

**Summary of post-marketing safety studies of diphtheria and tetanus toxoids and acellular pertussis vaccines (DTaP)**

Study design	Study period	Vaccine	Population	Findings/Conclusions
<b>Vaccine Adverse Events Reporting System</b>				
Spontaneous reports	1991-1933	DTaP	Children 15 months–7 years	Reported rates for fever, seizure, hospitalization per 100,000 doses distributed were lower after receipt of fourth and fifth DTaP doses compared to DTP. (1)
Spontaneous reports	1995-1998	DTaP, DTP, DTP-Hib	Children < 1 year	No new safety concerns identified after receipt of DTP or DTaP. (2)
<b>Vaccine Safety Datalink</b>				
Retrospective cohort	1997-2000	DTaP	Children < 7 years	Low rates of medical visits for injection site reactions, seizures, allergic responses and febrile episodes. (3)
Retrospective cohort; Risk-interval and self-controlled case series	1997-2006	DTaP	Children 6 weeks–23 months	No increased risk for seizures after DTaP vaccination observed. (4)
Retrospective cohort	2002–2006	DTaP	Children 4–6 years	Rate and risk of local reactions was significantly higher when given in the arm compared with the thigh;  Local reactions to the fifth dose of DTaP requiring medical evaluation were uncommon. (5)
Retrospective cohort	2002-2009	DTaP	Children 1 to 6 years	The rate of local reactions after DTaP vaccines was higher than for inactivated influenza or hepatitis A vaccines;  For children 12–35 months, vaccination in the arm was associated with a significantly greater risk of local reactions compared with vaccination in the thigh. (6)

Retrospective cohort	2008–2010	DTaP-IPV-Hib (Pentacel)	Children 1–2 years	Elevated risk of fever (7)
Retrospective cohort	2009-2012	DTaP-IPV (Kinrix)	Children 4–6 years	No statistically significant increased risk of meningitis/encephalitis, seizures, stroke, Guillain-Barré Syndrome, Steven-Johnson syndrome, anaphylaxis, serious allergic reactions other than anaphylaxis, and serious local reactions. (8)
Retrospective cohort	2006-2011	DTaP, TIV, PCV13	Children 6–23 months	Small increased risk for febrile seizures during the 24 hours following administration of TIV at the same time as PCV13 or DTaP (9)
<b>Other Studies</b>				
Network of 90% Canadian pediatric centers*	1993-2002	DTP, DTaP	12,000 admissions for neurologic disorders	No cases of encephalitis or encephalopathy attributable to vaccination found following administration of more than 6.5 million doses of vaccine. (10)
Retrospective cohort	2003-2005	DTaP-HepB-IPV (Pediarix) or separate DTaP, HepB and IPV	Children 2, 4, 6 months	No increased risk of seizures, medically attended events associated with fever, allergic reactions, hospitalizations, and deaths following administration of Pediarix compared with children who received separate DTaP, HepB and IPV at the same time. (11)
Retrospective cohort United Kingdom	2003-2006	DTP-Hib, DTaP-IPV-Hib (Pediace <sup>l</sup> )	Children ≤ 1 year	Lower relative incidence of crying, fever, and local reactions after DTaP-IPV-Hib than DTwP-Hib;  Relative incidence for convulsions after DTP-Hib was significantly higher than for DTaP-IPV-Hib;  Relative incidence for apnea/collapse after DTaP-IPV-Hib was significantly higher than for DTwP-Hib. (12)
Retrospective cohort; self-controlled case series	2003-2009	DTaP-IPV-Hib	Children 3–12 months	Overall risk of febrile seizures was not increased within 0 to 7 days after vaccination;

Denmark				An increased risk of febrile seizures on day of first 2 doses at 3 and 5 months of age;  No increased risk of epilepsy (13)
Self-controlled risk interval	2010-2011	DTaP, TIV, PCV13	Children 6–59 months	No increased risk of febrile seizures after DTaP given separately or concomitantly with TIV or PCV13. (14)

**Abbreviations:** DTaP = diphtheria toxoid, tetanus toxoids and acellular pertussis; DTP = diphtheria toxoid, tetanus toxoid and whole-cell pertussis; HepB = hepatitis B; Hib = *Haemophilus influenzae* type b; IPV = inactivated poliovirus; PCV13 = 13-valent pneumococcal conjugate vaccine; TIV= trivalent inactivated influenza vaccine.

\* Immunization Monitoring Program ACTive (IMPACT).

† Pediacel is a fully liquid version of Pentacel (DTaP-IPV-Hib; Sanofi Pasteur, Inc.)

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