Clinical trial results:
A phase III, open-label, randomised multicentre study to evaluate the immunogenicity and safety of a booster dose of GlaxoSmithKline Biologicals' dTpa-IPV vaccine (Boostrix Polio) compared with Sanofi Pasteur MSD's dTpa-IPV vaccine (Repevax), when co-administered with GSK Biologicals' MMR vaccine (Priorix) in 3 and 4-year-old healthy children.

Summary

EudraCT number	2009-012202-39
Trial protocol	GB
Global end of trial date	

Results information

Result version number	v3 (current)
This version publication date	02 April 2023
First version publication date	06 June 2015
Version creation reason	

Trial information

Trial identification

Sponsor protocol code	111763

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT01245049
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, 0044 2089904466, GSKClinicalSupportHD@gsk.com
Scientific contact	Clinical Trials Call Center, GlaxoSmithKline Biologicals, 0044 2089904466, GSKClinicalSupportHD@gsk.com

Notes:

Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	Yes
EMA paediatric investigation plan number(s)	EMEA-000500-PIP01-08
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?	Yes

Notes:

Results analysis stage

Analysis stage	Interim
Date of interim/final analysis	27 March 2012
Is this the analysis of the primary completion data?	Yes
Primary completion date	27 March 2012
Global end of trial reached?	No

Notes:

General information about the trial

Main objective of the trial:

• To demonstrate that GSK Biologicals' dTpa-IPV vaccine is non-inferior to Sanofi Pasteur MSD's dTpa-IPV vaccine in terms of percentages of subjects with immune response to the diphtheria, tetanus and polio antigens, one month after booster vaccination.

• To demonstrate that GSK Biologicals' dTpa-IPV vaccine given as a single booster dose in this study is non-inferior to GSK Biologicals' DTPa vaccine (Infanrix) given as a primary series in the German household contact study APV-039 in terms of anti-PT, anti-FHA and anti-PRN geometric mean concentrations (GMCs), one month after booster vaccination.

Protection of trial subjects:

The vaccine was administered with caution to subjects with thrombocytopenia or a bleeding disorder since bleeding may have occurred following an intramuscular administration to these subjects. Firm pressure was applied to the injection site (without rubbing) for at least two minutes.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	06 April 2011
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 Kingdom: 385
Worldwide total number of subjects	385
EEA total number of subjects	385

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)	385

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

Subject disposition

Recruitment

Recruitment details:

2 subjects did not receive vaccination.

Pre-assignment

Screening details:

During the screening the following steps occurred: check for inclusion/exclusion criteria, contraindications/precautions, medical history of the subjects and signing informed consent forms.

Period 1

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

Arms

Are arms mutually exclusive?	Yes
Arm title	Boostrix Polio Group

Arm description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Boostrix Polio vaccine co-administered with Priorix vaccine at Day 0. Boostrix Polio vaccine was administered intramuscularly in the deltoid muscle of the left arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arm or as an intramuscular injection into the deltoid muscle of the right arm.

Arm type	Experimental
Investigational medicinal product name	Priorix
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intramuscular use

Dosage and administration details:

1 dose of Boostrix Polio co-administered with Priorix.

Investigational medicinal product name	Boostrix Polio
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intramuscular use

Dosage and administration details:

1 dose of Boostrix Polio co-administered with Priorix.

Arm title	Repevax Group

Arm description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Repevax vaccine co-administered with Priorix vaccine at Day 0. Repevax vaccine was administered intramuscularly in the deltoid muscle of the arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arn or as an intramuscular injection into the deltoid muscle of the right arm.

Arm type	Active comparator

Investigational medicinal product name	Priorix
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intramuscular use

Dosage and administration details:

1 dose of Repevax co-administered with Priorix.

Investigational medicinal product name	Repevax
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intramuscular use

Dosage and administration details:

1 dose of Repevax Polio co-administered with Priorix.

Number of subjects in period 1	Boostrix Polio Group	Repevax Group
Started	255	130
Completed	254	126
Not completed	1	4
Consent withdrawn by subject	-	1
Lost to follow-up	-	2
Migrated/moved from study area	-	1
Lost to follow-up	1	-

Baseline characteristics

Reporting groups

Reporting group title	Boostrix Polio Group

Reporting group description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Boostrix Polio vaccine co-administered with Priorix vaccine at Day 0. Boostrix Polio vaccine was administered intramuscularly in the deltoid muscle of the left arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arm or as an intramuscular injection into the deltoid muscle of the right arm.

Reporting group title	Repevax Group

Reporting group description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Repevax vaccine co-administered with Priorix vaccine at Day 0. Repevax vaccine was administered intramuscularly in the deltoid muscle of the arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arn or as an intramuscular injection into the deltoid muscle of the right arm.

Reporting group values	Boostrix Polio Group	Repevax Group	Total
Number of subjects	255	130	385
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	0
Infants and toddlers (28 days-23 months)	0	0	0
Children (2-11 years)	255	130	385
Adolescents (12-17 years)	0	0	0
Adults (18-64 years)	0	0	0
From 65-84 years	0	0	0
85 years and over	0	0	0
Age continuous Units: years			
arithmetic mean	3.1	3.1	
standard deviation	± 0.2	± 0.2	-
Gender categorical Units: Subjects			
Female	123	65	188
Male	132	65	197

End points

End points reporting groups

Reporting group title	Boostrix Polio Group

Reporting group description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Boostrix Polio vaccine co-administered with Priorix vaccine at Day 0. Boostrix Polio vaccine was administered intramuscularly in the deltoid muscle of the left arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arm or as an intramuscular injection into the deltoid muscle of the right arm.

Reporting group title	Repevax Group

Reporting group description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Repevax vaccine co-administered with Priorix vaccine at Day 0. Repevax vaccine was administered intramuscularly in the deltoid muscle of the arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arn or as an intramuscular injection into the deltoid muscle of the right arm.

Primary: Number of subjects with a booster response to diphtheria (D) and tetanus (T) antibodies

End point title	Number of subjects with a booster response to diphtheria (D) and tetanus (T) antibodies

End point description:

Booster response was defined as:
For initially seronegative subjects [i.e. pre-vaccination concentration below (<) cut-off value of 0.1 international units per milliliter (IU/mL)], antibody concentrations at least four times the assay cut-off [post vaccination concentration greater than or equal to (≥) 0.4 IU/ml];
For initially seropositive subjects (pre-vaccination concentration ≥ 0.1 IU/ml), an increase in antibody concentrations of at least four times the Pre booster vaccination concentration.

End point type	Primary

End point timeframe:

At Month 1, one month after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	177	90		
Units: Subject				
Anti-D [N=177;90]	176	90		
Anti-T [N=176;90]	173	90		

Statistical analyses

Statistical analysis title	Non-inferiority in terms of booster response to D
Comparison groups	Repevax Group v Boostrix Polio Group

Number of subjects included in analysis	267
Analysis specification	Pre-specified
Analysis type	non-inferiority[1]
Method	Standardized asymptotic
Parameter estimate	Percentage difference
Point estimate	0.56
Confidence interval	
level	95 %
sides	2-sided
lower limit	-3.55
upper limit	3.14

Notes:

[1] - To assess the Non-inferiority of the Boostrix Polio Group compared to the Repevax Group in terms of booster response to diphtheria, standardized asymptotic 95% CI for the groups'difference [Repevax Group minus Boostrix Polio Group] was computed.

Non-inferiority criterion: Upper limit of the 95% CI of the groups' difference in booster response rate lesser than or equal to (≤) 10%.

Statistical analysis title	Non-inferiority in terms of booster response to T
Comparison groups	Boostrix Polio Group v Repevax Group
Number of subjects included in analysis	267
Analysis specification	Pre-specified
Analysis type	non-inferiority[2]
Parameter estimate	Percentage difference
Point estimate	1.7
Confidence interval	
level	95 %
sides	2-sided
lower limit	-2.43
upper limit	4.9

Notes:

[2] - To assess the Non-inferiority of the Boostrix Polio Group compared to the Repevax Group in terms of booster response to tetanus, standardized asymptotic 95% CI for the groups' difference [Repevax Group minus Boostrix Polio Group] was computed.

Non-inferiority criterion: Upper limit of the 95% CI of the groups' difference in booster response rate ≤10%

Primary: Anti-pertussis toxoid (anti-PT), anti-filamentous haemagglutinin (anti-FHA) and anti-pertactin (anti-PRN) antibody concentrations

End point title	Anti-pertussis toxoid (anti-PT), anti-filamentous haemagglutinin (anti-FHA) and anti-pertactin (anti-PRN) antibody concentrations[3]

End point description:

Antibody concentrations were presented as geometric mean concentrations (GMCs), expressed in enzyme-linked immunosorbent assay (ELISA) units per milliliter (EL.U/mL).

End point type	Primary

End point timeframe:

At Month 1, one month after the booster vaccination

Notes:

[3] - No statistical analyses have been specified for this primary end point. It is expected there is at least one statistical analysis for each primary end point.
Justification: The analysis of the primary endpoint was descriptive i.e. no statistical hypothesis test was performed.

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	195	96		
Units: EU/mL				
geometric mean (confidence interval 95%)				
Anti-PT POST [N=194;96]	70.1 (62.2 to 79)	47.8 (39.9 to 57.3)		
Anti-FHA POST [N=195;95]	358.3 (312.5 to 410.8)	164.8 (138.5 to 196.1)		
Anti-PRN POST [N=195;94]	151.4 (127.5 to 179.6)	209.8 (168.5 to 261.3)		

Statistical analyses

No statistical analyses for this end point

Primary: Anti-Polio virus type 1, 2 and 3 antibody titers

End point title	Anti-Polio virus type 1, 2 and 3 antibody titers

End point description:

Antibody titers were presented as geometric mean titers (GMTs).

End point type	Primary

End point timeframe:

At Month 1, one month after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	160	81		
Units: Titers				
geometric mean (confidence interval 95%)				
Anti-Polio 1, POST (N=157,75)	2183.3 (1812.4 to 2630.1)	1876.1 (1472.8 to 2389.7)		
Anti-Polio 2, POST (N=124,71)	2693.1 (2176.3 to 3332.5)	2203.8 (1681 to 2889.4)		
Anti-Polio 3, POST (N=159,81)	3762.4 (3080.9 to 4594.6)	4185.1 (3318.3 to 5278.3)		

Statistical analyses

Statistical analysis title	Immune response difference to anti-Polio 1 antigen
Comparison groups	Boostrix Polio Group v Repevax Group

Number of subjects included in analysis	241
Analysis specification	Pre-specified
Analysis type	non-inferiority[4]
Method	ANCOVA
Parameter estimate	Difference in adjusted GMT ratio
Point estimate	0.91
Confidence interval	
level	95 %
sides	2-sided
lower limit	0.65
upper limit	1.28

Notes:

[4] - Non-inferiority in terms of response to the poliovirus types 1, 2 and 3 was demonstrated if the upper limit of the 95% confidence interval (CI) on the ratio of geometric mean titres (GMTs) [Repevax Group divided by Boostrix-Polio Group] was ≤ 2.

Statistical analysis title	Immune response difference to anti-Polio 2 antigen
Comparison groups	Boostrix Polio Group v Repevax Group
Number of subjects included in analysis	241
Analysis specification	Pre-specified
Analysis type	non-inferiority[5]
Method	ANCOVA
Parameter estimate	Difference in adjusted GMT ratio
Point estimate	0.78
Confidence interval	
level	95 %
sides	2-sided
lower limit	0.54
upper limit	1.12

Notes:

[5] - Non-inferiority in terms of response to the poliovirus types 1, 2 and 3 was demonstrated if the upper limit of the 95% confidence interval (CI) on the ratio of geometric mean titres (GMTs) [Repevax Group divided by Boostrix-Polio Group] was ≤ 2.

Statistical analysis title	Immune response difference to anti-Polio 3 antigen
Comparison groups	Boostrix Polio Group v Repevax Group
Number of subjects included in analysis	241
Analysis specification	Pre-specified
Analysis type	non-inferiority[6]
Method	ANCOVA
Parameter estimate	Difference in adjusted GMT ratio
Point estimate	1.3
Confidence interval	
level	95 %
sides	2-sided
lower limit	0.93
upper limit	1.84

Notes:

[6] - Non-inferiority in terms of response to the poliovirus types 1, 2 and 3 was demonstrated if the upper limit of the 95% confidence interval (CI) on the ratio of geometric mean titres (GMTs) [Repevax Group divided by Boostrix-Polio Group] was ≤ 2.

Secondary: Number of seropositive subjects for anti-pertussis toxoid (anti-PT), anti-filamentous haemagglutinin (anti-FHA) and anti-pertactin (anti-PRN)

End point title	Number of seropositive subjects for anti-pertussis toxoid (anti-PT), anti-filamentous haemagglutinin (anti-FHA) and anti-pertactin (anti-PRN)

End point description:

A seropositive subject for anti-PT, anti-FHA and anti-PRN was a subject whose antibody concentration was ≥ 5 EL.U/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	195	96		
Units: Subject				
Anti-PT PRE [N=171;90]	31	18		
Anti-PT POST [N=194;96]	194	96		
Anti-FHA PRE [N=174;85]	112	60		
Anti-FHA POST [N=195;95]	195	95		
Anti-PRN PRE [N=175;91]	61	37		
Anti-PRN POST [N=195;94]	194	94		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of seroprotected subjects for anti-D and anti-T

End point title	Number of seroprotected subjects for anti-D and anti-T

End point description:

A seroprotected subject was defined a subject with anti-D and anti-T antibody concentrations greater than or equal to (≥) 0.1 international units per millilitre (IU/mL).

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	195	96		
Units: Subject				
Anti-D PRE [N=177;90]	136	75		
Anti-D POST [N=195;96]	195	96		
Anti-T PRE [N=177;90]	116	63		
Anti-T POST [N=194;96]	194	96		

Statistical analyses

No statistical analyses for this end point

Secondary: Anti-D and anti-T antibody concentrations

End point title	Anti-D and anti-T antibody concentrations

End point description:

Antibody concentrations were presented as geometric mean concentrations (GMCs), expressed in IU/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	195	96		
Units: IU/mL				
geometric mean (confidence interval 95%)				
Anti-D PRE [N=177;90]	0.228 (0.194 to 0.267)	0.259 (0.209 to 0.32)		
Anti-D POST [N=195;96]	8.113 (7.259 to 9.068)	11.948 (10.003 to 14.271)		
Anti-T PRE [N=177;90]	0.209 (0.173 to 0.253)	0.241 (0.184 to 0.315)		
Anti-T POST [N=194;96]	6.787 (5.961 to 7.727)	9.194 (7.565 to 11.175)		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of seroconverted subjects for anti-measles

End point title	Number of seroconverted subjects for anti-measles

End point description:

Seroconversion for anti-measles was defined as the appearance of antibodies after vaccination in subjects who were initially seronegative [with antibody concentrations ≥ 150 milli-international units per millilitre (mIU/mL)].

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	4	2		
Units: Subject				
Anti-measles PRE [N=4;2]	0	0		
Anti-measles POST [N=4;2]	4	2		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of seroconverted subjects for anti-mumps

End point title	Number of seroconverted subjects for anti-mumps

End point description:

Seroconversion for anti-mumps was defined as the appearance of antibodies after vaccination in subjects who were initially seronegative [with antibody concentrations ≥ 231 units per millilitre (U/mL)].

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	16	7		
Units: Subjects				
Anti-mumps PRE [N=16;7]	0	0		
Anti-mumps POST [N=11;6]	11	6		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of subjects with a booster response to PT, FHA and PRN antigens

End point title	Number of subjects with a booster response to PT, FHA and PRN antigens

End point description:

Booster response was defined as:
For initially seronegative subjects (pre-vaccination concentration < 5 EL.U/mL), antibody concentrations at least four times the assay cut-off (post vaccination concentration ≥ 20 EL.U/mL);
For initially seropositive subjects (with pre-vaccination concentration ≥ 5 EL.U/mL and < 20 EL.U/mL), an increase in antibody concentrations of at least four times the Pre booster vaccination concentration;

For initially seropositive subjects (with pre-vaccination concentration ≥ 20 EL.U/mL), an increase in antibody concentrations of at least two times the Pre booster vaccination concentration.

End point type	Secondary

End point timeframe:

At Month 1, one month after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	175	90		
Units: Subjects				
Anti-PT [N=170;90]	154	73		
Anti-FHA [N=174;85]	165	79		
Anti-PRN [N= 175;89]	169	89		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of subjects with any solicited local symptoms

End point title	Number of subjects with any solicited local symptoms

End point description:

Assessed solicited local symptoms were pain, redness and swelling. Any = occurrence of the symptom regardless of intensity grade.

End point type	Secondary

End point timeframe:

During the 4-day (Days 0-3) follow-up period after booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	255	125		
Units: Subjects				
Any Pain (N=255;125)	127	70		
Any Redness (N=255;125)	146	73		
Any Swelling (N=255;125)	92	53		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of subjects with any solicited general symptoms

End point title	Number of subjects with any solicited general symptoms

End point description:

Assessed solicited general symptoms were drowsiness, irritability, loss of appetite and temperature [defined as axillary temperature equal to or above 37.5 degrees Celsius (°C)]. Any = occurrence of the symptom regardless of intensity grade.

End point type	Secondary

End point timeframe:

During the 4-day (Days 0-3) follow-up period after booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	255	125		
Units: Subjects				
Drowsiness [N=255;125]	77	39		
Irritability [N=255;125]	107	49		
Loss of appetite [N=255;125]	67	30		
Temperature [N=255;125]	18	9		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of subjects with any unsolicited adverse events (AEs)

End point title	Number of subjects with any unsolicited adverse events (AEs)

End point description:

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.

End point type	Secondary

End point timeframe:

During the 31-day (Days 0-30) follow-up period after booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	255	130		
Units: Subjects				
AEs [N=255;130]	88	36		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of subjects with serious adverse events (SAEs)

End point title	Number of subjects with serious adverse events (SAEs)

End point description:

Serious adverse events (SAEs) assessed include medical occurrences that result in death, are life threatening, require hospitalization or prolongation of hospitalization or result in disability/incapacity.

End point type	Secondary

End point timeframe:

During the entire study period (From Day 0 to Month 1)

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	225	130		
Units: Subjects				
SAEs [N=255;130]	1	0		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of seropositive subjects for anti-measles antibody

End point title	Number of seropositive subjects for anti-measles antibody

End point description:

A seropositive subject was defined as a subject with anti-measles antibody titers ≥150 mIU/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	159	76		
Units: Subjects				
Anti-Measles, PRE (N=159;76)	155	74		
Anti-Measles, POST (N=136;68)	136	68		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of seropositive subjects for anti-mumps antibody

End point title	Number of seropositive subjects for anti-mumps antibody

End point description:

A seropositive subject was defined as a subject with anti-mumps antibody titers ≥231 U/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	156	76		
Units: Subjects				
Anti-Mumps, PRE (N=156;76)	140	69		
Anti-Mumps, POST (N=133;68)	133	68		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of seropositive subjects for anti-rubella antibody

End point title	Number of seropositive subjects for anti-rubella antibody

End point description:

A seropositive subject was defined as a subject with anti-rubella antibody titers ≥4 IU/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	158	76		
Units: Subjects				
Anti-Rubella, PRE (N=158;76)	158	76		
Anti-Rubella, POST (N=134;68)	134	68		

Statistical analyses

No statistical analyses for this end point

Secondary: Anti-mumps antibody concentrations

End point title	Anti-mumps antibody concentrations

End point description:

Antibody concentrations were presented as geometric mean concentrations (GMCs), expressed in U/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	156	76		
Units: U/mL				
geometric mean (confidence interval 95%)				
Anti-Mumps, PRE (N=156;76)	1035.3 (869.8 to 1232.3)	971.7 (752.1 to 1255.5)		
Anti-Mumps, POST (N=133;68)	6801.9 (6155 to 7516.8)	6219.4 (5365.8 to 7208.8)		

Statistical analyses

No statistical analyses for this end point

Secondary: Anti-measles antibody concentrations

End point title	Anti-measles antibody concentrations

End point description:

Antibody concentrations were presented as geometric mean concentrations (GMCs), expressed in mIU/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	159	76		
Units: mIU/mL				
geometric mean (confidence interval 95%)				
Anti-Measles, PRE (N=159;76)	2644 (2261.3 to 3091.6)	2702.6 (2146 to 3403.6)		
Anti-Measles, POST (N=136;68)	3817.7 (3422.3 to 4258.8)	3798 (3262.6 to 4421.1)		

Statistical analyses

No statistical analyses for this end point

Secondary: Anti-rubella antibody concentrations

End point title	Anti-rubella antibody concentrations

End point description:

Antibody concentrations were presented as geometric mean concentrations (GMCs), expressed in IU/mL.

End point type	Secondary

End point timeframe:

Month 0 (PRE) before booster vaccination and Month 1 (POST) after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	158	76		
Units: IU/mL				
geometric mean (confidence interval 95%)				
Anti-Rubella, PRE (N=158;76)	66.5 (59.1 to 74.8)	72.6 (59.8 to 88.1)		
Anti-Rubella, POST (N=134;68)	134.3 (120.7 to 149.4)	130.3 (111.7 to 152)		

Statistical analyses

No statistical analyses for this end point

Secondary: Number of subjects with booster response for Polio 1, 2 and 3 antigens

End point title	Number of subjects with booster response for Polio 1, 2 and 3 antigens

End point description:

Booster response defined as:
For initially seronegative subjects, antibody titers at least four times the cut-off (post-vaccination titer ≥ 32);
For initially seropositive subjects, an increase in antibody titers of at least four times the Pre booster vaccination titer.

End point type	Secondary

End point timeframe:

At Month 1, one month after the booster vaccination

End point values	Boostrix Polio Group	Repevax Group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	131	68		
Units: Subjects				
Anti-Polio 1 (N=131;63)	129	63		
Anti-Polio 2 (N=100;61)	99	59		
Anti-Polio 3 (N=126;68)	124	68		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

Solicited local and general symptoms: during the 4 day- (Day 0-Day 3) after vaccination;
Unsolicited adverse events: during the 31 day (Day 0-Day 30) after vaccination;
Serious adverse events: during the entire study period (from Month 0 to Month 1).

Assessment type	Systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	14.1

Reporting groups

Reporting group title	Boostrix Polio Group

Reporting group description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Boostrix Polio vaccine co-administered with Priorix vaccine at Day 0. Boostrix Polio vaccine was administered intramuscularly in the deltoid muscle of the left arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arm or as an intramuscular injection into the deltoid muscle of the right arm.

Reporting group title	Repevax Group

Reporting group description:

Healthy male or female children of 3 or 4 years of age, who were previously vaccinated with 3 doses of Infanrix and Polio vaccines in the German household contact study (APV-039), additionally received 1 booster dose of Repevax vaccine co-administered with Priorix vaccine at Day 0. Repevax vaccine was administered intramuscularly in the deltoid muscle of the arm, while Priorix vaccine was administered subcutaneously in the deltoid region of the right arn or as an intramuscular injection into the deltoid muscle of the right arm.

Serious adverse events	Boostrix Polio Group	Repevax Group	
Total subjects affected by serious adverse events			
subjects affected / exposed	1 / 255 (0.39%)	0 / 130 (0.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Respiratory, thoracic and mediastinal disorders			
Pneumonia			
alternative assessment type: Non-systematic			
subjects affected / exposed	1 / 255 (0.39%)	0 / 130 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	

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

Non-serious adverse events	Boostrix Polio Group	Repevax Group	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	215 / 255 (84.31%)	108 / 130 (83.08%)	
General disorders and administration site conditions			
Pain			
subjects affected / exposed[1]	127 / 255 (49.80%)	70 / 125 (56.00%)	
occurrences (all)	127	70	
Swelling			
alternative assessment type: Non-systematic			
subjects affected / exposed[2]	92 / 255 (36.08%)	53 / 125 (42.40%)	
occurrences (all)	92	53	
Redness			
subjects affected / exposed[3]	146 / 255 (57.25%)	73 / 125 (58.40%)	
occurrences (all)	146	73	
Drowsiness			
subjects affected / exposed[4]	77 / 255 (30.20%)	39 / 125 (31.20%)	
occurrences (all)	77	39	
Irritability			
subjects affected / exposed[5]	107 / 255 (41.96%)	49 / 125 (39.20%)	
occurrences (all)	107	49	
Temperature/(Axillary)			
subjects affected / exposed[6]	18 / 255 (7.06%)	9 / 125 (7.20%)	
occurrences (all)	18	9	
Loss of appetite			
subjects affected / exposed[7]	67 / 255 (26.27%)	30 / 125 (24.00%)	
occurrences (all)	67	30	

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: Assessment for this event for this phase was performed solely 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: Assessment for this event for this phase was performed solely 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: Assessment for this event for this phase was performed solely 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: Assessment for this event for this phase was performed solely 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: Assessment for this event for this phase was performed solely 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: Assessment for this event for this phase was performed solely 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: Assessment for this event for this phase was performed solely 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