The study listed may include approved and non-approved uses, formulations or treatment regimens. The results reported in any single study may not reflect the overall results obtained on studies of a product. Before prescribing any product mentioned in this Register, healthcare professionals should consult prescribing information for the product approved in their country.

Study No.: 113060 [DTPA-IPV (BOOSTRIX-IPV)-012 BST 003]

Title: Evaluation of GlaxoSmithKline (GSK) Biologicals' *Boostrix Polio* in healthy adults, 10 years after a booster vaccination.
Boostrix™ Polio (dTpa-IPV)*:* GSK Biologicals' combined reduced-antigen-content diphtheria-tetanus, acellular pertussis and inactivated poliovirus vaccine.

Rationale: The purpose of this booster study was to evaluate the persistence of antibodies against all vaccine antigens, ten years after the booster and to evaluate the immunogenicity and safety of a decennial dTpa-IPV booster dose.
Subjects who participated in this 113060 study had been previously vaccinated with either one booster dose of dTpa-IPV vaccine, or one booster dose of GSK Biologicals' *Boostrix*™ co-administered with one booster dose of either GSK Biologicals' *Poliorix*™ or Sanofi Pasteur MSD's *Revaxis*® in the 711866/003 (dTpa-IPV-003) study.*

Revaxis® (Td-IPV)*:* Sanofi Pasteur MSD's combined reduced-antigen-content diphtheria, tetanus and inactivated poliovirus vaccine.
Boostrix™ (dTpa): GSK's combined reduced-antigen-content diphtheria, tetanus and acellular pertussis vaccine.
Poliorix™ (IPV): GSK's inactivated poliomyelitis vaccine
**For results of the BST 711866/003 study, please refer to the 711866/003 CTRS.*

Phase: IV

Study Period: 27 April 2011 to 01 March 2012

Study Design: Open-label, non-randomised*, multicentre study with the same 3 parallel groups (1:1:1) as in study 711866/003 (dTPa-IPV-003).
**Subjects were randomised in the 711866/003 booster study. No further randomisation was applied as part of this 113060 study.*

Centres: 19 centres: 11 centres in France and 8 centres in Germany.

Indication: Booster immunisation of healthy adults against diphtheria, tetanus, pertussis and poliomyelitis.

Treatment: A single booster dose of dTpa-IPV vaccine was administered to all subjects 10 years (+/- 9 months) after the previous booster vaccination in study 711866/003. The dTpa-IPV vaccine was administered as an intramuscular injection into the deltoid region of the left arm. Subjects retained the same group allocation as in the 711866/003 (dTpa-IPV-003) booster study, as follows:

- dTpa-IPV Group: Subjects who had received one booster dose dTpa-IPV vaccine in the booster 711866/003 study received one additional booster dose of dTpa-IPV vaccine in this 113060 study.
- dTpa+IPV Group: Subjects who had received one booster dose of the co-administered dTpa and IPV vaccines in the booster 711866/003 study received one additional booster dose of dTpa-IPV vaccine in this 113060 study.
- Td-IPV Group: Subjects who had received one booster dose of Td-IPV vaccine in the booster 711866/003 study received one additional booster dose of dTpa-IPV vaccine in this 113060 study.

Objectives:
Co-Primary Objectives
The following 4 co-primary objectives were assessed in a sequential manner: i.e. succeeding objectives were assessed only if the preceding one was met:

- To demonstrate that a booster dose of dTpa-IPV vaccine, administered to adults 10 years after a dose of dTpa-IPV vaccine or co-administered dTpa + IPV vaccines, elicited seroprotective antibody concentrations, one month after the booster dose, in at least 80% of the subjects against diphtheria, in at least 90% of the subjects against tetanus and in at least 80% of subjects against poliovirus types 1, 2 and 3.
- To demonstrate that a booster dose of dTpa-IPV vaccine, administered to adults 10 years after a dose of dTpa-IPV vaccine, elicited seroprotective antibody concentrations, one month after the booster dose, in at least 80% of the subjects against diphtheria, in at least 90% of the subjects against tetanus and in at least 80% of subjects against poliovirus types 1, 2 and 3.
- To demonstrate that a booster dose of dTpa-IPV vaccine, administered to adults 10 years after a dose of co-administered dTpa + IPV vaccines, elicited seroprotective antibody concentrations, one month after the booster dose, in at least 80% of the subjects against diphtheria, in at least 90% of the subjects against tetanus and in at least 80% of subjects against poliovirus types 1, 2 and 3.
- To demonstrate that a booster dose of dTpa-IPV vaccine, administered to adults 10 years after a dose of Td-IPV,

elicited seroprotective antibody concentrations, one month after the booster dose, in at least 80% of the subjects against diphtheria, in at least 90% of the subjects against tetanus and in at least 80% of subjects against poliovirus types 1, 2 and 3.

For the diphtheria antigen, the lower limit of the 95% confidence interval (CI) for the percentage of seroprotected [anti-diphtheria (anti-D) antibody concentrations ≥ 0.1 IU/mL by enzyme-linked immunosorbent assay (ELISA) or ≥ 0.016 IU/mL by VERO-cell (African green monkey kidney cells) testing (for subjects with an ELISA result of < 0.1 IU/mL)] subjects was above 80%.*

For the tetanus antigen, the lower limit of the 95% CI for the percentage of seroprotected [anti-tetanus antibody (anti-T) concentrations ≥ 0.1 IU/mL] subjects was above 90%.

For the poliovirus antigen, the lower limits of the 95% CIs for the percentage of seroprotected (anti-poliovirus [anti-polio] types 1, 2 and 3 antibody concentrations ≥ 8) subjects were above 80%.

For persistence:

- To assess the persistence of anti-D, anti-T, anti-pertussis toxoid (anti-PT), anti-filamentous haemagglutinin (anti-FHA), anti-pertactin (anti-PRN) and anti-poliovirus types 1, 2 and 3 antibodies, 10 years after the booster dose in study 711866/003 (dTpa-IPV-003).

* The VERO cell assay was re-validated in order to lower the cut-off and to evaluate the precision around the cut-off. The cut-off for the VERO test used for this current study 113060 was calculated at 0.004 IU/mL instead of 0.016 IU/mL. Anti-diphtheria concentrations ≥ 0.01 IU/mL was considered as the minimum level correlating with some degree of protection.

Primary Outcome/Efficacy Variable:

Immunogenicity:

- Immunogenicity with respect to booster vaccination.
  - Seroprotection rates against diphtheria, tetanus and poliovirus types 1, 2 and 3.
- Immune persistence after the booster dose given in the 711866/003 (dTpa-IPV-003) study.
  - Seroprotection rates against diphtheria, tetanus and poliovirus types 1, 2 and 3.
  - Anti-PT, anti-FHA and anti-PRN seropositivity rates.
  - Geometric mean concentrations/titres (GMCs/ GMTs) to all vaccine antigens.

Secondary Outcome/Efficacy Variable(s):

Immunogenicity:

- Immunogenicity with respect to booster vaccination, one month after booster vaccination in all subjects.
  - Booster response to the PT, FHA and PRN antigens.
  - Anti-PT, anti-FHA and anti-PRN seropositivity rates.
  - GMCs/GMTs to all vaccine antigens.

Safety :

- Solicited local and general symptoms.
  - Occurrence of solicited local and general symptoms during the 4-day (Day 0–Day 3) follow-up period after booster vaccination.
- Unsolicited adverse events (AEs).
  - Occurrence of unsolicited symptoms during the 31-day (Day 0–Day 30) follow-up period after booster vaccination.
- Serious adverse events (SAEs).
  - Occurrence of SAEs from the booster dose up to study end.

Statistical Methods:

The analyses were performed on the Total Vaccinated cohort and the According-To-Protocol (ATP) cohort for immunogenicity.

- The Total Vaccinated cohort included all subjects with documented administration of the study booster vaccine, for whom data was available.
- The ATP cohort for immunogenicity included subjects who met all eligibility criteria, complied with the procedures defined in the protocol, did not meet any criteria leading to elimination from the study, who received the booster dose of dTPa-IPV vaccine and for whom data concerning immunogenicity outcome measures were available.

Analysis of Immunogenicity

The analysis was performed on the ATP cohort for immunogenicity. Since in a vaccine group, the percentage of vaccinated subjects with serological results excluded from the ATP cohort for analysis of immunogenicity was more than 5%, a second analysis based on the TVC was performed to complement the ATP analysis.

For each group, at each time point where a serological result was available, the following analyses were performed:

- The seroprotection rates for anti-D (by ELISA and VERO-cell neutralisation assay), anti-T and anti-polio 1, 2 and 3 antibodies were tabulated with 95% CI
- Seropositivity rates for anti-PT, anti-FHA and anti-PRN antibodies were calculated with 95% CI
- GMCs/GMTs were tabulated for antibodies to all vaccine antigen with 95% CI

In addition, The booster response to anti-PT, anti-FHA and anti-PRN antibodies were also tabulated with 95% CI, one month after booster vaccination.

Analysis of Safety

The analysis of safety was performed on the Total Vaccinated cohort.

The percentage of subjects reporting each individual local and general solicited symptom during the 4-day (Days 0-3) follow-up period after booster vaccination were tabulated with exact 95% CI, for each group. The same tabulation was performed for Grade 3 solicited symptoms and for solicited general symptoms assessed by the investigator as causally related to the study vaccination. The percentage of subjects with at least one report of unsolicited AE classified by the Medical Dictionary for Regulatory Activities (MedDRA) preferred term and reported within the 31-day (Days 0-30) follow-up period after booster vaccination was tabulated, for each group. The occurrence of SAEs from the booster dose up to study end (from Day 0 to Month 1) was similarly tabulated according to MedDRA preferred term.

Study Population: Healthy male or female subjects who received a vaccination course of dTpa-IPV, dTpa + IPV or Td-IPV vaccine in study 711866/003 (dTpa-IPV-003) were enrolled in this study. Subjects with a history of diphtheria, tetanus, pertussis or poliomyelitis diseases following the receipt of booster dose in study 711866/003 (dTpa-IPV-003), or who had received a previous booster vaccination against these diseases since the dose received in previous booster study were excluded from the study. Subjects with reports of adverse events as hypersensitivity, encephalopathy, or fever, following vaccination with a diphtheria, tetanus and acellular pertussis vaccine were excluded. In Germany, previous dose of a monovalent vaccine against pertussis was allowed for subjects in the Td-IPV Group. Women were to be of non-childbearing potential, or if of childbearing potential, had to be abstinent or had to have used adequate contraception precautions for 30 days prior to vaccination and had to continue such precaution for the entire duration of this booster study. Written informed consent was obtained from the subjects prior to any study-related procedure.

Number of Subjects:	**dTpa-IPV Group**	**dTpa+IPV Group**	**Td-IPV Group**
Planned, N	110	110	110
Entered, N (Total Vaccinated cohort)	67	72	72
Completed, n (%)	67 (100)	72 (100)	72 (100)
Total Number Subjects Withdrawn, n (%)	0 (0.0)	0 (0.0)	0 (0.0)
Withdrawn due to Adverse Events, n (%)	0 (0.0)	0 (0.0)	0 (0.0)
Withdrawn due to Lack of Efficacy n (%)	Not Applicable	Not Applicable	Not Applicable
Withdrawn for other reasons n (%)	0 (0.0)	0 (0.0)	0 (0.0)
Demographics	**dTpa-IPV Group**	**dTpa+IPV Group**	**Td-IPV Group**
N (Total Vaccinated cohort)	67	72	72
Females: Males	35:32	47:25	39:33
Mean Age, years (SD)	50.4 (12.82)	49.2 (12.53)	51.4 (13.06)
White/Caucasian, n (%)	66 (98.5)	72 (100)	70 (97.2)

Primary Efficacy Results: Seronegativity (S-) status for anti-D antibody concentration by ELISA and VERO neutralisation one month post booster (ATP cohort for immunogenicity)

		S- assessed by ELISA		**S- assessed by the VERO neutralising test for subjects seronegative by ELISA**		**Overall S- for anti-D (ELISA) antibodies**		**Estimated proportion of subjects seroprotected (SP) and its 95% CI**		
Group	**N**	**n/N**	**%**	**n'/N'**	**%**	**n/N x n'/N'**	**%**	**SP**	**LL**	**UL**
dTpa-IPV or dTpa+IPV	132	5/132	3.8	5/5	100	5/132 x 5/5	3.8	96.2	91.4	98.8
dTpa-IPV	63	2/63	3.2	2/2	100	2/63 x 2/2	3.2	96.8	89.0	99.6
dTpa+IPV	69	3/69	4.3	3/3	100	3/69 x 3/3	4.3	95.7	87.8	99.1
Td-IPV	69	1/69	1.4	0/1	0.0	1/69 x 0/1	0.0	100	94.8	100

N = number of subjects tested by ELISA
n/N = number of subjects with concentrations below the 0.1 IU/mL / number of subjects tested by ELISA
n'/N' = number of subjects with concentrations below the 0.01 IU/mL / number of subjects tested by VERO neutralisation test
% = proportion of subjects with concentrations below the considered cut-off (0.1 IU/mL for ELISA and 0.01 IU/mL for VERO)
n/N x n'/N' = the multiplication of the two proportions = overall S- for anti-D (ELISA)
Overall = based on both the ELISA and the VERO-cell neutralisation testing
95% CI = exact 95% confidence interval; LL = Lower Limit, UL = Upper Limit

SP = estimated proportion of subjects with protective antibodies

Criterion for evaluation of the co-primary objectives related to the diphtheria antigen, one month after booster dose:

The LL of 95% CI for the percentage of seroprotected (Anti-D concentrations ≥ 0.1 IU/mL by ELISA or ≥ 0.01 IU/mL by VERO-cell when subjects with ELISA result <0.1 IU/mL) subjects above 80%

Primary Efficacy Results: Seronegativity (S-) status for anti-D antibody concentration by ELISA and VERO neutralisation at Year 10 persistence time point (ATP cohort for immunogenicity)

		S- assessed by ELISA		S- assessed by the VERO neutralising test for subjects seronegative by ELISA		Overall S- for anti-D (ELISA) antibodies		Estimated proportion of subjects seroprotected (SP) and its 95% CI		
Group	**N**	**n/N**	**%**	**n'/N'**	**%**	**n/N x n'/N'**	**%**	**SP**	**LL**	**UL**
dTpa-IPV	63	12/63	19.0	5/12	41.7	12/63 x 5/12	7.9	92.1	82.4	97.4
dTpa+IPV	68	18/68	26.5	14/18	77.8	18/68 x 14/18	20.6	79.4	67.9	88.3
Td-IPV	69	14/69	20.3	11/14	78.6	14/69 x 11/14	15.9	84.1	73.3	91.8

N = number of subjects tested by ELISA

n/N = number of subjects with concentrations below the 0.1 IU/mL / number of subjects tested by ELISA

n'/N' = number of subjects with concentrations below the 0.01 IU/mL / number of subjects tested by VERO neutralisation test

% = proportion of subjects with concentrations below the considered cut-off (0.1 IU/mL for ELISA and 0.01 IU/mL for VERO)

n/N x n'/N' = the multiplication of the two proportions = overall S- for anti-D (ELISA)

Overall = based on both the ELISA and the VERO-cell neutralisation testing

95% CI = exact 95% confidence interval; LL = Lower Limit, UL = Upper Limit

SP = estimated proportion of subjects with protective antibodies

Criterion for evaluation of the co-primary objectives related to the diphtheria antigen, one month after booster dose:

The LL of 95% CI for the percentage of seroprotected (Anti-D concentrations ≥ 0.1 IU/mL by ELISA or ≥ 0.01 IU/mL by VERO-cell when subjects with ELISA result <0.1 IU/mL) subjects above 80%

Primary Efficacy Results: Seroprotection rates and GMCs for anti-D and anti-T antibodies before and one month after the booster dose by groups (ATP cohort for immunogenicity)

				≥ 0.1 IU/mL				GMC (IU/mL)		
						95% CI			95% CI	
Antibody	**Group**	**Timing**	**N**	**n**	**%**	**LL**	**UL**	**value**	**LL**	**UL**
Anti-D	dTpa-IPV or dTpa+IPV	PRE	131	101	77.1	68.9	84.0	0.386	0.300	0.496
		POST	132	127	96.2	91.4	98.8	1.975	1.578	2.473
	dTpa-IPV	PRE	63	51	81.0	69.1	89.8	0.416	0.293	0.592
		POST	63	61	96.8	89.0	99.6	2.159	1.579	2.952
	dTpa+IPV	PRE	68	50	73.5	61.4	83.5	0.360	0.249	0.519
		POST	69	66	95.7	87.8	99.1	1.821	1.312	2.528
	Td-IPV	PRE	69	55	79.7	68.3	88.4	0.501	0.348	0.721
		POST	69	68	98.6	92.2	100	2.649	1.948	3.603
Anti-T	dTpa-IPV or dTpa+IPV	PRE	132	130	98.5	94.6	99.8	1.475	1.219	1.785
		POST	132	132	100	97.2	100	9.138	8.172	10.218
	dTpa-IPV	PRE	63	62	98.4	91.5	100	1.371	1.019	1.844
		POST	63	63	100	94.3	100	8.568	7.361	9.972
	dTpa+IPV	PRE	69	68	98.6	92.2	100	1.578	1.227	2.028
		POST	69	69	100	94.8	100	9.692	8.217	11.431
	Td-IPV	PRE	69	65	94.2	85.8	98.4	1.491	1.096	2.028
		POST	69	69	100	94.8	100	9.390	7.946	11.096

Seroprotection = anti-D and anti-T antibody concentration ≥ 0.1 IU/mL

GMC = geometric mean antibody concentration, calculated for all subjects

N = number of subjects with available results

n/% = number/percentage of subjects with antibody concentrations above the specified cut-off

95% CI = 95% confidence interval; LL = Lower Limit, UL = Upper Limit

PRE = Pre-booster vaccination blood sampling time point

POST = Post-booster vaccination blood sampling time point

Criterion for evaluation of the co-primary objectives related to the tetanus antigen, one month after booster dose:

The LL of 95% CI for the percentage of seroprotected (anti-T concentrations ≥ 0.1 IU/mL) subjects above 90%

Note: Persistence results corresponded to the Pre-booster ones

Primary Efficacy Results: Seroprotection rates and GMTs for anti-polio 1, anti-polio 2 and anti-polio 3 antibodies before and one month after the booster dose by groups (ATP cohort for immunogenicity)

				≥ 8 ED50				GMT		
						95% CI			95% CI	
Antibody	**Group**	**Timing**	**N**	**n**	**%**	**LL**	**UL**	**value**	**LL**	**UL**
Anti-polio 1	dTpa-IPV or dTpa+IPV	PRE	110	110	100	96.7	100	445.9	342.3	580.7
		POST	120	120	100	97.0	100	1593.0	1315.4	1929.1
	dTpa-IPV	PRE	52	52	100	93.2	100	341.0	233.5	497.9
		POST	58	58	100	93.8	100	1519.0	1156.9	1994.4
	dTpa+IPV	PRE	58	58	100	93.8	100	567.0	392.3	819.4
		POST	62	62	100	94.2	100	1665.4	1263.5	2195.2
	Td-IPV	PRE	60	59	98.3	91.1	100	332.0	239.0	461.2
		POST	59	58	98.3	90.9	100	1526.7	1106.8	2105.9
Anti-polio 2	dTpa-IPV or dTpa+IPV	PRE	116	116	100	96.9	100	315.6	250.7	397.4
		POST	104	104	100	96.5	100	1177.8	964.1	1438.9
	dTpa-IPV	PRE	56	56	100	93.6	100	308.3	218.9	434.3
		POST	46	46	100	92.3	100	1071.3	806.2	1423.5
	dTpa+IPV	PRE	60	60	100	94.0	100	322.6	234.3	444.2
		POST	58	58	100	93.8	100	1269.8	954.5	1689.4
	Td-IPV	PRE	63	62	98.4	91.5	100	331.5	246.3	446.0
		POST	56	56	100	93.6	100	1550.1	1202.8	1997.7
Anti-polio 3	dTpa-IPV or dTpa+IPV	PRE	124	122	98.4	94.3	99.8	510.6	403.2	646.5
		POST	118	118	100	96.9	100	2041.9	1742.8	2392.3
	dTpa-IPV	PRE	58	57	98.3	90.8	100	388.9	271.2	557.7
		POST	58	58	100	93.8	100	2035.7	1653.4	2506.4
	dTpa+IPV	PRE	66	65	98.5	91.8	100	648.5	476.7	882.2
		POST	60	60	100	94.0	100	2047.9	1604.6	2613.7
	Td-IPV	PRE	67	67	100	94.6	100	542.1	397.1	740.1
		POST	60	60	100	94.0	100	2024.6	1513.3	2708.6

Seroprotection = Anti-polio 1, 2 and 3 antibody titres ≥ 8
GMT = geometric mean antibody titres, calculated for all subjects
N = number of subjects with available results
n/% = number/percentage of subjects with antibody titres above the specified cut-off
95% CI = 95% confidence interval; LL = Lower Limit, UL = Upper Limit
PRE = Pre-booster vaccination blood sampling time point
POST = Post-booster vaccination blood sampling time point
Criterion for evaluation of the co-primary objectives related to the poliovirus antigen, one month after booster dose:
The LLs of 95% CIs for the percentage of seroprotected (anti-polio 1, 2 and 3 concentrations ≥ 8) subjects above 80%
Note: Persistence results corresponded to the Pre-booster ones.

Primary Efficacy Results : Seropositivity rates and GMCs for anti-PT, anti-FHA and anti-PRN antibodies before and one month post booster vaccination by groups (ATP cohort for immunogenicity)

				≥ 5 EL.U/mL				GMC (EL.U/mL)		
						95% CI			95% CI	
Antibody	**Group**	**Timing**	**N**	**n**	**%**	**LL**	**UL**	**value**	**LL**	**UL**
Anti-PT	dTpa-IPV	PRE	61	48	78.7	66.3	88.1	10.3	8.2	13.0
		POST	63	63	100	94.3	100	97.5	81.4	116.9
	dTpa+IPV	PRE	69	58	84.1	73.3	91.8	13.4	10.4	17.2
		POST	69	69	100	94.8	100	100.1	80.3	124.8
	Td-IPV	PRE	69	49	71.0	58.8	81.3	14.7	10.1	21.5
		POST	68	67	98.5	92.1	100	92.9	68.7	125.6
Anti-FHA	dTpa-IPV	PRE	62	62	100	94.2	100	93.7	72.9	120.6
		POST	63	63	100	94.3	100	485.8	413.8	570.4
	dTpa+IPV	PRE	69	69	100	94.8	100	124.0	102.5	150.1
		POST	69	69	100	94.8	100	553.5	465.9	657.6
	Td-IPV	PRE	67	66	98.5	92.0	100	68.6	49.2	95.9
		POST	69	69	100	94.8	100	854.9	714.9	1022.3

Anti-PRN	dTpa-IPV	PRE	62	55	88.7	78.1	95.3	66.1	41.9	104.1
		POST	63	63	100	94.3	100	365.9	281.5	475.6
	dTpa+IPV	PRE	68	64	94.1	85.6	98.4	93.9	62.7	140.7
		POST	69	69	100	94.8	100	404.2	324.2	504.0
	Td-IPV	PRE	69	59	85.5	75.0	92.8	19.4	14.2	26.5
		POST	69	69	100	94.8	100	581.0	401.6	840.7

GMC = geometric mean antibody concentration, calculated for all subjects.
N = number of subjects with available results
n/% = number/percentage of subjects with antibody concentrations above the specified cut-off
95% CI = 95% confidence interval; LL = Lower Limit, UL = Upper Limit
PRE = Pre-booster vaccination blood sampling time point
POST = Post-booster vaccination blood sampling time point
Note: Persistence results corresponded to the Pre-booster ones

Secondary Outcome Variable(s): Booster response to anti-PT, anti-FHA and anti-PRN antibody concentration one month after the booster vaccination (ATP cohort for immunogenicity)

				Booster Response			
						95% CI	
Antibody	**Group**	**Pre-vaccination status**	**N**	**n**	**%**	**LL**	**UL**
Anti-PT	dTpa-IPV	S-	13	13	100	75.3	100
		S+ (<20 EL.U/mL)	29	28	96.6	82.2	99.9
		S+ (≥20 EL.U/mL)	19	19	100	82.4	100
		Total	61	60	98.4	91.2	100
	dTpa+IPV	S-	11	9	81.8	48.2	97.7
		S+ (< 20 EL.U/mL)	37	32	86.5	71.2	95.5
		S+ (≥ 20 EL.U/mL)	21	19	90.5	69.6	98.8
		Total	69	60	87.0	76.7	93.9
	Td-IPV	S-	20	14	70.0	45.7	88.1
		S+ (< 20 EL.U/mL)	26	23	88.5	69.8	97.6
		S+ (≥ 20 EL.U/mL)	22	15	68.2	45.1	86.1
		Total	68	52	76.5	64.6	85.9
Anti-FHA	dTpa-IPV	S-	0	0	.	.	.
		S+ (< 20 EL.U/mL)	3	3	100	29.2	100
		S+ (≥ 20 EL.U/mL)	59	50	84.7	73.0	92.8
		Total	62	53	85.5	74.2	93.1
	dTpa+IPV	S-	0	0	.	.	.
		S+ (< 20 EL.U/mL)	0	0	.	.	.
		S+ (≥ 20 EL.U/mL)	69	62	89.9	80.2	95.8
		Total	69	62	89.9	80.2	95.8
	Td-IPV	S-	1	1	100	2.5	100
		S+ (< 20 EL.U/mL)	10	10	100	69.2	100
		S+ (≥ 20 EL.U/mL)	56	46	82.1	69.6	91.1
		Total	67	57	85.1	74.3	92.6
Anti-PRN	dTpa-IPV	S-	7	7	100	59.0	100
		S+ (< 20 EL.U/mL)	7	7	100	59.0	100
		S+ (≥ 20 EL.U/mL)	48	32	66.7	51.6	79.6
		Total	62	46	74.2	61.5	84.5
	dTpa+IPV	S-	4	3	75.0	19.4	99.4
		S+ (< 20 EL.U/mL)	9	8	88.9	51.8	99.7
		S+ (≥ 20 EL.U/mL)	55	32	58.2	44.1	71.3
		Total	68	43	63.2	50.7	74.6
	Td-IPV	S-	10	7	70.0	34.8	93.3
		S+ (<20 EL.U/mL)	27	26	96.3	81.0	99.9
		S+ (≥20 EL.U/mL)	32	30	93.8	79.2	99.2
		Total	69	63	91.3	82.0	96.7

S- = seronegative subjects (antibody concentration < 5 EL.U/mL for anti-PT/FHA/PRN) prior to vaccination
S+ = seropositive subjects (antibody concentration ≥ 5 EL.U/mL for anti-PT/FHA/PRN) prior to vaccination
Total = subjects who were either seropositive or seronegative at pre-vaccination
Booster response defined as:

- For initially seronegative subjects: antibody concentration ≥ 20 EL.U/mL at post booster vaccination
- For initially seropositive subjects with pre-vaccination antibody concentration < 20 EL.U/mL: antibody concentration at post booster ≥ 4 fold the pre-vaccination antibody concentration
- For initially seropositive subjects with pre-vaccination antibody concentration ≥ 20 EL.U/mL: antibody concentration at post booster ≥ 2 fold the pre-vaccination antibody concentration

N = number of subjects with both pre- and post-vaccination results available
n/% = number/percentage of subjects with a booster response
95% CI = exact 95% confidence interval, LL = Lower Limit, UL = Upper Limit

Secondary Outcome Variable(s): Number (%) of subjects reporting solicited local symptoms during the 4-day (Days 0-3) post-vaccination period (Total Vaccinated cohort)

Symptom	Intensity	dTpa-IPV Group					dTpa+IPV Group					Td-IPV Group				
					95 % CI					95 % CI					95 % CI	
		N	n	%	LL	UL	N	n	%	LL	UL	N	n	%	LL	UL
Pain	Any	67	42	62.7	50.0	74.2	72	49	68.1	56.0	78.6	72	46	63.9	51.7	74.9
	Grade 3	67	0	0.0	0.0	5.4	72	0	0.0	0.0	5.0	72	0	0.0	0.0	5.0
Redness	Any	67	22	32.8	21.8	45.4	72	26	36.1	25.1	48.3	72	32	44.4	32.7	56.6
	> 50 mm	67	1	1.5	0.0	8.0	72	4	5.6	1.5	13.6	72	3	4.2	0.9	11.7
Swelling	Any	67	18	26.9	16.8	39.1	72	21	29.2	19.0	41.1	72	19	26.4	16.7	38.1
	> 50 mm	67	0	0.0	0.0	5.4	72	3	4.2	0.9	11.7	72	1	1.4	0.0	7.5

N = number of subjects with the documented dose
n/% = number/percentage of subjects reporting the symptom at least once
95% CI= Exact 95% confidence interval; LL = lower limit, UL = upper limit
Any = Occurrence of any solicited local symptom irrespective of their intensity grade
Grade 3 pain = Pain that prevented normal activity

Secondary Outcome Variable(s): Number (%) of subjects reporting solicited general symptoms during the 4-day (Days 0-3) post-vaccination period (Total Vaccinated cohort)

Symptom	Intensity/ Relationship	dTpa-IPV Group					dTpa+IPV Group					Td-IPV Group				
					95 % CI					95 % CI					95 % CI	
		N	n	%	LL	UL	N	n	%	LL	UL	N	n	%	LL	UL
Fatigue	Any	65	12	18.5	9.9	30.0	71	16	22.5	13.5	34.0	71	15	21.1	12.3	32.4
	Grade 3	65	1	1.5	0.0	8.3	71	1	1.4	0.0	7.6	71	0	0.0	0.0	5.1
	Related	65	9	13.8	6.5	24.7	71	11	15.5	8.0	26.0	71	9	12.7	6.0	22.7
Gastrointestinal	Any	65	7	10.8	4.4	20.9	71	9	12.7	6.0	22.7	71	4	5.6	1.6	13.8
	Grade 3	65	0	0.0	0.0	5.5	71	0	0.0	0.0	5.1	71	0	0.0	0.0	5.1
	Related	65	3	4.6	1.0	12.9	71	4	5.6	1.6	13.8	71	3	4.2	0.9	11.9
Headache	Any	65	7	10.8	4.4	20.9	71	11	15.5	8.0	26.0	71	11	15.5	8.0	26.0
	Grade 3	65	0	0.0	0.0	5.5	71	0	0.0	0.0	5.1	71	0	0.0	0.0	5.1
	Related	65	6	9.2	3.5	19.0	71	6	8.5	3.2	17.5	71	9	12.7	6.0	22.7
Fever (Axillary)	≥ 37.5 °C	65	3	4.6	1.0	12.9	71	2	2.8	0.3	9.8	71	1	1.4	0.0	7.6
	> 39.0 °C	65	0	0.0	0.0	5.5	71	0	0.0	0.0	5.1	71	0	0.0	0.0	5.1
	Related	65	1	1.5	0.0	8.3	71	2	2.8	0.3	9.8	71	1	1.4	0.0	7.6

N = number of subjects with the documented dose
n/% = number/percentage of subjects reporting at least once the symptom
95% CI = Exact 95% confidence interval; LL = lower limit, UL = upper limit
Gastrointestinal = gastrointestinal symptoms which included nausea, vomiting, diarrhea and/or abdominal pain.
Any = Occurrence of any solicited general symptom irrespective of intensity grade or relationship to vaccination
Grade 3 symptoms = symptoms that prevented normal activity
Related = general symptom assessed by the investigator as causally related to the study vaccination

Safety Results: Number (%) of subjects with unsolicited AEs during the 31-day (Days 0-30) follow-up period after booster vaccination (Total Vaccinated cohort)			
Most frequent adverse events – On-Therapy (occurring within Days 0-30 following vaccination)	**dTpa-IPV Group N = 67**	**dTpa+IPV Group N = 72**	**Td-IPV Group N = 72**
Subjects with any AE(s), n (%)	6 (9.0)	5 (6.9)	6 (8.3)
Injection site pruritus	-	2 (2.8)	2 (2.8)
Arrhythmia	-	-	1 (1.4)
Arthritis	1 (1.5)	-	-
Back pain	-	1 (1.4)	-
Headache	-	-	1 (1.4)
Injection site induration	-	1 (1.4)	-
Injection site warmth	-	-	1 (1.4)
Lyme disease	-	1 (1.4)	-
Nasopharyngitis	1 (1.5)	-	-
Neck pain	1 (1.5)	-	-
Nervousness	1 (1.5)	-	-
Neuralgia	1 (1.5)	-	-
Oropharyngeal pain	1 (1.5)	-	-
Pruritus	1 (1.5)	-	-
Tendonitis	-	1 (1.4)	-
Tooth abscess	-	-	1 (1.4)
Vertigo	-	-	1 (1.4)
- : Adverse event absent			

Safety Results: Number (%) of subjects with SAEs from the booster dose up to study end (Total Vaccinated cohort)			
Serious adverse event, n (%) [n considered by the investigator to be related to study medication]			
All SAEs	**dTpa-IPV Group N = 67**	**dTpa+IPV Group N = 72**	**Td-IPV Group N = 72**
Subjects with any SAE(s), n (%) [n assessed by the investigator as related]	0 (0.0) [0]	0 (0.0) [0]	0 (0.0) [0]
Fatal SAEs	**dTpa-IPV Group N = 67**	**dTpa+IPV Group N = 72**	**Td-IPV Group N = 72**
Subjects with fatal SAE(s), n (%) [n assessed by the investigator as related]	0 (0.0) [0]	0 (0.0) [0]	0 (0.0) [0]

Conclusion:

All sequential co-primary objectives were met. The study demonstrated that a booster dose of dTpa-IPV vaccine, administered to adults 10 years after a dose of either dTpa-IPV or dTpa+IPV or Td-IPV vaccine induced seroprotective antibody concentrations, one month after the booster dose, in at least 80% of the subjects against diphtheria, in at least 90% of the subjects against tetanus and in at least 80 % of subjects against poliovirus types 1, 2, 3 antigens.
The study showed that persistent seroprotective/ seropositive antibody concentration were observed in at least 70% of subjects against all vaccine antigens, 10 years after vaccination with dTpa-IPV, dTpa+IPV or Td-IPV.
The GMCs/GMTs were also comparable for anti-diphtheria, anti-tetanus and anti-poliovirus types 1, 2, 3 antibodies in the 3 groups and against the pertussis antigens in the dTpa-IPV and dTpa+IPV groups.

During the 31-day (Days 0-30) follow-up period after administration of a booster dose of dTpa-IPV, at least one unsolicited AE was reported for 6 (9.0%) subjects in the dTpa-IPV Group, 5 (6.9%) subjects in the dTpa + IPV Group and 6 (8.3%) subjects in the Td-IPV Group. No SAEs (fatal or non-fatal) were reported during the entire study period.

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