

BOOSTRIX®-IPV

NAME OF THE DRUG

BOOSTRIX-IPV is a combined diphtheria, tetanus, acellular pertussis (dTpa) and inactivated poliovirus vaccine.

DESCRIPTION

BOOSTRIX-IPV is a sterile suspension which contains diphtheria toxoid (D), tetanus toxoid (T), three purified antigens of *Bordetella pertussis* [pertussis toxoid (PT), pertussis filamentous haemagglutinin (FHA) and pertactin (PRN)] and three types of inactivated polio viruses (type 1: Mahoney strain; type 2: MEF-1 strain; type 3: Saukett strain).

The diphtheria and tetanus toxoids are obtained by formaldehyde treatment of purified *Corynebacterium diphtheriae* and *Clostridium tetani* toxins. The acellular pertussis vaccine components are obtained by extraction and purification from phase I *Bordetella pertussis* cultures, followed by irreversible detoxification of the pertussis toxin by glutaraldehyde and formaldehyde treatment, and formaldehyde treatment of FHA and PRN. The three polioviruses are cultivated on a continuous VERO cell line, purified and inactivated with formaldehyde.

A 0.5mL dose of vaccine contains not less than 2 IU of diphtheria toxoid, not less than 20 IU of tetanus toxoid, 8 µg of adsorbed PT, 8 µg of adsorbed pertussis FHA, 2.5 µg of adsorbed PRN, 40 D-antigen units of type 1 (Mahoney), 8 D-antigen units of type 2 (MEF-1) and 32 D-antigen units of type 3 (Saukett) polioviruses. The final vaccine also contains aluminium hydroxide and aluminium phosphate as adjuvants, sodium chloride, Medium 199, water for injections, and traces of formaldehyde, polysorbate 80, neomycin sulfate and polymyxin sulfate.

The manufacture of this product includes exposure to bovine derived materials. No evidence exists that any case of vCJD (considered to be the human form of bovine spongiform encephalopathy) has resulted from the administration of any vaccine product.

BOOSTRIX-IPV meets the World Health Organisation requirements for manufacture of biological substances, of diphtheria, tetanus, pertussis and combined vaccines, and of inactivated poliomyelitis vaccines.

PHARMACOLOGY

Clinical Trials

More than 1500 vaccinees have received a dose of *BOOSTRIX-IPV* in clinical studies conducted in children (4 to 8 years of age), adolescents (10 to 14 years of age) and adults (>14 years of age). The children were previously primed with 4 doses of DTPa and at least 3 doses of OPV or IPV, the adolescents with DTPw and the recommended local schedule for polio, and the adults had a variable immunisation history but all had received a primary course of diphtheria and tetanus vaccination. One month post vaccination with *BOOSTRIX-IPV*, immune responses in 1469 subjects were the following:

Immune response to the D and T components:

100% of children and adolescents (<18 years) had antibody titres of ≥ 0.1 IU/mL for both antigens. 86.8 % of subjects ≥ 18 years achieved antibody levels against D of ≥ 0.016 IU/mL (by ELISA \pm Vero-cell testing), and 99.6% achieved antibody levels against T of ≥ 0.1 IU/mL (by ELISA). For both diphtheria and tetanus, serum antibody levels ≥ 0.01 IU/mL are considered protective.

Immune response to the Pa component:

A total of 97.5% of subjects were seropositive for antibodies to all Pa components (PT, FHA or PRN) (ELISA, cut-off 5 EL.U/mL). The vaccine response rates (> two-fold rise in antibody titres, or \geq the cut-off in initially seronegative subjects) after *BOOSTRIX-IPV* were >94% for PT and PRN, and >90% for FHA.

Protective efficacy of the Pa component:

There is currently no serological correlate of protection defined for pertussis; however, the protective efficacy of GSK's DTPa (INFANRIX[®]) vaccine against WHO-defined typical pertussis (≥ 21 days of paroxysmal cough with laboratory confirmation) was demonstrated in the following 3-dose primary studies :

- a prospective blinded household contact study performed in Germany (3, 4, 5 months schedule).

Based on data collected from secondary contacts in households where there was an index case with typical pertussis, the protective efficacy of the vaccine was 88.7%.

- an NIH sponsored efficacy study performed in Italy (2, 4, 6 months schedule).

The vaccine efficacy was found to be 84%. In a follow-up of the same cohort, efficacy persisted undiminished up to 5 years after completion of primary vaccination without administration of a booster dose against pertussis.

This study assessed duration of protection of *INFANRIX* given in a 3-dose schedule to infants. A similar duration of protection cannot be assumed to apply to older children or adults given a single dose of *BOOSTRIX-IPV*, regardless of previous vaccination against pertussis.

Although the protective efficacy of *BOOSTRIX-IPV* has not been demonstrated in adolescents and adult age groups, vaccinees in these age groups who received *BOOSTRIX-IPV* achieved anti-pertussis antibody titres greater than those in the German household contact study where the protective efficacy of *INFANRIX* was 88.7%.

There are currently no data which demonstrate a reduction of transmission of pertussis after immunisation with *BOOSTRIX-IPV*. However, it could be expected that immunisation of immediate close contacts of newborn infants, such as parents, grandparents and healthcare workers, would reduce exposure of pertussis to infants not yet adequately protected through immunisation.

Immune response to the IPV component:

More than 99% of subjects had antibody titres ≥ 8 for all three polio serotypes one month after a booster dose of *BOOSTRIX-IPV*.

Antibody titres ≥ 8 are deemed to correlate with protection against polio.

Study dTpa-IPV-001 – a partially blinded, randomised, phase III clinical trial to assess the immunogenicity of BOOSTRIX-IPV (dTpa-IPV) one month after vaccination of healthy children 4 to 8 years of age: Geometric Mean Concentrations (GMCs) pre- and post-vaccination.

Antigen	Booster immunisation GMC (95% confidence interval)	
	Pre-booster	Post-booster*
Diphtheria Toxoid (N=778 [pre] and 779 [post])	0.19 (0.18 – 0.21)	4.46 (4.16 – 4.79)
Tetanus Toxoid (N=778 [pre] and 779 [post])	0.33 (0.30 – 0.36)	13.89 (13.11 – 14.72)
Pertussis Toxoid (N=777 [pre] and 775 [post])	4.4 (4.1 – 4.6)	52.0 (48.9 – 55.2)
Pertussis FHA (N=776 [pre] and 779 [post])	61.5 (56.0 – 67.5)	535.8 (509.3 – 563.7)
Pertussis PRN (N=779)	30.5 (27.8 – 33.5)	477.0 (446.9 – 509.2)
Poliovirus Type 1 (N=748 [pre] and 749 [post])	103.8 (94.8 – 113.7)	3514 (3292 – 3751)
Poliovirus Type 2 (N=749 [pre] and 733 [post])	141.7 (131.0 – 153.3)	3388 (3190 – 3598)
Poliovirus Type 3 (N=734 [pre] and 715 [post])	47.3 (42.1 – 53.1)	3772 (3528 – 4033)

*One month after vaccination

Note: Primary immunisation with four doses of DTPa vaccine

The figures relating to poliovirus types 1,2 and 3 are geometric mean titres.

N = Number of subjects

Assay cut-offs for each antigen are as follows: D & T: ≥ 0.1 IU/mL; PT, FHA & PRN: 5 EL.U/mL; POLIO types 1,2,3: ≥ 8 .

Study dTpa-IPV-002 – an open, randomised, multicenter phase II clinical trial to assess the immunogenicity of BOOSTRIX-IPV (dTpa-IPV) one month after vaccination of healthy adolescents 10 to 14 years of age: Geometric Mean Concentrations (GMCs) pre- and post- vaccination.

Antigen	Booster immunisation GMC (95% confidence interval)	
	Pre-booster	Post-booster*
Diphtheria Toxoid (N=429 [pre] and 428 [post])	0.22 (0.20 – 0.25)	2.72 (2.51 – 2.95)
Tetanus Toxoid (N=428)	0.60 (0.55 – 0.67)	13.36 (12.46 – 14.32)
Pertussis Toxoid (N=424)	6.7 (6.0 – 7.5)	96.9 (89.0 – 105.5)
Pertussis FHA (N=429 [pre] and 428 [post])	57.3 (51.5 - 63.7)	743.8 (699.5 – 791.0)
Pertussis PRN (N=429 [pre] and 428 [post])	13.7 (12.2 – 15.4)	356.2 (319.8 – 396.7)
Poliovirus Type 1 (N=128 [pre] and 426 [post])	59.4 (47.6 – 73.9)	4200 (3883 – 4543)
Poliovirus Type 2 (N=127 [pre] and 424 [post])	63.3 (51.4 – 78.0)	2863 (2642 – 3103)
Poliovirus Type 3 (N=126 [pre] and 404 [post])	15.6 (13.1 – 18.6)	4114 (3795 – 4459)

*One month after vaccination

Note: Primary immunisation with DTPw vaccine

The figures relating to poliovirus types 1,2 and 3 are geometric mean titres.

N = Number of subjects

Assay cut-offs for each antigen are as follows: D & T: ≥ 0.1 IU/mL; PT, FHA & PRN: 5 EL.U/mL; POLIO types 1,2,3: ≥ 8 .

Study dTpa-IPV-003 – an open, randomised, multicenter phase III clinical trial to assess the immunogenicity of BOOSTRIX-IPV (dTpa-IPV) one month after vaccination of healthy adolescents ≥ 15 years of age and adults: Geometric Mean Concentrations (GMCs) pre- and post- vaccination

Antigen	Booster immunisation Age ≤ 40 years GMC (95% confidence interval)		Booster immunisation Age >40 years GMC (95% confidence interval)	
	Pre-booster	Post-booster*	Pre-booster	Post-booster*
Diphtheria Toxoid	0.37 (0.29 – 0.47) N = 135	2.01 (1.61 – 2.50) N = 135	0.09 (0.08 – 0.11) N = 126	0.37 (0.28 – 0.49) N = 126
Tetanus Toxoid	1.35 (1.07 – 1.69) N = 135	7.54 (6.66 – 8.54) N = 135	0.78 (0.58 – 1.04) N = 126	5.25 (4.36 – 6.31) N = 126
Pertussis Toxoid	7.4 (6.1 – 8.9) N = 135	84.3 (70.5 – 100.7) N = 132	6.4 (5.4 – 7.7) N = 126	56.8 (48.5 – 66.5) N = 125
Pertussis FHA	42.0 (35.0 – 50.3) N = 134	610.0 (528.9 – 703.6) N = 135	57.3 (49.7 – 66.0) N = 126	594.0 (526.0 – 670.8) N = 125
Pertussis PRN	10.8 (8.6 – 13.6) N = 135	447.2 (344.3 – 580.8) N = 135	7.1 (5.8 – 8.6) N = 126	203.7 (144.8 – 286.7) N = 126
Poliovirus Type 1	89.6 (51.6 – 155.7) N = 32	2445.4 (2024.6 – 2953.6) N = 129	121.4 (73.2 – 201.4) N = 33	1957.3 (1536.6 – 2493.2) N = 122
Poliovirus Type 2	86.5 (59.7 – 125.2) N = 37	1568.8 (1242.3 – 1981.0) N = 126	49.6 (30.8 – 79.9) N = 38	1411.4 (1067.1 – 1866.8) N = 121
Poliovirus Type 3	41.3 (24.1 – 70.7) N = 35	2674.9 (2142.4 – 3339.8) N = 122	55.4 (33.7 – 91.3) N = 36	2244.7 (1748.6 – 2881.7) N = 113

*One month after vaccination

Note: Heterogeneous primary immunisation history: subjects ≤ 40 years are likely to have received primary vaccination against pertussis with DTPw, subjects >40 years are unlikely to have received primary vaccination against pertussis and would have been more likely to have been primed through natural infection.

The figures relating to poliovirus types 1,2 and 3 are geometric mean titres.

N = Number of subjects

Assay cut-offs for each antigen are as follows: D & T: ≥ 0.1 IU/mL; PT, FHA & PRN: 5 EL.U/mL; POLIO types 1,2,3: ≥ 8 .

Persistence of efficacy

There are no long-term immunogenicity data specific to *BOOSTRIX-IPV*. From the foregoing studies non-inferiority of *BOOSTRIX-IPV* (dTpa-IPV) compared with *BOOSTRIX*[®] (dTpa) has been demonstrated for diphtheria, tetanus and pertussis immune response rates. Therefore long term data from studies with *BOOSTRIX* may serve as a guide to the persistence of effect after vaccination with *BOOSTRIX-IPV*. So far data is available up to 3.5 years after vaccination. In a study in Germany, children were vaccinated with *BOOSTRIX* (dTpa), *INFANRIX*[®] (DTPa) or a licensed Td vaccine at 4-6 years of age. Three and a half years following vaccination, antibody concentrations in all groups were reduced compared to those at 1 month post-vaccination but were higher than pre-vaccination levels.

Tetanus antibody response in the first 10 days following vaccination

Anti-tetanus toxoid antibodies were measured 10 days after vaccination in a subset of subjects aged 18 years and over in a study in Germany.

Seroprotective antibody concentrations (≥ 0.1 IU/mL) were observed in 95.1% of the subjects having received *BOOSTRIX-IPV*, 96.5% of the subjects having separate injections of *BOOSTRIX* and IPV and 92.1% of subjects having received a licensed Td-IPV vaccine. There thus did not appear to be any significant difference between *BOOSTRIX-IPV* and the two control groups.

INDICATIONS

BOOSTRIX-IPV is indicated for booster vaccination against diphtheria, tetanus, pertussis and polio of individuals from the age of four years onwards.

The NHMRC currently recommends only 4 doses of polio vaccines in childhood, and that polio boosters for adults are not necessary unless they are at special risk, such as:

- travellers to areas or countries where poliomyelitis is epidemic or endemic;
- health care workers in possible contact with poliomyelitis cases.

For those exposed to continuing risk of infection a single booster dose is desirable every 10 years.

The NHMRC currently recommends boosting against diphtheria, tetanus and pertussis using an adolescent/adult formulation dTpa at 15 to 17 years of age. Before the eighth birthday, DTP-containing vaccines should be given, as they contain a larger dose of diphtheria toxoid. After the eighth birthday, smaller doses of toxoid (adult/adolescent formulation dTpa or dT-containing vaccines) should be given.

A booster dose of dTpa is also recommended:

- before planning pregnancy, or for both parents as soon as possible after delivery of an infant
- For adults working with young children
- For any adult expressing an interest in receiving a booster dose of dTpa, provided that a primary course of DTP vaccine has been given in the past.

Clinical data has demonstrated that in adults with an unknown history of pertussis vaccination, the majority had an immunogenic response to pertussis when given *BOOSTRIX-IPV* (see PHARMACOLOGY).

Finally, all adults who reach the age of 50 years without having received a boosting dose of dT in the previous 5 years should receive a further boosting dose of dT, where the adult/adolescent formulation dTpa can be used instead.

BOOSTRIX-IPV is not intended for primary immunisation.

CONTRAINDICATIONS

BOOSTRIX-IPV should not be administered to subjects having shown signs of hypersensitivity after previous administration of diphtheria, tetanus, pertussis, or inactivated polio vaccines or to any component of the vaccine.

BOOSTRIX-IPV is contraindicated if the child has experienced an encephalopathy of unknown aetiology, occurring within 7 days following previous vaccination with a pertussis containing vaccine. In these circumstances pertussis vaccination should be discontinued and the vaccination should be continued with diphtheria-tetanus and polio vaccines.

PRECAUTIONS

***BOOSTRIX-IPV* should under no circumstances be administered intravascularly.**

It is good clinical practice that immunisation should be preceded by a review of the medical history (especially with regard to previous immunisation and possible occurrence of undesirable events) and a clinical examination.

As with all injectable vaccines, appropriate medical treatment and supervision should always be readily available in case of a rare anaphylactic reaction following the administration of the vaccine.

If any of the following events are known to have occurred in temporal relation to receipt of pertussis-containing vaccines, the decision to give further doses of vaccine containing the pertussis component should be carefully considered. There may be circumstances, such as a high incidence of pertussis, when the potential benefits of vaccination outweigh the possible risks, particularly since these events are not associated with permanent sequelae.

- Temperature of $\geq 40.0^{\circ}\text{C}$ within 48 hours of vaccination, not due to another identifiable cause.
- Collapse or shock-like state (hypotonic-hyporesponsive episode) within 48 hours of vaccination.
- Persistent, inconsolable crying lasting ≥ 3 hours, occurring within 48 hours of vaccination.
- Convulsions with or without fever, occurring within 3 days of vaccination.

A history of febrile convulsions, a family history of convulsions, a family history of Sudden Infant Death Syndrome (SIDS) or a family history of an adverse event following DTPa and/or IPV vaccination do not constitute contra-indications.

As with other vaccines, the administration of *BOOSTRIX-IPV* should be postponed in subjects suffering from acute severe febrile illness. The presence of a minor infection, however, is not a contraindication.

In children with progressive neurological disorders, including infantile spasms, uncontrolled epilepsy or progressive encephalopathy, it is better to defer pertussis (Pa or Pw) immunisation until the condition is corrected or stable. However, the decision to give pertussis vaccine must be made on an individual basis after careful consideration of the risks and benefits.

BOOSTRIX-IPV should be administered with caution to subjects with thrombocytopenia or a bleeding disorder since bleeding may occur following an intramuscular administration to these subjects. Firm pressure should be applied to the injection site (without rubbing) for at least two minutes.

BOOSTRIX-IPV contains traces of neomycin sulfate and polymyxin sulfate. The vaccine should be used with caution in patients with known hypersensitivity to either of these antibiotics.

Human Immunodeficiency Virus (HIV) infection is not considered a contra-indication to *BOOSTRIX-IPV* vaccination. However in patients with immunodeficiency or in patients receiving immunosuppressive therapy, the expected immunologic response may not be achieved. No data currently exist on use of *BOOSTRIX-IPV* in these patients.

Antibody persistence and the duration of protective efficacy after booster vaccination with dTpa are currently unknown, and no recommendation can currently be made concerning the appropriateness and timing of repeat doses of vaccines that contain dTpa.

Carcinogenicity and Mutagenicity

BOOSTRIX-IPV has not been evaluated for carcinogenicity or mutagenicity.

Impairment of Fertility

BOOSTRIX-IPV has not been evaluated for its potential to impair fertility.

Use During Pregnancy: (Category B2)

Adequate human data on use of *BOOSTRIX-IPV* during pregnancy are not available. The vaccine should be used during pregnancy only when clearly needed, and the possible advantages outweigh the possible risks for the foetus. When protection against tetanus is sought, consideration should be given to tetanus or combined diphtheria-tetanus vaccines.

Primed pregnant female rats were boosted repeatedly by the intramuscular route with 1/5 (100 µL) the clinical dose of *BOOSTRIX-IPV* vaccine during the gestation period (gestation days 6-15). There were no signs of maternal toxicity. High titres of antibodies were demonstrated in maternal blood during gestation, in fetal blood on gestation day 20 and in the blood of offspring on days 4 and 25.

Use During Lactation:

Adequate human data on its use during lactation are not available. *BOOSTRIX-IPV* should be administered to women who are breastfeeding only when clearly needed.

Animal reproduction studies in rats have shown that offspring of dams boosted with 1/5 the human dose (based on volume) of *BOOSTRIX-IPV* during pregnancy have higher serum titres on lactation day 25 than lactation day 4, suggesting maternal transfer of antibodies by milk during lactation.

Interactions with other drugs

Concomitant administration of *BOOSTRIX-IPV* and other vaccines has not specifically been studied. However, *BOOSTRIX-IPV* can be given concomitantly with other vaccines taking into account generally accepted vaccine practices and recommendations, for example, injectable vaccines should always be given at different sites.

As with other vaccines, patients receiving immunosuppressive therapy or patients with immunodeficiency may not achieve an adequate response.

BOOSTRIX-IPV should not be mixed with other vaccines in the same syringe.

ADVERSE REACTIONS

Clinical Trial Experience:

More than 1,500 vaccinees have received a dose of *BOOSTRIX-IPV* in clinical studies. The most common events occurring after vaccine administration were local injection site reactions (pain, redness and swelling) reported by 33.5 – 66.9% of subjects overall. These had their onset within the first day of vaccination. All resolved without sequelae.

During controlled clinical studies, symptom sheets were used to monitor signs and symptoms in all vaccinees following administration of a dose of *BOOSTRIX-IPV*. The following tables summarise data from three pivotal studies for solicited local and general symptoms reported during a 15 day follow-up period after vaccination. Onset of the majority of local and general symptoms occurred within 48 hours of vaccination. All symptoms resolved without sequelae. A causal relationship between these events and vaccination has not necessarily been established.

Solicited Symptoms	Incidence %	
	BOOSTRIX-IPV administered to children aged 4-6 years	Child comparator group who received separate dTpa + IPV vaccines
	<i>BOOSTRIX-IPV</i> <i>N=822</i>	<i>dTpa + IPV</i> <i>N=136</i>
<i>Local reactions</i>		
Pain (any)	55.7	64.0
Pain (Grade 3)	2.8	6.6
Redness (any)	53.2	57.4
Redness (>50mm)	10.6	16.2
Swelling (any)	44.8	54.4
Swelling (>50mm)	8.8	14.0
<i>General symptoms</i>		
Drowsiness (any)	20.7	22.8
Drowsiness (Grade 3)	2.6	0.0
Irritability (any)	17.5	16.2
Irritability (Grade 3)	0.6	0.0
Loss of appetite (any)	18.9	17.6
Loss of appetite (Grade 3)	2.9	0.0
Fever ($\geq 37.5^{\circ}\text{C}$)	22.1	13.2
Fever ($> 39.0^{\circ}\text{C}$)	6.0	1.5

N = number of subjects with at least one symptom sheet completed

% = percentage of subjects reporting a specified recurrent symptom

Grade 3 pain = cries when limb is moved/spontaneously painful

Grade 3 irritability = crying that cannot be comforted/prevents normal activity

Grade 3 Drowsiness = Drowsiness that prevents normal activity

Grade 3 Loss of appetite = not eating at all

Temperature taken by oral or axillary routes

Solicited Symptoms	Incidence %					
	BOOSTRIX-IPV administered to Adolescent subjects aged 10-14 years	Adolescent comparator groups who received either separate dTpa +IPV or DTPa-IPV vaccines		BOOSTRIX-IPV administered to Adult subjects aged ≥ 15 years	Adult comparator groups who received either separate dTpa +IPV or Td-IPV vaccines	
	<i>BOOSTRIX-IPV</i> N=436	<i>dTpa +IPV</i> N=219	<i>DTPa-IPV</i> N=110	<i>BOOSTRIX-IPV</i> N=266	<i>dTpa + IPV</i> N=268	<i>Td-IPV</i> N=268
<i>Local reactions</i>						
Pain (any)	92.7	91.3	94.5	63.9	65.3	66.4
Pain (Grade 3)	20.0	24.7	25.5	6.8	10.8	3.7
Redness (any)	29.1	30.6	41.8	32.3	32.8	34.3
Redness (>50mm)	1.8	3.7	5.5	0.8	1.9	0.4
Swelling (any)	31.9	36.5	36.4	25.9	20.5	26.9
Swelling (>50mm)	7.8	8.7	10.9	1.5	1.1	0.7
<i>General symptoms</i>						
Fatigue (any)	48.9	51.1	56.4	27.4	27.6	27.2
Fatigue (Grade 3)	5.0	6.4	4.5	1.1	1.1	1.9
Gastrointestinal (any)	32.6	32.0	31.8	13.5	7.1	13.4
Gastrointestinal (Grade 3)	2.5	2.7	1.8	1.1	0.4	1.1
Headache (any)	50.2	56.2	61.8	21.8	21.6	21.6
Headache (Grade 3)	3.9	4.1	2.7	1.9	2.2	1.1
Fever ($\geq 37.5^{\circ}\text{C}$)	8.3	13.7	19.1	2.6	3.7	4.5
Fever (> 39.0°C)	0.7	1.4	0.0	0.0	0.4	0.4

N = number of subjects with at least one symptom sheet completed

% = percentage of subjects reporting a specified recurrent symptom

Grade 3 pain: spontaneously painful, other Grade 3 symptoms: prevents normal activity

Temperature taken by oral or axillary routes

Other events

Other unsolicited events reported in clinical trials for BOOSTRIX-IPV are listed below. It should be noted however that causality has not necessarily been established for these events.

The events are listed within body systems and categorised by frequency according to the following definitions: very common events reported at a frequency of greater or equal to 1/10 patients; common events reported at a frequency of less than 1/10 but greater or equal to 1/100 patients; uncommon events reported at a frequency of less than 1/100 but greater or equal to 1/1,000 patients; rare events reported at a frequency of less than 1/1,000 patients.

Application site: Very Common: injection site reaction

Autonomic nervous system: Uncommon: dry mouth

Body as a whole: **Common:** injury; **Uncommon:** allergic reaction, influenza-like symptoms, pain, rigors

Central and Peripheral Nervous system: **Uncommon:** dizziness, paresthesia, vertigo

Gastrointestinal system: **Common:** Gastro-intestinal symptoms (such as abdominal pain, nausea, vomiting) ; **Uncommon:** toothache

Hearing and vestibular: **Uncommon:** earache, otosalpingitis

Musculoskeletal system: **Uncommon:** arthralgia, back pain, myalgia

Psychiatric: **Uncommon:** insomnia

Reproductive female: **Uncommon:** dysmenorrhea

Resistance mechanism: **Common:** infection viral, upper respiratory tract infection, otitis media **Uncommon:** abscess, herpes simplex, infection, infection bacterial

Secondary term: **Uncommon:** varicella

Skin and appendages: **Uncommon:** dermatitis, eczema, pruritus, rash erythematous, rash pustular

Urinary system: **Uncommon:** urinary tract infection

Vision: **Uncommon:** conjunctivitis, eye pain

White cell and reticuloendothelial system: **Uncommon:** lymphadenopathy

Collapse or shock-like state (hypotonic-hyporesponsive episode) and convulsions have been reported *very rarely* following immunisation of children with products containing one or more of the antigenic constituents of *BOOSTRIX-IPV*.

The reactogenicity of revaccination with *BOOSTRIX-IPV* has not been evaluated.

Post-marketing surveillance

As observed with post-marketing surveillance with other vaccines, allergic reactions including anaphylaxis reactions may very rarely occur.

DOSAGE AND ADMINISTRATION

All parenteral drug and vaccine products should be inspected visually for any particulate matter or discoloration prior to administration. Before use of *BOOSTRIX-IPV*, the vaccine should be well shaken to obtain a homogenous turbid suspension. Discard the vaccine if it appears otherwise. The vaccine should be administered immediately after opening.

Dosage

A single 0.5mL dose may be administered from the age of four years onwards.

Administration

BOOSTRIX-IPV is administered by deep intramuscular injection preferably in the deltoid region of the arm. *BOOSTRIX-IPV* is for use in one patient on one occasion only. Contains no antimicrobial preservative. Any residual vaccine must be discarded.

BOOSTRIX-IPV VACCINE SHOULD NEVER BE ADMINISTERED INTRAVENOUSLY.

Individuals with an incomplete, or no, history of a primary series of diphtheria and tetanus toxoids should not be vaccinated with *BOOSTRIX-IPV*. *BOOSTRIX-IPV* is not precluded in subjects with an incomplete, or no, history of previous pertussis or polio vaccination. However, a booster response will only be elicited in individuals who have been previously primed by vaccination or by natural infection.

Tetanus-prone injury:- In case of tetanus-prone injury, *BOOSTRIX-IPV* can be used as an alternative to adult-type combined diphtheria-tetanus in individuals with no history of tetanus toxoid within the preceding five years, if a booster against diphtheria, pertussis and polio is desired in addition to tetanus.

Storage

BOOSTRIX-IPV should be stored between +2°C and +8°C. DO NOT FREEZE. Discard if vaccine has been frozen. Protect from light.

The expiry date of the vaccine is indicated on the label and packaging.

PRESENTATIONS

BOOSTRIX-IPV is presented as a turbid white suspension in a prefilled syringe or vial*. Upon storage, a white deposit and clear supernatant can be observed.

The syringes and vials are made of neutral glass type I, which conforms to European Pharmacopoeia Requirements

POISON SCHEDULE OF THE DRUG

Schedule 4.

MANUFACTURER

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DISTRIBUTED IN AUSTRALIA BY

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* The vial presentation is not currently marketed in Australia.