration | Intramuscular use |

Dosage and administration details:

1 dose of 0.5 millilitres

| | |
|---|---|
| **Arm title** | MenACWY |

Arm description:

Subjects who received 1 dose of placebo and 1 dose of MenACWY vaccine in the parent study, now receive 1 dose of placebo in the current study.

| | |
|---|---|
| Arm type | Active comparator |
| Investigational medicinal product name | Saline solution |
| Investigational medicinal product code | |
| Other name | |
| Pharmaceutical forms | Solution for injection |
| Routes of administration | Intramuscular use |

Dosage and administration details:

1 dose of 0.5 millilitres

| **Number of subjects in period 1** | MenABCWY | MenACWY |
|---|---|---|
| Started | 95 | 94 |
| Completed | 90 | 91 |
| Not completed | 5 | 3 |
| Consent withdrawn by subject | 1 | 1 |
| Lost to follow-up | 4 | 2 |

## Baseline characteristics

| Reporting groups | |
|---|---|
| Reporting group title | MenABCWY |
| Reporting group description: | |
| Subjects who received 2 doses of MenABCWY vaccine in the parent study, now receive a 3rd dose of MenABCWY vaccine in the current study. | |
| Reporting group title | MenACWY |
| Reporting group description: | |
| Subjects who received 1 dose of placebo and 1 dose of MenACWY vaccine in the parent study, now receive 1 dose of placebo in the current study. | |

| Reporting group values | MenABCWY | MenACWY | Total |
|---|---|---|---|
| Number of subjects | 95 | 94 | 189 |
| Age categorical<br>Units: Subjects | | | |
| In utero | 0 | 0 | 0 |
| Preterm newborn infants (gestational age < 37 wks) | 0 | 0 | 0 |
| Newborns (0-27 days) | 0 | 0 | 0 |
| Infants and toddlers (28 days-23 months) | 0 | 0 | 0 |
| Children (2-11 years) | 36 | 45 | 81 |
| Adolescents (12-17 years) | 53 | 44 | 97 |
| Adults (18-64 years) | 6 | 5 | 11 |
| From 65-84 years | 0 | 0 | 0 |
| 85 years and over | 0 | 0 | 0 |
| Age continuous<br>Units: years | | | |
| arithmetic mean | 12.8 | 12.4 | |
| standard deviation | ± 2.36 | ± 2.4 | - |
| Gender categorical<br>Units: Subjects | | | |
| Female | 40 | 33 | 73 |
| Male | 55 | 61 | 116 |
| Race/Ethnicity, Customized<br>Units: Subjects | | | |
| American Indian or Alaska native | 0 | 2 | 2 |
| Asian | 1 | 0 | 1 |
| Black or African American | 16 | 21 | 37 |
| Native Hawaiian or Other Pacific Islander | 0 | 0 | 0 |
| White | 74 | 66 | 140 |
| Other | 4 | 5 | 9 |

## End points

### End points reporting groups

| Reporting group title | MenABCWY |
|---|---|

Reporting group description:

Subjects who received 2 doses of MenABCWY vaccine in the parent study, now receive a 3rd dose of MenABCWY vaccine in the current study.

| Reporting group title | MenACWY |
|---|---|

Reporting group description:

Subjects who received 1 dose of placebo and 1 dose of MenACWY vaccine in the parent study, now receive 1 dose of placebo in the current study.

### Primary: Percentages of subjects without bactericidal activity at 1:4 dilution against each US Neisseria meningitidis (N. meningitidis) serogroup B strain at 1 month after the 3-dose vaccination series

| End point title | Percentages of subjects without bactericidal activity at 1:4 dilution against each US Neisseria meningitidis (N. meningitidis) serogroup B strain at 1 month after the 3-dose vaccination series |
|---|---|

End point description:

The effectiveness of three doses of MenABCWY vaccine when compared to one dose of MenACWY vaccine against a panel of US N. meningitidis serogroup B invasive disease strains at 1 month after the 3-dose vaccination series was evaluated in terms of: the combined percentage of subjects without bactericidal activity at 1:4 dilution using the human Serum Bactericidal Assay (hSBA) against each strain in MenABCWY group and MenACWY group. The data provided is an average of the percentage of subjects without bactericidal activity at 1:4 dilution across all 110 strains.
Analysis was performed on FAS-Effectiveness (Month 7), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, received a subject ID and vaccination, and who provided evaluable serum sample with enc-hSBA result for at least one endemic N. meningitidis serogroup B invasive disease strain at Month 7.

| End point type | Primary |
|---|---|

End point timeframe:

At Month 7 (1 month after the 3-dose vaccination series)

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 93 | 93 | | |
| Units: Percentage | | | | |
| number (not applicable) | | | | |
| Combined Endemic US Serogroup B Strains | 21.1 | 73.7 | | |

### Statistical analyses

| Statistical analysis title | Vaccine Effectiveness at 1 month after Dose 3 |
|---|---|

Statistical analysis description:

The Vaccine Effectiveness (VE) at 1 month after the 3-dose vaccination series for each strain is defined as [1 - (percentage of subjects without bactericidal activity at 1:4 dilution in MenABCWY

group/percentage of subjects without bactericidal activity at 1:4 dilution in MenACWY group)] x 100.
The combined VE across all strains was computed by mean of a generalized linear model.

| | |
|---|---|
| Comparison groups | MenABCWY v MenACWY |
| Number of subjects included in analysis | 186 |
| Analysis specification | Pre-specified |
| Analysis type | other[1] |
| P-value | < 0.0001 |
| Method | Generalized Linear Model |
| Parameter estimate | Vaccine Effectiveness |
| Point estimate | 71 |
| Confidence interval | |
| level | 95 % |
| sides | 2-sided |
| lower limit | 69 |
| upper limit | 73 |

Notes:

[1] - In order to obtain the VE measure which is a measure based on the relative risk (RR), the BINOMIAL DISTRIBUTION and LOG LINK options were used in the generalized linear model to compute the log10 RR and the corresponding confidence interval.

## Secondary: Number of subjects reporting any solicited local or systemic Adverse Events (AEs)

| | |
|---|---|
| End point title | Number of subjects reporting any solicited local or systemic Adverse Events (AEs) |

End point description:

Number of subjects reporting any solicited local or systemic AEs from Day 1 (6 hours) to Day 7 after any meningococcal vaccination is reported.
Assessed solicited local symptoms were induration, erythema and pain. Assessed solicited general symptoms were fatigue, myalgia, arthralgia, headache, fever, chills and loss of appetite. Other solicited data included prevention of pain/fever and treatment of pain/fever. Any = occurrence of the symptom regardless of intensity grade.
The analysis was performed on the Safety Set (solicited AEs and other solicited reactions), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, and provided post-vaccination reactogenicity data.

| | |
|---|---|
| End point type | Secondary |

End point timeframe:

Day 1 (6 hours) to Day 7 after vaccination

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 90 | 87 | | |
| Units: Subjects | | | | |
| Any (Vacc.1, N=90,87) | 62 | 25 | | |
| Any Local Reactions (Vacc.1, N=90,87) | 60 | 15 | | |
| Any Systemic Reactions (Vacc.1, N=90,87) | 27 | 15 | | |
| Induration (mm) (Vacc.1, N=88,87) | 6 | 0 | | |
| Erythema (mm) (Vacc.1, N=87,86) | 6 | 0 | | |
| Pain (Vacc.1, N=88,87) | 59 | 15 | | |
| Nausea (Vacc.1, N=87,87) | 5 | 5 | | |
| Fatigue (Vacc.1, N=87,87) | 14 | 11 | | |
| Myalgia (Vacc.1, N=87,85) | 13 | 3 | | |

| | | | | |
|---|---|---|---|---|
| Arthralgia (Vacc.1, N=86,85) | 9 | 0 | | |
| Headache (Vacc.1, N=88,87) | 13 | 9 | | |
| Fever (Vacc.1, N=90,85) | 0 | 1 | | |
| Chills (Vacc.1, N=88,87) | 2 | 3 | | |
| Loss of appetite (Vacc.1, N=88,87) | 3 | 3 | | |
| Prevention of pain/fever (Vacc.1, N=85,84) | 0 | 0 | | |
| Treatment of pain/fever (Vacc.1, N=85,84) | 12 | 3 | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: Number of subjects reporting any unsolicited AEs

| End point title | Number of subjects reporting any unsolicited AEs |
|---|---|

End point description:

The number of subjects reporting unsolicited AEs after any vaccination is reported. An unsolicited AE covers any untoward medical occurrence in a clinical investigation subject temporally associated with the use of a medicinal product, whether or not considered related to the medicinal product and reported in addition to those solicited during the clinical study and any solicited symptom with onset outside the specified period of follow-up for solicited symptoms. Any was defined as the occurrence of any unsolicited AE regardless of intensity grade or relation to vaccination.
The analysis was performed on the Safety set (unsolicited AEs), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, and had post-vaccination unsolicited adverse event records.

| End point type | Secondary |
|---|---|

End point timeframe:

Day 1 to Day 30 after any vaccination

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 93 | 93 | | |
| Units: Subjects | | | | |
| Any AEs | 14 | 11 | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: Number of subjects reporting any serious adverse events (SAEs), medically-attended AEs and AEs leading to premature withdrawal

| End point title | Number of subjects reporting any serious adverse events (SAEs), medically-attended AEs and AEs leading to premature withdrawal |
|---|---|

End point description:

The number of subjects reporting any SAEs, medically-attended AEs and AEs leading to premature withdrawal during the entire study period is reported. SAEs assessed include medical occurrences that result in death, are life-threatening, require hospitalization or prolongation of hospitalization or result in disability/incapacity. MAEs were defined as events for which the subject received medical attention defined as hospitalization, an emergency room visit, or a visit to or from medical personnel (medical doctor) for any reason. Any was defined as the occurrence of any unsolicited AE regardless of intensity grade or relation to vaccination.
The analysis was performed on the Safety Set (overall).

| End point type | Secondary |
|---|---|

End point timeframe:

During the entire study period (from Day 0 up to Month 10)

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 95 | 94 | | |
| Units: Subjects | | | | |
| Any SAEs (N=93,93) | 0 | 0 | | |
| Any Medically Attended AEs (N=93,93) | 14 | 20 | | |
| Any AEs leading to premature withdrawal (N=95,94) | 0 | 0 | | |

## Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects without bactericidal activity at 1:4 dilution against each US N. meningitidis serogroup B strain at 4 months after the 3-dose vaccination series

| End point title | Percentages of subjects without bactericidal activity at 1:4 dilution against each US N. meningitidis serogroup B strain at 4 months after the 3-dose vaccination series |
|---|---|

End point description:

The effectiveness of three doses of MenABCWY vaccine when compared to one dose of MenACWY vaccine against a panel of US N. meningitidis serogroup B invasive disease strains at 4 months after the 3-dose vaccination series was evaluated in terms of: the combined percentage of subjects without bactericidal activity at 1:4 dilution using the hSBA against each strain in MenABCWY group and MenACWY group. The data provided is an average of the percentage of subjects without bactericidal activity at 1:4 dilution across all 110 strains.
Analysis was performed on FAS-Effectiveness (Month 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, received a subject ID and vaccination, and who provided evaluable serum sample with enc-hSBA result for at least one endemic N. meningitidis serogroup B invasive disease strain at Month 10.

| End point type | Secondary |
|---|---|

End point timeframe:

At Month 10 (4 months after the 3-dose vaccination series)

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 90 | 90 | | |
| Units: Percentage | | | | |
| number (not applicable) | | | | |
| Combined Endemic US Serogroup B Strains | 33.9 | 69.9 | | |

### Statistical analyses

| Statistical analysis title | Vaccine Effectiveness at 4 months after Dose 3 |
|---|---|

Statistical analysis description:

The VE at 4 months after the 3-dose vaccination series for each strain is defined as [1 - (percentage of subjects without bactericidal activity at 1:4 dilution in MenABCWY group/percentage of subjects without bactericidal activity at 1:4 dilution in MenACWY group)] x 100. The combined VE across all strains was computed by mean of a generalized linear model.

| Comparison groups | MenABCWY v MenACWY |
|---|---|
| Number of subjects included in analysis | 180 |
| Analysis specification | Pre-specified |
| Analysis type | other |
| P-value | < 0.0001 [2] |
| Method | Generalized Linear Model |
| Parameter estimate | Vaccine Effectiveness |
| Point estimate | 51 |
| Confidence interval | |
| level | 95 % |
| sides | 2-sided |
| lower limit | 48 |
| upper limit | 55 |

Notes:

[2] - In order to obtain the VE measure which is a measure based on the relative risk (RR), the BINOMIAL DISTRIBUTION and LOG LINK options were used in the generalized linear model to compute the log10 RR and the corresponding confidence interval.

### Secondary: Percentages of subjects without bactericidal activity at 1:8 dilution against each US N. meningitidis serogroup B strain at 1 and 4 months after the 3-dose vaccination series

| End point title | Percentages of subjects without bactericidal activity at 1:8 dilution against each US N. meningitidis serogroup B strain at 1 and 4 months after the 3-dose vaccination series |
|---|---|

End point description:

The effectiveness of three doses of MenABCWY vaccine when compared to one dose of MenACWY vaccine against a panel of US N. meningitidis serogroup B invasive disease strains at 1 and 4 months after the 3-dose vaccination series were evaluated in terms of: the combined percentage of subjects without bactericidal activity at 1:8 dilution using the hSBA against each strain in MenABCWY group and MenACWY group. The data provided is an average of the percentage of subjects without bactericidal activity at 1:8 dilution across all 110 strains.
Analysis was performed on FAS-Effectiveness (Month 7 and 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, received a subject ID and vaccination, and who provided evaluable serum sample with enc-hSBA result for at least one endemic N. meningitidis serogroup B invasive disease strain at Month 7 and 10.

| End point type | Secondary |
|---|---|

End point timeframe:

At Months 7 and 10 (1 and 4 months after the 3-dose vaccination series)

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 93 | 93 | | |
| Units: Percentage | | | | |
| number (not applicable) | | | | |
| Combined Serogroup B Strains (Month 7) (N=93;93) | 36.9 | 75.8 | | |
| Combined Serogroup B Strains (Month 10) (N=90;90) | 60.3 | 79.6 | | |

## Statistical analyses

| Statistical analysis title | Vaccine Effectiveness at 1 month after Dose 3 |
|---|---|

Statistical analysis description:

The VE at 1 month after the 3-dose vaccination series for each strain is defined as [1 - (percentage of subjects without bactericidal activity at 1:8 dilution in MenABCWY group/percentage of subjects without bactericidal activity at 1:8 dilution in MenACWY group)] x 100. The combined VE across all strains was computed by mean of a generalized linear model.

| | |
|---|---|
| Comparison groups | MenABCWY v MenACWY |
| Number of subjects included in analysis | 186 |
| Analysis specification | Pre-specified |
| Analysis type | other |
| P-value | < 0.0001 [3] |
| Method | Generalized Linear Model |
| Parameter estimate | Vaccine Effectiveness |
| Point estimate | 51 |
| Confidence interval | |
| level | 95 % |
| sides | 2-sided |
| lower limit | 48 |
| upper limit | 54 |

Notes:

[3] - In order to obtain the VE measure which is a measure based on the relative risk (RR), the BINOMIAL DISTRIBUTION and LOG LINK options were used in the generalized linear model to compute the log10 RR and the corresponding confidence interval.

| Statistical analysis title | Vaccine Effectiveness at 4 months after Dose 3 |
|---|---|

Statistical analysis description:

The VE at 4 months after the 3-dose vaccination series for each strain is defined as [1 - (percentage of subjects without bactericidal activity at 1:8 dilution in MenABCWY group/percentage of subjects without bactericidal activity at 1:8 dilution in MenACWY group)] x 100. The combined VE across all strains was computed by mean of a generalized linear model.

| | |
|---|---|
| Comparison groups | MenABCWY v MenACWY |

| | |
|---|---|
| Number of subjects included in analysis | 186 |
| Analysis specification | Pre-specified |
| Analysis type | other |
| P-value | < 0.0001 [4] |
| Method | Generalized Linear Model |
| Parameter estimate | Vaccine Effectiveness |
| Point estimate | 24 |
| Confidence interval | |
| level | 95 % |
| sides | 2-sided |
| lower limit | 20 |
| upper limit | 28 |

Notes:

[4] - In order to obtain the VE measure which is a measure based on the relative risk (RR), the BINOMIAL DISTRIBUTION and LOG LINK options were used in the generalized linear model to compute the log10 RR and the corresponding confidence interval.

## Secondary: Percentages of US N. meningitidis serogroup B strains killed at 1:4 and 1:8 dilutions at 1 and 4 months after the 3-dose vaccination series

| | |
|---|---|
| End point title | Percentages of US N. meningitidis serogroup B strains killed at 1:4 and 1:8 dilutions at 1 and 4 months after the 3-dose vaccination series |

End point description:

The mean percentage of US N. meningitidis serogroup B strains killed by each subject, at 1:4 and 1:8 dilutions before the 3-dose vaccination series, at Month 6 (PRE) and at 1 and 4 months after the 3-dose vaccination series (Month 7 and Month 10).
The analysis was performed on the FAS-Effectiveness (Month 6, Month 7 and Month 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, and provided evaluable serum sample with the enc-hSBA result for at least one endemic N. meningitidis serogroup B invasive disease strain before the 3-dose vaccination series (Month 6) and at one and four months after the 3-dose series (Month 7 and Month 10).

| | |
|---|---|
| End point type | Secondary |

End point timeframe:

At Month 6 (before the 3-dose vaccination series) and at Months 7 and 10 (1 and 4 months after the 3-dose vaccination series)

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 93 | 93 | | |
| Units: Percentage | | | | |
| arithmetic mean (standard deviation) | | | | |
| 1:4, PRE (N=93;93) | 56.97 (± 18.134) | 22.94 (± 17.764) | | |
| 1:4, Month 7 (N=93;93) | 77.78 (± 10.041) | 21.91 (± 16.885) | | |
| 1:4, Month 10 (N=90;90) | 62.37 (± 15.976) | 22.49 (± 17.094) | | |
| 1:8, PRE (N=93;93) | 28.81 (± 17.086) | 11.53 (± 11.705) | | |
| 1:8, Month 7 (N=93;93) | 56.95 (± 14.389) | 11.4 (± 11.266) | | |
| 1:8, Month 10 (N=90;90) | 31.46 (± 19.434) | 11.15 (± 10.774) | | |

## Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects with enc-hSBA ≥ 1:4 and enc-hSBA ≥ 1:8 at 1 and 4 months after the 3-dose vaccination series

| End point title | Percentages of subjects with enc-hSBA ≥ 1:4 and enc-hSBA ≥ 1:8 at 1 and 4 months after the 3-dose vaccination series |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY vaccine, in terms of percentages of subjects with enc-hSBA ≥ 1:4 and enc-hSBA ≥ 1:8 against four N. meningitidis serogroup B test strains (M14459, M07-0241084, 96217 and NZ98/254) at 1 and 4 months after the 3-dose vaccination series (Month 7 and Month 10).
The analysis was performed on the FAS-Immunogenicity (Month 7 and Month 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, and provided evaluable serum samples at one and four months post-third vaccination (Month 7 and Month 10) and whose immunogenicity assay result was available for at least one serogroup B test strain.

| End point type | Secondary |
|---|---|

End point timeframe:

At Months 7 and 10 (1 and 4 months after the 3-dose vaccination series)

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 91 | 90 | | |
| Units: Percentage | | | | |
| number (confidence interval 95%) | | | | |
| M14459 (≥ 1:4, Month 7) (N=91;90) | 98 (92.3 to 99.73) | 12 (6.3 to 20.8) | | |
| M14459 (≥ 1:4, Month 10) (N=87;90) | 72 (61.8 to 81.5) | 12 (6.3 to 20.8) | | |
| M14459 (≥ 1:8, Month 7) (N=91;90) | 67 (56.4 to 76.5) | 2 (0.27 to 7.8) | | |
| M14459 (≥ 1:8, Month 10) (N=87;90) | 21 (12.7 to 30.7) | 1 (0.03 to 6) | | |
| M07-0241084 (≥ 1:4, Month 7) (N=90;85) | 81 (71.5 to 88.6) | 21 (13.1 to 31.4) | | |
| M07-0241084 (≥ 1:4, Month 10) (N=79;78) | 46 (34.3 to 57.2) | 22 (13.2 to 32.6) | | |
| M07-0241084 (≥ 1:8, Month 7) (N=90;85) | 38 (27.8 to 48.6) | 5 (1.3 to 11.6) | | |
| M07-0241084 (≥ 1:8, Month 10) (N=79;78) | 11 (5.3 to 20.5) | 6 (2.1 to 14.3) | | |
| 96217 (≥ 1:4, Month 7) (N=89;88) | 99 (93.9 to 99.97) | 48 (37 to 58.6) | | |
| 96217 (≥ 1:4, Month 10) (N=87;88) | 100 (95.8 to 100) | 41 (30.5 to 51.9) | | |

| | | | | |
|---|---|---|---|---|
| 96217 (≥ 1:8, Month 7) (N=89;88) | 99 (93.9 to 99.97) | 17 (9.9 to 26.6) | | |
| 96217 (≥ 1:8, Month 10) (N=87;88) | 99 (93.8 to 99.97) | 16 (9 to 25.2) | | |
| NZ98/254 (≥ 1:4, Month 7) (N=84;87) | 76 (65.7 to 84.8) | 1 (0.03 to 6.2) | | |
| NZ98/254 (≥ 1:4, Month 10) (N=80;83) | 34 (23.6 to 45.2) | 1 (0.03 to 6.5) | | |
| NZ98/254 (≥ 1:8, Month 7) (N=84;87) | 39 (28.8 to 50.5) | 1 (0.03 to 6.2) | | |
| NZ98/254 (≥ 1:8, Month 10) (N=80;83) | 4 (0.8 to 10.6) | 0 (0 to 4.3) | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: HT-hSBA Geometric Mean Titers (GMTs) against the N. meningitidis serogroup B test strains

| End point title | HT-hSBA Geometric Mean Titers (GMTs) against the N. meningitidis serogroup B test strains |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY vaccine, in terms of HT-hSBA GMTs against four N. meningitidis serogroup B test strains (M14459, M07-0241084, 96217 and NZ98/254) after the 3-dose vaccination series.
The analysis was performed on the FAS-Immunogenicity (Month 7 and Month 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, provided evaluable serum samples at one and four months post-third vaccination (Month 7 and Month 10) and whose immunogenicity assay result was available for at least one serogroup B test strain.

| End point type | Secondary |
|---|---|

End point timeframe:

At Months 7 and 10 (1 and 4 months after the 3-dose vaccination series)

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 91 | 91 | | |
| Units: Titers | | | | |
| geometric mean (confidence interval 95%) | | | | |
| M14459, Month 7 (N=91;88) | 23.12 (20 to 27) | 1.1 (0.94 to 1.29) | | |
| M14459, Month 10 (N=88;91) | 3.93 (3.14 to 4.91) | 1.18 (0.95 to 1.46) | | |
| M07-0241084, Month 7 (N=89;90) | 12.26 (9.59 to 16) | 1.74 (1.37 to 2.2) | | |
| M07-0241084, Month 10 (N=86;90) | 3.04 (2.36 to 3.92) | 1.68 (1.31 to 2.14) | | |
| 96217, Month 7 (N=90;87) | 367.29 (277 to 486) | 4.02 (3.03 to 5.32) | | |
| 96217, Month 10 (N=87;85) | 142.06 (105 to 191) | 3.32 (2.46 to 4.48) | | |

| | | | | |
|---|---|---|---|---|
| NZ98/254, Month 7 (N=89;89) | 19.69 (16 to 24) | 1.02 (0.85 to 1.23) | | |
| NZ98/254, Month 10 (N=87;90) | 3.75 (3.01 to 4.68) | 1.04 (0.84 to 1.29) | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects with HT-hSBA titers against N. meningitidis serogroup B test strains ≥ Lower Limit of Quantitation (LLQ) at 1 month after the 3-dose vaccination series

| End point title | Percentages of subjects with HT-hSBA titers against N. meningitidis serogroup B test strains ≥ Lower Limit of Quantitation (LLQ) at 1 month after the 3-dose vaccination series |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY, in terms of percentages of subjects with HT-hSBA titers ≥ LLQ (≥ 5, ≥ 8, ≥ 16, ≥ 32, ≥ 64, ≥ 128) against serogroup N. meningitidis B test strains (M14459, M07-0241084, 96217 and NZ98/254), at 1 month after the 3-dose vaccination series.
The analysis was performed on the FAS-Immunogenicity (Month 7), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, provided evaluable serum samples at one month post-third vaccination (Month 7) and whose immunogenicity assay result was available for at least one serogroup B test strain.

| End point type | Secondary |
|---|---|

End point timeframe:

At Month 7 (1 month after the 3-dose vaccination series)

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 91 | 90 | | |
| Units: Percentage | | | | |
| number (confidence interval 95%) | | | | |
| M14459, ≥ 5 (N=91;88) | 95 (87.6 to 98.2) | 1 (0.03 to 6.2) | | |
| M14459, ≥ 8 (N=91;88) | 90 (82.1 to 95.4) | 1 (0.03 to 6.2) | | |
| M14459, ≥ 16 (N=91;88) | 71 (61 to 80.4) | 1 (0.03 to 6.2) | | |
| M14459, ≥ 32 (N=91;88) | 34 (24.5 to 44.7) | 1 (0.03 to 6.2) | | |
| M14459, ≥ 64 (N=91;88) | 11 (5.4 to 19.3) | 0 (0 to 4.1) | | |
| M14459, ≥ 128 (N=91;88) | 3 (0.7 to 9.3) | 0 (0 to 4.1) | | |
| M07-0241084, ≥ 5 (N=89;90) | 82 (72.5 to 89.4) | 16 (8.8 to 24.7) | | |
| M07-0241084, ≥ 8 (N=89;90) | 67 (56.7 to 77) | 12 (6.3 to 20.8) | | |
| M07-0241084, ≥ 16 (N=89;90) | 46 (35.4 to 57) | 8 (3.2 to 15.4) | | |
| M07-0241084, ≥ 32 (N=89;90) | 20 (12.4 to 30.1) | 3 (0.7 to 9.4) | | |

| | | | | |
|---|---|---|---|---|
| M07-0241084, ≥ 64 (N=89;90) | 6 (1.8 to 12.6) | 2 (0.27 to 7.8) | | |
| M07-0241084, ≥ 128 (N=89;90) | 0 (0 to 4.1) | 0 (0 to 4) | | |
| 96217, ≥ 5 (N=90;87) | 100 (96 to 100) | 38 (27.7 to 49) | | |
| 96217, ≥ 8 (N=90;87) | 100 (96 to 100) | 37 (26.7 to 47.8) | | |
| 96217, ≥ 16 (N=90;87) | 100 (96 to 100) | 25 (16.6 to 35.7) | | |
| 96217, ≥ 32 (N=90;87) | 100 (96 to 100) | 15 (8.2 to 24.2) | | |
| 96217, ≥ 64 (N=90;87) | 99 (94 to 99.97) | 8 (3.3 to 15.9) | | |
| 96217, ≥ 128 (N=90;87) | 93 (86.1 to 97.5) | 3 (0.7 to 9.7) | | |
| NZ98/254, ≥ 5 (N=89;89) | 89 (80.3 to 94.5) | 1 (0.03 to 6.1) | | |
| NZ98/254, ≥ 8 (N=89;89) | 79 (68.7 to 86.6) | 1 (0.03 to 6.1) | | |
| NZ98/254, ≥ 16 (N=89;89) | 61 (49.7 to 70.9) | 0 (0 to 4.1) | | |
| NZ98/254, ≥ 32 (N=89;89) | 37 (27.1 to 48) | 0 (0 to 4.1) | | |
| NZ98/254, ≥ 64 (N=89;89) | 10 (4.7 to 18.3) | 0 (0 to 4.1) | | |
| NZ98/254, ≥ 128 (N=89;89) | 4 (1.2 to 11.1) | 0 (0 to 4.1) | | |

## Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects with HT-hSBA titers against N. meningitidis serogroup B test strains ≥ LLQ at 4 months after the 3-dose vaccination series

| End point title | Percentages of subjects with HT-hSBA titers against N. meningitidis serogroup B test strains ≥ LLQ at 4 months after the 3-dose vaccination series |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY, in terms of percentages of subjects with HT-hSBA titers ≥ LLQ (≥ 5, ≥ 8, ≥ 16, ≥ 32, ≥ 64, ≥ 128) against serogroup N. meningitidis B test strains (M14459, M07-0241084, 96217 and NZ98/254), at 4 months after the 3-dose vaccination series.
The analysis was performed on the FAS - Immunogenicity (Month 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, provided evaluable serum samples at four months post-third vaccination (Month 10) and whose immunogenicity assay result was available for at least one serogroup B test strain.

| End point type | Secondary |
|---|---|

End point timeframe:

At Month 10 (4 months after the 3-dose vaccination series)

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 88 | 91 | | |
| Units: Percentage | | | | |
| number (confidence interval 95%) | | | | |
| M14459, ≥ 5 (N=88;91) | 49 (38.1 to 59.8) | 4 (1.2 to 10.9) | | |
| M14459, ≥ 8 (N=88;91) | 36 (26.4 to 47.3) | 3 (0.7 to 9.3) | | |
| M14459, ≥ 16 (N=88;91) | 17 (9.9 to 26.6) | 1 (0.03 to 6) | | |
| M14459, ≥ 32 (N=88;91) | 6 (1.9 to 12.8) | 0 (0 to 4) | | |
| M14459, ≥ 64 (N=88;91) | 1 (0.03 to 6.2) | 0 (0 to 4) | | |
| M14459, ≥ 128 (N=88;91) | 0 (0 to 4.1) | 0 (0 to 4) | | |
| M07-0241084, ≥ 5 (N=86;90) | 38 (28.1 to 49.5) | 17 (9.6 to 26) | | |
| M07-0241084, ≥ 8 (N=86;90) | 24 (15.8 to 34.9) | 12 (6.3 to 20.8) | | |
| M07-0241084, ≥ 16 (N=86;90) | 9 (4.1 to 17.5) | 9 (3.9 to 16.8) | | |
| M07-0241084, ≥ 32 (N=86;90) | 1 (0.03 to 6.3) | 3 (0.7 to 9.4) | | |
| M07-0241084, ≥ 64 (N=86;90) | 1 (0.03 to 6.3) | 2 (0.27 to 7.8) | | |
| M07-0241084, ≥ 128 (N=86;90) | 0 (0 to 4.2) | 1 (0.03 to 6) | | |
| 96217, ≥ 5 (N=87;85) | 99 (93.8 to 99.97) | 35 (25.2 to 46.4) | | |
| 96217, ≥ 8 (N=87;85) | 99 (93.8 to 99.97) | 33 (23.1 to 44) | | |
| 96217, ≥ 16 (N=87;85) | 98 (91.9 to 99.72) | 21 (13.1 to 31.4) | | |
| 96217, ≥ 32 (N=87;85) | 94 (87.1 to 98.1) | 16 (9.3 to 26.1) | | |
| 96217, ≥ 64 (N=87;85) | 85 (75.8 to 91.8) | 6 (1.9 to 13.2) | | |
| 96217, ≥ 128 (N=87;85) | 56 (45.3 to 66.9) | 2 (0.29 to 8.2) | | |
| NZ98/254, ≥ 5 (N=87;90) | 44 (33.1 to 54.7) | 1 (0.03 to 6) | | |
| NZ98/254, ≥ 8 (N=87;90) | 34 (24.6 to 45.4) | 1 (0.03 to 6) | | |
| NZ98/254, ≥ 16 (N=87;90) | 16 (9.1 to 25.5) | 0 (0 to 4) | | |
| NZ98/254, ≥ 32 (N=87;90) | 5 (1.3 to 11.4) | 0 (0 to 4) | | |
| NZ98/254, ≥ 64 (N=87;90) | 2 (0.28 to 8.1) | 0 (0 to 4) | | |
| NZ98/254, ≥ 128 (N=87;90) | 2 (0.28 to 8.1) | 0 (0 to 4) | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects with a four-fold rise in HT-hSBA titers against the N. meningitidis serogroup B test strains at 1 and 4 months after the 3-dose vaccination series

| End point title | Percentages of subjects with a four-fold rise in HT-hSBA titers against the N. meningitidis serogroup B test strains at 1 and 4 months after the 3-dose vaccination series |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY, in terms of the percentages of subjects with a four-fold rise in HT-hSBA titers against the N. meningitidis serogroup B test strains, at 1 and 4 months after the 3-dose vaccination series.
The four-fold titers rise is defined as: a) for subjects with pre-vaccination HT-hSBA titers < LLQ, post-vaccination HT-hSBA titers ≥ 4 LLQ; b) for subjects with pre-vaccination HT-hSBA titers ≥ LLQ, an increase of at least four times the pre-vaccination HT-hSBA titers.
The analysis was performed on the FAS-Immunogenicity (Month 7 and Month 10).

| End point type | Secondary |
|---|---|

End point timeframe:

At Months 7 and 10 (1 and 4 months after the 3-dose vaccination series)

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 0[5] | 0[6] | | |
| Units: Percentage | | | | |
| number (confidence interval 95%) | ( to ) | ( to ) | | |

Notes:

[5] - The results will be updated when they become available.

[6] - The results will be updated when they become available.

### Statistical analyses

No statistical analyses for this end point

## Secondary: HT-hSBA GMTs against N. meningitidis serogroups A, C, W and Y

| End point title | HT-hSBA GMTs against N. meningitidis serogroups A, C, W and Y |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY compared to a single dose of MenACWY vaccine, in terms of HT-hSBA GMTs to serogroups A, C, W, and Y, at 1 and 4 months after the 3-dose vaccination series.
The analysis was performed on the FAS-Immunogenicity (Month 7 and Month 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, provided evaluable serum samples at one and four months post-third vaccination (Month 7 and Month 10) and whose immunogenicity assay result was available for at least one serogroup A, C, W and Y test strain.

| End point type | Secondary |
|---|---|

End point timeframe:

At Months 7 and 10 (1 and 4 months after the 3-dose vaccination series)

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 91 | 91 | | |
| Units: Titers | | | | |
| geometric mean (confidence interval 95%) | | | | |
| Men A, Month 7 (N=91;87) | 127.92 (91 to 179) | 3.37 (2.41 to 4.73) | | |

| | | | | |
|---|---|---|---|---|
| Men A, Month 10 (N=85;88) | 36.5 (25 to 53) | 2.73 (1.89 to 3.94) | | |
| Men C, Month 7 (N=85;86) | 521.64 (365 to 745) | 18.34 (13 to 26) | | |
| Men C, Month 10 (N=86;89) | 291.19 (201 to 421) | 15.4 (11 to 22) | | |
| Men W, Month 7 (N=83;88) | 424.8 (310 to 581) | 40.22 (30 to 54) | | |
| Men W, Month 10 (N=85;83) | 147.4 (104 to 209) | 23.01 (16 to 33) | | |
| Men Y, Month 7 (N=91;88) | 204.84 (142 to 296) | 13.27 (9.21 to 19) | | |
| Men Y, Month 10 (N=86;91) | 83.42 (55 to 126) | 11.85 (7.93 to 18) | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects with HT-hSBA titers against the N. meningitidis serogroup A, C, W and Y ≥ LLQ at 1 month after the 3- dose vaccination series

| End point title | Percentages of subjects with HT-hSBA titers against the N. meningitidis serogroup A, C, W and Y ≥ LLQ at 1 month after the 3- dose vaccination series |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY, in terms of the percentages of subjects with HT-hSBA titers ≥ LLQ (≥ 8, ≥ 16, ≥ 32, ≥ 64, ≥128) against serogroups A, C, W, Y, at 1 month after the 3-dose vaccination series.
The analysis was performed on the FAS-Immunogenicity (Month 7), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, provided evaluable serum samples at one month post-third vaccination (Month 7) and whose immunogenicity assay result was available for at least one serogroup A, C, W and Y test strain.

| End point type | Secondary |
|---|---|

End point timeframe:

At Month 7 (1 month after the 3-dose vaccination series)

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 91 | 88 | | |
| Units: Percentage | | | | |
| number (confidence interval 95%) | | | | |
| Men A, ≥ 8 (N=91;87) | 98 (92.3 to 99.73) | 30 (20.5 to 40.6) | | |
| Men A, ≥ 16 (N=91;87) | 98 (92.3 to 99.73) | 26 (17.6 to 37) | | |
| Men A, ≥ 32 (N=91;87) | 98 (92.3 to 99.73) | 22 (13.7 to 32) | | |
| Men A, ≥ 64 (N=91;87) | 86 (76.8 to 92.2) | 13 (6.5 to 21.5) | | |
| Men A, ≥ 128 (N=91;87) | 56 (45.2 to 66.4) | 8 (3.3 to 15.9) | | |

| | | | | |
|---|---|---|---|---|
| Men C, ≥ 8 (N=85;86) | 100 (95.8 to 100) | 71 (60.1 to 80.2) | | |
| Men C, ≥ 16 (N=85;86) | 99 (93.6 to 99.97) | 51 (40.1 to 62.1) | | |
| Men C, ≥ 32 (N=85;86) | 99 (93.6 to 99.97) | 33 (22.8 to 43.5) | | |
| Men C, ≥ 64 (N=85;86) | 99 (93.6 to 99.97) | 26 (16.8 to 36.1) | | |
| Men C, ≥ 128 (N=85;86) | 91 (82.3 to 95.8) | 19 (11 to 28.4) | | |
| Men W, ≥ 8 (N=83;88) | 100 (95.7 to 100) | 86 (77.4 to 92.8) | | |
| Men W, ≥ 16 (N=83;88) | 100 (95.7 to 100) | 77 (67.1 to 85.5) | | |
| Men W, ≥ 32 (N=83;88) | 99 (93.5 to 99.97) | 61 (50.4 to 71.6) | | |
| Men W, ≥ 64 (N=83;88) | 99 (93.5 to 99.97) | 45 (34.8 to 56.4) | | |
| Men W, ≥ 128 (N=83;88) | 89 (80.4 to 94.9) | 24 (15.4 to 34.1) | | |
| Men Y, ≥ 8 (N=91;88) | 100 (96 to 100) | 61 (50.4 to 71.6) | | |
| Men Y, ≥ 16 (N=91;88) | 100 (96 to 100) | 56 (44.7 to 66.3) | | |
| Men Y, ≥ 32 (N=91;88) | 95 (87.6 to 98.2) | 44 (33.7 to 55.3) | | |
| Men Y, ≥ 64 (N=91;88) | 81 (71.8 to 88.7) | 27 (18.3 to 37.8) | | |
| Men Y, ≥ 128 (N=91;88) | 65 (54.1 to 74.6) | 14 (7.2 to 22.6) | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects with HT-hSBA titers against the N. meningitidis serogroup A, C, W and Y ≥ LLQ at 4 months after the 3-dose vaccination series

| End point title | Percentages of subjects with HT-hSBA titers against the N. meningitidis serogroup A, C, W and Y ≥ LLQ at 4 months after the 3-dose vaccination series |
|---|---|

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY, in terms of the percentages of subjects with HT-hSBA titers ≥ LLQ (≥ 8, ≥ 16, ≥ 32, ≥ 64, ≥ 128) against serogroups A, C, W, Y, at 4 months after the 3-dose vaccination series.
The analysis was performed on the FAS-Immunogenicity (Month 10), which included all screened subjects who provided informed consent and demographic and/or baseline screening assessments, regardless of the subject's assignment and treatment status in the study, received a subject ID and a study vaccination, provided evaluable serum samples at four months post-third vaccination (Month 10) and whose immunogenicity assay result was available for at least one serogroup A, C, W and Y test strain.

| End point type | Secondary |
|---|---|

End point timeframe:

At Month 10 (4 months after the 3-dose vaccination series)

| End point values | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 86 | 91 | | |
| Units: Percentage | | | | |
| number (confidence interval 95%) | | | | |
| Men A, ≥ 8 (N=85;88) | 86 (76.6 to 92.5) | 25 (16.4 to 35.4) | | |
| Men A, ≥ 16 (N=85;88) | 84 (73.9 to 90.7) | 23 (14.5 to 32.9) | | |
| Men A, ≥ 32 (N=85;88) | 72 (61 to 81) | 18 (10.8 to 27.8) | | |
| Men A, ≥ 64 (N=85;88) | 46 (35 to 57) | 8 (3.3 to 15.7) | | |
| Men A, ≥ 128 (N=85;88) | 14 (7.5 to 23.4) | 7 (2.5 to 14.3) | | |
| Men C, ≥ 8 (N=86;89) | 100 (95.8 to 100) | 65 (54.3 to 75) | | |
| Men C, ≥ 16 (N=86;89) | 98 (91.9 to 99.72) | 48 (37.6 to 59.2) | | |
| Men C, ≥ 32 (N=86;89) | 97 (90.1 to 99.3) | 34 (24 to 44.5) | | |
| Men C, ≥ 64 (N=86;89) | 86 (76.9 to 92.6) | 26 (17.1 to 36.2) | | |
| Men C, ≥ 128 (N=86;89) | 74 (63.9 to 83.2) | 16 (8.9 to 25) | | |
| Men W, ≥ 8 (N=85;83) | 99 (93.6 to 99.97) | 75 (64 to 83.6) | | |
| Men W, ≥ 16 (N=85;83) | 98 (91.8 to 99.71) | 66 (55.1 to 76.3) | | |
| Men W, ≥ 32 (N=85;83) | 94 (86.8 to 98.1) | 58 (46.5 to 68.6) | | |
| Men W, ≥ 64 (N=85;83) | 75 (64.7 to 84) | 36 (25.9 to 47.4) | | |
| Men W, ≥ 128 (N=85;83) | 52 (40.7 to 62.7) | 18 (10.5 to 28) | | |
| Men Y, ≥ 8 (N=86;91) | 91 (82.5 to 95.9) | 58 (47.4 to 68.5) | | |
| Men Y, ≥ 16 (N=86;91) | 86 (76.9 to 92.6) | 51 (39.9 to 61.2) | | |
| Men Y, ≥ 32 (N=86;91) | 77 (66.4 to 85.2) | 38 (28.4 to 49.2) | | |
| Men Y, ≥ 64 (N=86;91) | 62 (50.5 to 71.9) | 20 (12.2 to 29.4) | | |
| Men Y, ≥ 128 (N=86;91) | 40 (29.2 to 50.7) | 9 (3.9 to 16.6) | | |

### Statistical analyses

No statistical analyses for this end point

## Secondary: Percentages of subjects with a four-fold rise in HT-hSBA titers against the N. meningitidis serogroup B test strains at 1 and 4 months after the 3-dose vaccination series

| | |
|---|---|
| End point title | Percentages of subjects with a four-fold rise in HT-hSBA titers against the N. meningitidis serogroup B test strains at 1 and 4 months after the 3-dose vaccination series |

End point description:

The immunogenicity of three doses of MenABCWY vaccine compared to a single dose of MenACWY, in terms of the percentages of subjects with two-, three- and four-fold rise in HT-hSBA titers against the N. meningitidis serogroup B test strains, at 1 and 4 months after the 3-dose vaccination series. The four-fold titers rise is defined as: a) for subjects with pre-vaccination HT-hSBA titers < LLQ, a post-vaccination HT-hSBA titers ≥ 4 LLQ; b) for subjects with pre-vaccination HT-hSBA titers ≥ LLQ, an increase of at least four times the pre-vaccination HT-hSBA titers.
The analysis was performed on the FAS - Immunogenicity (Month 7 and Month 10).

| End point type | Secondary |
|---|---|

End point timeframe:

At Months 7 and 10 (1 and 4 months after the 3-dose vaccination series)

| **End point values** | MenABCWY | MenACWY | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 0[7] | 0[8] | | |
| Units: Percentage | | | | |
| number (confidence interval 95%) | ( to ) | ( to ) | | |

Notes:

[7] - The results will be updated when they become available.

[8] - The results will be updated when they become available.

## Statistical analyses

No statistical analyses for this end point

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

Solicited local and general symptoms: from Day 1 to Day 7. Unsolicited AEs: from Day 1 to Day 30. SAEs, medically-attended AEs and AEs leading to withdrawal: for the entire duration of the study (from Day 0 to Month 10).

Adverse event reporting additional description:

Data are presented in terms of number of subjects reporting AEs.

| | |
|---|---|
| Assessment type | Systematic |

### Dictionary used

| | |
|---|---|
| Dictionary name | MedDRA |
| Dictionary version | 18.1 |

### Reporting groups

| | |
|---|---|
| Reporting group title | MenABCWY |

Reporting group description:

Subjects who received 2 doses of MenABCWY vaccine in the parent study, now receive the 3rd dose of MenABCWY vaccine in the current study.

| | |
|---|---|
| Reporting group title | MenACWY |

Reporting group description:

Subjects who received 1 dose of placebo and 1 dose of MenACWY vaccine in the parent study, now receive 1 dose of placebo in the current study.

| Serious adverse events | MenABCWY | MenACWY | |
|---|---|---|---|
| Total subjects affected by serious adverse events | | | |
| subjects affected / exposed | 0 / 95 (0.00%) | 0 / 94 (0.00%) | |
| number of deaths (all causes) | 0 | 0 | |
| number of deaths resulting from adverse events | 0 | 0 | |

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

| Non-serious adverse events | MenABCWY | MenACWY | |
|---|---|---|---|
| Total subjects affected by non-serious adverse events | | | |
| subjects affected / exposed | 67 / 95 (70.53%) | 42 / 94 (44.68%) | |
| Nervous system disorders | | | |
| Headache | | | |
| subjects affected / exposed[1] | 14 / 93 (15.05%) | 9 / 93 (9.68%) | |
| occurrences (all) | 25 | 27 | |
| General disorders and administration site conditions | | | |

| | | | |
|---|---|---|---|
| Fatigue | | | |
| subjects affected / exposed[2] | 14 / 93 (15.05%) | 11 / 93 (11.83%) | |
| occurrences (all) | 32 | 24 | |
| Injection site erythema | | | |
| subjects affected / exposed[3] | 16 / 93 (17.20%) | 4 / 93 (4.30%) | |
| occurrences (all) | 44 | 12 | |
| Injection site induration | | | |
| subjects affected / exposed[4] | 16 / 93 (17.20%) | 3 / 93 (3.23%) | |
| occurrences (all) | 57 | 10 | |
| Injection site pain | | | |
| subjects affected / exposed[5] | 60 / 93 (64.52%) | 15 / 93 (16.13%) | |
| occurrences (all) | 155 | 23 | |
| Gastrointestinal disorders | | | |
| Nausea | | | |
| subjects affected / exposed[6] | 5 / 93 (5.38%) | 5 / 93 (5.38%) | |
| occurrences (all) | 9 | 7 | |
| Musculoskeletal and connective tissue disorders | | | |
| Arthralgia | | | |
| subjects affected / exposed[7] | 9 / 93 (9.68%) | 1 / 93 (1.08%) | |
| occurrences (all) | 21 | 1 | |
| Myalgia | | | |
| subjects affected / exposed[8] | 13 / 93 (13.98%) | 3 / 93 (3.23%) | |
| occurrences (all) | 33 | 10 | |
| Infections and infestations | | | |
| Upper respiratory tract infection | | | |
| subjects affected / exposed[9] | 6 / 93 (6.45%) | 1 / 93 (1.08%) | |
| occurrences (all) | 6 | 1 | |

Notes:

[1] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.
[2] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.
[3] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.
[4] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom

sheets completed.

[5] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.

[6] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.

[7] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.

[8] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.

[9] - The number of subjects exposed to this adverse event is less than the total number of subjects exposed for the reporting group. These numbers are expected to be equal.
Justification: The analysis was performed on the Exposed set, only on subjects with their symptom sheets completed.

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

None reported