

Table 1
Thirty-day Relative Risk of Infant Vaccination Diagnoses Concerning Respiratory, Developmental, and Suspected Infectious Disease.

Category	ICD-9-CM code	ICD-9-CM Description	DTaP+IPV+HIB (N=227,231)	DTaP+IPV+HIB+HepB (N=321,296)	Bonferroni adjusted p-value	RR (95%CI)
Respiratory	491.22	Obstructive chronic bronchitis with acute bronchitis	9	80	<0.0001	6.287 (5.597-6.976)
				DTaP+IPV+HIB+PNC (N=319,420)		
Developmental	783.40	Lack of normal physiological development, unspecified	135	385	<0.0001	2.029 (1.833-2.225)
	783.41	Failure to thrive	107	290	<0.0001	1.928 (1.706-2.150)
Respiratory	786.2	Cough	2360	4536	<0.0001	1.367 (1.318-1.417)
	770.81	Primary apnea of newborn	140	452	<0.0001	2.297 (2.107-2.486)
	465.9	Acute upper respiratory infections of unspecified site	10630	16515	<0.0001	1.105 (1.081-1.129)
	466.19	Acute bronchiolitis due to other infectious organisms	2758	4697	<0.0001	1.212 (1.165-1.258)
	786.07	Wheezing	555	1094	<0.0001	1.402 (1.300-1.504)
Suspected Infection	472.2	Chronic nasopharyngitis	25	190	<0.0001	5.407 (4.99-5.823)
	009.1	Colitis, enteritis, and gastroenteritis of presumed infectious origin	215	605	<0.0001	2.002 (1.846-2.157)
	461.9	Acute sinusitis, unspecified	184	425	<0.0001	1.643 (1.470-1.816)
				DTaP+IPV+HIB+Rota (N=10,139)		
Respiratory	786.2	Cough	2360	561	<0.0001	4.304 (4.216-4.392)
	466.19	Acute bronchiolitis due to other infectious organisms	2758	321	<0.0001	2.337 (2.223-2.450)
	465.9	Acute upper respiratory infections of unspecified site	10630	737	<0.0001	1.453 (1.381-1.525)
	491.22	Obstructive chronic bronchitis with acute bronchitis	9	11	<0.0001	12.326 (11.591-13.062)
	493.90	Asthma, unspecified type, unspecified	1155	103	<0.0001	1.835 (1.635-2.035)
Suspected Infection	079.99	Unspecified viral infection	2362	197	<0.0001	1.725 (1.582-1.869)
	077.99	Unspecified diseases of conjunctiva due to viruses	14	13	<0.0001	10.791 (10.129-11.452)
	599.0	Urinary tract infection, site not specified	715	73	<0.0001	2.076 (1.837-2.315)
	380.10	Infective otitis externa, unspecified	116	25	<0.0001	3.974 (3.549-4.399)
				DTaP+IPV+HIB+HepB+PNC (N=531,516)		
Respiratory	466.1	Acute bronchiolitis	22	1307	<0.0001	25.398 (24.977-25.820)
	770.8	Other respiratory problems after birth	57	568	<0.0001	4.260 (3.988-4.532)
Suspected Infection	079.9	Unspecified viral and chlamydial infections	57	375	<0.0001	2.813 (2.534-3.091)

				DTaP+IPV+HIB+HepB+Rota (N=22,800)		
Developmental	783.41	Failure to thrive	107	42	<0.0001	3.912 (3.555-4.269)
	783.42	Delayed milestones	51	23	<0.0001	4.495 (4.002-4.987)
	783.40	Lack of normal physiological development, unspecified	135	40	<0.0001	2.953 (2.600-3.306)
Respiratory	786.2	Cough	2360	1123	<0.0001	4.742 (4.673-4.812)
	465.9	Acute upper respiratory infections of unspecified site	10630	1561	<0.0001	1.464 (1.412-1.515)
	466.19	Acute bronchiolitis due to other infectious organisms	2758	507	<0.0001	1.832 (1.738-1.926)
	519.11	Acute bronchospasm	12	30	<0.0001	24.916 (24.246-25.585)
	770.81	Primary apnea of newborn	140	57	<0.0001	4.058 (3.750-4.365)
	519.19	Other diseases of trachea and bronchus	5	16	<0.0001	31.892 (30.888-32.896)
	466.11	Acute bronchiolitis due to respiratory syncytial virus (RSV)	1144	202	<0.0001	1.760 (1.611-1.909)
	786.07	Wheezing	555	115	<0.0001	2.065 (1.865-2.265)
	491.22	Obstructive chronic bronchitis with acute bronchitis	9	15	<0.0001	16.610 (15.784-17.437)
	077.99	Unspecified diseases of conjunctiva due to viruses	14	38	<0.0001	27.051 (26.439-27.664)
Suspected Infection	288.60	Leukocytosis, unspecified	2	20	<0.0001	99.663 (98.209-101.116)
	790.8	Viremia, unspecified	17	19	<0.0001	11.139 (10.485-11.793)
	079.99	Unspecified viral infection	2362	347	<0.0001	1.464 (1.352-1.576)
	599.0	Urinary tract infection, site not specified	715	127	<0.0001	1.770 (1.582-1.958)
				DTaP+IPV+HIB+PNC+Rota (N=35,882)		
Developmental	783.41	Failure to thrive	107	62	<0.0001	3.669 (3.357-3.982)
	315.9	Unspecified delay in development	497	149	<0.0001	1.899 (1.716-2.081)
Respiratory	786.2	Cough	2360	1621	<0.0001	4.350 (4.287-4.412)
	466.19	Acute bronchiolitis due to other infectious organisms	2758	1163	<0.0001	2.670 (2.603-2.738)
	465.9	Acute upper respiratory infections of unspecified site	10630	2814	<0.0001	1.676 (1.636-1.716)
	770.81	Primary apnea of newborn	140	117	<0.0001	5.292 (5.047-5.538)
	519.11	Acute bronchospasm	12	43	<0.0001	22.692 (22.052-23.332)
	786.07	Wheezing	555	218	<0.0001	2.487 (2.331-2.644)
	491.22	Obstructive chronic bronchitis with acute bronchitis	9	36	<0.0001	25.331 (24.601-26.061)
	466.11	Acute bronchiolitis due to respiratory syncytial virus (RSV)	1144	297	<0.0001	1.644 (1.517-1.771)
	493.90	Asthma, unspecified type, unspecified	1155	297	<0.0001	1.628 (1.501-1.755)
	493.01	Extrinsic asthma with status asthmaticus	19	25	<0.0001	8.333 (7.736-8.929)
	793.1	Nonspecific (abnormal) findings on radiological and other examination of lung field	36	31	<0.0001	5.453 (4.973-5.933)
	519.19	Other diseases of trachea and bronchus	5	16	<0.0001	20.265 (19.261-21.269)
	799.02	Hypoxemia	10	18	<0.0001	11.399 (10.626-12.172)
	493.02	Extrinsic asthma with (acute) exacerbation	16	21	<0.0001	8.312 (7.661-8.962)
	491.9	Unspecified chronic bronchitis	28	26	<0.0001	5.880 (5.347-6.414)
Suspected Infection	079.99	Unspecified viral infection	2362	652	<0.0001	1.748 (1.662-1.834)
	288.60	Leukocytosis, unspecified	2	25	<0.0001	79.159 (77.719-80.599)
	599.0	Urinary tract infection, site not specified	715	225	<0.0001	1.993 (1.843-2.142)
	372.00	Acute conjunctivitis, unspecified	415	148	<0.0001	2.258 (2.071-2.446)

	460	Acute nasopharyngitis [common cold]	613	191	<0.0001	1.973 (1.811-2.135)
	461.9	Acute sinusitis, unspecified	184	82	<0.0001	2.822 (2.562-3.082)
	472.0	Chronic rhinitis	424	128	<0.0001	1.912 (1.714-2.109)
	009.1	Colitis, enteritis, and gastroenteritis of presumed infectious origin	215	80	<0.0001	2.356 (2.100-2.613)
				DTaP+IPV+HIB+HepB+PNC+Rota (N=73,792)		
Developmental	783.41	Failure to thrive	107	162	<0.0001	4.662 (4.418-4.906)
	783.40	Lack of normal physiological development, unspecified	135	124	<0.0001	2.828 (2.585-3.072)
	783.42	Delayed milestones	51	62	<0.0001	3.744 (3.373-4.114)
	315.9	Unspecified delay in development	497	273	<0.0001	1.691 (1.544-1.839)
Respiratory	786.2	Cough	2360	3136	<0.0001	4.092 (4.039-4.145)
	465.9	Acute upper respiratory infections of unspecified site	10630	5409	<0.0001	1.567 (1.535-1.599)
	466.19	Acute bronchiolitis due to other infectious organisms	2758	1862	<0.0001	2.079 (2.021-2.137)
	786.07	Wheezing	555	520	<0.0001	2.885 (2.766-3.004)
	770.81	Primary apnea of newborn	140	239	<0.0001	5.257 (5.048-5.465)
	799.02	Hypoxemia	10	71	<0.0001	21.863 (21.201-22.525)
	519.11	Acute bronchospasm	12	62	<0.0001	15.910 (15.292-16.528)
	519.19	Other diseases of trachea and bronchus	5	51	<0.0001	31.409 (30.491-32.328)
	793.1	Nonspecific (abnormal) findings on radiological and other examination of lung field	36	74	<0.0001	6.330 (5.932-6.728)
	466.11	Acute bronchiolitis due to respiratory syncytial virus (RSV)	1144	602	<0.0001	1.620 (1.522-1.719)
	491.22	Obstructive chronic bronchitis with acute bronchitis	9	45	<0.0001	15.397 (14.681-16.112)
	786.1	Stridor	55	72	<0.0001	4.031 (3.680-4.382)
	493.90	Asthma, unspecified type, unspecified	1155	555	<0.0001	1.480 (1.379-1.581)
	493.02	Extrinsic asthma with (acute) exacerbation	16	40	<0.0001	7.698 (7.119-8.278)
	770.89	Other respiratory problems after birth	9	31	<0.0001	10.607 (9.865-11.349)
	079.6	Respiratory syncytial virus (RSV)	219	152	<0.0001	2.137 (1.931-2.344)
	786.03	Apnea	413	234	<0.0001	1.745 (1.585-1.905)
	493.92	Asthma, unspecified type, with (acute) exacerbation	105	85	<0.0001	2.493 (2.207-2.779)
	786.09	Other respiratory abnormalities	911	421	<0.0001	1.423 (1.308-1.538)
	770.82	Other apnea of newborn	12	27	<0.0001	6.929 (6.249-7.608)
	786.05	Shortness of breath	189	123	<0.0001	2.004 (1.777-2.231)
Suspected Infection	079.99	Unspecified viral infection	2362	1175	<0.0001	1.532 (1.462-1.601)
	288.60	Leukocytosis, unspecified	2	43	<0.0001	66.206 (64.788-67.624)
	790.8	Viremia, unspecified	17	48	<0.0001	8.695 (8.142-9.248)
	372.00	Acute conjunctivitis, unspecified	415	261	<0.0001	1.937 (1.782-2.091)
	460	Acute nasopharyngitis [common cold]	613	341	<0.0001	1.713 (1.581-1.845)
	461.9	Acute sinusitis, unspecified	184	143	<0.0001	2.393 (2.175-2.612)
	599.0	Urinary tract infection, site not specified	715	370	<0.0001	1.594 (1.468-1.719)
	375.56	Stenosis of nasolacrimal duct, acquired	129	104	<0.0001	2.483 (2.224-2.741)
	372.30	Conjunctivitis, unspecified	739	362	<0.0001	1.508 (1.383-1.634)
	995.91	Sepsis	9	26	<0.0001	8.896 (8.138-9.654)

abbreviations: relative risk (RR); 95% confidence interval (95%CI); diphtheria, tetanus, acellular pertussis vaccine (DTaP); inactivated polio vaccine (IPV); haemophilus influenzae type b vaccine (HIB); hepatitis b vaccine (HepB); pneumococcal vaccine (PNC); rotavirus vaccine (Rota)